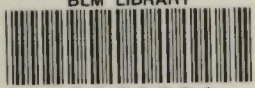


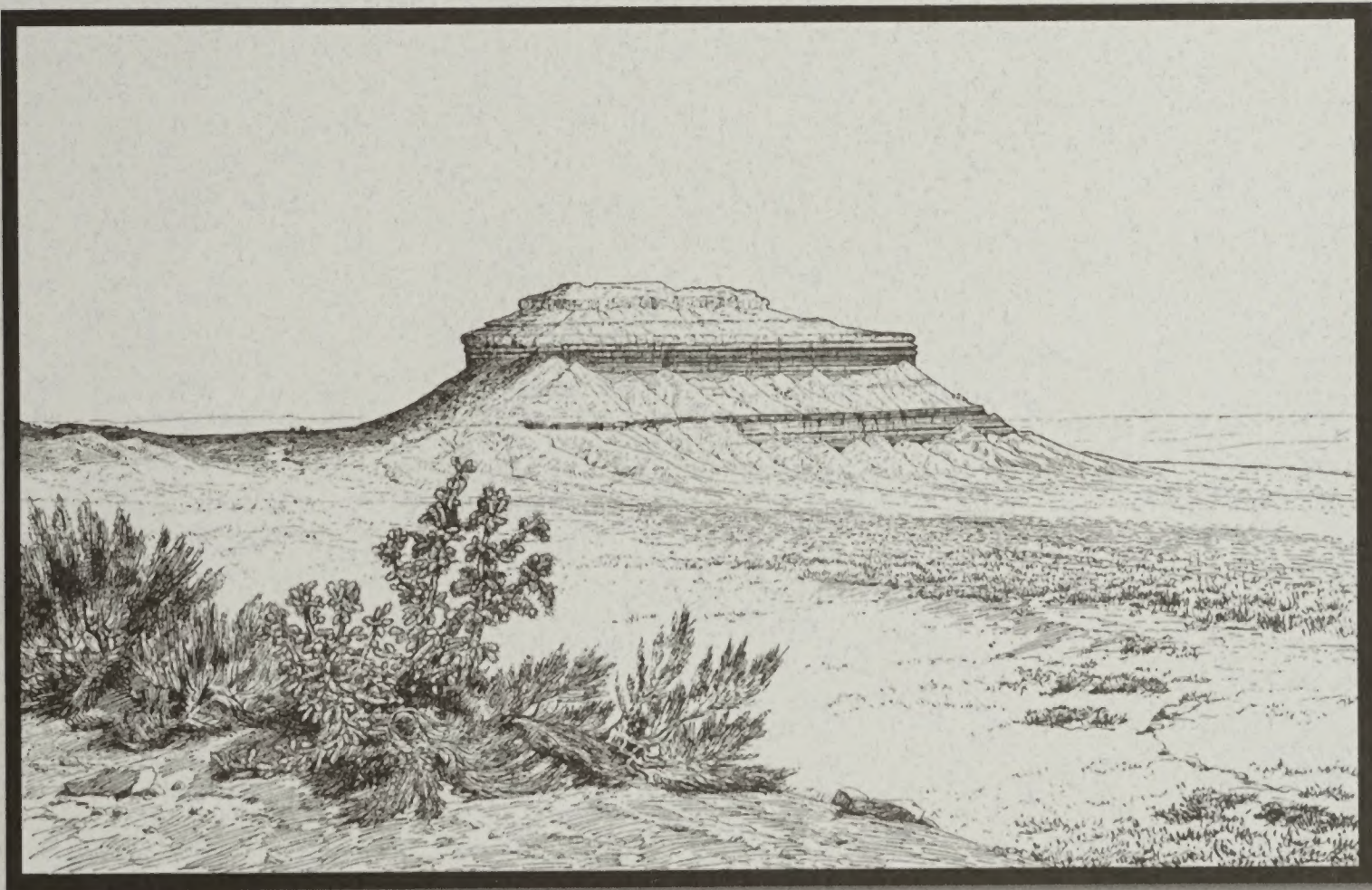
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National Monument, and the BLM Portion of
Grand Canyon-Parashant National Monument,
and a Proposed General Management Plan/Final EIS for the
NPS Portion of the Grand Canyon-Parashant National Monument

VOLUME 2



January 2007
U.S. Department of the Interior
Arizona Strip District, Bureau of Land Management
Lake Mead National Recreation Area, National Park Service



BLM • NPS

VOLUME II

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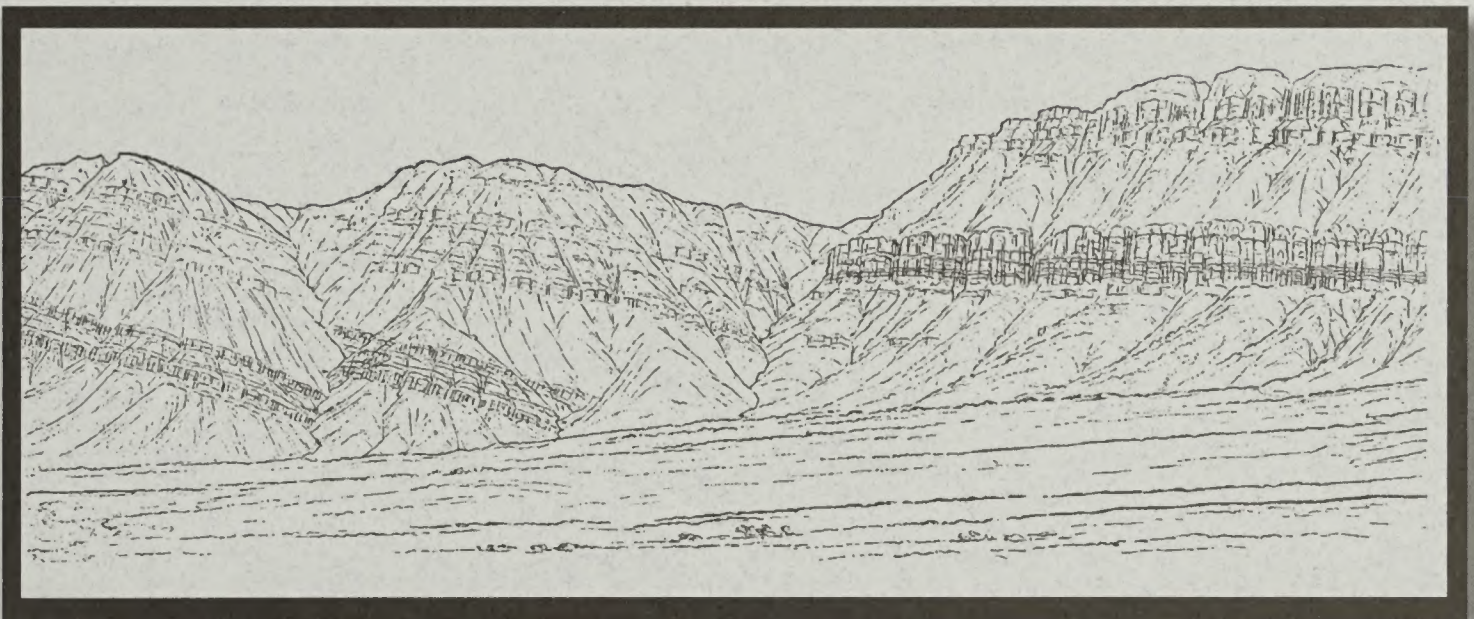
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Chapter 4

Environmental Impacts



“Something’s gotta happen to keep it the same.”

Kelly Heaton, 2002

CHAPTER 4. ENVIRONMENTAL IMPACTS

INTRODUCTION

This chapter describes the environmental consequences of implementing any of the five planning alternatives described in Chapter 2, including the No Action Alternative and the Proposed Plan. It examines the potential impacts of the decisions that would be made under each resource program on each of the impact topics (i.e., resources, resource uses, special management areas, and social and economic conditions) described in Chapter 3. Impacts were analyzed with the mitigation measures outlined in Chapter 2 (within the alternative decision tables) in place. Any additional mitigation measures that could reduce or prevent major adverse impacts identified during the impact analysis are also identified in this chapter and in the appendices. A tabular summary of impacts can be found at the end of Chapter 2 (Table 2.19).

ANALYTICAL ASSUMPTIONS AND GUIDELINES

This document assesses the actions proposed for managing Parashant, Vermilion, and the Arizona Strip FO and includes direction from legislation and the Monument proclamations. It also includes direction from legislation creating Lake Mead National Recreation Area (NRA) and Glen Canyon NRA. The analysis is bounded by decisions identified in the proclamations or legislation and does not include alternatives to these decisions. These decisions are as follows:

- Certain uses would be restricted or limited by the proclamations, legislation, federal regulations, or agency policy.
- Ongoing reasonable access to state and private land or interests would be provided.
- Grazing, where currently permitted, would continue.
- Hunting and fishing would be regulated by the State of Arizona, with the exception that the Secretary of the Interior, in consultation with the state, may take certain steps to regulate hunting in the Planning Area for reasons such as public safety and protection of resources.
- Decisions relating to land areas included in eight congressionally designated wilderness areas on Bureau of Land Management-administered public lands (BLM lands) and recommended areas for proposed wilderness on National Park Service-administered lands (NPS lands) would be upheld.
- Decisions relating to the proposed wild and scenic river designations for the Paria and Virgin rivers (BLM 1994) would be upheld.
- Old Spanish National Historic Trail (NHT) Congressional Designation (2002) would be recognized and decisions relating to the designation upheld.

The following general assumptions and guidelines were used to guide and direct the analysis of environmental impacts. Other assumptions specific to a particular impact topic are presented under that topic:

- The BLM and NPS would have sufficient funding and personnel to implement any of the alternatives as described in Chapter 2.
- Research would continue, dependent upon sufficient funding.
- Management of the Arizona Strip District including the Monuments would be consistent with existing laws, regulations, policies, and guidelines.
- The planning period for the analysis is the next 15 to 20 years.
- Recreation use in the Planning Area would continue to increase.
- Livestock grazing would continue to be governed by applicable laws and regulations.
- Specific actions to protect human life would be taken regardless of the management criteria in the plan alternatives.
- The discussion of impacts is based on the best available data. Knowledge of the Planning Area and professional judgment, based on observation and analysis of conditions and responses in similar areas, are used to infer environmental impacts where data is limited.

INCOMPLETE OR UNAVAILABLE INFORMATION

As mandated by 43 Code of Federal Regulations (CFR) 1502.22, agencies evaluating reasonably foreseeable significant adverse effects on the human environment in an EIS must identify incomplete or unavailable information, if that information is essential to a reasoned choice among alternatives. This Proposed Plan/FEIS is based on the best available data for each impact topic. However, there are few detailed resource surveys and inventories for the Planning Area, limiting the amount of available data necessary for in-depth impact analysis. For example, most of the Planning Area has not been surveyed for cultural or paleontological resources, while water quality and visitor use information is very limited. In absence of such data, best professional judgment of BLM and NPS resource specialists and staff working in the Planning Area was used in the impact analysis.

TYPES OF IMPACTS

This chapter describes the direct, indirect, and cumulative impact of implementing the No Action Alternative and each of the four action alternatives. Direct impacts are caused by an action and occur at the same time and place as the action. Indirect impacts are caused by the action and occur later or farther away but are still reasonably foreseeable. Cumulative impacts are the effects on the environment that result from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. Cumulative impacts are briefly described at the end of the analysis for most impact topics, while a more detailed discussion is provided at the end of this chapter.

Impacts are also described as to their context, intensity, and duration. Context generally refers to the geographic extent of impact (localized or widespread). Impact intensity is the magnitude or degree to which a resource would be beneficially or adversely affected. The criteria that were

used to rate the intensity of the impact for each impact topic is presented later in this section under each impact topic heading. Impact duration refers to how long an impact would last. For the purposes of this Proposed Plan/FEIS, the planning team considered impacts as either short term or long term to describe the duration of the impacts. Unless otherwise stated for any particular impact topic, short-term impacts would occur within five years of implementing the Plan, often during construction and recovery, while long-term impacts would occur outside this five-year timeframe.

NPS Impairment of Resources

In addition to determining the environmental consequences of the alternatives, NPS policy (NPS 2001: Management Policies, Section 1.4) requires that potential effects be analyzed to determine if a proposed action would impair the resources or values of the NPS unit, “including the opportunities that otherwise would be present for the enjoyment of those resources or values.”

Impairment analysis is required only for the NPS portion of Parashant. While the BLM is mandated by proclamation to protect the Monument objects, and thus avoid any adverse impacts that would otherwise “impair” such objects, the agency is not required to conduct impairment analysis. Consequently, a determination about impairment is made for the NPS portion of Parashant only. This impairment determination can be found in the conclusion of this chapter. A description of the impairment analysis legal framework and linkage to the National Environmental Policy Act (NEPA) is outlined in Appendix 4.C.

The fundamental purpose of the NPS, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve resources and values. NPS managers always must seek ways to avoid or minimize adverse impacts on the resources and values to the greatest degree practicable. However, the laws do give the NPS the management discretion to allow impacts on the resources and values when necessary and appropriate to fulfill the purposes of a unit (in this case, a National Monument), as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the NPS this management discretion, that discretion is limited by the statutory requirement that the NPS must leave the resources and values unimpaired unless a particular law directly and specifically provides otherwise.

The impairment prohibited by the Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impacts; the direct and indirect effects of the impacts; and the cumulative effects of the impact in question and other impacts.

An impact on any resource or value may constitute an impairment. An impact would be most likely to constitute an impairment if it affects a resource or value whose conservation is:

- a) Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the Monument,
- b) The key to the natural or cultural integrity of the Monument or to opportunities for enjoyment of the Monument, or
- c) Identified as a goal in the Monument’s general management plan or other relevant NPS planning documents. An impact would be less likely to constitute an impairment to the extent that it is an unavoidable result, which cannot be reasonably further mitigated, or an action necessary to preserve or restore the integrity of Monument’s resources or values.

Impairment may occur from visitor activities, NPS activities in the course of managing a park, or activities undertaken by permittees, contractors, or others operating in the park as well as from external actions. Impairment can occur from inaction as well as action. For example, failure to prevent the spread of seriously disruptive invasive species may impair park resources.

BLM AND NPS MANDATORY TOPICS

The BLM’s NEPA Handbook (H-1790-1) and NPS Director’s Order #2 (Park Planning) require that all EISs address certain topics, which the BLM refers to as Critical Elements of the Human Environment. The list of elements contained in the BLM handbook has been expanded by BLM Instruction Memoranda and Executive Orders. Further clarification of the required topics that need to be addressed is provided in the BLM Land Use Planning Handbook (BLM 2005). These impact topics are presented in Table 4.1 in the order they appear in Chapters 2, 3, and 4, followed by corresponding Critical Elements of the Human Environment and NPS mandatory topics.

Table 4.1: Mandatory EIS Topics		
Topics Addressed in this Proposed Plan/FEIS (BLM Land Use Plan Handbook)	Critical Elements of the Human Environment (BLM NEPA Handbook)	NPS Mandatory Topic (Park Planning)
Resources		
Air	Air Quality	--
Water (includes water rights, surface water, ground water)	Water Quality, Drinking or Ground	--
Soils	--	--
Geology and Paleontology (including cave and karst resources)	--	--
Vegetation	Invasive, Nonnative Species; Wetlands/Riparian Zones	Wetlands and floodplains
Fire and Fuels Management	--	--
Fish and Wildlife	--	--

Table 4.1: Mandatory EIS Topics		
Topics Addressed in this Proposed Plan/FEIS (BLM Land Use Plan Handbook)	Critical Elements of the Human Environment (BLM NEPA Handbook)	NPS Mandatory Topic (Park Planning)
Special Status Species (includes both animals and plants)	Threatened or Endangered Species	Endangered or threatened plants and animals and their habitats (including those proposed for listing on other state lists)
Wild Burros	--	--
Cultural Resources (includes archaeological and historical and resources of traditional importance to American Indians)	American Indian Religious Concerns; Cultural Resources	Urban quality, historic and cultural resources, and design of the built environment; Important scientific, archeological, and other cultural resources including historic properties listed or eligible for the National Register of Historic Places (NRHP); American Indian sacred sites
Visual Resources (including night sky)	--	--
Soundscapes	--	--
Wilderness Characteristics	--	Ecologically critical areas, wild and scenic rivers or other unique natural resources
Resource Uses		
Vegetation Products		
Lands and Realty	Energy, including renewable	Energy Requirements and conservation potential
Livestock Grazing	--	--
Minerals	--	--
Recreation and Visitor Services/Interpretation and Environmental Education	--	--
Travel Management	--	--
Special Designations		
Congressional Designations (includes designated and NPS-proposed wilderness and wild and scenic rivers)	Wilderness; Wild and Scenic Rivers	Ecologically critical areas, wild and scenic rivers or other unique natural resources
Administrative Designations (includes Areas of Critical Environmental Concern (ACECs))	ACECs	Ecologically critical areas, wild and scenic rivers or other unique natural resources
Social and Economic Conditions		
Socioeconomics		
Environmental Justice	Environmental Justice	Socially or economically disadvantaged populations
Health and Safety (includes abandoned mines and hazardous materials)	Wastes, Hazardous or Solid	Public health and safety

Table 4.2 lists mandatory BLM and NPS that are not discussed further in this Proposed Plan/FEIS because they do not occur within the Planning Area or, if they occur, would not be affected by the management direction being analyzed (see 40 CFR 1500.4).

BLM Mandatory Topics	NPS Mandatory Topics	Reason for Omission
Farm Lands, Prime or Unique	Prime and unique agricultural lands	No prime or unique farm or agricultural lands occur in the Planning Area
Floodplains	Floodplains	No projects or activities are proposed that would result in diversions in or placement of permanent facilities on active floodplains of major rivers. No 100 or 500-year floodplains of major rivers occur in the NPS portion of the Planning Area
Indian Trust Resources	Indian Trust Resources	No Indian trust resources would be impacted.

IMPACTS TO RESOURCES

AIR

Impacts to air quality come primarily from sources outside the Planning Area, such as regional haze, and are thus outside the scope of this Proposed Plan/FEIS. However, short-term air quality effects could result from fugitive dust and smoke that both directly and indirectly relate to proposed management actions. Main sources of fugitive dust include vehicle and equipment use on unpaved roads, road construction and maintenance activities, and mineral operations. Main sources of smoke arise from wildland and prescribed fires.

Methods and Assumptions

The analysis of potential impacts to air quality is based on the expertise of BLM resource specialists at the Arizona Strip FO and the NPS staff at Lake Mead NRA. Combined, these specialists and staff possess an extensive knowledge of air quality within the Planning Area. The impact analysis is also based on review of existing literature and information provided by non-planning team experts in the BLM, NPS, and other agencies.

Quantifying air quality effects is difficult due to the lack of air quality monitoring data for the Planning Area. In absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible:** No changes to air quality would occur, or changes in air quality would be below or at the level of detection. If detected, the effects would be considered slight.
- Minor:** Changes to air quality would be measurable, although the changes would be small, short-term (less than seven consecutive days), and local. Mitigation measures would not be necessary.
- Moderate:** Changes in air quality would be measurable and would have appreciable consequences, although the effect would be relatively local. Air quality mitigating measures would be necessary, and they probably would be successful.
- Major:** Changes in air quality would be measurable, have substantial consequences, and be noticed regionally. Air quality mitigating measures would be necessary, and their success would be uncertain.

Impacts to Air

Impacts to air quality in Parashant would result from actions proposed under the following resource management programs:

- Travel Management
- Vegetation and Fire and Fuels Management
- Soil, Air, and Water
- Special Status Species (Parashant and Arizona Strip FO)
- Minerals (Arizona Strip FO only)
- Recreation
- Livestock Grazing

Alternative A: No Action

Impacts from Travel Management

Since off-road vehicle use contributes considerably to air impairments from fugitive dust, not authorizing any areas of the Monuments for cross-country, off-road vehicle use, except for authorized administrative and emergency purposes, and limiting travel on designated roads and trails would limit impacts to air quality. Fugitive dust would be minimal or nonexistent on 285,268 acres in Parashant, 89,828 acres in Vermilion, and 123,100 acres in the Arizona Strip FO closed to motorized and mechanized vehicle use, although some dust could blow in from adjacent roads along the boundaries of such areas.

The public would have access to 1,715 miles of unpaved roads in Parashant and 446 miles in Vermilion. Use of these roads would continue to create localized air pollution in the form of light fugitive dust, especially in the lowest and driest part of Parashant, such as Pakoon Basin.

However, sandy soils in most of Vermilion have a low potential for producing fugitive dust and, in addition, keep vehicle speeds down, further reducing the levels of dust. Additional miles of roads in Parashant and in Vermilion would be open to administrative use only, which would contribute minimally to air quality impacts due to their expected relatively light use. Road maintenance activities, although minimal and designed solely to correct those conditions that are unsafe or hazardous, would also result in fugitive dust. Watering and the use of chemical dust suppressants would greatly reduce the amount of dust emissions from airstrips and problem roads. Closing and rehabilitating 71 miles of roads in Parashant and 105 miles in Vermilion, as well as some additional roads where no public or administrative need exists, would result in reduced amount of fugitive dust within the immediate vicinity of the closed roads. The construction of no new motorized routes and would help maintain the current low level of impact from travel on roads into the future. Overall impacts to air quality from travel on unpaved roads and road maintenance/ improvement activities would be localized and short-term, and could be rated from negligible to minor.

In the Arizona Strip FO under Alternative A, motor vehicles would be limited to designated roads and trails on 282,019 acres of BLM lands and limited to existing routes on 1,575,140 acres of BLM lands. Since the vast majority of roads and trails in the Arizona Strip FO are not paved, use of these roads would result in fugitive dust. In addition, 803 acres of public lands would be open to motorized and mechanized vehicle use and an OHV event area would be designated under Alternative A. Vehicle use, specifically OHV use, in open areas and OHV "play" areas compared to designated and existing roads has the potential to cause the greatest amount of direct impacts to air quality in terms of fugitive dust. When combined, these impacts would be negligible to minor, depending upon the level of use, speed of vehicle, and climatic conditions (e.g., amount of wind, humidity, and soil moisture). Road maintenance activities, which would be limited to existing route types, maintenance levels, and frequencies, would also result in fugitive dust. Watering and the use of chemical dust suppressants would greatly reduce the amount of dust emissions from maintenance and on haul roads from gravel pits, mines, and oil drilling sites.

Impacts from Vegetation and Fire and Fuels Management

The treatment efforts aimed at reducing fuel loads under Alternative A in Parashant and the Arizona Strip FO would decrease the chance of catastrophic fire. No maximum acreage limits would be set. Some of the treatments methods proposed (e.g., mechanical and chemical) would result in localized and short-term impacts to air quality, including fugitive dust, emission/exhaust from equipment, and chemical fumes. The use of naturally ignited wildland fire and prescribed fire would result in smoke emissions in the immediate area. In general, these impacts would be minor, although moderate intensity impacts could be experienced in the immediate vicinity of the treatment areas. The effects on air quality from wildland fires would potentially be of longer duration than planned ignitions, depending on the vegetation types involved. Catastrophic fires, however, would result in greater, direct impacts resulting from smoke and fire abatement efforts. Indirect impacts from catastrophic fires could stem from reduced or eliminated vegetation cover,

exposing the underlying soil to wind and water erosion, which would in turn increase levels of fugitive dust during wind events. Thus, while treatment efforts to reduce fuel loads would result in some direct but minor impacts to air quality, decreasing the potential of hazardous effects of unplanned wildfire would result in positive, indirect impacts to air quality that would be more widespread and longer term.

Because of the sparse vegetation and low productivity potential in Vermilion, no or minimal vegetation management is proposed under the alternatives. In addition, wildfires tend to be confined to singletree events in Vermilion. As a result, there would be no or negligible impacts to air quality from Vegetation and Fire and Fuels Management in Vermilion.

Impacts from Soil, Air, and Water

Application of specific mitigation measures identified in activity level planning and NEPA level review would prevent or reduce impacts to air quality. In Parashant, mitigation during surface disturbing projects would reduce or eliminate the potential for fugitive dust.

Impacts from Special Status Species

The Pakoon Basin in Parashant is one of the lowest and driest parts of the Monument and thus more susceptible to fugitive dust. The ban on competitive speed events and restriction of non-speed events to designated roads within the Pakoon Desert Wildlife Management Area (DWMA) would prevent large amounts of fugitive dust in this area. Limits on driving speed, construction, maintenance, and use of roads within the Pakoon DWMA would also result in reduced fugitive dust in the Pakoon Basin. These impacts would be minor.

The proposed restrictions on road use, construction, and maintenance activities, fire and fuels treatments, and non-speed competitive events, and the ban on competitive speed events within the desert tortoise ACECs in the Arizona Strip FO would reduce the amount of fugitive dust within the vicinity of the ACECs. This impact would be minor.

Impacts from Minerals (Arizona Strip FO only)

Minerals exploration, development, construction, and operations could increase heavy and light vehicle traffic on paved and unpaved roads in the Arizona Strip FO, which would contribute to fugitive dust. Surface disturbing activities such as excavation, digging, and grading would increase the amount of fugitive dust. Adherence to best management practices outlined in mining laws, plans of operation, pertinent restrictions, standard terms and conditions, etc., would help minimize such impacts. Closing 80,766 acres of the Arizona Strip FO to fluids mineral leasing, withdrawing 100,896 acres to mining location, and closing 210,748 acres to mineral material disposal would virtually eliminate fugitive dust from mineral management within those areas. Overall impacts to air quality would be minor.

Impacts from Recreation

The greatest impacts from recreation would occur during competitive events, especially motorized events such as off-highway vehicle (OHV) races and rallies. Since no such events would be authorized in the Monuments, and non-motorized competitive events would not be allowed in ACECs, wilderness areas, or NPS proposed wilderness, impacts to air quality in these areas would be negligible. In the Arizona Strip FO, the annual Rhino Rally motorcycle race would be allowed to continue, but restricted primarily to roads and washes and limited to 300 entrants. The race would create elevated levels of fugitive dust and tailpipe emissions within the vicinity of the race. While overall impacts would be short term and minor, the intensity of impacts in the immediate vicinity of the race could be short term and moderate.

Impacts from Livestock Grazing

Where grazing and associated soil disturbances near stock waters and corrals have powdered the soil surface, fugitive dust would continue to be evident, especially during wind events. Permittee travel on unpaved roads for activities relating to grazing operations would also contribute to fugitive dust. Overall impacts to air quality from grazing would be localized and short-term, and could be rated from negligible to minor.

Alternative B

Impacts from Travel Management

Impacts to air quality would be similar to what is described under Alternative A in the Monuments due to no areas open to off-road travel, travel limited on designated roads and trails, acres closed to motorized and mechanized vehicle use, and no new permanent motorized route construction. Overall impacts, however, would be reduced in the Monuments as the public would have access to less than half of the amount proposed under Alternative A. In addition, roughly three-fourth as many miles of roads would be closed and rehabilitated, which would decrease the potential for fugitive dust throughout the Monument. While considerably more miles of roads would be open to administrative use only compared to Alternative A, use of these roads would be relatively light with fewer impacts to air quality than compared to public-use roads.

In the Arizona Strip FO, while motorized and mechanized vehicle use would be limited to designated and existing roads and trails on the same number of acres as Alternative A, no public lands would be open to motorized and mechanized vehicle use under Alternative B, which would eliminate impacts from vehicle use in open areas. In addition, no motorized speed event areas would be designated as no such events would be authorized, which would eliminate impacts to air quality from such events. More miles of roads would be closed and rehabilitated throughout the Arizona Strip FO, further reducing the level of fugitive dust near the closed roads. Additional route maintenance activities including road upgrades (e.g., widening, passing lanes,

realignments, and travel surface upgrades) could occur under Alternative B compared to Alternative A. These activities would increase the potential for fugitive dust within the vicinity of the road improvement/construction activities, although mitigating measures would reduce such impacts. Additional impacts could occur due to possible increased traffic levels and/or speed limits on improved routes. Impacts would be localized, negligible to minor and short term.

For the entire Planning Area, installing structures/barriers on routes to control unauthorized use, monitoring to detect routes caused by unauthorized use and then immediately obscuring and rehabilitating such unauthorized routes, and rerouting and reclaiming routes causing resource damage or with safety concern could help maintain the current very good air quality within the Planning Area. Only maintaining routes within their existing disturbed surface area would also limit impacts to air quality both from maintenance activities and travel on such routes. The impacts would be localized and range from negligible to minor.

Impacts from Vegetation and Fire and Fuels Management

The types of impacts experienced as a result of fire and fuels management would be similar to those described under Alternative A, although maximum acreage limits would be set for various ecological zones. Since no maximum treatment acreage limits would be set under Alternative A, it is uncertain whether Alternative B would result in more or less acreage being treated than under Alternative A. However, fewer treatment methods would be authorized under Alternative B, which could limit direct impacts.

Impacts from Soil, Air, and Water

Impacts would be the same as described under Alternative A.

Impacts from Special Status Species

Impacts would be the same as described under Alternative A.

Impacts from Minerals (Arizona Strip FO only)

Under Alternative B in the Arizona Strip FO, the same or nearly the same amounts of BLM lands proposed closed and withdrawn would occur compared to Alternative A, thus resulting in similar impacts. However, nearly twice as many acres would be designated closed to mineral material disposal compared to Alternative A, reducing the total area where impacts to air quality would occur. Impacts would be localized and minor.

Impacts from Recreation

Impacts would be the same as described under Alternative A, with the following exception that applies to the Arizona Strip FO only: Impacts resulting from competitive events would be

greatly reduced when compared to Alternative A, as no motorized speed events would be authorized. This would prevent the annual Rhino Rally from continuing in the Arizona Strip FO and thus eliminate the impacts to air quality from that and similar events.

Impacts from Livestock Grazing

The impacts would be the same as described under Alternative A.

Alternative C

Impacts from Travel Management

Impacts to air quality would be similar to that described under Alternative A due to no areas open to off-road travel, travel limited on designated roads and trails, and acres closed to motorized and mechanized vehicle use. Overall impacts, however, would be reduced as the public would have access to fewer miles of unpaved roads and more miles of roads would be closed and rehabilitated, which would decrease the potential for fugitive dust throughout the Monument compared to Alternative A, but not as much when compared to Alternative B. Differing from both Alternative B and A, new motorized routes could be constructed and additional route maintenance activities including road upgrades (e.g., widening, passing lanes, realignments, and travel surface upgrades) could occur. These activities could increase impacts to air quality within the vicinity of the road improvement/construction activities. Additional impacts could occur due to additional traffic on new routes and possible increased traffic and/or speed limits on improved routes. Impacts would be negligible area-wide, but could be minor to moderate along specific routes.

In the Arizona Strip FO, while motorized and mechanized vehicle use would be limited to designated and existing roads and trails on the same number of acres as Alternative A, more acres of BLM lands would be open to motorized and mechanized vehicle use under Alternative C, increasing the potential for impacts from vehicle use in open areas. However, more miles of roads would be closed and rehabilitated throughout the Arizona Strip FO compared to Alternative A, which would reduce fugitive dust stemming near the closed roads, but not as much as under Alternative B. Impacts from route maintenance/ improvement activities would be the same as described under Alternative B. When combined, impacts to air quality would be negligible to minor, depending upon the level of use, speed of vehicle, and climatic conditions (e.g., amount of wind, humidity, and soil moisture).

For the entire Planning Area, installing structures/barriers on routes to control unauthorized use, monitoring to detect routes caused by unauthorized use and then immediately obscuring and rehabilitating such unauthorized routes, and rerouting and reclaiming routes causing resource damage or with safety concern would have the same impacts as described under Alternative B.

Impacts from Vegetation and Fire and Fuels Management

The types of impacts experienced as a result of fire and fuels management would be similar to those described under Alternative A, with maximum acreage limits being set for various ecological zones. Since no maximum treatment acreage limits would be set under Alternative A, it is uncertain whether Alternative C would result in more or less acreage being treated than under Alternative A. More acres and treatment methods would be authorized than under Alternative B, potentially resulting in more, short-term direct impacts as a result of treatment efforts (e.g., fugitive dust from equipment use and smoke from prescribed fires). Less chance for indirect impacts would occur than under Alternative B, however, if less treatment efforts would result in greater risk of catastrophic fire.

Impacts from Special Status Species

Impacts would be the same as described under Alternative A.

Impacts from Protection of Resources: Soil, Air, and Water

Impacts would be the same as described under Alternative A.

Impacts from Minerals (Arizona Strip FO only)

Under Alternative C, similar amounts of BLM lands would be closed to fluid mineral leasing, withdrawn from mineral location, and closed to mineral material disposal as proposed under Alternative A, thus resulting in similar impacts. Compared to Alternative B, only a little more than half of that lands closed to mineral material disposal would occur, resulting in the potential for more impacts to air quality under Alternative C. Impacts would be localized and minor.

Impacts from Recreation

Impacts would be similar to that described under Alternative A, with the exception that, in the Arizona Strip FO, motorized speed events would only be authorized in the motorized speed event area in the St. George Basin. This would allow continuation of the annual Rhino Rally as it typically occurs in that area, and would concentrate all impacts from such events in the St. George Basin. While this would potentially increase short-term impacts to air quality within that area, it would reduce such impacts in other portions of the planning area.

Impacts from Livestock Grazing

The impacts would be the same as described under Alternative A.

*Alternative D*Impacts from Travel Management

Impacts to air quality would be similar to that described under Alternative A due to no areas open to off-road travel, travel limited on designated roads and trails, and acres closed to motorized and mechanized vehicle use. Overall impacts, however, would be reduced as the public would have access to fewer miles of unpaved roads and a number of roads would be closed and rehabilitated, decreasing the potential for fugitive dust throughout the Monument. However, Alternative D would result in more impacts to air quality from fugitive dust compared to Alternative B and C due to proposing more mileage of designated, unpaved roads and less mileage of closed roads. Impacts from the potential for new route construction and upgrades would be similar to that described under Alternative C.

While motorized and mechanized vehicle use in the Arizona Strip FO would be limited to designated and existing roads and trails on the same number of acres as Alternative A, nearly nine times the acres would be open to motorized and mechanical vehicle use when compared to Alternative A and nearly two times that compared to Alternative C. The relatively large size of open areas would considerably increase the potential for air quality impacts (e.g., fugitive dust and emissions) from vehicle use in and near such areas. While more miles of roads would be closed and rehabilitated throughout the Arizona Strip FO compared to Alternative A, reducing the level of fugitive dust near the closed roads, the amount of closed roads would be less than under Alternatives B and C. Impacts from route maintenance/improvement activities would be the same as described under Alternative B. When combined, impacts to air quality would be negligible to minor, depending upon the level of use, speed of vehicle, and climatic conditions (e.g., amount of wind, humidity, and soil moisture).

For the entire Planning Area, installing structures/barriers on routes to control unauthorized use, monitoring to detect routes caused by unauthorized use and then immediately obscuring and rehabilitating such unauthorized routes, and rerouting and reclaiming routes causing resource damage or with safety concern would have the same impacts as described under Alternative B.

Impacts from Vegetation and Fire and Fuels Management

The types of impacts experienced as a result of fire and fuels management would be similar to those described under Alternative A, with maximum acreage limits being set. Since no maximum treatment acreage limits would be set under Alternative A, it is uncertain whether Alternative D would result in more or less acreage being treated than under Alternative A. More acres and treatment methods would be authorized compared to Alternatives B and C, which would result in more, short-term direct impacts as a result of treatment efforts (e.g., fugitive dust from equipment use and smoke from prescribed fires), but less chance for indirect impacts if more treatment efforts would result in reduced risk of catastrophic fire. Impacts would range from minor to moderate.

Impacts from Special Status Species

Impacts would be the same as described under Alternative A.

Impacts from Soil, Air, and Water

Impacts would be the same as described under Alternative A.

Impacts from Minerals (Arizona Strip FO only)

Under Alternative D, similar amounts of BLM lands would be closed to fluid mineral leasing, withdrawn from mineral location, and closed to mineral material disposal as proposed under Alternative A and C, thus resulting in similar impacts.

Compared to Alternative B, less than half of lands closed to mineral material disposal would occur, resulting in the potential for more impacts to air quality. Impacts would be localized and minor.

Impacts from Recreation

Impacts would be similar to that described under Alternative A with the exception that, in the Arizona Strip FO, air quality could slightly impacted in ACECs as competitive events could occur in ACECs. Impacts from motorized speed events would be similar to Alternative A, although permitting actual events, such as the Rhino Rally, would be determined on a case-by-case basis.

Impacts from Livestock Grazing

The impacts would be the same as described under Alternative A.

Alternative E: Proposed Plan

Impacts from Travel Management

Impacts to air quality in the Monuments would be similar to that described under Alternative A due to no areas open to off-road travel, travel limited on designated roads and trails, and acres closed to motorized and mechanized vehicle use. Overall impacts, however, would be reduced as the public would have access to fewer miles of unpaved roads and a number of roads would be closed and rehabilitated, decreasing the potential for fugitive dust throughout the Monuments. However, Alternative E would result in more impacts to air quality from fugitive dust compared to Alternative B and C, but less compared to Alternative D due to the mileage of designated,

unpaved roads and closed roads. Impacts from the potential for new route construction and maintenance/upgrades would be similar to that described under Alternative C.

In the Arizona Strip FO, while motorized and mechanized vehicle use would be limited to designated and existing roads and trails on the same number of acres as Alternative A, the number of acres open to motorized and mechanical vehicle would be approximately 7 times less acres than Alternative D. However, more acres would be closed to motorized and mechanized vehicle use under Alternative E, slightly decreasing impacts to air quality in comparison to Alternative D. Impacts from route maintenance/improvement activities would be the same as described under Alternative B. When combined, impacts to air quality would be negligible to minor, depending upon the level of use, speed of vehicle, and climatic conditions (e.g., amount of wind, humidity, and soil moisture).

Installing structures/barriers on routes to control unauthorized use, monitoring to detect routes caused by unauthorized use and then immediately obscuring and rehabilitating such unauthorized routes, and rerouting and reclaiming routes causing resource damage or with safety concern would have the same impacts as described under Alternative B.

Impacts from Vegetation and Fire and Fuels Management

The types of impacts experienced as a result of fire and fuels management would be similar to those described under Alternative A, with maximum acreage limits being set. Since no maximum treatment acreage limits would be set under Alternative A, it is uncertain whether Alternative E would result in more or less acreage being treated than under Alternative A. Maximum acres and treatment methods would be more than under Alternative B but similar compared to Alternatives C and D, depending upon the ecological zone. This would result in more short-term direct impacts as a result of treatment efforts (e.g., fugitive dust from equipment use and smoke from prescribed fires) than under Alternative B, and more, less, or similar impacts compared to Alternative C and D. Less chance for indirect impacts would occur than under Alternative B if more treatment efforts would result in less risk of catastrophic fire, and similar chances for such impacts would occur when compared to Alternative C and D. The impacts would range from minor to moderate.

Impacts from Special Status Species

Impacts would be the same as described under Alternative A.

Impacts from Soil, Air, and Water

Impacts would be the same as described under Alternative A.

Impacts from Minerals (Arizona Strip FO only)

Under Alternative E, similar amounts of BLM lands would be closed to fluid mineral leasing, withdrawn from mineral location, and closed to mineral material disposal as proposed under Alternative A, C, and D, thus resulting in similar impacts.

Compared to Alternative B, almost two-thirds of lands closed to mineral material disposal would occur, resulting in the potential for more impacts to air quality under Alternative E. Impacts would be localized and minor.

Impacts from Recreation

Impacts would be the same as described under Alternative A for the Monuments, but same as Alternative C for the Arizona Strip FO.

Impacts from Livestock Grazing

The impacts would be the same as described under Alternative A.

Cumulative Impacts

The geographic area of analysis for cumulative impacts to air quality is the Arizona Strip, including both Monuments, as well as southern sections of California, Nevada, and Utah. This region influences the Planning Area's air quality due to regional haze from smog and dust. Considered having one of highest rates of population growth in the nation, continued population growth in the region would increase the amount of regional haze affecting the Planning Area. Construction of the Southern Corridor as well as increased use of Interstate 15 and other regional roads and highways would increase vehicle emissions and add to the regional haze that is blown into the Planning Area.

Increased population in the region would also result in increased levels of visitors to the Planning Area who travel on the mostly dirt and gravel roads. Such increased use would result in elevated levels of fugitive dust, as well as vehicle emissions in concentrated-use areas. Continuing or increasing gypsum and uranium mining in the region would also result in elevated levels of fugitive dust in the area from on-site activities and haul road use. Future droughts would also have long-term effects on air quality - as more vegetation cover would disappear, more acres of soils would become susceptible to wind events that would produce elevated levels of dust. Continued grazing during a drought would decrease vegetative cover and powder surface soils. Future creation of a Mohave County/Mesquite Habitat Conservation Plan and/or designation of critical habitats for future listings of up to 10 additional threatened or endangered species would reduce road use in more areas that would otherwise produce fugitive dust.

WATER

Impacts to water resources within the Planning Area are caused by cross-country vehicle travel, the use of vehicles on poorly constructed routes, mineral operations, livestock grazing, visitor use, and natural erosion. The effects of cross-country travel and livestock grazing include removal of surface cover (i.e., soil holding vegetation and rocks), displaced soil particles, increased soil compaction, creation of new flow paths and channels, and increased runoff. All of these combine to increase soil erosion and peak flood flows and cause sedimentation of water resources. The effects of travel on poorly constructed routes are similar to the cross-country effects. Thus, the greater the number of poorly constructed routes left open, the greater the impacts to surface water quality. The effects of livestock grazing and visitor use also include contamination of water sources from waste products.

Surface disturbing activities associated with minerals exploration, development, construction, and operations such as excavation, digging, and grading could increase runoff during storm events and contribute to water quality impairments downstream from the disturbed site.

Methods and Assumptions

The analysis of potential impacts to water resources is based on the expertise of BLM resource specialists at the Arizona Strip FO and the NPS staff at Lake Mead NRA. Combined, these staff members possess an extensive knowledge of water resources within Planning Area. The impact analysis is also based on review of existing literature and information provided by non-planning team experts in the BLM, NPS, and other agencies.

Quantifying effects to water resources, specifically to water quality, is difficult due to the lack of data. In absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible:** No changes to water quality would occur, or changes in water quality would be detectable but well below water quality standards or criteria, and would be within historical or desired water quality conditions.
- Minor:** Changes to water quality would be detectable, but well below water quality standards or criteria, and would be within historical or desired water quality conditions.
- Moderate:** Changes in water quality would be detectable but would be at or below water quality standards or criteria; however, historical baseline or desired water quality conditions would be altered on a short-term basis.

Major: Changes in water quality would be detectable and would be frequently altered from the historical baseline or desired water quality conditions and/or water quality standards or criteria would be slightly and singularly exceeded on a short-term basis.

Impacts to Water

Impacts to water resources in Parashant would result from actions proposed under the following resource management programs:

- Travel Management
- Vegetation and Fire and Fuels Management
- Soil, Air, and Water
- Special Status Species
- Wild Horse and Burros (Parashant only)
- Minerals (Arizona Strip FO only)
- Special Management Areas (Wild and Scenic Rivers; Vermilion and Arizona Strip FO)
- Recreation
- Livestock Grazing

Alternative A: No Action

Impacts from Travel Management

Under Alternative A, no parts of the Monuments would be open to motorized and mechanized cross-country vehicle travel as motor vehicles would be limited to designated roads and trails. As a result, impacts to water quality would be minimal. The construction of no new, permanent motorized routes and closing unnecessary roads where no public or administrative need exists would contribute to water quality protection. Impacts would be minor to moderate.

In the Arizona Strip FO, 803 acres would be open to motorized and mechanized vehicle use. Vehicle use, specifically OHV use, in open areas compared to designated and existing roads has the potential to cause the greatest amount of direct impacts to water quality in terms of erosion and runoff. Closing 123,100 acres would minimize such impacts within those areas closed. Overall impact to water quality would be minor.

Impacts from Vegetation and Fire and Fuels Management

Fire, mechanical, chemical, or biological means would be used to maintain, restore, or improve riparian areas to achieve healthy and productive ecological conditions. This would result in short-term impacts from treatment-related surface disturbing activities. It would also have long-term impacts in maintaining and improving water quality in riparian areas. Impacts would be minor to moderate.

While impacts to water resources from vegetation management typically occur from fire and fuel management, fuel loads are low in Vermilion and very little treatments would be expected. Impacts would thus be negligible to minor.

In Parashant, grazing would continue to be authorized in the Cane Springs area between November and December. This would allow for continued sedimentation resulting from erosion due to trampling and compaction, and continued contamination due to waste products in the spring area. Due to the short duration of cattle in the area, impacts would be minor. The Pakoon Springs area would remain in its current state as no rehabilitation efforts would occur.

Fire and fuels treatments could impact water quality by temporarily increasing erosion rates and runoff. Wildland fire use would potentially accelerate soil erosion and sedimentation, temporarily degrading water quality. Prescribed fires could increase erosion rates from fire-line construction, especially on steep slopes. This, in turn, could temporarily impact water quality. Mechanical treatments involving heavy equipment could increase soil compaction, slowing re-establishment of vegetation cover, and thus could temporarily impact water quality due to erosion and runoff. Chemical use could also temporarily impact water quality. Management prescriptions and post fire rehabilitation would help minimize some of these impacts, which would generally be minor and short-term. However, long-term impacts to water resources associated with catastrophic fire would be much greater due to extensive loss of vegetation cover, leading to erosion and runoff, and damaged by fire equipment off and on road to suppress the fires. Thus, while treatment would result in some direct but minor impacts to water quality, decreasing the potential of hazardous effects of unplanned wildfire by reducing fuel loads would result in indirect impacts to water quality that would be more widespread and longer term. Overall impacts would range from minor to moderate.

Impacts from Soil, Air, and Water

The application of specific mitigation measures identified in activity level planning and NEPA level review would reduce or prevent impacts to water quality. Avoiding floodplain occupancy and development would help protect the 100-year floodplain. Impacts would range from minor to moderate.

Impacts from Special Status Species

In Parashant, restrictions placed on livestock, vegetation management, recreation, transportation/access, and other surface disturbing activities within the Pakoon DWMA/ACEC would maintain and possibly improve water quality in that area by decreasing erosion rates. Because of the limited surface water in the area, consisting of a few springs and stock ponds, the impact would be minor. The impact would be negligible in terms of reducing salt contributions to the Colorado River. The modification, restriction, or prohibition made on activities that

degrade riparian habitat or reduce the potential of the area to support riparian vegetation would protect and/or improve water quality in riparian areas throughout Parashant.

No impacts would occur to water resources in Vermilion as a result of special status species management under Alternative A.

In the Arizona Strip FO, maintenance of the Virgin River ACEC at 8,075 acres for the protection of Virgin River fishes and managing land exchanges or disposals so that future developments would not adversely affect river flows in the Virgin River would help maintain water quality and quantity in the Virgin River. Modifying, restricting, or prohibiting actions that degrade riparian habitat or reduce the potential of the area to support riparian vegetation would help maintain the quality of water resources throughout the Arizona Strip FO. Impacts would be minor.

Impacts from Wild Horses and Burros

Keeping the herd management level for wild burros at zero in Parashant would continue to thwart impacts caused by trampling, compaction, and waste contamination of water resources from wild burros. Impacts would be minor.

Impacts from Minerals (Arizona Strip FO only)

Adherence to best management practices outlined in mining laws, plans of operation, pertinent restrictions, standard terms and conditions, etc., would help minimize impacts to water quality. Impacts would be minor. Closing or withdrawing areas from mineral operations would prevent such impacts within and downstream from the closed and withdrawn areas.

Impacts from Special Designations (Wild and Scenic Rivers)

Adhering to the interim management prescriptions to maintain the suitability determination of the Paria River study area in Vermilion and Virgin River study area in the Arizona Strip FO for inclusion in the National Wild and Scenic Rivers System and its tentative classifications would ensure protection of that water resource. Impacts would be minor.

Impacts from Livestock Grazing

Livestock grazing uses within the Monument would continue to be managed in keeping with applicable laws and regulations, and with the statewide standards and guidelines. Following these standards, the effects of livestock grazing on water quality in riparian areas would be assessed and appropriate and timely actions would be conducted to deal with those areas not meeting water quality standards. This would help to reduce the amounts of impacts to water resources.

Closing sensitive areas to grazing would help improve water quality and return riparian areas to proper functioning conditions. It would also eliminate impacts caused by stream-bank trampling and compaction, thus allowing for greater vegetation cover and reduced erosion rates. Increased vegetation in small drainages would trap sediments, improve water quality, increase the alluvial water holding capacity, and heal rill and gully erosion. Finally, making areas unavailable for grazing would eliminate waste contamination of water resources within those particular allotments. Under Alternative A, 199,350 acres in Parashant would not be available for grazing. Impacts within these areas could range from minor to moderate.

No allotments in the Arizona Strip FO are made unavailable under Alternative A. However, there are 2,566 acres managed in Vermilion that is on Glen Canyon National Recreation Area that are unavailable in all alternatives. Seasonal use would continue to apply to the River Pasture of the Lees Ferry Allotment. This would create the potential for water quality impairment of water resources in and near the allotments, including several springs and the Paria River, due to trampling, erosion, compaction, and waste products. However, seasonal restrictions, rest rotation schedule, and management practices following the statewide standards and guidelines would reduce the level of impacts. Impacts would range from minor to moderate.

Impacts from Recreation

Visitor use is expected to increase throughout the Planning Area, especially in the Monuments, which would continue to impact water resources in the area. Instituting and/or adjusting visitor limits, regulations, or restrictions in the Monument and limiting recreational activities (e.g., camping, recreational stock use, etc.) in sensitive habitats, such as riparian areas, would help limit impacts. In Vermilion, limits placed on visitor use would especially be important in such places as Paria Canyon and Buckskin Gulch where large numbers of visitors in a limited space adjacent to a watercourse could increase impacts to water quality from waste products, trailing, and erosion. The limits placed on total visitor numbers and group size in these areas would continue to minimize such impacts. In the Arizona Strip FO, current recreation use permits and use fees program required for use in the Virgin Gorge Recreation Area, subject to adaptive management decisions deemed necessary through monitoring, evaluation, and further planning, would help reduce and prevent impacts to water quality in the Virgin River.

Authorizing no motorized speed events in the Monuments would also help minimize impacts to water quality. Allowing the Rhino Rally to continue in the Arizona Strip FO, restricted primarily to roads and washes, could have localized impacts to water quality if such races occurred during or directly before/after rain events. Impacts would be minor and localized.

Alternative B

Impacts from Travel Management

In the Monuments, impacts to water resources would be similar to what is described under Alternative A. Additional protection would occur under Alternative B due to 445 miles of roads in Parashant and 179 miles of roads in Vermilion being closed and rehabilitated. Impacts would be minor.

In the Arizona Strip FO, Alternative B is the most restrictive alternative in terms of OHV area designations, being the only alternative with no open areas, which would result in the least amount of impacts to water resources due to OHV use. However, additional road upgrade opportunities (e.g., widening, passing lanes, realignments, and travel surface upgrades) would be available under Alternative B and could result in greater impacts to water resources due to surface-disturbing activities, but would result in long-term improvements to water resources after upgrades are completed and properly working to reduce erosion and runoff. Impacts would be minor.

In the entire Planning Area, installing structures/barriers on routes to control unauthorized use, monitoring to detect routes caused by unauthorized use and then immediately obscuring and rehabilitating such unauthorized routes, and rerouting and reclaiming routes causing resource damage or with safety concern could help reduce impacts to water quality.

Impacts from Vegetation and Fire and Fuels Management

Overall impacts to water resources in riparian areas would be similar to those described under Alternative A. Treatment priority that would be set for riparian areas aimed at improving and/or maintaining habitat conditions in important riparian areas would add to the protection of water resources. However, limits placed on riparian areas within Southwestern Willow Flycatcher habitat may reduce efforts to improve, maintain, or restore water quality in such habitats. Proposing no planned vegetation treatments and preventing surface disturbing activities in riparian areas would reduce the chance for water quality impairments in the short term, but potentially allow for future impacts due to continued degradation of riparian areas. Impacts would be site-specific and minor.

In Parashant, the entire Cane Springs pasture of Cane Springs Allotment would be unavailable to grazing and the spring area allowed to rehabilitate naturally. This would greatly improve the water quality and quantity in the spring area compared to Alternative A. Impacts would be localized and moderate. The Pakoon Springs area would be restored through natural process, which would improve water quality of the spring.

Impacts from fire and fuels treatment efforts would be similar to that described under Alternative A, although maximum acreage limits would be set. Since no maximum treatment acreage limits would be set under Alternative A, it is uncertain whether Alternative B would result in more or less acreage being treated than under Alternative A, making comparing the impacts to water quality difficult. However, fewer treatment methods would be authorized under Alternative B, which could limit direct impacts.

Impacts from Soil, Air, and Water

Impacts would be similar to that described under Alternative A.

Impacts from Special Status Species

As under Alternative A, actions that degrade riparian habitat would be modified, restricted, or prohibited. Alternative B includes additional restrictions to recreational OHV use and camping that degrades habitat in riparian areas or areas with the potential to support riparian vegetation, which would help maintain and possibly improve water quality in those areas by reducing soil erosion and compaction. Ensuring that riparian areas would be in proper functioning condition and be of sufficient quantity and quality for special status raptor species, Yellow-billed Cuckoos, and Yuma Clapper Rail would ensure protection of water resources in those riparian areas.

In Parashant, although the Pakoon ACEC would not be designated under this alternative, protections offered to water resources would continue to be applied to the Pakoon DWMA, which covers the same area as the ACEC. Impacts would thus be the same as described under Alternative A.

In the Arizona Strip FO under Alternative B, the Virgin River ACEC would be modified to include only the 100-year floodplain (approx. 2,063 acres), which is only slightly more than a quarter of the ACEC's size when compared to Alternative A. This would limit the amount of protection to water resources and potentially increase the amount of impacts to water quality and quantity in the Virgin River. Designating the Kanab Creek ACEC and following strict management prescriptions associated with that designation would help maintain, possibly improve, water quality in the Kanab Creek area.

Impacts from Wild Horses and Burros

Impacts would be the same as described under Alternative A.

Impacts from Minerals (Arizona Strip FO only)

The types of impacts from fluid mineral leasing and mining location would be similar to those described under Alternative A since the amount of acres closed and withdrawn would be similar.

However, nearly twice as many acres would be designated closed to mineral material disposal compared to Alternative A, which would result in less impact to water resources.

Impacts from Special Designations (Wild and Scenic Rivers)

Impacts would be the same as described under Alternative A.

Impacts from Livestock Grazing

The overall impacts from livestock grazing would be similar to that described under Alternative A. Additional lands made unavailable for grazing and seasonal restrictions would improve water resources within those specific allotments in the manner described under Alternative A. Impacts would be localized and minor.

Impacts from Recreation

Overall impacts to water quality would be similar to that described under Alternative A, with the exception that not authorizing motorized speed events in the Arizona Strip FO would eliminate impacts from such activities.

Alternative C

Impacts from Travel Management

Overall impacts to water resources in the Monuments would be similar to what is described under Alternative A. One difference is that more protection to water resources would occur under Alternative C due to 224 miles of roads in Parashant and 110 miles in Vermilion being closed and rehabilitated, although this is only half as many miles closed when compared to Alternative B. Alternative C would also allow for additional road upgrade opportunities (e.g., widening, passing lanes, realignments, and travel surface upgrades), which could result in greater impacts to water resources due to surface-disturbing activities, but would result in long-term improvements to water resources after upgrades are completed and properly working to reduce erosion and runoff. Impacts would be minor.

In the Arizona Strip FO, almost twice the acres of public lands would be open to motorized and mechanized vehicles under Alternative C compared to Alternative A, increasing the potential for impacts to water resources. Additional impacts would be negligible due to the relatively small increase in open areas. Impacts from additional road upgrade opportunities would be the same as under Alternative B.

In all three planning areas, impacts from installing structures/barriers on routes to control unauthorized use, monitoring to detect routes caused by unauthorized use and then immediately

obscuring and rehabilitating such unauthorized routes, and rerouting and reclaiming routes causing resource damage or with safety concern would be the same as under Alternative B.

Impacts from Vegetation and Fire and Fuels Management

As under Alternative B, efforts at maintaining and improving habitat conditions in important riparian areas would maintain or improve water quality and quality in those areas. Under Alternative C, however, there would be more management and treatment occurring within the Riparian Ecological Zone, which would increase the chance for water quality impairments in the short term, but potentially reduce future impacts due to continued degradation of riparian areas. Impacts would be site-specific and minor.

In Parashant, the riparian area of the Cane Springs pasture would be open for seasonal grazing with the fence around the upper springs repaired. While the fence would prevent erosion from trampling and water quality impairment from waste products, the rest of the pasture would be susceptible to trampling, vegetation loss, and waste products, which could indirectly impair water quality during rain events. Seasonal restrictions would reduce such impacts. Impacts would be minor

Impacts from fire and fuels treatment efforts would be similar to that described under Alternative A, although maximum acreage limits would be set. Since no maximum treatment acreage limits would be set under Alternative A, it is uncertain whether Alternative C would result in more or less acreage being treated than under Alternative A, making comparing the impacts to water quality difficult. More acres would be treated than under Alternatives B, resulting in more, short-term impacts to water quality but less potential for indirect, longer-term impacts if more treatment efforts would result in less risk of catastrophic fire. Such impacts would range from minor to moderate.

Impacts from Soil, Air, and Water

Impacts would be the same as described under Alternative A.

Impacts from Special Status Species

Impacts would be similar to those described under Alternative B, with the exception of impacts from the proposed Kanab Creek ACEC in the Arizona Strip FO. This ACEC would be 3,935 acres smaller than under Alternative B, thus reducing the amount of protection afforded to water resources in the Kanab Creek area.

Impacts from Wild Horses and Burros

Impacts would be the same as described under Alternative A.

Impacts from Minerals (Arizona Strip FO only)

The types of impacts from fluid mineral leasing and mining location would be similar to those described under Alternative A since the amount of acres closed and withdrawn would be similar. However, more acres would be designated closed to mineral material disposal compared to Alternative A, which would result in less impact to water resources.

Impacts from Special Designations (Wild and Scenic Rivers)

Impacts would be the same as described under Alternative A.

Impacts from Livestock Grazing

The overall impacts from livestock grazing would be similar to those described under Alternative A. The season of use would be shorter in some grazing allotments compared to Alternative A, but longer compared to Alternative B. This would result in less impacts to water resources in these allotments compared to Alternative A but more impacts compared to Alternative B. Ephemeral extensions would be allowed under Alternative C in the Pakoon Allotment and the Grand Gulch Wash area would be open to grazing. This would result in greater impacts to water resources in those areas due to grazing compared to both Alternatives A and B.

Impacts from Recreation

Overall impacts to water resources would be similar to that described under Alternative A, with the exception of impact from motorized speed events in the Arizona Strip FO. Under Alternative D, a motorized speed event area would be created in the St. George Basin. This would isolate impacts from such events to a specific, geographic area.

Alternative D

Impacts from Travel Management

Overall impacts to water resources in the Monuments would be similar to what is described under Alternative A. One difference is that more protection to resources would occur under Alternative D due to 148 miles of roads in Parashant and 93 miles in Vermilion being closed and rehabilitated, although this is less closed miles compared to Alternatives B and C. Impacts from additional road upgrades would result in impacts similar to those described under Alternative C.

In the Arizona Strip FO, nearly nine times the acres of public lands would be open to motorized and mechanized vehicle under Alternative D, increasing the potential for impacts to water resources. Overall impacts would be minor. Impacts from additional road upgrade opportunities would be the same as under Alternative B.

Impacts from installing structures/barriers on routes to control unauthorized use, monitoring to detect routes caused by unauthorized use and then immediately obscuring and rehabilitating such unauthorized routes, and rerouting and reclaiming routes causing resource damage or with safety concern would be the same as under Alternative B.

Impacts from Vegetation and Fire and Fuels Management

As under Alternative B, efforts at maintaining and improving habitat conditions in important riparian areas would maintain or improve water quality and quality in those areas. Under Alternative D, however, there would be more management and treatment occurring within the Riparian Ecological Zone than under Alternatives B and C, which would increase the chance for water quality impairments in the short term, but potentially reduce future impacts due to continued degradation of riparian areas. Impacts would be site-specific and minor.

In Parashant, seasonal grazing of the Cane Spring Pasture of the Mud and Cane Allotment would be authorized, which would result in similar impacts to water resources in those areas as described under Alternative A, but greater impacts when compared to Alternatives B and C. Repairing and maintaining the fence around the upper springs would help minimize direct impacts to water quality in those springs.

Impacts from fire and fuels treatment efforts would be similar to that described under Alternative A, although maximum acreage limits would be set. Since no maximum treatment acreage limits would be set under Alternative A, it is uncertain whether Alternative D would result in more or less acreage being treated than under Alternative A, making comparing the impacts to water quality difficult. More short-term impacts but potentially less long-term impacts would occur compared to Alternatives B and C due to more acres being treated. Impacts would range from minor to moderate.

Impacts from Soil, Air, and Water

Impacts would be the same as described under Alternative A.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B, with the exception of impacts from the Kanab Creek ACEC in the Arizona Strip FO. As under Alternative A, the Kanab Creek ACEC would not be designated under Alternative D. As a result, the Kanab Creek area would not receive the benefits to water resources that would occur under such a designation.

Impacts from Wild Horses and Burros

Impacts would be the same as described under Alternative A.

Impacts from Minerals (Arizona Strip FO only)

The impacts from mineral management would be similar to those described under Alternative A since the amount of acres closed to fluid mineral leasing and withdrawn to mining location would be similar. The least number of acres designated closed to mineral material disposal would occur under Alternative D compared to the other alternatives, resulting in the greatest potential for impacts to water resources. Impacts would be minor.

Impacts from Special Designations (Wild and Scenic Rivers)

Impacts would be the same as described under Alternative A.

Impacts from Livestock Grazing

The overall impacts from livestock grazing would be similar to those described under Alternative A. However, Alternative D proposes the least amount of restrictions on lands available for grazing or season of use among the alternatives, resulting in a greater potential for impacts to water resources in specific allotments. Development of new stock waters would cause additional impacts to water quality by creating new areas where livestock concentrate.

Impacts from Recreation

Overall impacts to water quality would be similar to that described under Alternative A, with the exception of impacts in the Arizona Strip FO from motorized speed events. Under Alternative D, such events would be authorized on a case-by-case basis. It is uncertain whether this would result in more or fewer such events.

Alternative E: Proposed Plan

Impacts from Travel Management

Overall impacts to water resources would be similar to what is described under Alternative A. One difference is that more protection to resources would occur in the Monuments under Alternative E due to 188 miles of roads in Parashant and 113 miles in Vermilion that would be closed and rehabilitated, although fewer miles would be closed compared to Alternatives B and C, but more compared to Alternative D. Impacts from additional road upgrades would result in impacts similar to those described under Alternative C.

In the Arizona Strip FO, the amount of acres open to motorized and mechanized use would be approximately 7 times less than acres in Alternative D, decreasing the potential for impacts to water resources from OHV use in these areas. Overall impacts would be minor. Impacts from additional road upgrade opportunities would be the same as under Alternative B.

Impacts from installing structures/barriers on routes to control unauthorized use, monitoring to detect routes caused by unauthorized use and then immediately obscuring and rehabilitating such unauthorized routes, and rerouting and reclaiming routes causing resource damage or with safety concern would be the same as under Alternative B.

Impacts from Vegetation and Fire and Fuels Management

Impacts to water resources in riparian areas would mostly resemble that described under Alternative C. In addition, in Parashant, extensive site management of grazing and all associated facilities in the Riparian Pasture of the Mud and Cane allotment would help ensure protection and possible improvement of water quality in the area, although surface-disturbing activities associated with trail and facility development may result in short-term impacts to water resources.

Impacts from fire and fuels treatment efforts would be similar to that described under Alternative A, although maximum acreage limits would be set. Since no maximum treatment acreage limits would be set under Alternative A, it is uncertain whether Alternative E would result in more or less acreage being treated than under Alternative A, making comparing the impacts to water quality difficult. More short-term impacts but potentially less long-term impacts would occur compared to Alternatives B due to more acres being treated, and less or similar impacts would occur compared to Alternative C or D, depending upon ecological zone. Impacts would range from minor to moderate.

Impacts from Soil, Air, and Water

Impacts would be the same as described under Alternative A.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B

Impacts from Wild Horses and Burros

Impacts would be the same as described under Alternative A.

Impacts from Minerals (Arizona Strip FO only)

The impacts from mineral management would be similar to those described under Alternative A since the amount of acres closed to fluid mineral leasing and withdrawn to mining location would be similar. Impacts would be minor.

Impacts from Special Designations (Wild and Scenic Rivers)

Impacts would be the same as described under Alternative A.

Impacts from Livestock Grazing

The overall impacts from livestock grazing would be similar to those described under Alternative A. Impacts from lands available or unavailable for grazing or with seasonal restrictions would be the same as under Alternative C or D, depending upon the allotment.

Impacts from Recreation

Overall impacts would be similar to that described under Alternative A, with impacts from motorized speed events in the Arizona Strip FO being the same as under Alternative C.

Cumulative Impacts

The geographic area of analysis for cumulative impacts to water resources is the Planning Area and drainages of the Virgin and Paria rivers and Kanab Creek located in Southern Utah. Population growth and development would continue to increase the demand for water and the need to divert water from streams and springs, ultimately reducing the number and size of riparian areas. Increasing OHV use would result in more soil surface damage and erosion. Driving off road would continue to increase sediment and salt loads of streams. Some roads intercept land surface flows, drying out some down slope sites and channelizing the water to specific release points where it scours or dumps sediments on once stable areas. Livestock grazing would continue to decrease vegetative cover and infiltration rates and increase runoff, erosion, peak flows, compaction, runoff sediment, and salt loads in areas of concentrated use, such as near stock waters and corrals. Some springs would continue to be trampled and contaminated with animal wastes. Stock ponds reduce down stream peak flows while some may recharge local aquifers. Mineral development would increase runoff, erosion, and sediment loading in construction and mining areas. Additional mining roads would increase sediment and salt loads of streams and alter some down slope sites. Future droughts would result in decreasing vegetation and spring flow. The Fort Pearce Community Watershed Plan, the Upper Langs Run Watershed Management Plan, and the Fort Pearce Wash Salinity Control Plan would continue to reduce erosion and downstream peak flows, protect microbiotic soils, and trap saline sediments.

SOILS

Soils within the Planning Area are susceptible to impacts from compaction and disturbance, which can lead to accelerated erosion, soil loss, and reduced productivity. Management actions that involve ground-disturbing activities, reducing vegetation cover, trampling, and using vehicles and heavy machinery can result in such impacts, especially in areas where geologic erosion is occurring. Similar to water resources, the greatest impacts to soil come from cross-

country vehicle travel, the use of vehicles on poorly constructed routes, mineral operations, livestock grazing, and visitor use. The effects of cross-country travel and livestock grazing include reduction or disturbance of surface cover (i.e., soil-holding vegetation, litter, and rocks), displaced soil particles, increased soil compaction, creation of new flow paths and channels, and increased runoff. All of these combine to increase soil erosion and ultimate loss. The effects of travel on poorly constructed routes are similar to the cross-country effects. Thus, the greater the number of poorly constructed routes left open, the greater the impacts through compaction and erosion.

Site-specific surface disturbing activities associated with minerals exploration, development, construction, and operations such as excavation, digging, and grading result in soil displacement and compaction, ultimately leading to erosion during rain events.

Widespread effects of livestock grazing include compaction and surface crust destruction through trampling and decreasing vegetative ground cover, thereby increasing runoff and erosion and reducing water holding capacity and infiltration rates. Visitors engaged in off-road motorized or non-motorized activities also compact the soil, although the intensity of impact is much less for the non-motorized group. Camping also results in soil compaction and vegetation loss in small areas. Since wildland soils are finite non-renewable resources, all impacts leading to soil loss or to negative changes in soil characteristics, can have irreversible consequences. Some soil types are in danger of being lost, along with their ecosystems.

Methods and Assumptions

The analysis of potential impacts to soils is based on the expertise of BLM resource specialists at the Arizona Strip FO and the NPS staff at Lake Mead NRA. Combined, these staff members possess an extensive knowledge of soil resources within the Planning Area. The impact analysis is also based on NRCS soil surveys, other agency maps and documentation, review of existing literature, and information provided by non-planning team experts in the BLM, NPS, and other agencies.

General soil types, erosion potential, structure, and function were discussed and impacts were analyzed. The analysis was based on reference information, site investigations, lab analyses, soil mechanics and engineering criteria, anticipated effects of management actions by alternative, and professional interpretation and judgment. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. When impacts are positive, it is so stated. The intensities of impacts are also described, where possible, using the following guidance:

Negligible: The amount of soil loss or erosion, or changes in soil characteristics would be at or below the level of detection.

- Minor:** The amount of soil loss or erosion, or changes in soil characteristics would be small, as would the area affected. If mitigation were needed to offset adverse effects, it would be relative simple to implement and would likely be successful.
- Moderate:** The amount of soil loss or erosion, or changes in soil characteristics would be readily apparent and result in a change in the productivity of the soil over a relatively wide area. Mitigating measures probably would be necessary to offset adverse effects and would likely be successful.
- Major:** The amount of soil loss or erosion, or changes in soil characteristics would be readily apparent and long-term and would substantially change the productivity of the soils over a large area. Extensive mitigation measures to offset adverse effects would be needed, and their success could not be guaranteed.

Impacts to Soils

Impacts to soils would result from actions proposed under the following resource management programs:

- Travel Management
- Vegetation and Fire and Fuels Management
- Soil, Air, and Water
- Special Status Species
- Wild Horse and Burros (Parashant only)
- Minerals (Arizona Strip FO only)
- Special Designations (ACECs)
- Recreation
- Livestock Grazing
- Lands and Realty

Alternative A: No Action

Impacts from Travel Management

Under Alternative A, no parts of the Monuments would be open to motorized and mechanized cross-country vehicle travel as motor vehicles would be restricted to designated roads and trails. Since cross-country travel is the most destructive to soils, this would have a moderate impact at protecting soils throughout the Monument. In the Arizona Strip FO, 803 acres would be open to motorized and mechanized vehicle use. Vehicle use, specifically OHV use, in open areas compared to designated and existing roads has the potential to cause the greatest amount of direct impacts to soils in terms of increasing erosion and runoff.

Many miles of routes designated as open to motorized/mechanized travel by the public throughout the Planning Area are non-graded, two-track trails. The use of such roads would have minor impacts on soils that are the most susceptible to compaction and rutting.

Use of non-motorized, wheeled game carriers would be allowed except in designated and NPS-proposed wildernesses. Such use could result in slight soil compaction, but impacts would be negligible. Direct impacts would occur to soils from road maintenance and use, resulting in road-edge disturbance, isolated erosion, and strong compaction. However, such impacts would be limited due to the focus on maintaining instead of enhancing existing roads. These impacts would be local, minor to moderate, and long-term. Allowing no new route construction in the Monuments, and closing and rehabilitating roads where no public or administrative need exists would contribute to soil protection. Impacts would be positive and minor to moderate.

Impacts from Vegetation and Fire and Fuels Management

Restoration and vegetation treatment projects aimed at improving vegetation health and cover would reduce erosion potential and increase soil productivity. However, mechanical, manual, or chemical treatments could result in soil compaction, some loss in vegetation cover, erosion, and changes in soil chemistry. Restrictions in sensitive areas would help protect fragile soil resources in such habitats. Treatment methods that cause substantial surface disturbance would generally not be permitted, protecting soils in the area. Impacts would be positive and would range from minor to moderate.

The majority of impacts to soils from vegetation management would occur from fire and fuel management. Wildland fire use would temporarily accelerate soil erosion and sedimentation, and potentially impact the physical, hydrological, chemical, and microbial properties of soil, lowering the productive potential. Prescribed fires could increase erosion rates from fire-line construction, especially on steep slopes. Mechanical treatments involving heavy equipment could increase soil compaction and runoff, slowing re-establishment of vegetation cover, and could thus result in erosion. Mechanical and chemical use could also impact soil chemistry and productivity. Management prescriptions and post fire rehabilitation would help minimize some of these impacts. Following minimum tool policy emphasizing hand tools, aircraft, and other suppression methods that result in the least amount impacts to soils would minimize impacts in wilderness areas. These impacts would be minor but long-term. However, impacts to soils associated with catastrophic fire would be much greater due to a high percentage of vegetative cover loss and intense deep heating, resulting in soil sterilization and creation of hydrophobic surface layers. Use of heavy fire equipment off and on road to suppress the fires would cause compaction, and chemical retardant could alter soil chemistry. Thus, while treatment would result in some direct but minor impacts to soils, decreasing the potential of hazardous effects of unplanned wildfire by reducing fuel loads would result in positive indirect impacts to soils that would be more widespread and longer term. Impacts would range from minor to moderate.

Impacts from Soil, Air, and Water

Specific stipulations and permit requirements, including reclamation plans, to protect soils during and after surface disturbing activities in the Planning Area would minimize impacts. These include restriction that all surface disturbing activities be the minimum necessary to complete the task; reclamation plans for road upgrades and/or realignments; specific soil stability measures for all surface disturbing activities and saline soils; closing and reclaiming temporary roads, facilities, and improvements that are unnecessary; and emphasizing areas of moderate to severe erosion in Allotment Management and Watershed Management Plans. Impacts would be minor Monument-wide, but potentially moderate at specific sites.

Impacts from Special Status Species

Maintenance or restoration of special status species habitats would help maintain soil productivity and limit erosion and could involve improving the condition of soils within those habitats.

The Pakoon ACEC in Parashant includes areas with severe erosion potential and areas with highly fragile microbiotic crusts. Restrictions that would be maintained under Alternative A on livestock grazing, vegetation management, recreation, transportation/access, wild burros, and other surface disturbing or soil compacting activities within the ACEC would continue to limit erosion. This impact would be positive and minor throughout the ACEC, but potentially moderate in specific areas.

In the Arizona Strip FO, restrictions placed on the use of track vehicles, vegetation treatments, rights of way (ROWS), campgrounds, and other surface disturbing activities in desert tortoise habitat would also protect soils within such habitats. Retaining all BLM lands within desert tortoise critical habitats would help protect soils within those habitats. Maintenance of the special status species ACECs would continue protection of soils within their boundaries due to restrictions on surface disturbing activities. Impacts would be greatest in areas with compactable soils and severe wind and water erosion potential. Overall impacts to soils would be minor to moderate, long term, and site-specific.

Impacts from Wild Horses and Burros

Keeping the Herd Management Level for wild burros at zero in Parashant would eliminate impacts to soils caused by trampling, compaction, and reduced vegetation cover from wild burros. Impacts would be positive and negligible to minor.

Impacts from Minerals (Arizona Strip FO only)

In the Arizona Strip FO, adherence to best management practices outlined in mining laws, plans of operation, pertinent restrictions, standard terms and conditions, etc., would help minimize

impacts to soils. Impacts would be minor. Closing or withdrawing areas from mineral operations would prevent impacts to soils within those areas.

Impacts from Livestock Grazing

Livestock grazing within the Planning Area would continue to be managed in keeping with applicable laws and regulations, and with the statewide standards and guidelines. If the statewide standards and guidelines are met, upland soils would exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate, and landform. Impacts would be minor area-wide, but potentially moderate in specific areas such as the Riparian Ecological Zone.

Closing sensitive areas to grazing would reduce soil compaction and erosion, stabilize soil surfaces, and restore productivity. Organic, surface crusts would slowly redevelop where there are now physical crusts, increasing the infiltration rate and reducing erosion. Under Alternative A, 199,350 acres in Parashant would not be open to grazing. This would reduce the amount of surface disturbance, compaction, and erosion from grazing activities. Impacts would be positive and minor to moderate, especially on those allotment soils that are susceptible to compaction and erosion.

No allotments are unavailable to grazing in the Arizona Strip FO under Alternative A. However, there are 2,566 acres managed in Vermilion that is on Glen Canyon National Recreation Area that are unavailable in all alternatives. Seasonal use would apply to some allotments. These include the river pasture of the Lees Ferry Allotment in Vermilion and the desert tortoise and Southwestern Willow Flycatcher allotments in the Arizona Strip FO. Grazing in these allotments would create the potential for impacts to soils from trampling and vegetation removal, resulting in compaction and erosion. Seasonal restrictions following statewide standards and guidelines would reduce the level of impacts. Impacts would be long term, site specific, and minor.

Impacts from Recreation

Visitor use is expected to increase throughout the Planning Area, which would continue to impact soil resources. Instituting and/or adjusting visitor limits, regulations, or restrictions and limiting recreational activities (e.g., camping, recreational stock use, etc.) in sensitive habitats would help limit impacts to soil resources. Responding to unacceptable resource conditions, including those relating to soils, would also help keep impacts at a low level. Areas where public recreation use is concentrated, such as campgrounds, trails, trail heads, and near visitor facilities, would experience the most soil compaction and erosion and a loss or reduction of vegetation cover. Under Alternative A, most recreation would be dispersed. Facility development would be minimal (e.g., directional, interpretive, or safety signing; interpretive sites; or kiosks) and be located along roadways. Signing may protect soil resources though preventing or reducing off-road damage. Overall impacts would be minor, but potentially moderate in highly concentrated recreation areas.

Paria Canyon, Buckskin Gulch, Wire Pass, and Coyote Buttes are areas in Vermilion where large numbers of visitors in a limited space could affect soils through compaction and surface disturbance, leading to increased wind and water erosion. These areas would experience the most amount of soil compaction and loss or reduction of vegetation cover, as well as destruction of biological crusts. Under Alternative A, limits would be placed on total visitor numbers and group size in these areas, which would continue to minimize these impacts. Monitoring and using an adaptive management program to address necessary changes to visitor use numbers could help limit unacceptable impact to soils. Soils would be protected from trampling and compaction in areas where horses and pack stock would be prohibited (in Paria Canyon upstream from Bush Head Canyon), but would become susceptible from such impacts where horses and pack stock are allowed. Impacts would be minor to moderate, long term, and site specific.

The greatest impacts to soils would occur from off-road vehicle use and motorized speed events. While no areas within the Monuments would be open to off-road vehicle use and no motorized speed events would be authorized, it is likely that some illegal off-road activities would occur. In the Arizona Strip FO, the annual Rhino Rally motorcycle race would be allowed to continue under Alternative A, but restricted primarily to roads and washes and limited to 300 entrants. The race could increase erosion levels along the course due to the volume of participants and the actual course used. While overall impacts would be short term and minor, the intensity of impacts in the immediate vicinity of the race could be long term and moderate due to post-race use.

Impacts from Lands and Realty

In the Monuments, the appropriation and withdrawal of all federal lands and interests in lands from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws provided protection to soils under federal management practices as well as protecting the Monuments from certain surface disturbing activities that could cause compaction and erosion. Processing no new ROWs and ancillary public facilities, with a few exceptions, would also limit impacts to soils. Impacts would be positive, long-term, and negligible.

In the Arizona Strip FO, acquiring non-federal lands in Virgin River riparian areas, DWMA/ACECs, wilderness areas, and Resource Conservation Areas (RCAs), and reserving and/or managing them as part of the NLCS unit or administratively designated area would provide protection to soils within these lands due to the restrictions placed on surface disturbing activities by the BLM. Retaining designated or proposed critical habitat and lands supporting listed species would continue to provide protection to soils in these areas. Identifying up to 7,335 acres for exchange, sale, or R&PP sales and an additional 17,853 acres for exchange, for a total of 25,188 acres, would make these lands susceptible to increased impacts to soils compared with retaining the land in federal ownership, although prospective future owners would be advised on the need for Endangered Species Act (ESA) compliance. Any new land use authorizations (ROWs, permits, leases, easements, etc.) would impact soils through compaction

and vegetation removal, which could lead to erosion. Impacts would be minor to moderate and localized.

Alternative B

Impacts from Travel Management

Overall impacts would be similar to what is described under Alternative A. Additional protection to soils would occur under Alternative B due to 445 miles of roads in Parashant and 179 miles in Vermilion being closed and rehabilitated, which is the most acres and miles closed among the alternatives. In addition, 1,089 less miles in Parashant and 274 less miles in Vermilion would be open to motorized/mechanized travel by the public, which would reduce total miles of non-graded, two-track trails that would experience compaction and rutting. Impacts would be site specific, long term, and range from minor to moderate. Prohibiting wheeled game carriers throughout the Monuments would also protect soils from compaction, although the impact would be negligible. Limiting route maintenance to within the existing disturbed surface area would also reduce further soil compaction and erosion.

In the Arizona Strip FO, Alternative B is the most restrictive alternative in terms of OHV area designations, being the only alternative with no open areas and no authorization for motorized speed events. Although fewer acres would be closed to motorized and mechanized vehicle use, impacts to these areas would be negligible due to other forms of protection. In addition, no new motorized routes would be considered in listed species habitat and non-motorized trail construction would be considered only when needed to protect sensitive resources, minimizing the impacts to soil from these activities. Alternative B would thus result in the least amount of impacts to soils as a result of OHV use and route/trail construction. However, additional road upgrade opportunities (e.g., widening, passing lanes, realignments, and travel surface upgrades) would be available under Alternative B and could result in greater impacts to soils due to surface-disturbing activities than under Alternative A, but would result in long-term improvements to soil resources after upgrades are completed and properly working to reduce erosion and runoff. Impacts would be localized and minor. Prohibiting wheeled game carriers in ACECs as well as designated wildernesses would protect soils from compaction within the ACECs, although the impact would be negligible.

For the entire Planning Area, installing structures/barriers on routes to control unauthorized use, monitoring to detect routes caused by unauthorized use and then immediately obscuring and rehabilitating such unauthorized routes, and rerouting and reclaiming routes causing resource damage or with safety concern could help reduce impacts to soils. Impacts would be minor, long term, and site specific.

Impacts from Vegetation and Fire and Fuels Management

Overall impacts to soils would be similar to those described under Alternative A. Additional protection would occur on NPS lands in Parashant due to the development of individual restoration plans that include measures to reduce soil erosion.

Under Alternative B in Parashant, the entire Cane Springs pasture of Cane Springs Allotment would be unavailable to grazing and the spring area allowed to naturally rehabilitate. This would result in decreased surface disturbance, erosion, and compaction and increased vegetation cover in the pasture compared to Alternative A. Impacts would be moderate. Also under Alternative B, the Pakoon Springs area would be restored through natural process, which would decrease soil erosion and improve soil productivity through time. Impacts would be minor.

Impacts from fire and fuels treatment efforts to soils would be similar to that described under Alternative A for the entire Planning Area, although maximum acreage limits would be set. Since no maximum treatment acreage limits would be set under Alternative A, it is uncertain whether Alternative B would result in more or less acreage being treated than under Alternative A, making comparing the impacts to soils difficult. However, fewer treatment methods would be authorized under Alternative B, which could limit direct impacts.

Impacts from Soil, Air, and Water

Impacts would be similar to that described under Alternative A. Additional protection to soils would result from emphasizing management of all allotments in Watershed Condition Class IV to reduce erosion and improve the watershed condition class. In addition, Upper Lang's Run, Black Rock Mountain, and Parashant watersheds, portions of which are located in both Parashant and the Arizona Strip FO, would receive priority for assessment, treatments, and/or restrictions on use to reduce erosion. The same priority would be given to Lower Hurricane Valley, Fort Pearce Salinity Area, Clayhole Flood Control Structures Area, and Wild Band Valley watersheds, all of which are located in the Arizona Strip FO. Priority would be given to all watersheds in Vermilion for assessment, treatments, and/or restrictions on use to reduce erosion. Impacts would be localized and minor.

Impacts from Special Status Species

Restrictions placed on livestock grazing, fire management, and recreation (e.g., OHV use, camping, and horseback riding) that degrades special status species habitat would limit soil erosion and compaction in those habitats. Impacts would be site specific and minor.

In Parashant, although the Pakoon ACEC would not be designated under Alternative B, protections offered to soil resources would continue to be applied to the Pakoon DWMA, which covers the same area as the ACEC. Impacts would thus be the same as described under Alternative A.

In Arizona Strip FO, there would be some additional restrictions on surface-disturbing activities from fire management, grazing, recreation, and development of facilities in special status species habitats that would provide additional protection to soils within those habitats. Impacts would be minor and site specific. Designating additional or increasing the size of existing ACECs would help protect soils within the ACECs due to specific restrictions on grazing, recreation, vegetation treatment, and other surface disturbing activities. Impacts would be greatest in compactable soils and areas with severe wind and water erosion potential. Overall impacts to soils would be long term, site specific, and range from minor to moderate.

Impacts from Wild Horses and Burros

Impacts would be the same as described under Alternative A.

Impacts from Minerals (Arizona Strip FO only)

The types of impacts from fluid mineral leasing and mining location would be similar to those described under Alternative A since the amount of acres closed and withdrawn would be similar. However, nearly twice as many acres would be designated closed to mineral material disposal compared to Alternative A, which would result in less impact to soils.

Impacts from Livestock Grazing

Overall impacts from livestock grazing would be similar to that described under Alternative A. Additional lands made unavailable for grazing and seasonal restrictions would benefit soils within those specific allotments by eliminating any potential impacts to soils from trampling, and would increase vegetative cover and benefit biological crusts. Lands unavailable for grazing and/or with restrictions involve desert tortoise allotments in Parashant and the Arizona Strip FO, Willow Flycatcher allotments in the Arizona Strip FO, and the river pasture of the Lees Ferry Allotment in Vermilion. Impacts would be long term, site specific, and range from minor to moderate.

Impacts from Recreation

Overall impacts from visitor use would be similar as described under Alternative A. Added protection to soils in the Monuments would result from additional restrictions on camping, including limiting camping to designated sites only. While soil disturbance, compaction, and erosion would be greater at small, more concentrated use sites, such as designated camping areas, limiting camping to these areas would limit the creation of new areas of compaction and erosion. In Vermilion, prohibiting stock use in Paria Canyon would eliminate impacts to soils from such use. Impacts would be minor. In the Arizona Strip FO, soils would receive added protection due to no motorized speed events being authorized. Impacts would be site specific, long term, and range from minor to moderate.

Impacts from Lands and Realty

Retaining lands and interests in lands (including minerals) in federal ownership within NLCS units (e.g., designated wilderness, National Monuments, NHTs), administratively designated areas (e.g., ACECs), areas allocated to maintain wilderness characteristics, Wild and Scenic River study areas, DWMAAs, critical habitat, lands supporting listed species, important riparian areas, and springs, seeps, etc., and reserving and/or managing them as part of the NLCS unit or administratively designated area would provide protection to soils within these lands due to the restrictions placed on surface disturbing activities by the BLM. Identifying 1,507 fewer acres in the Arizona Strip FO for exchange, sale, or R&PP lease/sale would result in fewer impacts to soils due to more acres being retained in federal ownership. Fewer and/or more restrictive new land use authorizations (ROWs, permits, leases, easements, etc.) would occur under Alternative B, resulting in fewer impacts to soils.

Alternative C

Impacts from Travel Management

Overall impacts would be similar to that described under Alternative A. Additional protection to soils in the Monuments would occur under Alternative C due to 224 miles of roads in Parashant and 110 miles in Vermilion being closed and rehabilitated, although this is less than proposed under Alternative B. In addition, fewer miles would be open to motorized/mechanized travel by the public, which would reduce total miles of non-graded, two-track trails that would experience compaction and rutting; however, not as much as under Alternative B. Differing from both Alternative B and A, new road and trail construction would be allowed in the Monuments, which would increase surface disturbance, compaction, and erosion in the area of the constructed routes. Another difference is that additional road upgrade opportunities (e.g., widening, passing lanes, realignments, and travel surface upgrades) could result in greater impacts to soils due to surface-disturbing activities, but would result in long-term improvements to soils after upgrades are completed and properly working to reduce erosion and runoff. Overall impacts would be site specific, long term, and range from minor to moderate.

In the Arizona Strip FO, impacts from the number of acres closed to motorized and mechanized vehicle use and route maintenance activities would be similar to Alternative B; however, there would be fewer restrictions on new permanent motorized route and non-motorized trail construction, which could increase the potential for impacts to soils from such activities. Impacts would be localized and minor. Impacts from a designated motorized speed event area would be similar to Alternative A. Impacts from wheeled game carriers would be the same as under Alternative B, with the exception that they would be allowed in areas having wilderness characteristics, although this would have no additional impact to soils.

For the entire Planning Area, installing structures/barriers on routes to control unauthorized use, monitoring to detect routes caused by unauthorized use and then immediately obscuring and rehabilitating such unauthorized routes, and rerouting and reclaiming routes causing resource damage or with safety concern would have the same impacts as under Alternative B.

Impacts from Vegetation and Fire and Fuels Management

Overall impacts to soils would be similar to those described under Alternative B, including impacts from the development of individual restoration plans on NPS lands.

Under Alternative C, the riparian area of the Cane Springs pasture would be open for seasonal grazing with the fence around the upper springs repaired. While the fence would prevent further compaction and vegetation loss from grazing around the spring, and thus reduce erosion and improve productivity, the remainder of the pasture would be exposed to these impacts. Seasonal restrictions would reduce such impacts. Impacts would be localized and range from minor to moderate.

Impacts from fire and fuels treatment efforts to soil resources would be similar to that described under Alternative A, although maximum acreage limits would be set. Since no maximum treatment acreage limits would be set under Alternative A, it is uncertain whether Alternative C would result in more or less acreage being treated than under Alternative A, making comparing the impacts to soils difficult. More acres would be treated and treatment methods used compared to Alternatives B, resulting in more, short-term impacts to soils but less potential for indirect, longer-term impacts if more treatment efforts would result in less risk of catastrophic fire. This impact would range from minor to moderate.

Impacts from Soil, Air, and Water

Impacts would be the same as described under Alternative B.

Impacts from Special Status Species

In the Monuments, impacts would be the same as described under Alternative B. In the Arizona Strip FO, impacts from the management of special status species habitats would be similar to that proposed under Alternative A, including impacts from restoration activities, restrictions placed on various surface disturbing activities, and retaining lands in federal ownership. There would be some additional restrictions on surface disturbing activities from fire management, grazing, recreation, and development of facilities in special status species habitats that would provide additional protection to soils within those habitats compared to Alternative A, although there would be fewer or less intense restrictions than under Alternative B. Impacts would be minor and site specific. In addition, ACEC management restrictions would cover a greater area than under Alternative A, which would protect more acres of soil, but much fewer acres when compared to Alternative B. Overall impacts to soils would be minor, long term, and site specific.

Impacts from Wild Horses and Burros

Impacts would be the same as described under Alternatives A.

Impacts from Minerals (Arizona Strip FO only)

The types of impacts from mineral management in the Arizona Strip FO would be similar to those described under Alternative A since the amount of acres closed to fluids mineral leasing and withdrawn to mining location would be similar. Roughly, nine thousand more acres would be designated closed to mineral material disposal compared to Alternative A, which would result in fewer impacts to soils, but more impacts compared to Alternative B.

Impacts from Livestock Grazing

The overall impacts from livestock grazing would be similar to those described under Alternative A. In Parashant, impacts from restrictions placed on the Mosby-Nay Allotment would be similar to Alternative B, although not as extensive. The season of use would be shorter for the Pakoon Springs and Pakoon allotments compared to Alternative A, reducing impacts to soils in these allotments compared to Alternative A, but involve more impacts compared to Alternative B. In Vermilion, specific impacts to the Lees Ferry Allotment would also be similar to Alternative A, although the allotment would be managed as a forage reserve and the season of use would be more restrictive, thus reducing the level of impact to soils. Impact would be minor. In the Arizona Strip FO, impacts from grazing in desert tortoise allotments and the Cedar Wash Allotment would be the same as described under Alternative A. Season of use and other management prescriptions may be applied to the portions of the Mesquite and Littlefield Community Allotments outside the Littlefield Slope pastures, which would have a negligible to minor impact on soils. Impacts to specific Southwestern Willow Flycatcher habitats would be the same as described under Alternative B.

Impacts from Recreation

Overall impacts to soils would be similar to those described under Alternative A, with a few exceptions. Under Alternative C, camping would be limited to existing sites or disturbed areas in the Monuments. This would limit the creation of new areas of compaction and erosion compared to Alternative A, although impacts would be more widespread compared to Alternative B. In the Arizona Strip FO, a motorized speed event area would be identified, which may limit the area of impact from such events as the Rhino Rally.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative A in the Monuments. Impacts would be similar to that described under Alternative B in the Arizona Strip FO, although more impacts

to soils could occur due to an additional 1,638 acres being identified for disposal than identified in Alternative B or 131 acres more than Alternative A.

Alternative D

Impacts from Travel Management

Impacts would be similar to that described under Alternative C in the Monuments, including the potential for new road/trail construction and upgrades. Additional protection to soils would occur under Alternative D compared to Alternative A due to 148 miles of roads in Parashant and 93 miles of roads in Vermilion being closed and rehabilitated (less than proposed under Alternatives B and C) and fewer miles of roads/trails open to the public (more than proposed under Alternatives B and C).

In the Arizona Strip FO, impacts from acres closed to motorized and mechanized vehicle use and route maintenance activities would be similar to Alternative B. Impacts from permanent motorized route and non-motorized trail construction and use of wheeled game carriers would be the same as under Alternative C. Alternative D would differ from the other alternatives in terms of having 7,186 acres of BLM land open to motorized and mechanized vehicle use, including one large area south of St. George and one small area south of Fredonia, nearly nine times the open acres proposed under Alternative A and nearly five times that proposed under Alternative C. Use of these areas would cause the greatest impacts to soils, especially south of St. George. Impacts would be localized, long term, and moderate. In addition, the greatest amount of new route and trail construction could occur under Alternative D to support recreation opportunities, which would lead to more impacts to soils than under Alternatives A, B, or C. Overall, the greatest impacts to soils from Travel Management would occur under Alternative D.

For the entire Planning Area, installing structures/barriers on routes to control unauthorized use, monitoring to detect routes caused by unauthorized use and then immediately obscuring and rehabilitating such unauthorized routes, and rerouting and reclaiming routes causing resource damage or with safety concern would have the same impacts as described under Alternative B.

Impacts from Vegetation and Fire and Fuels Management

Overall impacts to soils would be similar to those described under Alternative C. In Parashant, seasonal grazing of the Cane Spring Pasture of the Mud and Cane Allotment would be authorized, which would result in similar impacts to soils in the area as Alternative A, but greater impacts when compared to Alternatives B and C. Repairing and maintaining the fence around the upper springs would help minimize direct impacts to soils in those springs.

Impacts from fire and fuels treatment efforts to soils would be similar to that described under Alternative A, although maximum acreage limits would be set. Since no maximum treatment acreage limits would be set under Alternative A, it is uncertain whether Alternative D would

result in more or less acreage being treated than under Alternative A, making comparing the impacts difficult. More short-term impacts but potentially less long-term impacts would occur compared to Alternatives B and C due to more acres being treated and treatment methods being used. More, less, or similar impacts would occur compared to Alternatives E, depending upon the ecological zone. Impacts would range from minor to moderate.

Impacts from Soil, Air, and Water

Impacts would be the same as described under Alternative B.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B for the Monuments. In the Arizona Strip FO, impacts from the management of special status species habitats would be similar to that proposed under Alternative A, including impacts from restoration activities, restrictions placed on various surface disturbing activities, and retaining lands in federal ownership. There would be some additional restrictions on surface disturbing activities from fire management, grazing, recreation, and development of facilities in special status species habitats that would provide additional protection to soils within those habitats compared to Alternative A, although there would be fewer or less intense restrictions than under Alternative B or C. Impacts would be minor and site specific. The four original Siler pincushion ACECs designated in the 1992 RMP (Fort Pearce, Johnson Springs, Lost Springs, Moonshine Ridge) and the additional Clayhole ACEC would not be designated under this alternative. As a result, the protection to soils afforded by the ACEC designations would be lost. Impacts from the Marble Canyon ACEC and desert tortoise ACECs would be the same as under Alternative C. Also similar to Alternatives A is that no new ACECs would be designated under Alternative D, resulting in no added protection to soils that ACEC designations would provide. Impacts would be site specific, long term, and range from minor to moderate.

Impacts from Wild Horses and Burros

Impacts would be the same as described under Alternative A.

Impacts from Minerals (Arizona Strip FO only)

Impacts would be similar to those described under Alternative A from the number of acres closed to fluids mineral leasing and withdrawn to mining location. However, Alternative D proposes the fewest acres designated closed to mineral materials disposal among the alternatives, resulting in the greatest potential for impacts to soils. Impacts would be minor and site specific.

Impacts from Livestock Grazing

Overall impacts would be similar to those described under Alternative A. In Parashant, season of use and other management prescriptions could be established in the Mosby-Nay, and Pakoon Springs Allotments, potentially reducing soil compaction/erosion in these allotments. Impacts would be negligible to minor. The portion of the Pakoon Allotment within the Pakoon DWMA (unavailable under Alternative A) would be open for grazing, which would make it susceptible to compaction and erosion. Impacts would be minor and site specific. In Vermilion, specific impacts to the Lees Ferry Allotment would also be similar to Alternative A, although it would be managed as a forage reserve. In the Arizona Strip FO, impacts from grazing in desert tortoise allotments would be similar to but more intense than that described under Alternative A due to the option to authorize ephemeral extensions, potentially increasing grazing by up to two months and creating the potential for greater impacts to soils in those allotments. Impacts to specific Southwestern Willow Flycatcher habitats would be the same as described under Alternative B.

Impacts from Recreation

Impacts would be similar to that described under Alternative C, with the exception that horse and stock use would be allowed in more portions of Paria Canyon, which would increase the total area impacted from trampling and erosion resulting from such use. Impacts would be minor.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative A for the Monuments, but similar to Alternative C for the Arizona Strip FO.

Alternative E: Proposed Plan

Impacts from Travel Management

Impacts would be similar to what is described under Alternative C in the Monuments, including the use of wheeled game carriers and potential for new route construction and upgrades. Additional protection to soils would occur under Alternative E compared to Alternative A due to 188 miles of roads in Parashant and 113 miles of roads in Vermilion being closed and rehabilitated (more than under Alternative D but less than under Alternatives B and C). In addition, fewer miles of roads would be open to the public, which would result in less impacts to soils compared to Alternatives A and D, but more when compared to Alternatives B and C.

In the Arizona Strip FO, impacts would be similar to those described under Alternative D, including those stemming from the number of acres open to motorized and mechanized vehicle use.

For the entire Planning Area, installing structures/barriers on routes to control unauthorized use, monitoring to detect routes caused by unauthorized use and then immediately obscuring and rehabilitating such unauthorized routes, and rerouting and reclaiming routes causing resource damage or with safety concern would have the same impacts as under Alternative B.

Impacts from Vegetation and Fire and Fuels Management

Overall impacts to soils would be similar to those described under Alternative C. In Parashant, extensive site management of grazing and all associated facilities in the Riparian Pasture of the Mud and Cane allotment would help ensure protection and possible improvement of soils in the area, although surface-disturbing activities associated with trail facilities development may result in short-term impacts to soils.

Impacts from fire and fuels treatment efforts to soils would be similar to that described under Alternative A, although maximum acreage limits would be set. Since no maximum treatment acreage limits would be set under Alternative A, it is uncertain whether Alternative E would result in more or less acreage being treated than under Alternative A, making comparing the impacts difficult. More short-term impacts but potentially less long-term impacts would occur compared to Alternatives B due to more acres being treated and treatment methods being used, and less or similar impacts would occur compared to Alternatives C and D, depending upon ecological zone. Impacts would range from minor to moderate.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B for the Monuments. In the Arizona Strip FO, impacts from the management of special status species habitats would be similar to that proposed under Alternative A, including impacts from restoration activities, restrictions placed on various surface disturbing activities, and retaining lands in federal ownership. Impacts from additional restrictions on surface disturbing activities in special status species habitats would be similar to those described under Alternative D. Impacts would be minor and site specific. Impacts from the Siler pincushion cactus ACECs, the Virgin River ACEC, and designation of the Lone Butte, Black Knolls, and Kanab Creek ACECs would be the same as under Alternative B. Impacts from the Marble Canyon ACEC; desert tortoise ACECs, with the exception of the Virgin River ACEC; and not designating the Twist Hills, Clayhole, Buckskin, and Coyote Valley ACECs would be the same as described under Alternative C.

Impacts from Wild Horses and Burros

Impacts would be the same as described under Alternative A.

Impacts from Soil, Air, and Water

Impacts would be the same as described under Alternative B.

Impacts from Livestock Grazing

The overall impacts from livestock grazing would be similar to those described under Alternative A. In Parashant, impacts from lands available to grazing, unavailable to grazing, or with seasonal restrictions would be the same as under Alternative C or D, depending upon allotment. In Vermilion, such impacts would be the same as described under Alternative B. In the Arizona Strip FO, impacts from grazing in desert tortoise allotments would be the same as described under Alternative A. Impacts from grazing on the portions of the Mesquite and Littlefield Community Allotments outside the Littlefield Slope pastures and the Cedar Wash Allotment would be the same as under Alternative C. Impacts to specific Southwestern Willow Flycatcher habitats would be the same as described under Alternative B.

Impacts from Recreation

Overall impacts to soils would be similar to those described under Alternative C.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative A in the Monuments, but the same as under Alternative C in the Arizona Strip FO.

Cumulative Impacts

The geographic area for analysis of cumulative impacts to soils is the Planning Area. The soils in the area formed under conditions that had no vehicles or large numbers of large animals to impact them. Population growth, grazing, and developments in the past 150 years have resulted in soil disturbance on hundreds of thousands of acres at and near homesteads, communities, roads, and waters in the Planning Area. Continued population growth and the resulting growth in vehicle and OHV use and visitation in the region would continue to add to the acreage of soil disturbance. Continued AMP implementation, watershed plans, and the Standards and Guides process would continue to examine livestock grazing areas for impacts and would apply remedies to decrease compaction and erosion. Continued and/or additional gypsum mining would increase disturbance to soils. Renewed exploration or production of uranium would increase soil disturbance on access roads and at mine sites. Reclamation would stabilize the replaced soils. Federal designations of wilderness and national Monuments and parks would continue to reduce roads, OHV use, and erosion. Additional droughts would reduce overall vegetative cover making soils more susceptible to erosion, especially where there is surface disturbance. Wildfire would continue to make soils more susceptible to erosion. The Fort Pearce Community Watershed Plan, the Upper Langs Run Watershed Management Plan, and the Fort Pearce Wash Salinity Control Plan would continue to control floods, reduce erosion, reduce downstream peak flow, protect microbiotic soils, and trap saline sediments.

GEOLOGY AND PALEONTOLOGY

This section presents potential impacts of the alternatives on geological and paleontological resources. Many of the well-known and spectacular or unique geological resources in the Planning Area are managed with other resources under Special Designations, such as wilderness areas, National Monuments, and ACECs. The locations of some less familiar geological resources, such as cave and karst resources, sink holes, lava tubes, and breccia pipes are lesser known. The Planning Area has not been surveyed for paleontological resources and the occurrences of most paleontological resources are not known. See Chapter 3 for a discussion of the geological and paleontological resources in the Planning Area.

Impacts to geological and paleontological resources occur by erosion, vehicles driving off roads, excavation, theft, vandalism, and surface disturbing activities such as trampling by animals and humans. Experience has shown that damage, theft, and vandalism are usually concentrated near roads and trails. Impacts to geological and paleontological resources may increase because of additional visitation to the Planning Area.

Methods and Assumptions

The analysis of potential impacts to geological and paleontological resources is based on the expertise of BLM resource specialists at the Arizona Strip FO and the NPS staff at Parashant and Lake Mead NRA. The impact analysis is also based on review of existing literature, geologic maps, field trips, site visits, and information provided by non-planning team experts in the BLM, NPS, USGS, and other agencies.

Specific impacts on geological resources are not always readily identifiable. This is because some impacts on geology are difficult to separate from impacts to other resources that geology supports. Thus, the impacts on geology are often discussed, either implicitly or explicitly, in the discussion of impacts to other resources such as paleontology and scenic quality (Visual Resources).

Paleontological resources are associated with specific geologic formations. Appendix 3.B is a summary table of the fossil assemblages associated with each geologic formation, group, and member in the Planning Area. No vertebrate fossil remains have been documented in the Planning Area. However, vertebrate fossil remains are found adjacent to the Planning Area within many of the same geologic formations present in the Planning Area. Fossil vertebrate footprints (ichnites) are documented in the Planning Area.

All surface disturbing activities include mitigation to reduce impacts to geological and paleontological resources. Analysis of impacts includes all mitigation measures in place.

Effects are quantified where possible. In absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in

qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible:** The impact to geological or paleontological resources would not be detectable through standard observation. The effect would be at the lowest levels of detection, barely measurable, and without any perceptible consequences, either beneficial or adverse.
- Minor:** The impact would be detectable. The beneficial or adverse impact would be measurable or perceptible, but it would be slight and localized within a relatively small area. The total volume of disturbance or damage to geological and paleontological resources would be hardly perceptible.
- Moderate:** The impact would be readily apparent beneficial or adverse. The impacts would be measurable and perceptible. Adverse actions would change one or more character-defining features of a geological and paleontological resource, but would not diminish the integrity of the resource to a large extent. The total volume of disturbance could still be small, but quite noticeable in local areas, or it could involve a unique or rare resource.
- Major:** The impact would be severe. The adverse impact on geological and paleontological resources would be substantial, noticeable, and permanent. Actions would result in a dramatic change to the resource. The change would be measurable and the amount of disturbance would be large.

The area of analysis for cumulative effects on geological and paleontological resources is defined as northern Arizona, southwestern Utah, and southeastern Nevada.

Impacts to Geology and Paleontology

Impacts to geological or paleontological resources in Parashant would result from actions proposed under the following resource management programs:

- Travel Management
- Wilderness Characteristics
- Vegetation and Fire and Fuels Management
- Visual Resources
- Minerals (Arizona Strip FO only)
- Special Designations
- Recreation
- Lands and Realty

*Alternative A: No Action*Impacts from Travel Management

To protect Monument objects identified in the proclamations, including geological and paleontological resources, no areas within the Monuments would be authorized for cross-country, off-road vehicular use except for authorized administrative and emergency purpose. Enforcing this action would reduce erosion, trampling, vandalism, and other surface disturbing impacts that damage geological and paleontological resources. Restricting travel to designated roads would confine physical disturbances to geological and paleontological resources to the area in the immediate vicinity of the designated roads.

The most miles of roads would be open to motorized and mechanized travel under this alternative, along with the fewest miles of roads closed to motorized and mechanized travel. Road closures could also affect research by limiting access. The most impacts to geological and paleontological resources associated with motorized and mechanized travel along roads would occur under this alternative. Overall impacts to geological and paleontological resources would be minor.

In the past, visitors have created roads and repeated use has made them permanent. These unapproved roads could be destructive to geological and paleontological resources. Implementing Alternative A would minimize new, permanent roads within the Planning Area, which would protect geological and paleontological resources from further damage. Direct and indirect impacts to geological and paleontological resources would be minor to moderate.

Impacts from Wilderness Characteristics

Under Alternative A, no acres would be allocated for the maintenance of wilderness characteristics.

Impacts from Vegetation and Fire and Fuels Management

In general, impacts to geological and paleontological resources would be negligible due to minimal vegetation treatments proposed under Alternative A.

In Parashant and the Arizona Strip FO, wildland fire use and prescribed fire would continue and could cause direct and indirect impacts to geological and paleontological resources. Fire could cause the direct destruction of organic fossil remains (e.g., Quaternary packrat middens). The removal of vegetative cover by fire would accelerate erosion and aeolian processes creating short-term indirect impacts. However, these impacts would be negligible compared with similar impacts that occur by natural processes. Fire suppression that involves the use of heavy

equipment and the construction of fire lines creating surface disturbances could cause direct minor impacts to geological and paleontological resources.

Since wildfires tend to be confined to singletree events in Vermilion, there would be no or negligible impacts to geological and paleontological resources in that Monument.

Impacts from Visual Resources

For Parashant and the Arizona Strip FO, Alternative A would involve the most acreage designated as Visual Resources Management (VRM) Class IV compared to the other alternatives, resulting in the greatest potential to disturb the geological strata, paleontological resources, and the view of the area's geology. Overall impacts could range from negligible to moderate. For Vermilion, all proposed VRM designation is either Class I or Class II, which could help preserve the Monument's geology and paleontology.

Impacts from Minerals (Arizona Strip FO only)

Surface disturbing activities authorized by the minerals programs, such as mineral exploration projects and extraction of mineral resources, could result in adverse direct and indirect impacts to geological and paleontological resources. The impacts would be minor to moderate.

Impacts from Special Designations (Arizona Strip FO only)

Designation of ACECs to protect critical resources would also benefit geological and paleontological resources by requiring a plan of operations for mineral development and allowing no cross-country motorized travel. Impacts would be minor.

Impacts from Recreation

Recreation under Alternative A would maintain emphasis on recreation opportunities associated with motorized vehicle use such as exploring backcountry roads, vehicle camping, sightseeing, and picnicking. Increased visitation under current management would increase surface disturbance and opportunities to directly and indirectly damage resource such that minor impacts could occur to the geological and paleontological resources.

In Arizona Strip FO, greater impacts would occur during competitive events, such as motorized vehicle races and rallies. In the short term, minor impacts would be evident to the geological and paleontological resources; however, moderate impacts could result in the long term.

Impacts from Lands and Realty

Lands and realty actions could result in the acquisition of surface and subsurface estate, which would bring the estate under the federal protection and benefit geological and paleontological resources.

Land disposed in the Arizona Strip FO could be detrimental to geological and paleontological resources depending upon the use of the land after leaving federal ownership. Withdrawals restrict certain activities including access, which decreases visitation. This would indirectly benefit geological and paleontological resources since fewer visitors would result in less surface disturbance and fewer opportunities to damage resources. The impacts would be minor.

Surface disturbing activities authorized by the lands and realty programs, such as ROWs and communication sites, could result in adverse direct and indirect impacts to geological and paleontological resources. The impacts could be minor to moderate.

Alternative B

Impacts from Travel Management

Under Alternative B, the least miles of routes within the Planning Area would be open to motorized use, which are 1,381 less than the miles that proposed under Alternative A. In addition, the most miles of routes would be closed to motorized and mechanized access. This makes Alternative B the most restrictive for motorized/mechanized access, which would result in reduced opportunities for visitors to cause surface disturbances from motorized use, and thus reduce damage to geological and paleontological resources from such use. Road closures, however, could affect research proposals by limiting access. Direct and indirect impacts would be negligible to minor.

Impacts from Wilderness Characteristics

Alternative B recognizes the most acreage for wilderness characteristics in the Monuments. In the Arizona Strip FO, 46,135 acres would be identified to maintain wilderness characteristics. The emphasis on naturalness and a focus on reduced motorized visitation within these areas would be beneficial for geological and paleontological resources. Indirect impacts would be negligible to minor.

Impacts from Vegetation and Fire and Fuels Management

Overall impacts would be the same as described under Alternative A.

Impacts from Visual Resources

Alternative B proposes the greatest amount of acreage to be designated as VRM Class I and II, with the least amount of acreage to be designated as VRM Class III and IV compared to the other alternatives, which would provide the greatest protection of geological and paleontological resources. Impacts would be negligible to minor.

Impacts from Minerals (Arizona Strip FO only)

Impacts would be the same as described under Alternative A.

Impacts from Special Designations

The existing ACECs in Parashant would lose their designation under Alternative B, with no new ones being created. Impacts would be negligible as Monument status currently provides similar protection to geological and paleontological resources as afforded by ACEC designation. In the Arizona Strip FO, Alternative B proposes most acreage for ACEC designation, over twice as many acres compared to Alternative A, which would provide the most protection to geological and paleontological resources than under any other alternative. Impacts would be minor.

Impacts from Recreation

Under Alternative B, motorized recreational activities such as driving for pleasure, OHV exploration, geocaching, and dispersed camping would be limited, potentially reducing such activities or limiting the area in which they occur. This would reduce opportunities to create surface disturbances and damage to geological and paleontological resources. Direct and indirect impacts would be minor.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative A.

Alternative C

Impacts from Travel Management

Under Alternative C, significantly fewer miles of routes would remain open for motorized and mechanized use by the public than under Alternative A, but more would be open than under Alternative B. Impacts would be similar to those discussed under Alternative B, but less intense. Direct and indirect impacts would be negligible to minor.

Impacts from Wilderness Characteristics

In the Monuments under Alternative C, approximately half as many wilderness characteristics acres would be maintained than under Alternative B. The types of impacts would be the same as described under Alternative B, although less intense due to the reduced number of acres proposed. Impacts would be minor.

In the Arizona Strip FO under Alternative C, almost twice as many acres are proposed to maintain wilderness characteristics compared to Alternative B, the most among the alternative. Impacts would be similar to that described under Alternative B, except that they would be more widespread. Impacts would be minor.

Impacts from Vegetation

Impacts would be the same as described under Alternative A.

Impacts from Visual Resources

Under Alternative C, more acreage would be designated VRM Class III than under Alternative A and less acres would be designated VRM Class IV. This would provide more protection to geological and paleontological resources than under Alternative A, but less protection compared to Alternative B. Impacts would be minor.

Impacts from Minerals (Arizona Strip FO only)

Impacts would be similar to those described under Alternative A.

Impacts from Special Designations

Impacts would be the same as described under Alternative B for Parashant and similar to that described under Alternative A for the Arizona Strip FO, albeit slightly more widespread as roughly 5,000 more acres would be under ACEC protection.

Impacts from Recreation

Under Alternative C, motorized recreational activities such as driving for pleasure, OHV exploration, geocaching, and dispersed camping would be less limited than under Alternative B. There would still be a reduction in motorized vehicle use, and consequently reduced opportunities to create surface disturbances and damage to geological and paleontological resources when compared to Alternative A. Direct and indirect impacts would be minor.

In the Arizona Strip FO, impacts resulting from competitive events would also be similar to those described under Alternative A.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative A.

Alternative D

Impacts from Travel Management

Under Alternative D, almost as many miles of routes would remain open to motorized and mechanized use as under Alternative A. Overall, Alternative D is the least restrictive alternative in terms of OHV use and would thus result in more localized impacts from such use than the other alternatives. Opportunities for motorized and mechanized vehicle impacts would be greater compared to Alternatives B and C. Road closures could affect research proposals by limiting access but not as much as under Alternatives B and C. The direct and indirect impacts would be minor to moderate.

Impacts from route maintenance/improvement activities would be the same as described under Alternative B. Overall, direct and indirect impacts to geological and paleontological resources would be negligible to minor.

Impacts from Wilderness Characteristics

Under Alternative D, the fewest acres would be identified to maintain wilderness characteristics among the action alternatives. The types of impacts would be the same as described under Alternative B, but greatly reduced due to the limited number of acres.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be the same as described under Alternative A.

Impacts from Visual Resources

Impacts would be similar to those described under Alternative C.

Impacts from Minerals (Arizona Strip FO only)

Impacts would be the same as described under Alternative A.

Impacts from Special Designations

Impacts would be the same as described under Alternative B for Parashant. In the Arizona Strip FO, the least amount of acreage for ACEC designation is proposed under this alternative. This would result in less protection to geological and paleontological resources compared to the other alternatives. Impacts would be minor.

Impacts from Recreation

Under Alternative D, fewer limits would be placed on motorized recreational activities (e.g., driving for pleasure, OHV exploration, geocaching) compared to Alternatives B and C. This would increase the potential for impacts to geological and paleontological resources. Management of proposed Special Recreation Management Areas (SRMAs) would continue to provide protection to geological and paleontological resources. Direct and indirect impacts would be minor.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative A.

Alternative E: Proposed Plan

Impacts from Travel Management

Under Alternative E, approximately 80% of the miles of motorized and mechanized routes would remain open when compared to Alternative A, with more miles being closed. This would reduce opportunities to create surface disturbances that could damage geological and paleontological resources when compared to Alternatives A and D, but not as much when compared to Alternatives B and C. Road closures could affect research proposals by limiting access, but not as much when compared to Alternatives B and C. The direct and indirect impacts would be minor to moderate.

Impacts from Wilderness Characteristics

Impacts would be similar to Alternative C in the Monuments due to similar number of acres being identified to maintain wilderness characteristics, while impacts would be similar to Alternative D in the Arizona Strip FO.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be the same as described under Alternative A.

Impacts from Visual Resources

Under Alternative E, acreage designated VRM Class I & II would be 15% less than Alternative B, providing a high degree of protection of geological and paleontological resources. Impacts would be similar to those described under Alternative B.

Impacts from Minerals (Arizona Strip FO only)

Impacts would be the same as described under Alternative A.

Impacts from Special Designations

Impacts would be the same as described under Alternative A.

Impacts from Recreation

Impacts would be similar to those described under Alternative D.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative A.

Cumulative Impacts

Possibly the most significant cumulative impact to geological and paleontological resources in the foreseeable future would be from vandalism. Many of the spectacular or unique geological resources are protected under Special Designation, such as wilderness areas or National Monuments. As the popularity of these locations increases, so would visitation. Stronger protective measures could be needed to prevent vandalism.

Marking rock exposures with graffiti has occurred in the past. Carving letters or pictures into geologic exposures is expected to occur into the future. Unauthorized OHV use could also substantially impact these resources.

On the Arizona Strip FO, important invertebrate fossils are relatively unknown and vertebrate remains have not been reported. Fossil vertebrate footprints (ichnites) are documented, but their exact locations are not general public knowledge. These resources need to be inventoried. Maintaining open communication with paleontologists including those associated with colleges and universities, organized groups, and professionals could be critical in the protection of these resources.

VEGETATION

Vegetation is a fundamental and vitally important component of the biological resources in the Planning Area. The effects on vegetation resulting from implementing any of the alternatives under consideration would also affect other resources. Impacts to the vegetation resource could result in reduced biological productivity, weed invasion, and unwanted changes in the composition and structure of vegetation communities. These changes, in turn, could influence forage availability for wildlife and livestock. Where actions result in loss or reduction of vegetative cover and/or soil erosion or compaction, archaeological, paleontological, historic, wildlife, water, soil, and air resources could be impacted.

The direct and indirect effects of management actions or uses of vegetation resources may vary widely, depending on a variety of factors such as the type of soils, soil moisture, topography, and plant reproductive characteristics. Direct impacts are generally caused by any construction activities; the establishment, use, maintenance, closing, or rehabilitation of roads and trails; herbivory and livestock trampling; fire ignitions and suppression actions, including blading of fire lines; manual, chemical, mechanical, and biological vegetation treatments, as well as by seeding; and the introduction, spread, and treatment of noxious and invasive weeds. Indirect impacts are generally caused by dust accumulation immediately adjacent to roads and would include lowered vigor or death of plants; changes in plant abundance and/or species composition resulting from modified nutrient cycling due to soil compaction, the accumulation of urine and feces, and soil erosion or deposition associated with livestock; and nutrient modification and soil loss or deposition associated with fire.

Methods and Assumptions

The analysis of potential impacts to vegetation resources is based on the expertise of BLM resource specialists at the Arizona Strip FO and the NPS staffs at Parashant and Lake Mead NRA. Combined, these staffs possess an extensive knowledge of the vegetation resources within the Planning Area. The impact analysis is also based on review of existing literature and information provided by non-planning team experts in the BLM, NPS, and other agencies. The following categories were used to evaluate intensity of the potential impacts on vegetation.

Negligible: Generally, negligible impacts are not quantifiable, and therefore not analyzed.

Minor: The action would affect some individual native plants and a relatively minor portion of the plant community. The use of standard operating procedures to offset adverse impacts, including special measures, would be required and would be effective.

Moderate: The action would affect numerous individual native plants and a sizeable segment of the native plant community over a relatively large area. The use of standard operating procedures to offset adverse impacts, including special measures to

avoid affecting special status plants, animals, and important cultural resources, could be extensive, but would probably be successful.

Major: The action would cause a considerable effect on native plant populations, and the effects would cover a relatively large area. The extensive use of standard operating procedures to offset the adverse effects would be necessary, and their success would not be guaranteed.

Impacts to Vegetation

Impacts to vegetation resources would result from actions proposed under the following resource management programs:

- Travel Management
- Vegetation and Fire and Fuels Management
- Air, Water, and Soil Resources
- Fish and Wildlife
- Special Status Species
- Visual Resources
- Mineral Resources (Arizona Strip FO only)
- Livestock Grazing
- Recreation
- Lands and Realty

Alternative A: No Action

Impacts from Travel Management

Vehicles traveling on roads in the transportation system would deposit dust on individual plants. This could lead to a decrease plant vigor and increase mortality alongside the road. Dust settling on vegetation adjacent to roads would also reduce habitat suitability. Impacts would be minor, indirect, and both short and long term. Under this alternative, 7,095 miles of routes would be open to motorized use, including 1,715 in Parashant, 446 in Vermilion, and 4,934 in the Arizona Strip FO. As a result, the magnitude of impacts would be greater than under any other alternative.

The construction of new, temporary roads to facilitate project implementation would result in moderate short-term direct impacts to vegetation resources along the construction path. Rehabilitation of closed or temporary roads where use is no longer required would have moderate short- and long-term direct and indirect impacts, depending upon the habitat and the closure method. Long-term impacts would result in areas of low rainfall where regeneration is slow. Direct impacts would include injury or loss of vegetation from crushing. Indirect effects would include dust, erosion, soil compaction, and watershed impacts resulting from the

rehabilitation process. Long-term positive effects would occur as vegetation became reestablished.

Impacts from Vegetation and Fire and Fuels Management

Restoration and Vegetation Treatments: Impacts would vary by the method used to accomplish the treatment, whether manual, mechanical, chemical, biological, or fire. Vegetation treatment methods are described in Appendix 2.C.

Vegetation treatments are designed to move plant communities towards desired future conditions (DFCs). Not implementing these treatments would inhibit or prevent attainment of ecological objectives and DFCs. Where fuel loads are excessive, failure to conduct vegetation treatments would increase the risk of catastrophic fire, which would put tens of thousands of acres at risk of vegetation loss. Catastrophic fire would also cause major, long-term indirect impacts in terms of wildlife habitat loss and long-term or permanent reduction in biomass productivity from erosion.

Vegetation treatments are designed to change vegetative composition and diversity from one state to another. As a result, most treatment methods initially remove some or all of the surface vegetation. This results in reduction of ground cover and increased erosion. Depending upon the method used, there may also be varying levels of surface disturbance, particularly with mechanical treatment methods. Since germination is highest where seeds are covered by soil and protected from erosion, and where moisture is held, treatment methods that disturb soils often have higher success rates compared to those methods that do not disturb soils. Successful treatments would increase ground cover and vegetative diversity, which would provide soil stability, reduce soil surface temperatures, increase water holding capability, and increase food and cover for wildlife.

The greatest level of environmental impact occurs when a vegetation treatment fails. A vegetation treatment is considered a failure when the existing vegetation is not removed and/or the target vegetative community does not become established. When the existing vegetation remains at the site, the environmental consequences are minimal. However, when the treatment is successful in removing existing vegetation, but the desired future vegetative community does not become established, a variety of consequences can result. In such cases, mechanical and other surface disturbing treatment methods can lead to increased erosion as effective ground cover would be greatly reduced. Increased invasion of noxious weeds and other exotic weed species, decreased water availability, and long-term changes in habitat and species composition could occur. The duration of these effects would vary by treatment method, habitat and community type, availability of appropriate seed, and amount and timing of precipitation. Most such failed treatments would eventually be revegetated by either the former plant community or some new and perhaps less desirable community.

Because of the dynamic nature of vegetative communities, even those areas where seedings are unsuccessful would eventually become filled in with vegetation. Treatment areas change over time as vegetation is re-established. Some areas treated early in the planning cycle would become completely re-vegetated and could conceivably require treatment maintenance prior to the next planning cycle. Failed treatments would not be considered permanently “lost” from the system unless the site became re-established with a highly stable, non-target plant community. Treatment methods that proved to be unsuccessful at achieving the desired results would be modified or discontinued. Since most treatments require at least two growing seasons to determine success, it is unlikely that unsuccessful methods would be used for more than two consecutive years. As a result, the potential for failed treatments to occur on the maximum number of acres available for treatment is considered negligible. Assuming two different treatment methods were completely unsuccessful and resulted in stable, non-target plant communities, no more than 20 percent of the maximum treatable acreage could be permanently lost over the life of the plan. Use of adaptive management should reduce or eliminate the potential for permanent loss of desired vegetation communities from treatments.

Manual Vegetation Treatments: Compared to other methods, manual treatments would have minimal effects to sensitive habitats by retaining more vegetation of non-target species and result in a lower likelihood of erosion, soil instability, sedimentation, or increased surface temperatures. Impacts would be direct and minor.

Mechanical Vegetation Treatments: Use of mechanical tools would reduce canopy cover, increase plant diversity on the forest floor, increase soil moisture due to the reduction of evapotranspiration, and change habitat type. These impacts would be direct, both short and long term, and positively affect some species while negatively affecting others. Long-term, indirect impacts would result from changes in habitat type resulting from the changes in forest density, canopy cover, structure, and the protection and maintenance of forest habitats. Mechanical treatment methods could also result in localized, short-term impacts to air quality from fugitive dust, equipment emission/exhaust, and chemical fumes, which, in turn, could lead to reduced plant vigor and fitness, or mortality among individuals or species.

Biological Vegetation Treatments: Target species would experience direct, short-term impacts due to biological vegetation treatments. Depending upon the biological control agent, a variety of other direct and indirect effects could occur, including mortality of non-target species. As with other vegetation treatment methods, indirect effects would include reduced soil infiltration, increased erosion and sedimentation, increased soil surface temperatures, and short- or long-term changes in species composition and/or community structure.

Chemical Vegetation Treatments: Target and some non-target species would experience direct, short-term impacts, depending upon the chemical used and the application rate. Indirect effects would include reduced soil infiltration, increased erosion and sedimentation, increased

soil surface temperatures, and short- or long-term changes in species composition and/or community structure. Direct and indirect effects from the use and application of specific chemicals is described in detail in the FEIS for Vegetation Treatment on BLM Lands in Thirteen Western States (BLM 1991a), as well as the draft revision of the document (BLM 2005).

Prescribed Fire, Fire Use, and Management: The intensity of impacts from prescribed fire and fire use depends on the size and intensity of the fire, as well as fuel type and quantity. Impacts from fires that cause injury or loss of individual plants and an increase in soil moisture due to the reduction of evapotranspiration would be short term and minor. Impacts from fires that change species composition, plant density, and vegetative structure, and increases the abundance of non-native invasive, fire-adapted plant species would be direct, major, and both short and long term. Reduction in biomass productivity due to accelerated erosion resulting from the reduction in effective ground cover, as well as reduced habitat suitability for seed dispersers, would represent indirect, major impacts.

Fire Suppression: Direct impacts from the removal of vegetation from hand-line construction would be short term and minor. Impacts from using aerially-applied retardant as an alternative to hand-line construction would be negligible. Most impacts from fire suppression activities would be minor, short-term, and localized, particularly if activities in sensitive habitats are mitigated or avoided. Impacts in the arid desert-scrub communities may be longer term since these vegetation communities do not recover as readily.

Control of Noxious Weeds: Impacts depend upon the method used. Direct impacts to the target species from manual techniques and herbicide applications would range from minor to moderate, with some non-targets experiencing impacts in the short-term. Eradication of noxious weed species and improved species composition for the remaining community would occur over the long term.

Collection and Use of Native Seed/Use of Non-native plants: In Parashant and the Arizona Strip FO, collection and use of native seed could be authorized with a permit. Collection of native seed could result in localized, minor short-term impacts to vegetation from trampling, loss of individuals, reduction in seed availability at the collection site, and potential reduction in plant vigor. The availability of local native seed would result in moderate indirect long-term impacts, which include improved ability to achieve DFCs by improving the species composition in areas needing vegetation treatments. Collection of native seed would not be authorized in Vermilion.

Assuming criteria described in Chapter 2 are met on BLM lands, non-native plant species could be used in treatment/restoration efforts. The major short-term direct impact from the use of nonnative plant species is the stabilization of soils following disturbance when native species are ineffective, cannot be established, or are not available. The major short and long-term indirect impacts from use of nonnative plant species for re-seeding would be an undesirable change in species composition, resulting from introducing species that could out-compete natives and/or increase the frequency or intensity of wildfire.

Vegetation Products Use/Sale: On NPS lands in Parashant, use and sale of vegetation materials cannot be authorized unless as part of a science-based ecological restoration project. On BLM lands in Parashant, use and/or sale of vegetation products would have localized, minor to moderate impacts on vegetation resources. Indirect effects would include reduced soil infiltration, increased erosion and sedimentation, increased soil surface temperatures, and short- or long-term changes in species composition and/or community structure. Impacts resulting from fuelwood harvest associated with restoration projects could lead to long-term or permanent changes in vegetative community structure or dynamics.

The use and/or sale of vegetation products would not be authorized in Vermilion. Impacts from free and non-commercial use of these products would be similar in scope and extent to those described for Parashant.

In the Arizona Strip FO, the use and/or sale of vegetation products, particularly harvest of fuelwood associated with restoration projects, post cutting, collection of dead and downed wood for campfires, Christmas tree harvest, and collection of pinyon nuts, would have localized, minor to moderate impacts on vegetation resources. Indirect effects would include reduced soil infiltration, increased erosion and sedimentation, increased soil surface temperatures, and short or long-term changes in species composition and/or community structure. Impacts resulting from fuelwood harvest associated with restoration projects could lead to long term or permanent changes in vegetative community structure or dynamics. Salvage of vegetation that would be destroyed through surface disturbing activities would not be authorized in the planning area under this alternative.

Impacts from Air, Water, and Soil Resources

Direct impacts from soil stabilization and reclamation projects that reestablish native vegetation on the disturbed area would be both short and long term. Indirect impacts would include increased effective ground cover, reduced erosion and compaction, and increased infiltration, which could become long term due to increased vegetation productivity and improved wildlife habitat and connectivity. All impacts would be minor.

Construction of water retention structures would directly increase sheet erosion and reduce gully and rill erosion. These impacts would be short term and minor. The area of disturbance would vary by the action proposed, but generally would average less than five acres per structure.

Impacts from Fish and Wildlife

Implementation of habitat management plans (HMPs) which specify vegetation treatments to improve habitat would involve removing individual plants and altering species composition and vegetation structure. Impacts would vary by treatment method used (see discussion above on Impacts from Vegetation Resources)

Direct impacts due to foraging by newly transplanted big game animals may be long term and minor. Transport methods could introduce sources of noxious weeds.

Constructing new water developments would permanently remove vegetation within the footprint of the structures. Impacts would be direct, long term, and minor. Surrounding vegetation could be injured or damaged temporarily, but would likely recover. Increased use of the area by wildlife species not previously present would increase foraging pressure on desirable species. This could result in increased or decreased vigor to the plants depending upon the species and their phenology. Water from the development may leak or spill, resulting in short- or long-term changes in vigor and/or species composition. On average, the disturbance area for each water development is two acres. In Parashant under Alternative A, as many as 20 new wildlife water developments would be built within the life of this Plan, which could permanently alter vegetation resources on up to 40 acres. Maintenance of existing water developments would result in minor disturbance impacts to vegetation resources similar in scope and nature to those described for new developments. Each year, approximately 10 wildlife water developments would be inspected and maintained in Parashant.

In Vermilion, as many as six new wildlife water developments could be built throughout the life of this Plan, which would result in approximately 12 acres of vegetation resources being permanently altered. In addition, six or more wildlife water developments each year would be inspected and maintained during the life of the Plan in Vermilion, which would result in similar disturbances to vegetation resources as described for new developments.

In the Arizona Strip FO, as many as 20 new wildlife water developments would be built throughout the life of this Plan, which would result in approximately 40 acres of vegetation resources being permanently altered. Approximately 30 wildlife water developments would be inspected and maintained each year during the life of this Plan in the Arizona Strip FO, which would result in similar disturbances to vegetation resources as described for new developments.

In Parashant, increased visitation resulting from the management of the Mt. Trumbull Watchable Wildlife area would directly affect vegetation in the area due to disturbance, trampling, and compaction. Impacts would be minor and both short and long term. The latter would occur due to reduced biomass productivity caused by compaction.

Impacts from Special Status Species

Impacts from special status species transplants would be similar to those described for transplants of wildlife species in the above section, Impacts from Fish and Wildlife.

Restrictions on vegetation treatments in special status species habitats (e.g., desert tortoise or special status plants) would reduce or eliminate potential impacts to vegetation from treatment projects. Impacts would vary with the type of treatment proposed and the nature and extent of

the restrictions. Failure to implement vegetation treatments in these habitats could result in direct and indirect, long-term impacts to vegetation, especially treatments to control noxious weeds.

Restricting authorized uses for special status species would reduce or eliminate disturbances that would otherwise have affected vegetation. Impacts would be direct, long term, and minor.

Closing and rehabilitating roads used in restoration efforts would increase plant vigor and reduce mortality alongside the road by reducing dust on individual plants. Impacts would be indirect, minor, and both short and long term. Compaction would also be eliminated along the closed/rehabilitated route, which would increase infiltration, reduce erosion, and ultimately improve ground cover, causing a further reduction in erosion, increase in biomass productivity and vegetative structure, and an improvement in wildlife habitat attributes. These impacts would be indirect, long term, and major.

Impacts from Visual Resources

Implementing VRM guidelines would increase the difficulty of accomplishing vegetation management actions and limit the extent and/or effectiveness of the restoration efforts. Vegetation treatment projects would generally not occur in VRM Class I areas, which would cover about 13 percent of the Monuments under Alternative A. Vegetation treatment, restoration, and weed treatment projects on 41 percent of the Monuments within VRM Class II areas could be redesigned, moved, or otherwise restricted. See discussion on restoration and vegetation treatments in the Impacts from Vegetation and Fire and Fuels Management section above for a discussion of impacts.

Impacts from Minerals (Arizona Strip FO only)

In the Arizona Strip FO, impacts to vegetation resources could result from locatable mineral development, oil and gas development, and/or mineral material sales/disposal. Impacts associated with these actions would include loss or injury of plants due to excavation or trampling, burial under piles of waste material, toxic responses from use of chemicals in mineral extraction or waste pits, and increased exposure to dust and other contaminants associated with construction and use of access roads. In the worst-case scenario, all vegetation would be removed from a parcel of land and the site would be permanently altered so as to prevent future vegetation growth. This represents minor to moderate long-term impacts depending upon the size and location of the parcel and the occurrence of rare plant species. Parcels that include listed threatened, endangered, or proposed species would be subject to consultation with the U.S. Fish and Wildlife Service (USFWS).

Reasonably foreseeable development scenarios for mineral exploration and development are provided in Appendix 4.B. These scenarios were developed based on past mining activities and specific assumptions described in the Appendix. Reasonable estimates for future exploration and

development are provided. Estimates of the number of acres disturbed by implementation of the reasonable foreseeable development scenarios are provided by the ecological zone affected.

Leasable Minerals: In general, approximately 7 acres are disturbed per well during oil and gas drilling operations. No economic development or production of fluid minerals occurred in the Planning Area during implementation of the 1992 RMP. On average, one Application for Permit to Drill (APD) has been received per year for the Planning Area. Assuming this remains consistent throughout the life of this Plan (i.e., over the next 20 years), the total area of related disturbance would be approximately 140 acres. The majority of this disturbance would occur in the Great Basin - Sagebrush Ecological Zone, the Plains-Grassland Ecological Zone, or a combination of the two. If reclamation were completed immediately following drilling and full re-vegetation takes 10 years, the maximum area disturbed at any one time would be 70 acres.

Locatable Minerals: It is anticipated that 720 acres would be exposed to surface disturbance from locatable mining development over the life of this Plan: 120 acres from uranium mines in the area of Kanab Creek in the Plains-Grassland Ecological Zone and 600 acres from gypsum mines in the St. George Basin in the Mojave Ecological Zone outside of desert tortoise habitat.

Mineral Materials: The total area impacted by the disposal of mineral materials is approximately 200 acres. It is anticipated this figure could double over the next 20 years and the total disturbance from mineral material disposal would reach approximately 400 acres.

Impacts from Livestock Grazing

Livestock grazing can directly affect vegetation by reducing plant vigor, decreasing or eliminating desirable forage species, increasing soil instability and erosion, reducing water quantity and quality, and losing or injuring individual plants from trampling, particularly near water developments. Impacts would be both short and long term and range from minor to major, depending upon the grazing intensity, duration, and season of use, and local climatic conditions. Long-term changes in vegetation may result if livestock use consistently exceeds established allocations, or drought or other environmental factors reduce range carrying capacity. Over grazing may lead to soil compaction, reduced infiltration rates, increased runoff and erosion, and declines in watershed condition. Livestock grazing may also increase the opportunity for exotic plant species and noxious weed infestations. Season of use restrictions may lessen the effects of grazing, particularly if grazing occurs during the non-growing season.

Under Alternative A, five allotments would be subject to being unavailable for grazing in Parashant and the Arizona Strip FO, which would prevent livestock from grazing on 199,350 acres, indirectly affecting vegetation in these areas over the long term. Impacts would range from minor to moderate as vegetation in these areas may or may not regenerate, depending upon the timing and duration of grazing and the extent of long-term changes in species composition, localized erosion, and soil compaction.

Managing the BLM portion of the Parashant Allotment as a forage reserves would have similar impacts to those described above for livestock grazing, except that grazing would occur less frequently. Livestock and permittees would be less familiar with the location of waters, forage areas, and other developments, resulting in more widespread, but less intensive impacts.

Construction or maintenance of range water developments would have similar impacts to those described above for wildlife water developments. Water developments concentrate livestock use and reduce or eliminate vegetation in the immediate vicinity and increase compaction and erosion, which would lead to decreased biological productivity. For a typical reservoir or catchment, such impacts would occur within six acres, on average, though effects may be noticeable within a radius of one-quarter mile from the water development. Impacts would be minor and long term. As many as 30 new range water developments could be built over the life of this Plan, resulting in impacts on 180 acres. Abandonment or removal of watering facilities would result in minor long-term indirect impacts to vegetation. As the biomass of vegetation increases the effective ground cover increases, erosion decreases, and infiltration would increase. Maintenance of the 639 existing range water developments in Parashant and the Arizona Strip FO would have similar impacts to those described above for maintenance of artificial water sources. Most, if not all, of the existing waters would be inspected at least once over the life of this Plan. As many as 100 of these waters could be repaired, rebuilt, or replaced.

In Vermilion, all available lands would be open to livestock grazing. Grazing would be managed in accordance with Arizona Standards for Rangeland Health, reducing impacts to minor levels on all lands within the Monument. As many as six new range water developments could be built over the life of this Plan, resulting in impacts to 36 acres. Most, if not all, of the 174 existing waters in Vermilion would be inspected at least twice over the life of this Plan. As many as 30 of these waters could be repaired, rebuilt, or replaced. Impacts would be similar to those described above for wildlife water developments.

Impacts from Recreation

Impacts to vegetation resources from maintenance or restoration of natural remote settings would vary depending upon ecological zone and the method used to conduct the restoration. Impacts would be the same as those described above under Impacts from Vegetation and Fire and Fuels Management. The restriction of vegetation management treatments on vegetation resources could result in minor to moderate short and long-term impacts of risk of vegetation loss to catastrophic fire. Encroachment of undesirable species in some areas would continue unchecked.

Commercial recreation or competitive events would result in direct, minor, short-term impacts to vegetation, which include the introduction or spread of noxious weeds and trampling of individual plants. Vehicular events have the greatest potential to impact vegetation. The increase in dust associated with many of these activities could lead to a reduction in vigor or mortality of many individuals. While the No Action Alternative includes provisions to alter

recreational activities that affect sensitive areas or species, such provisions would not be enforced until after monitoring had detected the impacts.

Sightseeing and recreational driving would result in minor, short- and long-term indirect impacts to vegetation, which would include decreased plant vigor and increased mortality alongside the road, resulting from dust being deposited on individual plants. Direct, minor, short-term impacts to vegetation would result from foot traffic through sensitive areas, which could trample, injure, or kill vegetation. Camping increases the likelihood of such effects. Collection of dead and down wood for firewood would increase the extent and severity of impacts to vegetation.

Impacts from Lands and Realty

In Parashant and Vermilion, impacts to vegetation resources could result from issuance of ROWs necessary for access and/or maintenance needs to private or state inholdings, ROWs within the boundaries of existing ROWs or designated corridors, and where site-specific NEPA analysis determines that impacts to Monument objects or values would be negligible.

Impacts from issuance of ROWs would vary upon the nature and purpose of the ROWs. Impacts would be minor as any new ROW or associated actions that had more than a negligible impact on Monument objects or values would not be authorized.

In Arizona Strip FO, impacts to vegetation resources could result from disposal of property or issuance of ROWs/permits. Impacts associated with disposal of federal lands would depend upon the use of those lands by future owners. In the worst-case scenario, all vegetation would be removed from a parcel of land and the site would be paved or otherwise permanently altered so as to prevent future vegetation growth. This represents minor to moderate long-term impacts depending upon the size and location of the parcel and the occurrence of rare plant species. Parcels that include listed threatened, endangered, or proposed species would not be identified for disposal. This alternative includes more acres available for disposal than under any other alternative. Therefore, effects could occur over a larger area.

Impacts from issuance of ROWs would vary upon the nature and purpose of the ROWs. Impacts to vegetation would generally be minor to moderate and would be addressed in site-specific NEPA analysis.

Impacts from issuance of permits would vary with the nature and purpose of the permit. Impacts to vegetation would generally be negligible to minor and would be addressed in site-specific NEPA analysis.

Alternative B**Impacts from Travel Management**

Impacts to vegetation resources would be the same as those described under Alternative A. However, because fewer miles of routes would be open for motorized use, impacts would occur over a smaller area than under any other alternative.

Impacts from Vegetation and Fire and Fuels Management

The types of impacts would be similar to those described under Alternative A, with the following exceptions and additions:

Using DFCs and desired plant community (DPC) objectives to make decisions would enhance protection of sensitive resources and benefit uses by emphasizing consideration of those uses in planning. Conducting restoration and vegetation treatment actions would help meet DFCs and DPC objectives. Employing seasonal restrictions on uses would also benefit vegetation resources. Identifying ecological zones with unique DFCs, DPCs, and vegetation management actions would increase management capabilities.

Collection and Use of Native Seed/Use of Non-native Plants: Impacts from the collection of native seeds in Parashant and the Arizona Strip FO would be the same as described under Alternative A. Impacts from the use non-native species in treatment efforts would be the same as those described under Alternative A.

Riparian Ecological Zone: Managing the Riparian Ecological Zone for minimum disturbance would result in moderate to major indirect, long-term impacts. The only vegetative treatment authorized would be fire use. This would promote the expansion of non-native, fire adapted plant species such as tamarisk and cheatgrass. Such impacts would include loss of diversity, increased evapotranspiration, increased ambient temperature, reduced available surface and subsurface water, increased salinity, and increased fire frequency.

Pakoon Springs Restoration: The major, indirect long-term impacts of restoring Pakoon Springs (in Parashant) without the use of vegetation treatments would be the continued proliferation of noxious weeds and exotic wildlife species. The DFCs would probably not be attainable without intervention.

Cane Springs Restoration: Removal of livestock in Cane Springs (in Parashant) would result in minor to moderate long-term indirect impacts to vegetation. As the biomass of vegetation increases, the effective ground cover would increase, erosion would decrease, and infiltration and biological productivity should increase. Species composition may not improve if desirable forage species have been locally extirpated by grazing and are not re-introduced.

In Vermilion and the Arizona Strip FO, no vegetation treatments would be planned or authorized in the Riparian Ecological Zone, except that fire use would be an option. This would promote the expansion of non-native, exotic plant species such as tamarisk. Impacts would include loss of diversity, increased evapotranspiration, increased ambient temperature, reduced available surface and subsurface water, increased salinity, and increased fire frequency.

Ponderosa Pine Ecological Zone: Under this alternative, up to 11,600 acres of ponderosa pine could be treated in Parashant. The impacts of vegetation treatments in the ponderosa pine ecological zone would be direct, moderate, and both short- and long-term. Opening the canopy would result in more sunlight reaching the forest floor, an increase in soil moisture, and would reduce the risk of catastrophic fire. Indirect impacts would be an increase vegetative vigor and understory species diversity, and the maintenance of this unique habitat. Treatments that resulted in a long-term loss of ponderosa pine and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be the loss of 2,320 acres of this habitat. Impacts would occur on fewer acres under this alternative than for any other.

Impacts from ponderosa pine restoration efforts in the Mt. Trumbull Wilderness would be similar to those described for manual treatments under Alternative A. Impacts would occur on fewer acres under this alternative compared to the other alternatives.

In the Arizona Strip FO, no vegetation treatments would be planned in this ecological zone under this alternative. Therefore, impacts would include an increased risk of catastrophic or stand-replacement fire.

Great Basin Ecological Zone: Impacts from treatment of sagebrush communities in this ecological zone would be similar to those described under Alternative A. Under this alternative, up to 5,000 acres of Great Basin sagebrush could be treated in Parashant and up to 20,000 acres in the Arizona Strip FO. In Vermilion, no vegetation treatments would be planned or authorized in sagebrush communities. Treatments that resulted in a long-term loss of sagebrush and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 1,000 acres of this habitat in Parashant and up to 4,000 acres in the Arizona Strip FO. Impacts would occur on fewer acres under this alternative compared to the alternatives.

Impacts from treatment of pinyon-juniper communities in this ecological zone would be similar to those described for vegetation treatments and prescribed fire, fire use, and management under Alternative A. Under this alternative, up to 10,100 acres of Great Basin pinyon-juniper could be treated in Parashant and up to 10,000 acres each in Vermilion and the Arizona Strip FO. Treatments that resulted in a long-term loss of pinyon-juniper and conversion to a stable non-target community would be considered a failure. A worst case estimate would be loss of 2,020 acres of this habitat in Parashant and up to 2,000 acres each in Vermilion and the Arizona Strip FO. Impacts would occur on fewer acres under this alternative compared to the other alternatives.

Mojave Desert Ecological Zone: No vegetation treatments would be planned in this ecological zone. Impacts to vegetation would be the continued expansion of cheatgrass and other impacts similar to those described for fire suppression, use, and management under Alternative A.

Mojave-Great Basin Transition Ecological Zone: No vegetation treatments would be planned in this ecological zone, though fire use could still be authorized. Impacts to vegetation would be the continued expansion of cheatgrass, and other impacts similar to those described in the Fire Suppression under Alternative A.

Colorado Plateau Transition Ecological Zone: In Vermilion, no vegetation treatments would be planned in this ecological zone, though fire use could still be authorized. Impacts to vegetation would be similar to those described under Alternative A.

Interior Chaparral Ecological Zone: No vegetation treatments would be conducted. The continued maturation of interior chaparral sites would lead to a reduction in bare ground space, reduction in diversity, and increased risk of high intensity fire.

Plains - Grassland Ecological Zone: No vegetation treatments would be conducted, except that fire use could be considered. Impacts to vegetation would be the continued expansion of cheatgrass and impacts similar to those described in the Fire Suppression, Use, and Management section under Alternative A.

Impacts from Air, Water, and Soil Resources

Impacts would be similar to those described under Alternative A. However, in Parashant, salvage and replanting to mitigate impacts of authorized uses would have minor direct short and long-term impacts on vegetation by improving effective ground cover and vegetative structure, and minor indirect long-term impacts by increasing infiltration, improving biomass productivity, and providing wildlife habitat attributes.

Impacts from Fish and Wildlife

Impacts would be similar to those described under Alternative A.

Impacts from Special Status Species

Impacts to vegetation resources would be similar to those described under Alternative A, with the following exceptions:

In Parashant, not authorizing mechanical treatments in special status species habitats would reduce or eliminate potential impacts such as trampling, loss of individuals, reduction in vigor, increased risk of invasion of noxious weeds, alteration of local micro-climate conditions that could affect species composition and distribution, increased soil movement, and susceptibility to erosion.

Introducing special status aquatic species at Pakoon Springs or other locations within Parashant could have moderate, long-term direct and indirect impacts on vegetation if the presence of the transplanted species would restrict treatments to improve or maintain species composition and/or control noxious weeds.

In the Arizona Strip FO, mechanical treatments would not be authorized in special status species habitats. This would reduce or eliminate potential adverse effects such as trampling, loss of individuals, reduction in vigor, increased risk of invasion of noxious weeds, alteration of local micro-climate conditions that could affect species composition and distribution, increased soil movement, and susceptibility to erosion.

Impacts from Visual Resources

The types of impacts to vegetation resources would be the same as those described under Alternative A. In both Monuments, since no areas would be designated as VRM Class III and only 24 acres as Class IV, there would be no locations where proposed projects could be relocated. Fewer projects would thus be authorized. This could slow or preclude achievement of DFCs. In the Arizona Strip FO, since 1,379,468 acres would be designated as VRM Class III and 72,803 acres as Class IV, there would be various locations where proposed projects could be relocated. These projects could assist in achieving DFCs.

Impacts from Minerals (Arizona Strip FO only)

In the Arizona Strip FO, impacts to vegetation resources would be the same as described under Alternative A, except that additional measures would be implemented to protect vegetation in sensitive areas.

Impacts from Livestock Grazing

The types of impacts would be similar to those described under Alternative A, although impacts would occur over a smaller area due to fewer acres being made available to livestock grazing. In Parashant, 149,338 fewer acres would be available for grazing due to the closing of two additional allotments when compared to Alternative A. Impacts from elimination of grazing on these allotments would be the same as described under Alternative A. Seasonal restrictions would also reduce impacts compared to Alternative A. In Vermilion, 18,176 acres would not be available for livestock grazing, and impacts would not occur on these lands. In the Arizona Strip FO, up to 127,267 acres would be unavailable to livestock grazing, reducing the number acres where impacts would occur.

Impacts from Recreation

Impacts to vegetation resources would be similar to those described under Alternative A. Additional impacts would occur in Parashant due to the construction of recreation infrastructure, such as visitor kiosks and interpretive signs, which would result in direct, minor, long-term impacts by permanently removing vegetation within the footprint of the structures and injuring surrounding vegetation. Indirect, minor, long-term impacts would result from compaction caused by visitor use, reduced infiltration, increased erosion, increased likelihood of fire, and reduction in biological productivity.

Impacts from Lands and Realty

Impacts would be the same as those described Alternative A, with the exception that fewer acres would be identified for disposal in the Arizona Strip FO, thus reducing the total area of impact.

Alternative C

Impacts from Travel Management

The types of impacts would be similar to those described under Alternative A, although the magnitude of impacts would be less under Alternative C due to the reduced number of roads open for public use, but greater when compared to Alternative B.

Impacts from Vegetation and Fire and Fuels Management

Impacts to vegetation resources would be similar to those described under Alternative B, with the following exceptions:

Riparian Ecological Zone: Impacts from vegetation treatments in this ecological zone would be the same as those described for chemical treatments and prescribed fire, fire use, and management under Alternative A. This alternative allows for treatment of invasive species such as tamarisk and Russian olive. Impacts could occur on up to 110 acres in Parashant, 500 acres in Vermilion, and 1,000 acres in the Arizona Strip FO, fewer than under any other alternative except B. Since treatments would target invasive exotics, a failed treatment would include complete removal of these species without successfully re-establishing native willow or cottonwoods. The invasive species would likely become re-established within a few years. As a result, even in a worst-case scenario, no treatments are anticipated to result in permanent loss or conversion of riparian habitat.

Pakoon Springs Restoration: Restoration of processes and function at Pakoon Springs would result in minor, short-term direct impacts including injury, mortality, or removal of individual plants or species. Major, long-term indirect impacts could include increased biomass productivity and improvement of wildlife habitat for target species. Restoration treatments could

result in loss of some of the existing man-made ponds at the site. However, since the water that supplies these ponds comes from natural, on-site sources, new riparian areas would likely result in areas where the water is diverted. If the water is allowed to flow into the existing dry wash, new riparian areas could potentially exceed the existing areas in size and extent.

Tassi Ranch and Springs Restoration: Restoration actions at Tassi Springs would result in minor, short-term direct impacts including injury, mortality, or removal of individual plants or species. Major, long-term indirect impacts could include increased biomass productivity and improvement of wildlife habitat for target species. Introduction of relict leopard frogs or other special status species could delay restoration by limiting the use of restoration tools that would adversely affect the species.

Cane Springs Restoration: Vegetation resources would benefit from closing Cane Springs to grazing by mitigating or eliminating past impacts. Developing an interpretive site could result in minor, short- and long-term impacts to vegetation by increasing visitation to the site, which would result in increased disturbance and trampling, compaction and minor erosion of pathways and trails, and increased likelihood of fire.

Paria River Invasive Plant Species Removal: Impacts from Paria River invasive plant species removal in Vermilion would be the same as those described for prescribed fire, fire use, and management and for chemical treatments under Alternative A. Impacts could occur over a larger area under this alternative than under Alternative B, but less than all other alternatives.

Ponderosa Pine Ecological Zone: In Parashant and the Arizona Strip FO, impacts would be the same as those described for each of the various treatment methods under Alternative A. Impacts could occur on up to 16,200 acres in Parashant and up to 1,000 acres in the Arizona Strip FO. Treatments that resulted in a long-term loss of ponderosa pine and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be the loss of 3,240 acres of this habitat in Parashant and up to 200 acres in the Arizona Strip FO. Impacts could occur over a larger area under this alternative than under Alternative B, but less than under Alternative D.

Mt. Trumbull Wilderness: Impacts would be the same as those described for prescribed fire, fire use, and management and manual vegetation treatments under Alternative A. Impacts could occur over a larger area under this alternative than under Alternative B, but less than under Alternative D.

In the Arizona Strip FO, impacts from vegetation treatments in this ecological zone would be similar to those described for each of the various treatment methods under Alternative A. Impacts would occur on fewer acres than all other alternatives with the exception of Alternative B.

Great Basin Ecological Zone: Impacts from vegetation treatments in sagebrush communities would be the same as those described for chemical treatments and prescribed fire, fire use, and management under Alternative A. Impacts could occur on up to 25,000 acres in Parashant, up to 50,000 acres in Vermilion, and up to 100,000 acres in the Arizona Strip FO. Treatments that resulted in a long-term loss of sagebrush and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be the loss of 5,000 acres of this habitat in Parashant, up to 10,000 acres in Vermilion, and up to 20,000 acres in the Arizona Strip FO. Impacts could occur on fewer acres under this alternative than any other, with the exception of Alternative B.

Impacts from vegetation treatments in pinyon-juniper communities would be the same as those described for chemical and mechanical treatments and prescribed fire, fire use, and management under Alternative A. Impacts to pinyon-juniper communities could occur on up to 41,000 acres in Parashant and up to 30,000 acres each in Vermilion and the Arizona Strip FO. Treatments that resulted in a long-term loss of pinyon-juniper and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 8,200 acres of this habitat in Parashant and up to 6,000 acres each in Vermilion and the Arizona Strip FO. Impacts could occur on fewer acres under this alternative than any other, with the exception of Alternative B.

Mojave Desert Ecological Zone: Impacts from vegetation treatments in this ecological zone would be the same as those described for chemical treatments under Alternative A. Impacts could occur on up to 70,000 acres in Parashant and up to 5,000 acres in the Arizona Strip FO. Treatments that resulted in a long-term loss of Mojave Desert communities and conversion to a stable, non-target community, such as cheatgrass, would be considered a failure. A worst-case estimate would be loss of 14,000 acres of this habitat in Parashant and up to 1,000 acres in the Arizona Strip FO. Failed treatments of this magnitude are unlikely since treatments in this ecological zone are typically limited in scope or extent due to the sensitivity of desert tortoise habitats. Impacts could occur on fewer acres under this alternative than any other, with the exception of Alternative B.

Mojave-Great Basin Transition Ecological Zone: In Parashant, impacts from vegetation treatments in this ecological zone would be the same as those described for chemical treatments under Alternative A. Impacts could occur on up to 150,000 acres in Parashant and up to 5,000 acres in the Arizona Strip FO. Treatments that resulted in a long-term loss of Mojave Desert communities and conversion to a stable, non-target community, such as cheatgrass, would be considered a failure. A worst-case estimate would be loss of 30,000 acres of this habitat in Parashant and up to 1,000 acres in the Arizona Strip FO. Failed treatments of this magnitude are unlikely since treatments in this ecological zone are typically limited in scope or extent due to the sensitivity of desert tortoise habitats. Impacts could occur on fewer acres under this alternative than any other, with the exception of Alternative B.

Colorado Plateau Transition Ecological Zone: Impacts from vegetation treatments in this ecological zone would be the same as those described for the various treatment methods under

Alternative A. Impacts could occur on up to 5,000 acres in Vermilion and up to 5,000 acres in the Arizona Strip FO. Treatments that resulted in a long-term loss of vegetative communities and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 1,000 acres of this habitat each in Vermilion and the Arizona Strip FO. Impacts would occur on fewer acres compared to the other alternatives, with the exception of Alternative B.

Interior Chaparral Ecological Zone: Impacts from vegetation treatments in this ecological zone would be the same as those described for mechanical and chemical treatments under Alternative A. Impacts could occur on up to 1,500 acres in Parashant and up to 1,000 acres in the Arizona Strip FO. Treatments that resulted in a long-term loss of interior chaparral habitat and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 300 acres of this habitat in Parashant and up to 200 acres in the Arizona Strip FO. Impacts could occur on fewer acres under this alternative than any other, with the exception of Alternative B.

Plains-Grassland Ecological Zone: Impacts from vegetation treatments in this ecological zone would be the same as those described for prescribed fire, fire use, and management and for mechanical and chemical treatments under Alternative A. Impacts could occur on up to 50 acres in Parashant, up to 5,000 acres in Vermilion, and up to 50,000 acres in Arizona Strip FO. Treatments that resulted in a long-term loss of grassland habitat and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 10 acres of this habitat in Parashant, up to 1,000 acres in Vermilion, and up to 10,000 acres in the Arizona Strip FO. The impacts could occur on fewer acres under this alternative than any other, with the exception of Alternative B.

Impacts from Soil, Water and Air Resources

Impacts would be similar to those described under Alternative B.

Impacts from Fish and Wildlife

Impacts would be similar to those described under Alternative A, with the exception that the extent of the impacts from Watchable Wildlife areas would be more widespread in Parashant due to four additional areas, and more widespread in the Arizona Strip FO due to five additional areas. Impacts from Watchable Wildlife areas would also be experienced in Vermilion as one such area would be identified under Alternative C.

Impacts from Special Status Species

Impacts would be similar in nature and scope to those described under Alternative B, with the following exceptions:

In Parashant, introduction of relict leopard frogs or other special status species at Pakoon Springs and/or Tassi Springs and Ranch could limit use of restoration tools that would result in adverse effects to the species and could delay restoration.

Burrowing Owl: In Parashant, augmenting existing Burrowing Owl populations and installing artificial nest burrows in the Pakoon Basin would have minor, short-term direct impacts to local vegetation, including removal or trampling of individual plants. These impacts would not likely exceed 2 acres for each group of 16 Burrowing Owls released, or less than 10 acres over the life of the Plan.

In the Arizona Strip FO, augmenting existing Burrowing Owl populations and installing artificial nest burrows would have minor, short-term direct impacts to local vegetation, including removal or trampling of individual plants. These impacts would not likely exceed 2 acres for each group of 16 Burrowing Owls released, or less than 20 acres over the life of the Plan.

Impacts from Visual Resources

Impacts would be similar in nature and scope to those described under Alternative A, with the exceptions that more acres would be managed under VRM Class III in all three planning areas, and more acres would be managed under both VRM Classes III and IV in Vermilion. As a result, impacts to vegetation resources would occur over a larger area where vegetation treatment, restoration, and weed treatment projects could be authorized with fewer restrictions.

Impacts from Minerals (Arizona Strip FO only)

Impacts would be the same as described under Alternative A.

Impacts from Livestock Grazing

Impacts would be similar in nature and scope to those described under Alternative A. However, in Parashant, impacts would occur over a larger area and over a longer period than under Alternative B due to an increase in the size and/or season of use of areas available for livestock grazing, although this would be less than under Alternative A. In Vermilion, some 15,610 acres would be available for seasonal livestock grazing only. The duration of impacts in these areas would be shorter. In the Arizona Strip FO, the inclusion of additional acreage with seasonal grazing restrictions would result in impacts of shorter duration over that portion of the range.

Impacts from Recreation

Impacts would be similar in nature and scope to those described under Alternative A. In addition, developing interpretive sites in Parashant could result in minor, short- and long-term impacts to vegetation by increasing visitation to the site, which would result in increased

disturbance and trampling, compaction and minor erosion of pathways and trails, and the likelihood of fire.

Impacts from Lands and Realty

Impacts would be similar in nature and scope to those described under Alternative B, with the exception that slightly more acres would be identified for disposal in the Arizona Strip FO, resulting in impacts that are more widespread.

Alternative D

Impacts from Travel Management

The types of impacts would be similar to those described under Alternative A. However, impacts would occur over a larger area than under the other alternatives except Alternative A as Alternative D proposes fewer miles of roads closed and more miles open than any other alternative except A.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be similar to those described under Alternatives B, with the following exceptions:

Riparian Ecological Zone: Impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A under each of the various treatment methods. Impacts could occur on up to 220 acres in Parashant, up to 1,560 acres in Vermilion, and up to 5,000 acres in Arizona Strip FO. Since treatments would target invasive exotics, a failed treatment would include complete removal of these species without successfully re-establishing native willow or cottonwoods. Invasive species would likely become re-established within a few years. As a result, even in a worst-case scenario, no treatments are anticipated to result in permanent loss or conversion of riparian habitat. Due to these acreages proposed for treatment, the impacts could occur over a larger area under this alternative than under any other alternative, with the exception of Alternative A.

Pakoon Springs Restoration: Impacts from restoration treatments would be similar to those described under Alternative C. Developing an interpretive site could result in minor, short- and long-term impacts to vegetation by increasing visitation to the site, which would result in increased disturbance and trampling, compaction and minor erosion of pathways and trails, and increased likelihood of fire.

Tassi Springs and Ranch Restoration: Impacts would be similar to those described under Alternative C.

Cane Springs Restoration: Impacts would be similar to those described under Alternative C.

Paria River Invasive Plant Species Removal: Impacts would be the same as those described under Alternative A for each treatment method. Impacts could occur over a larger area than Alternatives B and C, but the same as Alternative E.

In the Arizona Strip FO, impacts would be similar to those described under Alternative A for the various treatment methods. Impacts would occur on more acres under this alternative than under any other alternative.

Ponderosa Pine Ecological Zone: In Parashant, impacts would be the same as those described under Alternative A for each of the various treatment methods. Impacts could occur on up to 20,800 acres in Parashant and up to 3,800 acres in the Arizona Strip FO. Treatments that resulted in a long-term loss of ponderosa pine and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 4,160 acres of this habitat in Parashant and up to 760 acres in the Arizona Strip FO. Impacts could occur over a larger area under this alternative than under any other alternative with the exception of Alternative A.

Mt. Trumbull Wilderness: Impacts would be the same as those described under Alternative A for prescribed fire, fire Use, and management and manual treatments. Impacts could occur over a larger area under this alternative than under any other alternative with the exception of Alternative A.

In Arizona Strip FO, impacts from vegetation treatments would be similar to those described under Alternative A for each of the various treatment methods. Impacts would occur on more acres under this alternative than for any other

Great Basin Ecological Zone: Impacts from vegetation treatments in sagebrush communities would be the same as those described for chemical treatments and prescribed fire, fire use, and management under Alternative A. Impacts could occur on up to 50,000 acres in Parashant, up to 100,000 acres in Vermilion, and up to 200,000 acres in the Arizona Strip FO. Treatments that resulted in a long-term loss of sagebrush and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 10,000 acres of this habitat in Parashant, up to 20,000 acres in Vermilion, and up to 40,000 acres in the Arizona Strip FO. Impacts could occur over a larger area under this alternative than under any other alternative with the exception of Alternative A.

Impacts from vegetation treatments in pinyon-juniper communities would be the same as described under Alternative A for chemical treatments, mechanical treatments, and prescribed fire, fire use and management. Impacts could occur on up to 136,000 acres in Parashant, up to 50,000 acres in Vermilion, and up to 100,000 acres in the Arizona Strip FO. Treatments that resulted in a long-term loss of pinyon-juniper and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 27,200 acres of this habitat in Parashant, up to 10,000 acres in Vermilion, and up to 20,000 acres in the Arizona Strip

FO. Impacts could occur over a larger area under this alternative than under any other alternative with the exception of Alternative A.

Mojave Desert Ecological Zone: Impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for chemical and biological treatments. Impacts could occur on up to 80,000 acres in Parashant and up to 10,000 acres in the Arizona Strip FO. Treatments that resulted in a long-term loss of Mojave Desert communities and conversion to a stable non-target community, such as cheatgrass, would be considered a failure. A worst-case estimate would be loss of 16,000 acres of this habitat in Parashant and up to 2,000 acres in the Arizona Strip FO. Failed treatments of this magnitude are unlikely since treatments in this ecological zone are typically limited in scope or extent due to the sensitivity of desert tortoise habitats. Impacts could occur over a larger area under this alternative than under any other alternative with the exception of Alternative A.

Mojave-Great Basin Transition Ecological Zone: Impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for chemical and biological treatments. Impacts could occur on up to 180,000 acres in Parashant and up to 30,000 acres in the Arizona Strip FO. Desert communities and conversion to a stable, non-target community, such as cheatgrass, would be considered a failure. A worst-case estimate would be loss of 36,000 acres of this habitat in Parashant and up to 6,000 acres in the Arizona Strip FO. Failed treatments of this magnitude are unlikely since treatments in this ecological zone are typically limited in scope or extent due to the sensitivity of desert tortoise habitats. Impacts could occur over a larger area under this alternative than under any other alternative with the exception of Alternative A.

Colorado Plateau Transition Ecological Zone: In Vermilion and Arizona Strip FO, impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for each of the various treatment methods. Impacts could occur on up to 30,000 acres in Vermilion and up to 30,000 acres in the Arizona Strip FO. Treatments that resulted in a long-term loss of vegetative communities and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 6,000 acres of this habitat each in Vermilion and the Arizona Strip FO. Impacts could occur over a larger area than for any other alternative.

Interior Chaparral Ecological Zone: Impacts from vegetation treatments in this ecological zone would be the same as those described for mechanical, chemical, and biological treatments under Alternative A. Impacts could occur on up to 2,500 acres in Parashant and up to 5,000 acres in the Arizona Strip FO. Treatments that resulted in a long-term loss of interior chaparral habitat and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 500 acres of this habitat in Parashant and up to 1,000 acres in the Arizona Strip FO. Impacts could occur over a larger area under this alternative than under any other with the exception of Alternative A.

Plains-Grassland Ecological Zone: Impacts from vegetation treatments in this ecological zone would be the same as those described under A for mechanical, chemical, and biological treatments. Impacts could occur on up to 110 acres in Parashant, up to 10,000 acres in Vermilion, and up to 100,000 acres in the Arizona Strip FO. Treatments that resulted in a long-term loss of grassland habitat and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 22 acres of this habitat in Parashant, up to 2,000 acres in Vermilion, and up to 20,000 acres in the Arizona Strip FO. Impacts could occur over a larger area under this alternative than under any other alternative with the exception of Alternative A.

Impacts from Soil, Water and Air Resources

Impacts would be similar to those described under Alternative A.

Impacts from Fish and Wildlife

Impacts would be the same as described under Alternative C.

Impacts from Special Status Species

Impacts to vegetation resources would be the same as those described under Alternatives A, with exception that augmenting existing Burrowing Owl populations and installing artificial nest burrows in the Arizona Strip FO would have the same effects as those described under Alternative C.

Impacts from Visual Resources

The types of impacts would be similar to those described under Alternatives A. However, in both Parashant and the Arizona Strip FO, the number of acres managed as VRM Class III would be the larger than under any other alternative, allowing more acres that could be restored or treated. Therefore, impacts to vegetation resources would be greater than under the other alternatives. In Vermilion, no acres would be managed VRM Class III and only 12 acres would be managed as VRM Class IV, limiting the number of acres that could be restored or treated.

Impacts from Minerals (Arizona Strip FO only)

Impacts to vegetation resources would be the same as described under Alternatives A.

Impacts from Livestock Grazing

Impacts would be similar in nature and scope to those described under Alternative A and would occur over a larger area and longer period than for under any other alternatives except Alternative A. In Parashant, impacts would occur over a larger area and over a longer period than under Alternatives B and C due to the size and/or season of use of areas open to livestock

grazing. In Vermilion, some 15,610 acres would be available for seasonal livestock grazing only, which would shorten the duration of impacts in these areas. In the Arizona Strip FO, the inclusion of additional acreage with seasonal grazing restrictions would result in impacts of shorter duration over that portion of the range.

Impacts from Recreation

Impacts would be similar in nature and scope to those described under Alternative A.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative C.

Alternative E: Proposed Plan

Impacts from Travel Management

Impacts would be similar to those described under Alternative A, although less widespread in the Monuments due to a 18 percent decrease in roads remaining open in Parashant and a 15 percent decrease in Vermilion. In the Arizona Strip FO, the initial magnitude of the impact would be similar to Alternative A, although future route designation decisions would be made that would potentially close some roads, thus reducing the total area of impacts.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be similar to those described under Alternative B, with the following exceptions:

Riparian Ecological Zone: Impacts would be the same as those described for each treatment method under Alternative A. Impacts could occur on up to 110 acres in Parashant, similar to Alternative C. Impacts could occur on up to 1,560 acres in Vermilion and up to 5,000 acres in the Arizona Strip FO, similar to Alternative D. Since treatments would target invasive exotics, a failed treatment would include complete removal of these species without successfully re-establishing native willow or cottonwoods. The invasive species would likely become re-established within a few years. As a result, even in a worst-case scenario, no treatments are anticipated to result in permanent loss or conversion of riparian habitat.

Pakoon Springs Restoration: Impacts would be similar to those described under Alternative D.

Tassi Springs and Ranch Restoration: Impacts would be similar to those described under Alternative C.

Paria River Invasive Plant Species Removal Impacts would be the same as those described under Alternative A for each treatment method. Impacts could occur over a larger area than Alternatives B and C, but the same as Alternative D.

Ponderosa Pine Ecological Zone: In Parashant, impacts would be the same as those described under Alternative A for each of the various treatment methods. Impacts could occur on up to 20,800 acres in Parashant and up to 3,800 acres in the Arizona Strip FO, similar to Alternative D. Treatments that resulted in a long-term loss of ponderosa pine and conversion to a stable non-target community would be considered a failure. A worst-case estimate would be loss of 4,160 acres of this habitat in Parashant and up to 760 acres in the Arizona Strip FO. Impacts could occur over a larger area under this alternative than under any other except Alternative D.

Mt. Trumbull Wilderness: Impacts would be the same as those described under Alternative A for manual treatments and prescribed fire, fire use, and management. Impacts could occur over a larger area under this alternative than under Alternative B, but less than under Alternative D.

Great Basin Ecological Zone: Impacts from vegetation treatments in sagebrush communities would be the same as those described under Alternative A for chemical treatments and prescribed fire, fire use, and management. Impacts could occur on up to 25,000 acres in Parashant, similar to Alternative C. Impacts could occur on up to 100,000 acres in Vermilion and up to 200,000 acres in the Arizona Strip FO, similar to Alternative D. Treatments that resulted in a long-term loss of sagebrush and conversion to a stable non-target community would be considered a failure. A worst-case estimate would be loss of 5,000 acres of this habitat in Parashant, up to 20,000 acres in Vermilion, and up to 40,000 acres in the Arizona Strip FO. Impacts could occur over a larger area under this alternative than under any other with the exception of Alternative A.

Impacts to pinyon-juniper communities would be the same as those described under Alternative A for chemical and mechanical treatments and prescribed fire, fire use, and management. Impacts could occur on up to 136,000 acres in Parashant, up to 50,000 acres in Vermilion, and up to 100,000 acres in the Arizona Strip FO, similar to Alternative D. Treatments that resulted in a long-term loss of pinyon-juniper and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 27,200 acres of this habitat in Parashant, up to 10,000 acres in Vermilion, and up to 20,000 acres in the Arizona Strip FO.

Mojave Desert Ecological Zone: Impacts would be the same as those described under Alternative A for chemical treatments. Impacts could occur on up to 70,000 acres in Parashant, as in Alternative C. Impacts could occur on up to 10,000 acres in the Arizona Strip FO, similar to Alternative D. Treatments that resulted in a long-term loss of Mojave Desert communities and conversion to a stable, non-target community, such as cheatgrass, would be considered a failure. A worst-case estimate would be loss of 14,000 acres of this habitat in Parashant and up to 2,000 acres in the Arizona Strip FO. Failed treatments of this magnitude are unlikely since treatments

in this ecological zone are typically limited in scope or extent due to the sensitivity of desert tortoise habitats.

Mojave-Great Basin Transition Ecological Zone: Impacts would be the same as those described under Alternative A for chemical treatments. Impacts could occur on up to 150,000 acres in Parashant, similar to Alternative C. Impacts could occur on up to 30,000 acres in the Arizona Strip FO, similar to Alternative D. Treatments that resulted in a long-term loss of Mojave Desert communities and conversion to a stable non-target community, such as cheatgrass, would be considered a failure. A worst-case estimate would be loss of 30,000 acres of this habitat in Parashant and up to 6,000 acres in the Arizona Strip FO. Failed treatments of this magnitude are unlikely since treatments in this ecological zone are typically limited in scope or extent due to the sensitivity of desert tortoise habitats.

Colorado Plateau Transition Ecological Zone: Impacts would be similar to those described under Alternative A for the various treatment methods used. Impacts could occur on up to 30,000 acres each in Vermilion and Arizona Strip FO, similar to Alternative D. Treatments that resulted in a long-term loss of vegetative communities and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 6,000 acres of this habitat each in Vermilion and the Arizona Strip FO. Impacts could occur over a larger area than for any other alternative.

Interior Chaparral Ecological Zone: Impacts would be the same as those described under Alternative A for mechanical and chemical treatments. Impacts could occur on up to 1,500 acres in Parashant, similar to Alternative C. Impacts could occur on up to 5,000 acres in the Arizona Strip FO, similar to Alternative D. Treatments that resulted in a long-term loss of interior chaparral habitat and conversion to a stable, non-target community would be considered a failure. A worst-case estimate would be loss of 300 acres of this habitat in Parashant and up to 1,000 acres in the Arizona Strip FO.

Plains-Grassland Ecological Zone: Impacts would be the same as those described under Alternative A for mechanical and chemical treatments. Total area covered by potential impacts to this ecological zone would be the same area as discussed under Alternative D.

Impacts from Soil, Water and Air Resources

Impacts would be the same as described under Alternative A.

Impacts from Fish and Wildlife

Impacts would be the same as described under Alternative C.

Impacts from Special Status Species

Impacts would be the same as those described under Alternative A, with exception that augmenting existing Burrowing Owl populations and installing artificial nest burrows in the Arizona Strip FO would have the same effects as those described under Alternative C.

Impacts from Visual Resources

For Parashant, impacts would be the same as those described under Alternative C. For Vermilion, impacts would be the same as described under Alternative A, although with more areas designated VRM Class IV, vegetation treatment, restoration, and weed treatment projects could be authorized with fewer restrictions. For the Arizona Strip FO, impacts would be similar to those described under Alternative D. For all three planning areas under this alternative, VRM Class I would be restricted to designated and proposed wilderness areas only.

Impacts from Minerals (Arizona Strip FO only)

Impacts to vegetation resources would be the same as described under Alternatives A.

Impacts from Livestock Grazing

The types of impacts to vegetation resources would be the same as those described under Alternative A. The location and duration of impacts would be similar to Alternative B for Vermilion and Alternative D for the Arizona Strip FO. In Parashant, impacts would occur over a larger area and over a longer period than Alternatives B and C due to the size and/or season of use of areas open to livestock grazing. For the entire planning area, more acres would be under seasonal use restrictions than under any other alternative with the exception of Alternative C.

Impacts from Recreation

Impacts would be similar to those described under Alternative A.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative C.

Cumulative Impacts

The geographic area of the cumulative impacts analysis for vegetation is the Planning Area. Vegetation in the Arizona Strip has gone through significant changes since the 1870s due to historic land use practices and the introduction of non-native species. This analysis will only address the changes brought about by the plan decisions, which are described from the present situation.

Prescribed fire, restoration land treatments, control of exotic species and noxious weeds, and route restrictions and closures would impact vegetation by improving plant vigor, plant diversity, and native species, consequently improving the ecosystem health of the vegetation on the Strip.

In the Mojave Desert, the loss of natural vegetation is occurring due to wild fires and the subsequent spread of cheatgrass. Cheatgrass makes the area more susceptible to fire and, therefore, increases the frequency and size of wildfire. If the trend continues, there will be little native Mohave vegetation in the future. Various treatments would be proposed in the future to change this tide; however the likelihood of success is low due to the climatic conditions and the perpetual nature of cheatgrass and wildfire in the Mohave Desert. Currently, the area is functioning outside the range of natural variability and is in a state of declining health and biodiversity. Fire is not part of the evolutionary processes that have developed the ecosystem.

The restoration land treatment proposed in the ponderosa pine, pinyon- juniper, and sagebrush ecosystems would improve ecological processes and functions. An increase in plant diversity and increased soil stability would be expected. In areas of designated wilderness, proposed wilderness, wilderness characteristics, and VRM Class I and II areas, restoration of ecological health would take more time due the restriction of the tools available for restoration work.

Livestock grazing would continue over most of the Arizona Strip. The Standards and Guides analysis and permit renewal process would help ensure grazing practices are conducted in a manner to maintain or improve the ecological health of the area. Rangeland management practices would act to prevent and control the spread of invasive plant species, maintain diverse and natural plant communities, improve wildlife habitat, reduce erosion, and improve water quality. The objectives developed to manage for healthy rangelands have a goal of keeping the entire ecosystem healthy and productive in order to ensure that it yields both usable products and intrinsic values.

FIRE AND FUELS MANAGEMENT

This section describes potential impacts of the alternatives on fire and fuels management. The alternatives can affect hazardous fuel loads and the BLM's ability to manage them; tools for implementing fuels treatments; the potential for human-caused ignitions; fire suppression activities; fire use; threats to people, property, and sensitive resources from wildland fire; Fire Regime/Condition Class (FRCC); and the risk of undesirable wildland fire.

Methods and Assumptions

The analysis of potential impacts to fire and fuels management is based on the expertise of BLM resource specialists at the Arizona Strip FO and the NPS staff at Parashant and Lake Mead NRA, information in the Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management (2004), and scientific literature.

Effects are quantified where possible. Best professional judgment was used when quantifiable data were unavailable. The intensities of impacts are also described, where possible, using the following guidance:

Negligible	The impact would not be detectable. Threats to people, property or sensitive resources from wildland fire would not change. Ability to implement appropriate management response and hazardous fuels treatments would not be affected. Changes to fuel loads, FRCC, and risk of undesirable wildland fire would affect minimal acres.
Minor	The impact would be detectable. Threats to people, property or sensitive resources from wildland fire would be minor. Minor changes in ability to implement appropriate management response and hazardous fuels treatments would occur. Changes to fuel loads, FRCC, and risk of undesirable wildland fire would be measurable or perceptible, but localized in relatively small areas.
Moderate	The impact would be readily apparent. Threats to people, property, or sensitive resources from wildland fire would be moderate. Moderate changes in ability to implement appropriate management response and hazardous fuels treatments would occur. Changes to fuel loads, FRCC, and risk of undesirable wildland fire would be measurable or perceptible over a moderately sized area.
Major	The impact would be severe. Threats to people, property, or sensitive resources from wildland fire would be greatly affected. The ability to implement appropriate management response and hazardous fuels treatments would be greatly changed. Changes to fuel loads, FRCC, and risk of undesirable wildland fire would be measurable or perceptible over a large area.

The following assumptions regarding fire and fuels management are made:

- All fire and fuels management policies, guidelines, and procedures would be followed.
- Fire and fuels would be managed to meet the objectives described in the Fire Management Plan.
- All Conservation Measures pertaining to fire suppression operations would be followed unless firefighter or public safety, or the protection of property, improvements, or natural resources renders them infeasible during a particular operation. All conservation measures pertaining to fuels treatments would be followed when implementing wildland fire use, prescribed fires, and other vegetation treatments.

Impacts to Fire and Fuels Management

Impacts to vegetation resources would result from actions proposed under the following resource management programs:

- Travel Management
- Wilderness Characteristics
- Vegetation and Fire and Fuels Management
- Fish and Wildlife
- Special Status Species
- Visual
- Cultural Resources
- Livestock Grazing
- Recreation

Alternative A: No Action

Impacts from Travel Management

Historically, most wildland fires in the Planning Area have been ignited by lightning. However, the potential for human-ignited wildland fires would increase with rising human use of the Planning Area. Areas accessible by motorized vehicles would likely be the most susceptible to human-ignited wildland fires, but it is impossible to quantify increases in ignitions and acres burned. Cross-country access for wildland fire suppression would be authorized under all alternatives. Maintaining or upgrading designated routes could make these areas more accessible to fire suppression vehicles and improve the effectiveness of fire suppression actions, but also lead to increased public use. Impacts could be negligible to moderate.

Impacts from Wilderness Characteristics

No areas would be identified for maintaining wilderness characteristics under Alternative A.

Impacts from Vegetation and Fire and Fuels Management

Fuels and vegetation treatments would continue to be implemented with no maximum acreage limits, treatment priority criteria, or treatment preferences for ecological zones. Prescribed fire, fire use, and manual treatments following minimum tool requirements would not be authorized for all wilderness areas. Treatments would directly affect fuel loads and could indirectly affect fire suppression, as treated areas may burn less intensely than untreated areas in wildland fires. Fire use could increase the size of fires that would have otherwise been suppressed. Impacts would be moderate. The duration of impacts would vary by vegetation type depending on the rate of regeneration after treatments.

Impacts from Fish and Wildlife

Building new artificial water sources would provide water for fire suppression activities. Effects would be localized and depend on whether wildland fires occur in the vicinity of the new water developments. Impacts could range from negligible to minor. Pronghorn passable fences would reduce fuel loads by minimizing tumbleweeds piled along fences. Impacts would be negligible to minor because this has not been a significant problem in the past. Restricting activities during desert bighorn sheep lambing (December 1-May 31) could impact the timing of fuels treatment projects or fire use. Impacts would be negligible because treatments could be rescheduled, and restrictions would occur outside of the peak wildland fire season.

Impacts from Special Status Species

Measures to mitigate fire management actions in special status species habitats could increase suppression costs, limit suppression equipment choices and tactics, require additional effort from firefighters, and limit options for treating hazardous fuels in some areas. Reintroductions of special status species could increase the areas where these measures would be required. Impacts of the measures and reintroductions could range from negligible to minor, depending on the area and frequency and intensity of wildland fires. Implementing Peregrine Falcon restrictions from March – July could impact fire suppression activities and the implementation of fuels treatments. Impacts would be negligible because the decision would affect a small area. Limiting available tools could reduce the effectiveness and efficiency of fuels treatments, potentially resulting in impacts that are negligible to moderate depending on the type of fuels being treated, size of fuels treatment, and threat of wildland fire.

Impacts from Visual Resources

Because fuels treatments would need to be compatible with VRM classes, the types and scope of fuels treatments would be limited in VRM Classes I and II. See Impacts from Visual Resources in the Impacts to Vegetation section. In Parashant, the least number of acres would be designated as VRM classes I and II under Alternative A. Impacts would be negligible to minor because fuels treatments could be implemented in VRM classes III and IV. In the Arizona Strip FO, Alternative A proposes the most acres of VRM classes I and II (when combined) but the smallest acreage for VRM classes III and IV (when combined) compared to the other alternatives. Impacts would be moderate. Fuels treatments are a low priority in Vermilion, so impacts would be negligible under all alternatives.

Impacts from Cultural Resources

Required compliance with NEPA and the National Historic Preservation Act (NHPA) and proactive cultural resource inventory and other work could limit fire and fuels management actions and increase costs for compliance and mitigation. Impacts could be minor to moderate, depending on ability to fund compliance and mitigation for fuels treatments.

Impacts from Livestock Grazing

Livestock grazing could reduce fine fuel loads and the size and intensity of wildland fires in some areas during high grass production years. See description of livestock grazing impacts under the Impacts to Vegetation section for additional effects to vegetation and fuels and impacts of managing areas as forage reserves. Activities associated with livestock grazing could increase wildland fire ignitions. Under Alternative A, seasons of use for some allotments would be greater than under other alternatives, and portions of some allotments would be unavailable to livestock grazing. Impacts could be negligible to moderate, depending on the recovery of these areas, rainfall, and other factors affecting fuel loads, and may vary from year to year. Impacts from the construction and maintenance of water developments would be similar to those from wildlife water developments.

Impacts from Recreation

Increased participation in recreation activities and larger areas impacted by recreation could increase the potential for human-ignited fires. Impacts could range from negligible to moderate. Improved signing and facility management, compliance patrols by law enforcement, and management of outfitters and guides could improve visitor compliance with fire restrictions and provide opportunities to promote a fire prevention message and provide information about fire ecology. Impacts could range from minor to moderate.

Alternative B

Impacts from Travel Management

General impacts from Travel Management would be the same as those described under Alternative A. Alternative B would be the most restrictive on motorized and mechanized access, limiting the potential for human-ignited wildland fires. Impacts could be negligible to moderate.

Impacts from Wilderness Characteristics

In Parashant, the greatest number of acres having wilderness characteristics would be maintained under Alternative B. In the Arizona Strip FO, fewer acres having wilderness characteristics would be maintained under Alternative B than under Alternative C, but more acres would be maintained than under Alternatives D and E. Under Alternative B, fuels management would rely on natural processes (fire use) rather than fuels and vegetation treatments. In Parashant and the Arizona Strip FO, impacts could be moderate. Because fuels treatments are a low priority in Vermilion, impacts would be negligible.

Impacts from Vegetation and Fire and Fuels Management

Fuels and vegetation treatments would be implemented with less aggressive acreage limits, treatment priority criteria, and treatment preferences than under Alternatives C, D, and E. Fewer treatment methods would be authorized than under Alternatives C and D. Prescribed fire, fire use, and manual treatments following minimum tool requirements would be authorized for all wilderness areas classified as Wildland Fire Use based on ecological zone. Treatments would directly affect fuel loads by substantially reducing fuel buildup. As a result, treated acres would be at reduced risk of catastrophic wildland fire or would likely experience lower fire intensity and severity than untreated areas. This would indirectly affect fire suppression. Fewer acres would be impacted than under Alternatives C, D, and E. Fire use would directly impact fuel loads and fire suppression during the incident. Fire use could increase the size of fires that would have otherwise been suppressed. Treatments and fire use could indirectly affect appropriate management response during future ignitions. Impacts would be moderate and both short and long term.

Impacts from Fish and Wildlife

Implementing and maintaining vegetation treatments benefiting wildlife would reduce fuel loads. If wildland fire occurs in maintained areas, fire intensities and negative impacts from fire could be lower than if areas were not maintained. Impacts could range from negligible to major depending on the size and location of treatments. Impacts from building new artificial water sources, requiring pronghorn passable fences, and restricting activities during desert bighorn sheep lambing would be the same as under Alternative A.

Impacts from Special Status Species

Impacts from measures to mitigate fire management actions in special status species habitats, special status species reintroductions, and implementing Peregrine Falcon restrictions would be the same as under Alternative A. Alternative B is the most restrictive for mechanical vegetation treatments, and impacts could be greater than under the other alternatives. Impacts could be negligible to moderate depending on the type of fuels being treated, size of fuels treatment, and threat of wildland fire. Modifying or adding ACECs in the Arizona Strip FO for the protection of special status plants would alter where associated fire suppression and fire use restrictions are required. Not authorizing the use of tracked vehicles for fire suppression in listed plant habitats would impact the tools available for fighting fire in these areas. Modifying ACECs and not authorizing tracked vehicles could result in negligible to minor impacts because fire does not play a large role in most of these areas.

Impacts from Visual Resources

In Parashant under Alternative B, all but 12 acres would be designated under VRM classes I and II. This would result in major impacts because such VRM designations would preclude some types of treatments in the Monument. In the Arizona Strip FO, Alternative B would designate

fewer acres as VRM classes I and II than under Alternative A, resulting in less widespread impacts, but more impacts that are more widespread compared to Alternatives C, D, and E. Impacts would be moderate because treatments could be planned in the other VRM classes. Fuels treatments are a low priority in Vermilion, so impacts would be negligible for all alternatives. Mitigating impacts for night sky conditions could affect suppression activities, fire camps, and new fire stations or other facilities. Impacts would be negligible.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative A.

Impacts from Livestock Grazing

Impacts would be similar to Alternative A, although a smaller area would be affected. See corresponding Impacts to Vegetation section for acreage comparisons. Impacts could be negligible to moderate depending on the recovery of these areas, rainfall, and other factors affecting fuel loads, and may vary from year to year.

Impacts from Recreation

General impacts of recreation are described under Alternative A. In Parashant, constructing recreation infrastructure would provide new opportunities to educate the public about fire prevention and fire ecology. Fuels treatments in the Back Roads and Outback Management Units would be limited to natural processes (fire use). Impacts could be minor to moderate.

Alternative C

Impacts from Travel Management

General impacts would be the same as those are described under Alternative A. More than 467 fewer miles of routes would be open in the Monuments than Alternative A, but nearly twice as many acres would be open to motorized and mechanized vehicles in the Arizona Strip FO. This would result in impacts that are more widespread. Impacts could be negligible to moderate.

Impacts from Wilderness Characteristics

General impacts would be similar to those described under Alternative B, although fewer acres would be identified as having wilderness characteristics in Parashant under Alternative C, which would reduce the area of impact. Under Alternative C, natural processes (fire use) would be emphasized, but other tools could be used for fuels projects. Impacts could be moderate. Fuels treatments are a low priority in Vermilion, so impacts would be negligible. The Arizona Strip FO would have the most acres managed for wilderness characteristics under Alternative C, which

would result in the most acres being impacted among the alternatives. Impacts could be moderate.

Impacts from Vegetation and Fire and Fuels Management

Fuels and vegetation treatments would be implemented with acreage limits, treatment priority criteria, and treatment preferences for ecological zones that are more aggressive than under Alternative B, but less aggressive than Alternative D. Alternative C is either the same or less aggressive than Alternative E, depending on the ecological zone and planning area. More acres and treatment methods would be authorized than under Alternative B, fewer acres and treatment methods would be authorized than under Alternative D, and the same or fewer acres and treatment methods would be authorized than under Alternative E, depending on the ecological zone. Prescribed fire, fire use, and manual treatments following minimum tool requirements would be authorized for all wilderness areas classified as Wildland Fire Use based on ecological zone. Treatments would directly affect fuel loads by substantially reducing their levels. As a result, treated areas would be at lower risk for catastrophic wildland fire and would likely experience lower fire intensity and severity than untreated areas. This would indirectly affect fire suppression. More acres would be impacted than under Alternative B, but fewer acres would be impacted than under Alternative D. Fire use would directly impact fuel loads and fire suppression during the incident. Fire use could increase the size of fires that would have otherwise been suppressed and could indirectly affect appropriate management response during future ignitions. Impacts would be moderate to major, depending on the number of acres treated and occurrence of wildland fire in treated areas, and both short and long term.

Impacts from Fish and Wildlife

Impacts would be the same as described under Alternative B.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B.

Impacts from Visual Resources

In Parashant, more acres would be designated as VRM classes I and II than under Alternatives A, expanding the area where fuels treatments would be limited, but not as widespread as under Alternative B. Impacts would be moderate because treatments could be moved to areas designated as VRM class III. In the Arizona Strip FO, fewer acres are designated as VRM classes I and II under Alternative C than under Alternatives A, B, and E. Impacts would be minor. Fuels treatments are a low priority in Vermilion, so impacts would be negligible for all alternatives. Mitigating impacts to night sky would be the same as Alternative B.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative A.

Impacts from Livestock Grazing

Impacts would be similar to Alternative A. See corresponding vegetation management section for acreage comparisons. Impacts could be negligible to moderate, depending on the recovery of these areas, rainfall, and other factors affecting fuel loads, and may vary from year to year.

Impacts from Recreation

General impacts from recreation would be the same as those described under Alternative A. In Parashant, developing interpretive sites could provide new opportunities to educate the public about fire prevention and fire ecology. Fuels treatments in the Back Roads and Outback Management Units would not be limited to natural processes (fire use). Impacts could be minor to moderate.

*Alternative D*Impacts from Travel Management

General impacts would be the same as those described under Alternative A. More miles of routes in the Monuments would be open compared to Alternatives B and C, which would result in impacts that are more widespread. In the Arizona Strip FO, new motorized routes could be built to enhance recreation opportunities, and nearly nine times as many acres would be open to motorized and mechanized vehicle use than under Alternative A. Impacts would thus be more widespread and could range from negligible to moderate.

Impacts from Wilderness Characteristics

General impacts would be similar to those described under Alternative B. Under Alternative D, fuels treatments would be accomplished by the most efficient means available. The fewest acres would with wilderness characteristics would be maintained under Alternative D throughout the Planning Area, which would result in the least impacts among the Alternatives, with the exception of Alternative A where no acres would be maintained for wilderness characteristics. Impacts would be minor.

Impacts from Vegetation and Fire and Fuels Management

Fuels and vegetation treatments would be implemented with maximum acreage limits, treatment priority criteria, and treatment preferences for ecological zones. More acres and treatment methods would be authorized than under Alternatives B and C, and the same or more acres and

treatment preferences would be authorized than under Alternative E, depending on the ecological zone. Prescribed fire, fire use, and manual treatments following minimum tool requirements would be authorized for all wilderness areas classified as Wildland Fire Use based on ecological zone. In Parashant, additional steps would be taken to protect old-growth ponderosa pines, rehabilitate treatment areas, and reseed, and helicopters would be authorized for some activities in Alternatives D and E. Treatments would directly affect fuel loads by substantially reducing their levels. As a result, treated areas would have lower risk for catastrophic wildland fire and would likely experience lower fire intensity and severity than untreated areas. This would indirectly affect fire suppression. More acres would be treated than under Alternative B and C, and the same or more acres would be treated under Alternative E, depending on the ecological zone. Fire use would directly impact fuel loads and fire suppression during the incident. Fire use could increase the size of fires that would have otherwise been suppressed, and could indirectly affect appropriate management response during future ignitions. Impacts would be moderate to major, depending on the number of acres treated and occurrence of wildland fire in treated areas, and both short and long term.

Impacts from Fish and Wildlife

Impacts would be the same as described under Alternative B.

Impacts from Special Status Species

Mechanical vegetation treatments would be less restrictive than under alternatives B and E, but more restrictive than under Alternative A. Impacts from other decisions would be the same as described under Alternative B.

Impacts from Visual Resources

In Parashant, more acres would be designated as VRM classes I and II than under Alternative A, expanding the area where fuels treatments would be limited, but not as widespread as under Alternatives B, C, and E. Impacts would be moderate. In the Arizona Strip FO, fewer acres would be designated as VRM classes I and II under Alternative D than under any of the other alternatives, resulting in the smallest area where fuels treatments would be limited. Impacts would be minor. Fuels treatments are a low priority in Vermilion, so impacts would be negligible for all alternatives. Mitigating impacts to night sky would be the same as described Alternative B.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative A.

Impacts from Livestock Grazing

Impacts would be similar to those described under Alternative A. See corresponding Impacts to Vegetation section for acreage comparisons. Impacts could be negligible to moderate, depending on the recovery of these areas, rainfall, and other factors affecting fuel loads, and may vary from year to year.

Impacts from Recreation

Impacts would be similar to those described under Alternative A.

Alternative E: Proposed Plan

Impacts from Travel Management

General impacts would be the same as described under Alternative A. In the Monuments, impacts would be similar to those described under Alternatives C and D due to similar number/miles of road closures. In the Arizona Strip FO, impacts from open areas would be comparable to Alternative D. Overall impacts could be negligible to moderate.

Impacts from Wilderness Characteristics

General impacts would be similar to those described under Alternative B. Tools available for fuels projects would be the same as under Alternative C. In Parashant, Alternative E would result in maintaining more acres having wilderness characteristics than under in Alternative D, expanding the impacts; however, such impacts would be less extensive compared to Alternatives B or C. Impacts would be minor to moderate. Fuels treatments are a low priority in Vermilion, so impacts would be negligible. In the Arizona Strip FO, impacts would be the same as under Alternative D.

Impacts from Vegetation and Fire and Fuels Management

Fuels and vegetation treatments would be implemented with maximum acreage limits, treatment priority criteria, and treatment preferences for ecological zones. Maximum acres and treatment methods would be the same as under Alternative C or D, depending on the ecological zone. Prescribed fire, fire use, and manual treatments following minimum tool requirements would be authorized for all wilderness areas classified as Wildland Fire Use based on ecological zone. The impacts of the Mt. Trumbull restoration project would be the same as under Alternative D. Treatments would directly affect fuel loads by substantially reducing their levels. As a result, treated areas would have a much lower risk of catastrophic wildland fire and would likely experience lower fire intensity and severity than untreated areas. This would indirectly affect fire suppression. Treated acres would be comparable to Alternative C or D, depending on the ecological zone. and could indirectly affect fire suppression, as treated areas may burn less

intensely than untreated areas in wildland fires. Fire use would directly impact fuel loads and fire suppression during the incident. Fire use could increase the size of fires that would otherwise be suppressed. It could indirectly affect appropriate management response during future ignitions. Impacts would be moderate to major, depending on the number of acres treated and occurrence of wildland fire in treated areas, and both short and long term.

Impacts from Fish and Wildlife

Impacts would be the same as described under Alternative B.

Impacts from Special Status Species

Mechanical vegetation treatments would be less restrictive than under Alternatives B and D, reducing impacts. However, mechanical vegetation treatments would be more restrictive than under Alternatives A and C. Impacts from other decisions would be the same as described under Alternative B.

Impacts from Visual Resources

Impacts in Parashant and Vermilion would be the same as under Alternative C. In the Arizona Strip FO, fewer acres would be designated as VRM classes I and II than under Alternatives A and B, reducing the area where fuels treatments would be limited, although such impacts would be more widespread than under Alternatives C and D. Impacts would be moderate. Mitigating impacts to night sky would be the same as Alternative B.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative A.

Impacts from Livestock Grazing

Impacts would be similar to those described under Alternative A. See corresponding Impacts to Vegetation section for acreage comparisons. Impacts could be negligible to moderate, depending on the recovery of these areas, rainfall, and other factors affecting fuel loads, and may vary from year to year.

Impacts from Recreation

Impacts would be similar to those described under Alternative A.

Cumulative Impacts

The geographic area of analysis for cumulative impacts to wildland fire is the Planning Area and adjacent lands. Actions affecting fire management primarily include factors that affect fuel loads

(e.g., spread of invasive species, vegetation treatments on lands adjacent to the Planning Area, surface disturbing activities, drought conditions, climate change) and factors that provide potential ignition sources (e.g., recreation, OHV use). The continued spread of exotic annual grasses would increase the size and number of fires. Invading tamarisk would continue to increase flammable fuel loads in riparian areas, increasing the risk of stand-replacing fire. Surface disturbing activities would alter plant species composition and density, and promote the spread of invasive plants. Vegetation treatments adjacent to the Planning Area would reduce the chance of wildland fire spreading onto the Planning Area. Drought would impact fuel loads, fire intensities, and the size of wildland fires. Population growth and resulting increases in vehicle and OHV use may increase ignitions.

FISH AND WILDLIFE

Impacts to fish and wildlife resources in the Planning Area from other management programs include loss or alteration of native habitats, increased invasion of noxious weeds and other exotic weed species, decreased water availability, increased habitat fragmentation, changes in habitat and species composition, disruption of species behavior leading to reduced reproductive fitness and/or increased susceptibility to predation, and direct mortality. Surface disturbing actions that alter vegetation characteristics (e.g. structure, composition, and/or production) have the potential to affect habitat suitability for fish and wildlife, particularly where the disturbance removes or reduces cover and/or food resources. Even minor changes to vegetation communities have the potential to affect resident fish and wildlife populations.

Direct impacts to fish and wildlife resources from management activities may result in mortality or displacement of individuals, disturbance resulting in reduced air quality, and alteration of immediate environments through loss of, or changes to, key habitat components. Key habitat components include food availability or quality, cover from predators, insulation from extreme temperatures, nesting/roosting/denning habitat, water availability and quality, and travel corridors. Direct impacts may affect wildlife populations or habitats for the duration of the action, for a few days thereafter, for several growing seasons, or may continue indefinitely where the action results in permanent habitat loss.

Indirect impacts to fish and wildlife resources from management activities typically result from influences of post-disturbance succession, recovery, or rehabilitation of the habitat. These impacts may be long-term and, depending on the severity of the habitat alteration, may change species assemblages (i.e., relative abundances or species composition), species behaviors, or overall population trends, which would benefit some species while negatively affect others.

The direct and indirect impacts of management actions on fish and wildlife resources may vary widely, depending on a variety of factors such as the dynamics of the habitat (e.g. community type, size, shape, complexity, seral state, and condition); season, intensity, duration, frequency, and extent of the disturbance; rate and composition of vegetation recovery; change in vegetation

structure; type of soils; topography and microsites; animal species present; and the mobility of fish or wildlife species (i.e., ability to leave a site or recolonize a site after a disturbance).

Methods and Assumptions

The analysis of potential impacts to fish and wildlife resources is based on the expertise of BLM resource specialists at the Arizona Strip District and the NPS staff at Lake Mead NRA. Combined, these staffs possess an extensive knowledge of fish and wildlife resources within the Planning Area. The impact analysis is also based on review of existing literature and information provided by non-planning team experts in the BLM, NPS, and other agencies.

Quantifying these impacts is difficult due to the lack of monitoring data for most species. In absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible: No changes to fish and wildlife resources would occur, or impacts on individuals, populations, or habitats would be at or below the level of detection. If detected, the impacts would be considered slight.
- Minor: Changes to fish and wildlife resources would be measurable, although the changes would be small, short-term (less than seven consecutive days), and local. Mitigation measures would not be necessary.
- Moderate: Changes to fish and wildlife resources would be measurable and would have appreciable consequences, although the effect would be relatively local. Mitigating measures would be necessary, but would most likely be successful.
- Major: Changes to fish and wildlife resources would be measurable, have substantial consequences, and be noticed regionally. Mitigating measures would be necessary, and their success would be uncertain.

Because some species of fish and wildlife are also considered special status species, only impacts to non-special status fish and wildlife are discussed in this section. Impacts to federally listed, proposed, candidate, State, or BLM sensitive species are addressed in the Impacts to Special Status Species section.

The following assumptions regarding fish and wildlife resources are made:

- Wildlife habitat would be managed for those species identified as priority wildlife and migratory bird species.
- All surface disturbing activities include mitigation to reduce impacts to wildlife resources. Analysis of impacts includes any and all mitigation measures in place

- Wildlife management through habitat restoration and vegetative treatment actions would be based on managing for various states and stages of vegetation based on site potential as described for ecological zone in the Vegetation and Fire and Fuels Management section of Chapter 2.
- Parashant has no streams and no fishery resources.

Impacts to Fish and Wildlife

Impacts to fish and wildlife resources would result from actions proposed under the following resource management programs:

- Transportation and Access
- Wilderness Characteristics (Parashant only)
- Vegetation and Fire and Fuels Management
- Air, Water, and Soil
- Fish and Wildlife
- Special Status Species
- Mineral Resources (Arizona Strip FO only)
- Livestock Grazing
- Recreation
- Lands and Realty

Alternative A: No Action

Impacts from Travel Management

Wildlife may be injured or killed by collisions with vehicles traveling upon the existing transportation system. Impacts from collisions typically affect individuals, though populations may also be adversely affected if the species is rare or collisions are frequent. Birds, reptiles, and small mammals are among the species most commonly hit by vehicles. Generally, collisions with wildlife are infrequent in the Planning Area, with the exception of rabbit kills during periods when they are locally abundant. Because of the reduced traffic volume, impacts from collisions on roads open only for administrative purposes are considered rare. The transportation system also provides increased access, resulting in an increase in the level of human activity, noise, dust, and disturbance. Routes facilitate recreational activities, which may lead to injury or mortality of wildlife, provide a corridor for invasive exotics, fragment habitat, and inhibit breeding activities. Routes also serve as travel corridors for some species and act as effective firebreaks.

Minor, short-term indirect impacts could result from disturbance, noise, and dust from traffic on the designated transportation system. Forage vigor and overall habitat suitability could be reduced from dust settling on vegetation adjacent to roads, reducing the overall habitat suitability for wildlife. Under this alternative, 7,095 miles of routes would be open to motorized use,

including 1,715 in Parashant, 446 in Vermilion, and 4,934 in the Arizona Strip FO, which are the most miles of routes that would be open among the alternatives. As a result, the magnitude of impacts would be greater under Alternative A than under any other alternative.

The construction of new, temporary roads to facilitate project implementation would result in moderate, short-term direct impacts to fish and wildlife resources, as some species would be injured, killed, or displaced during construction and rehabilitation work. Wildlife habitat areas would be temporarily fragmented while the road was in use, an effect that varies in magnitude and intensity by wildlife species. The rehabilitation of temporary roads would have moderate short- and long-term direct and indirect impacts. Short-term direct impacts would include construction noise and dust and disturbance from human activity. Other direct impacts include displacement, loss of habitat, injury, or death of individuals during the rehabilitation phase. Indirect impacts to wildlife habitat include reduced erosion and compaction, and increased infiltration, resulting in a reduction of habitat suitability for some species. Following completion of rehabilitation actions, wildlife would benefit from the reestablishment of vegetation, removal of the source of disturbance, and restoration of the habitat. Indirect habitat impacts include increased vegetation productivity and improved wildlife habitat connectivity.

Impacts from Wilderness Characteristics

No areas are identified to maintain wilderness characteristics under the No Action Alternative. Therefore, no impacts to fish and wildlife resources would result.

Impacts from Vegetation and Fire and Fuels Management

Restoration and Vegetation Treatments: During restoration treatments, impacts to fish and wildlife resources could include disturbance of breeding, feeding, and sheltering activities; temporary or permanent loss of habitat or components; increased habitat fragmentation; increased susceptibility to predation; forced emigration; and/or direct injury or mortality. Reclamation of sites previously disturbed by facility development would have minor, short- and long-term direct and indirect impacts. Short-term direct impacts would include reestablishment of native vegetation for forage and cover. Long-term direct impacts would include reestablishment of vegetation structure. Short-term indirect impacts would include reduced erosion and compaction, and increased infiltration. Long term indirect impacts could include increased vegetation productivity, resulting in increased forage and cover for wildlife. However, the extent of such impacts to wildlife is indeterminable under the No Action Alternative since no limits for vegetation treatments were defined. Refer to Impacts to Vegetation from Vegetation and Fire and Fuels Management for a discussion of impacts from various treatment methods used.

Reclamation actions such as re-contouring, ripping compacted areas, replacing topsoil, seeding, and planting could injure or kill individual animals. The magnitude of anticipated impacts would

vary by the treatment method used, but would generally range from minor to moderate, particularly for animals with low mobility.

Following vegetation treatment, increased invasion of noxious weeds and other exotic weed species, decreased water availability, and long-term changes in habitat and species composition could occur. The duration of these impacts would vary by treatment method, habitat and community type, availability of appropriate seed, and amount and timing of precipitation. Temporary or permanent reductions in water quantity, quality, or access could lead to the same anticipated impacts.

Mechanical and chemical treatment methods could result in localized, short-term impacts to air quality, including fugitive dust, emission/exhaust from equipment, and chemical fumes. Temporary reduction in air quality could lead to reduced fitness, increased susceptibility to predation, or mortality among wildlife species.

In Vermilion, vegetation treatments in riparian areas that result in successful reduction of tamarisk and other invasive exotics would ultimately benefit most riparian dependent species, though treatments would initially have impacts to those species, as described above.

Collection and Use of Native Seed/Use of Non-native Plants: Use of nonnative plant species for re-seeding could impact wildlife habitat by introducing species that could out-compete preferred wildlife forage species or increase the frequency or intensity of fire. Use of nonnative plant species can also help stabilize soils following disturbance when native species are ineffective, cannot be established, or are not available, which would ultimately benefit wildlife. Collection of native seed would not be authorized under this alternative.

Vegetation Products Use/Sale: Use and/or sale of vegetation products in Parashant and Arizona Strip FO, particularly harvest of fuelwood associated with restoration projects, post cutting, collection of dead and downed wood for campfires, Christmas tree harvest, and collection of pinyon nuts would have localized, minor to moderate impacts on wildlife. Impacts would generally be in the form of disturbance to breeding, feeding, or sheltering activities. Impacts resulting from fuelwood harvest associated with restoration projects could lead to long-term or permanent loss of habitat, nest abandonment, emigration, and mortality of individuals, depending upon the species. Removal of vegetation from fuelwood sales could also lead to improved habitat quality if it occurs in unnaturally dense areas and results in an increase in grasses/forbs/shrubs in the understory and an increase in small mammal habitat. Salvage of vegetation that would be destroyed through surface disturbing activities would not be authorized under this alternative.

Use and/or sale of vegetation products would not be authorized in Vermilion. Impacts from free and non-commercial use of these products would be similar in scope and extent to those described above.

Noxious Weed Management. Management of noxious weeds may cause temporary minor to moderate impacts to game and nongame species as a result of herbicide use. Assuming proper application of approved herbicides, it is expected that population-level effects would not occur. Treatments designed to decrease or eliminate noxious weeds would benefit wildlife habitats by reducing or eliminating the chances for dominance of plant species with limited forage or cover values.

Fire Suppression, Use, and Management. The primary impacts of fire to fish and wildlife resources would be the periodic loss or alteration of habitats from large, catastrophic fires or from aggressive fire suppression techniques that alter the natural density, structure, and composition of fire-adapted or fire-threatened habitats. Wildfires impact fish and wildlife resources by altering or reducing available habitat, reducing habitat suitability, changing the structure or composition of the habitat, and direct mortality of individuals. Direct impacts on fish and wildlife resources vary by species.

Depending on species mobility, wildlife would experience impacts from mortality or displacement, disturbance resulting from fire suppression activities, and reduction of air quality from smoke and ash. While small animals (mammals, reptiles and amphibians) are most at risk for mortality because of their limited mobility, occasionally large mammals are killed by severe fast-moving wildfires, typically from smoke inhalation (Smith 2000).

Wildfires may also cause large-scale or intense alterations of habitat components for many fish and wildlife species, which would favor some species and displace others. Immediate post-fire conditions raise light penetration and temperatures on and immediately above and below soil surfaces and can reduce soil moisture, affecting ground-dwelling species (Lyon *et al.* 1978). Burning of cover and destruction of trees, shrubs, and forage modify habitat structure. The loss of small ground cover and charring of larger branches and logs would affect small animals and birds that use these components for nesting, thermal or escape cover, or foraging.

Alterations in terrestrial or riparian habitats would also affect water quality and habitat components for fish and other aquatic species. Wildfires may leave the surrounding soil and accumulated ash vulnerable to erosion and remove shading streamside vegetation, which would increase sedimentation and water temperature. Aquatic species could also be subjected to the direct impacts of increased sedimentation and water temperatures from removal of upland vegetation. The duration, intensity, and scope of these direct impacts depend on the species and the characteristics of the fire.

Wildfires may frequently create more homogeneous habitats within and among vegetation communities, which would reduce or change the assemblage of species occupying these altered habitats. High-intensity fires create large numbers of snags that are normally of high value to many wildlife species (Smith 2000).

In lower elevation vegetation communities, such as in the Mojave Desert Ecological Zone, increases in invasive grass and shrub species have altered these habitats to a point where fires now occur in habitats that are intolerant of fire or fire suppression activities. Wildfire can cause rapid and profound changes in desert scrub habitats, both in the short-term and long-term, because many desert plants are not well adapted to large disturbances by fire (Esque *et al.* 2003). Fires now burn hotter and farther, reducing the natural mosaic pattern typical to desert scrub communities. Wildfires in these fire-intolerant habitats would lead to mortality, displacement, loss of food and shelter, and changes in animal communities for fish and wildlife species not historically impacted by fires or fire suppression activities. While extirpation (100 percent mortality) of entire populations in burned areas is unlikely, direct mortality of wildlife (particularly small animals) in desert fires is fairly common, although highly variable (Esque *et al.* 2003).

Fire suppression activities also have direct and indirect impacts on fish and wildlife species and their habitats. Water taken from small ponds for helicopter bucket drops may affect aquatic organisms by depleting their habitat, removing individuals, or spreading disease or non-native, predatory species (such as bullfrogs) among different water sources. Some terrestrial wildlife, such as nesting raptors, could be disturbed by low-flying aircraft or be struck by water or retardant drops, resulting in injury or chemical contamination. Construction of helispots often results in the felling of trees and snags, which are important habitat components. However, it is sometimes possible to use water drops as an alternative to constructing hand line to control fire movement. Helicopter drops would result in less impact to soil, forest litter, and vegetation than hand line construction and, therefore, would have less impact on wildlife, both in intensity and duration.

Hand line construction would remove and disturb soil and forest litter, possibly affecting animals such as small mammals, amphibians, invertebrates, and ground-nesting birds. The presence of hand line crews in remote locations could directly disturb some wildlife species and introduce unnatural food sources. Removal of forest litter and live vegetation can also lead to soil erosion and increased siltation in adjacent lakes and streams. Any fire suppression action that requires the felling of snags to protect human safety and the integrity of the fire line would potentially affect wildlife by reducing the availability of snags to species such as woodpeckers, squirrels, or some bats. The number of snags lost would vary, depending upon factors such as the type and age of tree stand, its history of fire and/or disease or insect infestation, and the intensity of the fire. Direct and indirect impacts from most suppression techniques would be short-term, temporary, and localized, particularly if sensitive habitats are mitigated or avoided. Suppression actions in the arid desert scrub communities may be longer term or more intense, since these vegetation communities have much longer recovery periods, thereby having a longer term effect on the wildlife species that inhabit them.

Identification of fire use areas would allow for the use of fire as a method for reducing fuel loads and increasing habitat productivity for resource enhancement in specific areas. Fire use would

have similar impacts to wildlife as those described above for wildfire, fire suppression, and vegetation treatments.

Impacts from Soil, Water and Air Resources

Restoration and other types of vegetation treatment actions would have similar effects on fish and wildlife resources to those described above in the Impacts from Vegetation and Fire and Fuels Management section (Restoration and Vegetation Treatments).

Construction of dams, dikes, and other water retention structures would have short-term impacts to wildlife similar to those described for vegetation treatments. The area of disturbance would vary by the action proposed, but generally would average less than five acres per structure.

Acquisition of water rights by the BLM would allow for uniform management of water resources and provide more water for wildlife. Mitigation of adverse effects of fugitive dust resulting from authorized actions would reduce the severity of impacts to fish and wildlife resources.

Impacts from Fish and Wildlife

Fish and wildlife resources would benefit from development of HMPs by providing site-specific objectives and actions to enhance habitat conditions. Restrictions on uses within sensitive or priority wildlife habitats would mitigate or eliminate impacts to wildlife resources.

Initial and supplemental transplants of big game wildlife species may result in minor to moderate long-term impacts to other wildlife species in the area. Competition with local wildlife species for food, water, and habitat cover components could lead to interactions that could be adverse to one or both species. Some individuals could be displaced from preferred habitat areas. Supplementing the big game populations in the Planning Area would increase population levels for that species and provide additional food resources for predators.

Construction of new water developments would permanently displace local wildlife species, depending upon the level of surface disturbance required. Wildlife within the local area could be disturbed from breeding, feeding, and sheltering activities during construction. Water developments may increase opportunities for predation on animals as they drink. However, new water developments benefit most species in the area, including nongame, by allowing animals to colonize new habitat areas that were previously too arid to use. As many as 20 new wildlife water developments would be built throughout the life of this Plan. The average size of each disturbance area surrounding the water development is less than two acres, which means that as much as 40 acres of wildlife habitat could be permanently altered by construction of new artificial water sources during the life of this Plan.

Maintenance of water developments would result in minor disturbance impacts to species that rely on the water. Failure to maintain access to and reliability of water developments could lead

to mortality of individuals, increased predation, and loss of the local population. Approximately 10 wildlife water developments each year are inspected and maintained in the Planning Area.

Rosenstock et al. (2004) and others from AGFD have evaluated the effects of wildlife water developments on wildlife. They concluded that wildlife waters did not necessarily result in increases in local wildlife populations, waters were used by non-target as well as target species, predation levels at water sources was typically no higher than in adjacent areas, water quality was not a concern, and that use of the new water source typically did not result in vegetative habitat degradation. Wildlife drownings are a concern in both developed and undeveloped waters. Tuttle (2005) documented that incidents of bat drownings were higher where water levels were well below the rim; where boards, wires, or other obstructions were present; and where escape ramps were not present. Tuttle's study demonstrated that specific design modifications could be incorporated to minimize or eliminate drowning risks. Most wildlife management agencies, including AGFD, have incorporated such features into wildlife water development plans.

By design, animal damage control actions result in the mortality of individual predators involved in depredation of livestock. Under Alternative A, Animal and Plant Health Inspection Service – Wildlife Services (APHIS-WS) would be encouraged to target only offending animals during their predator control operations. Where aircraft is used to complete the animal damage control actions, minor disturbance impacts would result to local species. Where the potential exists for collisions with aircraft, some individual animals could be injured or killed. Non-target species may be disturbed or have breeding, feeding, or sheltering activities disrupted. Potential prey would benefit from removal of the offending animal. Targeting offending animals would likely reduce the success of predator control efforts.

Wildlife inventories can lead to disturbance impacts that range from minor to major in magnitude. Where aircraft are used, the potential exists for target and non-target individuals to be injured or killed, as a direct result of collision with the aircraft or from disturbance that causes the animal to break cover and run, increasing susceptibility to predation.

Pronghorn antelope would benefit from modifications to fences within their habitat to ensure they would be passable to wildlife.

Desert bighorn sheep would benefit from restrictions on grazing sheep or goats within nine miles of their habitat. Elimination or control of these animals would minimize or eliminate risk of spread of disease between the species that could be detrimental to bighorn.

In Parashant, minor, short-term impacts would result to these species from disturbance of breeding, feeding, and sheltering activities from continued management of Mt. Trumbull as a Watchable Wildlife area for Kaibab squirrels, Merriam's turkey, nongame birds, and mule deer.

Impacts from Special Status Species

Reintroductions of special status species may result in minor to moderate long-term impacts to other wildlife species in the area. Competition with local wildlife species for food, water, and habitat cover components could lead to interactions that could be adverse to one or both species. Some individuals could be displaced from preferred habitat areas. Introducing species long absent from an area or non-endemic species could increase the prey base for predator species.

Fish and wildlife resources would benefit from implementation of use restrictions for special status species by reducing or eliminating disturbances that would otherwise have affected fish and wildlife resources. Implementation of management plans developed for special status species may benefit or be a disadvantage to fish and wildlife, depending upon the nature and timing of the actions and the degree of habitat use overlap between affected wildlife and the special status animals addressed. Inventories of special status species could lead to disturbance effects on a variety of wildlife species.

Restrictions on vegetation treatments in special status species (e.g., desert tortoise or special status plants) habitats would reduce or eliminate potential adverse effects from the treatment to fish and wildlife species, but would also prevent realization of benefits to the species from the action.

Closing roads in listed species habitat could affect wildlife resources depending upon the size of the road to be rehabilitated and the method used. Surface disturbing methods such as ripping and re-contouring could injure or kill individual animals, particularly small species with low mobility. Fencing could impede movement by wildlife species through the habitat and could lead to injury or mortality where animals become entangled in barbed wire. Closing the road or limiting access would benefit wildlife by minimizing opportunities for collisions; disturbance to breeding, feeding, or sheltering activities; and reducing avenues for introduction of invasive exotic species.

Desert Tortoise. In Parashant and the Arizona Strip FO, signing would increase awareness of desert tortoise throughout their habitat, potentially leading to increased visitation for wildlife viewing opportunities. Other wildlife species could experience long-term seasonal impacts from increased visitation in the form of disturbances to breeding, feeding, and sheltering activities related to increased visitation. Impacts could also occur from collection of individual animals, such as snakes and lizards, or from harassment by people or pets. Continuation of management of the Pakoon ACEC would afford some protection to other wildlife species. Fire suppression measures for desert tortoise, such as the presence of a resource advisor, would also benefit other species within the same habitats. Backfiring operations could lead to major impacts in the form of injury or death to low mobility species. Burro management in desert tortoise habitat would also benefit other wildlife species dependent upon scarce resources used by burros. Burro removal actions would have similar impacts on other wildlife as those described for animal damage control under the Impacts from Fish and Wildlife portion of this alternative.

In Arizona Strip FO, maintaining designation of the Beaver Dam Slope, Virgin Slope, and Virgin River Corridor ACECs would continue to provide enhanced management capabilities for desert tortoise by minimizing adverse effects from other resource management programs. Impacts from implementation of restrictions on authorized uses within listed species habitats are described under the resource program where the restrictions apply. These actions should enhance protection of habitat for other species of fish and wildlife in this area.

Impacts from Minerals (Arizona Strip FO only)

For the Arizona Strip FO, impacts would be similar in scope and extent to those described in the Impacts to Special Status Species from Minerals section.

Impacts from Livestock Grazing

Impacts associated with livestock grazing actions are similar to those described in the Impacts to Special Status Species from Livestock Grazing section. More acres would be available for livestock grazing under this alternative than under any of the others. The magnitude of the impacts of livestock grazing is generally less on wildlife species not considered special status, but varies by species. Herbivorous species that compete for forage with livestock may experience greater effects. Livestock may also injure or kill small animals by trampling or colliding with individuals or nests.

Impacts from Recreation

Any form of recreational activity that increases noise and dust could adversely impact fish and wildlife resources by disturbing breeding, feeding, or sheltering activities. Wildlife resources could be impacted from disturbance associated with commercial recreation or competitive events depending upon the nature, location, and duration of the action. Some wildlife may be injured or killed as a result of such activities. Vehicular events have the greatest potential to affect wildlife, particularly those held during the time of year when species are rearing young. Animals could be injured or killed by collisions with vehicles on designated routes. Disturbance could lead to emigration and/or an increased risk of predation. While the No Action Alternative includes provisions to alter recreational activities that affect sensitive areas or species, such provisions would not be enforced until after monitoring had detected the impacts.

Foot traffic through sensitive areas could disturb, injure, or kill wildlife or prevent successful feeding or breeding activities. Recreational shooting activities may increase noise and trash in a localized area and could lead to injury or death of animals. Camping may cause minor to moderate impacts to wildlife resources by disturbing animals, altering or removing habitat, increasing trash and debris in the area, and increasing the risk of wildfire. Animals may ingest foreign food substances that may cause illness or death. Camping activities where pets are allowed to roam freely may also cause impacts to wildlife. Use restrictions on these types of activities should reduce or eliminate adverse effects to wildlife.

Impacts from Lands and Realty

Impacts from issuance of ROWs would vary based upon the nature and purpose of the ROWs. Impacts would be minor in the Monuments as new ROWs or associated actions that had more than a negligible impact on Monument objects or values would not be authorized. For the Arizona Strip FO, impacts would be similar in scope and extent to those described in the section, Impacts to Special Status Species from Lands and Realty Management.

Alternative B

Impacts from Travel Management

The types of impacts from use of the transportation system would be similar to those described under Alternative A. However, due to the increase in number of miles of roads closed or open for administrative use only, impacts would occur over a smaller area than under any other alternative.

Impacts from Wilderness Characteristics

In areas with wilderness characteristics, human imprints that are “substantially noticeable” could be identified for restoration. Under this Alternative, 22 wildlife water developments are located in areas that would be managed for wilderness characteristics under Alternative B. Generally, wildlife catchments are designed and constructed so that the location is camouflaged and screened from view. The likelihood that a wildlife water development would be removed from an area identified with wilderness characteristics as a method of restoration is highly unlikely. Removal of existing artificial waters would have long-term adverse effects on existing wildlife populations dependent upon the water, and would be contrary to wildlife management objectives. A more likely restoration treatment would include camouflage painting, additional vegetative screening, and, in some cases, redesign. Any new wildlife water developments proposed within these areas would be designed to be substantially unnoticeable and would incorporate screening features. In general, construction of new roads would not be allowed in development of new wildlife catchments, though temporary roads could be used. This would limit access for construction and maintenance. Limited access would reduce the frequency of maintenance at the site, potentially increasing the amount of time that water developments are out of service.

Minimum impact fire suppression tactics could lead to adverse impacts to wildlife resources by increasing direct mortality of wildlife and the amount of habitat lost due to fire. Because most acres to maintain wilderness characteristics in the Monuments would be found under Alternative B, the above impacts would be most widespread among the alternatives.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be similar to those described under Alternative A and in the Impacts to Special Status Species from Vegetation and Fire and Fuels Management section. In addition, DFCs and DPC objectives would be used in determining whether vegetation treatments or restoration actions would be authorized. DFCs benefit wildlife and their habitats by emphasizing consideration of these resources in the planning phase of these types of actions. Protection of sensitive wildlife species and habitat areas would be a priority for management. Seasonal restrictions on such actions could be used to mitigate impacts to wildlife.

Collection of Native Seed and Salvage of Vegetation Resources. In Parashant and the Arizona Strip FO, collection of native seed could result in localized, minor impacts to wildlife from disturbance, loss of food or cover resources, and short-term disruption of breeding, feeding, or sheltering activities. The extent of these impacts would vary by species. Salvage of vegetation would have similar impacts on wildlife due to the surface disturbing actions that lead to the salvage.

Riparian Ecological Zone. Managing the Riparian Ecological Zone for minimum disturbance to plant communities would benefit wildlife by minimizing disruption of breeding, feeding, and sheltering activities. No vegetation treatments would occur, though fire use could still be authorized. Impacts to wildlife could result from development of extensive tamarisk-dominated sites. Such sites are characterized by an increase in humidity, salinity, surface temperature, and fire frequency, as well as a decrease in available water.

Pakoon Springs Restoration. Restoration of Pakoon Springs could affect wildlife in a variety of ways depending upon the methods used. Impacts would be similar in scope and magnitude as those described for treatment methods under Alternative A. Approximately 10 acres of lentic riparian habitat could be eliminated and riparian-dependent wildlife species such as migratory birds could be displaced if restoration efforts require removal of the existing ponds.

Cane Springs Restoration. Wildlife resources would benefit from closing this area to grazing by mitigating or eliminating impacts similar to those described for Alternative A under Grazing Management.

In Vermilion, managing the Riparian Ecological Zone for minimum disturbance to plant communities would benefit wildlife by minimizing disruption of breeding, feeding, and sheltering activities. No vegetation treatments would occur, though fire use could still be authorized. Impacts to wildlife could result from development of extensive tamarisk-dominated sites. Such sites are characterized by an increase in humidity, salinity, surface temperature, and fire frequency, as well as a decrease in available water.

In the Arizona Strip FO, no treatments would be authorized or planned under Alternative B. Impacts to wildlife could occur from wildfire and reduction in water resulting from failure to treat invasive exotics.

Ponderosa Pine Ecological Zone. Restoration treatments that lead to improved habitat conditions within ponderosa pine stands would result in higher quality forage, cover, and structure for game and nongame wildlife species. Under this alternative, up to 11,600 acres of ponderosa pine could be treated in Parashant, which is the least amount of acres that would be impacted among the alternatives, and would thus result in the least impacts to wildlife. Using a worst-case analysis, up to 2,320 acres of wildlife habitat in this ecological zone could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low.

Mt. Trumbull Wilderness. Minimum tool use in suppressing wildfires could increase the intensity and/or number of acres burned during restoration treatments. This could increase wildlife mortality. An increase in intensity could also kill more non-target (pre-settlement age) ponderosa pine trees, increasing the number of snags available as wildlife habitat. Impacts would occur on fewer acres under this alternative than under any other alternative.

In the Arizona Strip FO, no treatments would be authorized or planned under this Alternative, so no impacts to wildlife are anticipated.

Great Basin Ecological Zone. Restoration treatments within this ecological zone would enhance localized habitat conditions through the treatment of pinyon-juniper woodlands within sagebrush habitats. Reduced canopy density and increased vegetative diversity in pinyon-juniper woodlands would benefit many wildlife species by increasing available forage and cover. Treatments in sagebrush communities would benefit nongame wildlife species, particularly migratory birds, by reducing sagebrush densities, providing habitat openings, and increasing forage availability. Under this alternative, up to 5,000 acres of sagebrush could be treated in Parashant and up to 20,000 acres in the Arizona Strip FO. Using a worst case analysis, up to 1,000 acres of wildlife habitat in Parashant and up to 4,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low.

In Vermilion, no vegetation treatments would be planned or authorized in sagebrush communities. Fire use would be an option. Impacts from vegetation treatments in pinyon-juniper communities could occur over the smallest area under this alternative than under any other alternative.

Mojave Desert Ecological Zone. In both Parashant and the Arizona Strip FO, no treatments would be authorized or planned under this Alternative, so no impacts to wildlife are anticipated.

Mojave - Great Basin Transition Ecological Zone. In Parashant and the Arizona Strip FO, no treatments would be authorized or planned under this Alternative, so no impacts to wildlife are anticipated.

Colorado Plateau Transition Ecological Zone. In Vermilion and Arizona Strip FO, no vegetation treatments would be planned in this ecological zone, though fire use could still be authorized. No impacts to wildlife are anticipated.

Interior Chaparral Ecological Zone. Black-chinned sparrow and mule deer would benefit from being identified as priority species in this ecological zone due to the increased consideration these species would receive in project design and implementation. No vegetation treatments would be conducted in both Parashant and Arizona Strip FO, except that fire use could be considered. No impacts to wildlife are anticipated.

Plains - Grassland Ecological Zone. Pronghorn antelope and Brewer's and Cassin's sparrow would benefit from being identified as priority species in this ecological zone due to the increased consideration these species would receive in project design and implementation. No vegetation treatments would be conducted in all three planning areas, except that fire use could be considered. No impacts to wildlife are anticipated.

Impacts from Soil, Water and Air Resources

Impacts would be similar in nature and scope to those described under Alternative A.

Impacts from Fish and Wildlife

Impacts would be similar in nature and scope to those described under Alternative A, with the following additions:

Impacts to fish and wildlife resources from restoration and vegetation treatments and maintenance of these areas would be the same as those described under Alternative A, depending upon the method used.

In Parashant and Vermilion, providing access to public lands for the hunting and wildlife viewing would maintain routes through the wildlife habitat. Impacts to fish and wildlife resources from implementation of a transportation system would be the same as those described for Alternative A under Impacts from Travel Management. Identification of priority wildlife species would benefit these species by increasing consideration for these animals in project design and implementation.

Impacts from Special Status Species

Impacts would be similar in nature and scope to those described under Alternative A, with the following additions that apply only to Parashant:

Mechanical treatments would not be authorized in special status species habitats. This would reduce or eliminate potential adverse effects from the treatment to fish and wildlife species, but would also prevent realization of benefits to the species from implementing proactive measures to achieve DFCs.

Identification of priority special status species could benefit fish and wildlife resources depending upon the nature and timing of the actions and the degree of habitat use overlap between affected wildlife and the special status animals addressed.

Relict Leopard Frog. Introducing relict leopard frogs at Pakoon Springs or other locations within Parashant would have a major, permanent impact upon existing wildlife at these locations as site preparation would likely involve large scale, high impact changes. To remove bullfrogs, the ponds at Pakoon Springs would require complete removal of water and vegetation and undergo soil sterilization.

Impacts from Minerals (Arizona Strip FO only)

For the Arizona Strip FO, impacts would be similar to those described under Alternative A.

Impacts from Livestock Grazing

Impacts would be the same as those described under Alternative A. The extent of these impacts would be slightly less under this alternative than under any other due to the reduction in area available for grazing.

Impacts from Recreation

Impacts would be similar to those described under Alternative A.

Impacts from Lands and Realty

In the Monuments, impacts would be the same as those described under Alternative A. In the Arizona Strip FO, impacts could result from land tenure adjustments such as acquisition or disposal and issuance of ROWs, depending upon the type of action that occurs. The magnitude of these impacts would be less under this alternative than under any other since fewer acres would be identified for disposal.

*Alternative C*Impacts from Travel Management

Impacts to from management of the transportation system would be similar to those described under Alternative A. However, due to the reduced number of roads open for public use under this alternative, the magnitude of impacts would be less than that of Alternatives A, D, and E, but greater than Alternative B.

Impacts from Wilderness Characteristics

Under this Alternative, 16 wildlife water developments are located in areas that would be managed for wilderness characteristics. Impacts to proposed new and existing wildlife water developments within these areas would be similar in scope and extent to those described under Alternative B.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be similar to those described under Alternatives B, with the following exceptions:

Riparian Ecological Zone. Under this alternative, up to 110 acres of riparian habitat could be treated in Parashant, up to 500 acres in Vermilion, and up to 1,000 acres in the Arizona Strip FO. This is the least amount of acres impacted and would result in fewer impacts to wildlife compared to the other alternatives, with the exception of Alternative B. Even using a worst-case scenario, no long-term loss of riparian habitat would occur because failed treatments would likely result in rapid revegetation by the same invasive exotics intended for removal. The types of impacts would be the same as those described under Alternative A for the various treatment methods used.

Pakoon Springs Restoration: Restoration of processes and function at Pakoon Springs would result in minor, short-term direct impacts including injury, mortality, or removal of individuals or species. Major, long-term indirect impacts could include increased biomass productivity and improvement of wildlife habitat for target species. Approximately 10 acres of lentic riparian habitat could be eliminated and dependent wildlife species such as migratory birds could be displaced if restoration efforts require removal of the existing ponds.

Tassi Ranch and Springs Restoration: Restoration actions at Tassi Springs would result in minor, short-term direct impacts including injury, mortality, or removal of individuals or species. Major, long-term indirect impacts could include increased biomass productivity, and improvement of wildlife habitat for target species. Introduction of relict leopard frogs or other special status species could limit the use of restoration tools that adversely affects other fish or wildlife species, but could also delay restoration.

Cane Springs Restoration: Fish and wildlife resources would benefit from closing this area to grazing by mitigating or eliminating impacts similar to those described under Alternative B, Livestock Grazing. Developing an interpretive site could result in minor, short- and long-term impacts to wildlife by increasing visitation to the site, which would cause increases in disturbance, trampling, compaction and minor erosion of pathways and trails, and the likelihood of fire.

Paria River Invasive Plant Species Removal: Impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for the various treatment methods used. Impacts could occur over a larger area under this alternative than under Alternative B, but less than under all other alternatives.

In the Arizona Strip FO, restoration treatments within the Riparian Ecological Zone would have similar effects as those described under Alternative A for the various treatment methods used. Due to the limited acreage available for treatment, the magnitude of these impacts would be less than under any other alternative except Alternative B.

Ponderosa Pine Ecological Zone. In Parashant, the types of impacts would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 16,200 acres of ponderosa pine could be treated in Parashant and up to 1,000 acres in the Arizona Strip FO. This is the least amount of acres impacted among the alternatives, with the exception of Alternative B. Using a worst-case analysis, up to 3,240 acres of wildlife habitat in Parashant and 200 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low.

Mt. Trumbull Wilderness: The types of impacts would be the same as those described under Alternative A for the various treatment methods used, although the potential of impacts would not occur over such a large area. However, impacts could occur over a larger area under this alternative than under Alternative B.

Great Basin Ecological Zone. The types of impacts from vegetation treatments in sagebrush communities would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 25,000 acres of Great Basin sagebrush could be treated in Parashant, up to 50,000 acres in Vermilion, and up to 100,000 acres in the Arizona Strip FO. This is the least amount of acres impacted among the alternatives and would result in fewer impacts to wildlife, with the exception of Alternative B. Using a worst-case analysis, up to 5,000 acres of wildlife habitat in Parashant, up to 10,000 acres in Vermilion, and up to 20,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low because few treatments ever achieve a 100 percent kill of target species and sagebrush tends to re-establish itself on these sites within a few years.

The types of impacts from vegetation treatments in pinyon-juniper communities would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 41,000 acres of Great Basin pinyon-juniper could be treated in Parashant and up to 30,000 acres each in Vermilion and the Arizona Strip FO. This is the least amount of acres impacted among the alternatives and would result in fewer impacts to wildlife, with the exception of Alternative B. Using a worst-case analysis, up to 8,200 acres of wildlife habitat in Parashant and up to 6,000 acres each in Vermilion and the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low since pinyon juniper habitat is already considered a stable, undesirable plant community.

Mojave Desert Ecological Zone. The types of impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A, Vegetation and Fire and Fuels Management, Restoration and Vegetation Treatments. Under this alternative, up to 70,000 acres of Mojave Desert habitat could be treated in Parashant and up to 5,000 acres in the Arizona Strip FO. This is the least amount of acres impacted among the alternatives and would result in fewer impacts to wildlife, with the exception of Alternative B. Using a worst-case analysis, up to 14,000 acres of wildlife habitat in Parashant and up to 1,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low since vegetation treatments in this community would be limited in size due to sensitivity over desert tortoise needs.

Mojave-Great Basin Transition Ecological Zone. The types of impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 150,000 acres of Mojave Great Basin Transition habitat could be treated in Parashant and up to 5,000 acres in the Arizona Strip FO. This is the least amount of acres impacted among the alternatives and would result in fewer impacts to wildlife, with the exception of Alternative B. Using a worst-case analysis, up to 30,000 acres of wildlife habitat in Parashant and up to 1,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low.

Colorado Plateau Transition Ecological Zone. Impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 5,000 acres could be treated each in Vermilion and the Arizona Strip FO. This is the least amount of acres impacted among the alternative and would result in fewer impacts to wildlife, with the exception of Alternative B. Using a worst case analysis, up to 1,000 acres each in Vermilion and the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low.

Interior Chaparral Ecological Zone. The types of impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 1,500 acres of Interior Chaparral habitat

could be treated in Parashant and up to 1,000 acres in the Arizona Strip FO. This is the least amount of acres impacted among the alternatives and would result in fewer impacts to wildlife, with the exception of Alternative B. Using a worst-case analysis, up to 300 acres of wildlife habitat in Parashant and up to 200 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low.

Plains-Grassland Ecological Zone. The types of impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 50 acres of Plains Grassland habitat could be treated in Parashant, up to 5,000 acres in Vermilion, and up to 50,000 acres in the Arizona Strip FO. This is the least amount of acres impacted among the alternatives and would result in fewer impacts to wildlife, with the exception of Alternative B. Using a worst-case analysis, up to 10 acres of wildlife habitat in Parashant, up to 1,000 acres in Vermilion, and up to 10,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low.

Impacts from Soil, Water and Air Resources

Impacts would be similar in nature and scope to those described under Alternatives A.

Impacts from Fish and Wildlife

Impacts from wildlife management actions would be similar to those described under Alternatives B, except for the following decisions:

Under Alternative C, APHIS-WS would be encouraged to target only offending animals in predator control actions, but could also be asked to conduct proactive control to enhance the success of wildlife transplants or augmentations. Impacts to wildlife resources would be similar in scope but greater in magnitude than those described for Alternative A. Targeting offending animals would likely reduce the success of predator control efforts.

In Parashant, new Watchable Wildlife areas would be proposed at Tassi Spring, Cane Spring, Pakoon Spring, and Oak Grove. Impacts to wildlife resources would be similar to those described under Alternative A, but would occur in more areas across the planning area. In addition, Kaibab squirrel populations could be augmented in the Mt. Trumbull area. This action would benefit the species by increasing numbers and providing additional breeding opportunities for existing individuals.

In Vermilion, wildlife could be disturbed, injured, or killed by additional visitation caused by promoting a Watchable Wildlife area for California Condor viewing in the House Rock Valley.

In the Arizona Strip FO, promoting five new Watchable Wildlife areas could increase the level of disturbance to wildlife at these locations and could lead to minor to moderate long-term impacts from disruption of breeding, feeding, and sheltering activities.

Impacts from Special Status Species

In Vermilion and the Arizona Strip FO, impacts would be similar to those described under Alternative A. In Parashant, impacts would also be similar to those described under Alternative A, except for the following decisions that apply:

Mechanical treatments would not be authorized in special status plant habitats. This would reduce or eliminate potential adverse effects from the treatment to fish and wildlife species, but would also prevent realization of benefits to the species from the action.

Burrowing Owl. Augmenting existing Burrowing Owl populations and installing artificial nest burrows in the Pakoon Basin would have minor short-term impacts to wildlife species from surface disturbing actions associated with burrow construction. These impacts would not likely exceed two acres for each group of 16 Burrowing Owls released, or less than 10 acres total over the life of the Plan. Where Burrowing Owl populations are successfully established, rodents and other prey species would be impacted. While individual prey species would be killed, given the proliferation of rodents in these areas, the long-term impacts to rodent populations would be minor or negligible. Where Burrowing Owls preyed upon desert tortoise young, long-term adverse effects to the species would occur (see Impacts to Special Status Species section).

Impacts from Minerals (Arizona Strip FO only)

In the Arizona Strip FO, impacts to fish and wildlife resources would be similar to those described under Alternative A.

Impacts from Livestock Grazing

Impacts would be similar to those described under Alternative A, although impacts would not be as widespread or as long in duration due to limited acreage available for grazing or reduced season of use.

Impacts from Recreation

Impacts would be similar in nature and scope to those described under Alternative A.

Impacts from Lands and Realty

For the Monuments, impacts would be similar in nature and scope to those described under Alternative A. For Arizona Strip FO, impacts would be similar in nature and scope to those described under Alternative B.

Alternative D

Impacts from Travel Management

Impacts would be similar to those described under Alternative A, but would not cover such a large area due to more miles closed and fewer miles open to the public. However, impacts would occur over a larger area than under the other action alternatives (B, C, and E).

Impacts from Wilderness Characteristics

Under this Alternative, eight wildlife water developments are known to occur in areas that would be managed for wilderness characteristics. Impacts to proposed new and existing wildlife water developments within these areas would be similar in scope and extent to those described for Alternative B. Wildlife resources could be impacted from disturbance associated with non-motorized competitive events. Depending upon the nature, location, and duration of the event, some wildlife may be injured or killed.

Impacts from Vegetation and Fire and Fuels Management

Impacts to fish and wildlife resources from vegetation management actions would be similar to those described in Alternatives B, except for the following decisions:

Riparian Ecological Zone. The types of impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 220 acres could be treated in Parashant, up to 1,560 acres in Vermilion, and up to 5,000 acres in the Arizona Strip FO. This is the greatest amount of acres impacted among the alternatives and would result in greatest magnitude of impacts to wildlife. Even in the event of failed vegetation treatment projects, no riparian habitat would be permanently lost over the life of the plan. This is because invasive exotics such as tamarisk and Russian olive would revegetate quickly in areas where target plant communities failed to establish.

Pakoon Springs Restoration: Impacts would be similar to those described under Alternative C. Developing an interpretive site could result in minor, short- and long-term impacts to vegetation by increasing visitation to the site, which would result in increased disturbance and risk of trampling, compaction and minor erosion of pathways and trails, and increased likelihood of fire. Approximately 10 acres of lentic riparian habitat could be eliminated and dependent wildlife species such as migratory birds displaced if restoration efforts require removal of the existing ponds.

Tassi Springs and Ranch Restoration: Impacts would be similar to those described under Alternative C.

Cane Springs Restoration: Impacts would be similar to those described under Alternative C.

Paria River Invasive Plant Species Removal: The types of impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for each treatment method used. Impacts could occur over a larger area than under any other alternative.

Ponderosa Pine Ecological Zone. The types of impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for each of the various treatment methods used. Under this alternative, up to 20,800 acres could be treated in Parashant and up to 3,800 acres in the Arizona Strip FO. This is the greatest amount of acres impacted among the alternatives and would result in the greatest magnitude of impacts to wildlife. Using a worst-case analysis, up to 4,160 acres of wildlife habitat in Parashant and up to 760 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low.

Mt. Trumbull Wilderness – The types of impacts would be the same as those described under Alternative A for the various treatment methods used. Impacts could occur over a larger area under this alternative than under any other alternative with the exception of Alternative A.

Great Basin Ecological Zone. The types of impacts from vegetation treatments in sagebrush communities would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 50,000 acres could be treated in Parashant, up to 100,000 acres in Vermilion, and up to 200,000 acres in the Arizona Strip FO. This is the greatest amount of acres impacted among the alternatives and would result in the greatest level of impacts to wildlife. Using a worst-case analysis, up to 10,000 acres of wildlife habitat in Parashant, up to 20,000 acres in Vermilion, and up to 40,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low since sagebrush communities regenerate quickly in the Planning Areas.

The types of impacts from vegetation treatments in pinyon-juniper communities would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 136,000 acres could be treated in Parashant, up to 50,000 acres in Vermilion, and up to 100,000 acres in the Arizona Strip FO. This is the greatest amount of acres impacted among the alternatives and would result in the greatest level of impacts to wildlife. Using a worst-case analysis, up to 27,200 acres of wildlife habitat in Parashant, up to 10,000 acres in Vermilion, and up to 20,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low since pinyon-juniper communities regenerate quickly in the Planning Areas.

Mojave Desert Ecological Zone. The types of impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 80,000 acres could be treated in Parashant

and up to 10,000 acres in the Arizona Strip FO. This is the greatest amount of acres impacted among the alternatives and would result in the greatest level of impacts to wildlife. Using a worst-case analysis, up to 16,000 acres of wildlife habitat in Parashant and 2,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low since concerns for impacts to desert tortoise generally limit the size of treatment areas in these habitats.

Mojave-Great Basin Transition Ecological Zone. The types of impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 180,000 acres could be treated in Parashant and up to 30,000 acres in the Arizona Strip FO. This is the greatest amount of acres impacted among the alternatives and would result in the greatest level of impacts to wildlife. Using a worst-case analysis, up to 36,000 acres of wildlife habitat in Parashant and 6,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low.

Colorado Plateau Transition Ecological Zone. Impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 30,000 acres could be treated each in Vermilion and the Arizona Strip FO. This is the greatest amount of acres impacted among the alternatives and would result in the greatest level of impacts to wildlife. Using a worst-case analysis, up to 6,000 acres of wildlife habitat each in Vermilion and the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low.

Interior Chaparral Ecological Zone. The types of impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 2,500 acres could be treated in Parashant and up to 5,000 acres in the Arizona Strip FO. This is the greatest amount of acres impacted among the alternatives and would result in the greatest level of impacts to wildlife. Using a worst-case analysis, up to 500 acres of wildlife habitat in Parashant and 1,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low.

Plains-Grassland Ecological Zone. The types of impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A for the various treatment methods used. Under this alternative, up to 110 acres could be treated in Parashant, up to 10,000 acres in Vermilion, and up to 100,000 acres in the Arizona Strip FO. This is the greatest amount of acres impacted among the alternatives and would result in the greatest level of impacts to wildlife. Using a worst-case analysis, up to 22 acres of wildlife habitat in Parashant, up to 2,000 acres in Vermilion, and up to 20,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low.

Impacts from Soil, Water and Air Resources

Impacts would be similar in nature and scope to those described under Alternatives A.

Impacts from Fish and Wildlife

Impacts would be similar to those described under Alternative C.

Impacts from Special Status Species

Impacts in Vermilion and the Arizona Strip FO would be the same as described under Alternative A. Impacts in Parashant would be similar to those described under Alternatives C, with the following exceptions:

Mechanical treatments would not be authorized in listed or proposed species habitats. This would reduce or eliminate potential adverse effects from the treatment to fish and wildlife species, but would also prevent realization of benefits to the species from the action.

Desert Tortoise. Revocation of the Pakoon ACEC would have a negligible effect on wildlife management within the area. The Grand Wash portion of the former ACEC would be available for grazing, reducing or eliminating some of the protective measures afforded other species. Such actions could include various types of restoration or vegetation treatment actions that would be restricted or not authorized within the ACEC. These effects would be negligible as Mojave Desert habitats receive substantial protections as a result of being within the Monument, within the critical habitat boundary for desert tortoise, and as part of the wildlife habitat area (WHA).

Burrowing Owl. Impacts to wildlife resources as a result of implementation of Burrowing Owl decisions under Alternative D would be the same as those described under Alternative C.

Impacts from Minerals (Arizona Strip FO only)

In the Arizona Strip FO, impacts would be similar to those described under Alternative A.

Impacts from Livestock Grazing

Impacts would be similar in nature and scope to those described under Alternative A. The extent of adverse effects would be less than that of Alternative A due to fewer acres available for grazing; however, impacts would be more extensive under Alternative D compared to the other action alternatives due to more acres available for grazing.

Impacts from Recreation

In Parashant and the Arizona Strip FO, impacts would be similar in nature and scope to those described under Alternative A. In Vermilion, impacts would be similar to those described under Alternative C.

Impacts from Lands and Realty

For the Monuments, impacts would be similar to those described under Alternative A. For Arizona Strip FO, impacts would be similar to those described under Alternative B.

Alternative E: Proposed Plan

Impacts from Travel Management

Overall impacts would be similar to those described under Alternative A, although impacts would be less widespread due to an overall decrease in the miles of routes open to the public. In Parashant, 1,404 miles would remain open for motorized use by the public, a decrease of 311 miles (18 percent) over Alternative A. In Vermilion, 377 miles would remain open for motorized use by the public, a decrease of 69 miles (15 percent) over Alternative A. In the Arizona Strip FO, 2 miles of routes would be closed initially in the Ferry Swale area, so the magnitude of the impacts to wildlife would be similar to Alternative A. However, in the future, route designation decisions would be made and it is likely that some additional roads would be closed.

Impacts from Wilderness Characteristics

Under this Alternative, 18 wildlife water developments are known to occur within areas that would be managed for wilderness characteristics. Impacts to proposed new and existing wildlife water developments within these areas would be similar in scope and extent to those described under Alternatives B and D.

Impacts from Vegetation and Fire and Fuels Management

Impacts to fish and wildlife resources from vegetation management actions would be similar to those described under Alternative B, except for the following decisions:

Riparian Ecological Zone. Impacts would be similar to those described for treatments in riparian areas under Alternative A. The magnitude of impacts in Parashant would be similar to those described under Alternative C. The magnitude of impacts in Vermilion and the Arizona Strip FO would be similar to those described under Alternative D. Even failed treatment projects would not result in permanent loss of riparian habitat since invasive exotics readily re-establish themselves in this ecological zone.

Pakoon Springs Restoration. Impacts would be similar to those described under Alternative D.

Cane Springs Restoration. Impacts would be similar to those described under Alternative D.

Paria River Invasive Plant Species Removal. Impacts would be the same as those described under Alternative D.

Ponderosa Pine Ecological Zone. Impacts to ponderosa pine habitats would be similar to those described for vegetation treatments in this ecological zone under Alternative A. Up to 20,800 acres of this habitat could be treated in Parashant and up to 3,800 acres in the Arizona Strip FO. Using a worst case analysis, up to 4,160 acres of wildlife habitat in Parashant and 760 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low. The magnitude of impacts to wildlife would be similar to those described for Alternative D.

Mt. Trumbull Wilderness. In Parashant, impacts would be the same as those described under Alternative D.

Great Basin Ecological Zone. Impacts would be similar to those described for treatments in sagebrush communities under Alternative A. The magnitude of impacts to wildlife in Parashant would be similar to those described under Alternative C, while the magnitude of impacts in Vermilion and the Arizona Strip FO would be similar to those described under Alternative D. Using a worst case analysis, up to 5,000 acres of wildlife habitat in Parashant, up to 20,000 acres in Vermilion, and up to 40,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low since few treatments result in 100 percent kill of the target species and sagebrush readily re-establishes itself in these habitats.

Impacts to pinyon-juniper communities would be similar to those described for vegetation treatments in this ecological zone under Alternative A. The magnitude of impacts to wildlife within all three planning areas would be similar to those described for Alternative D. Using a worst-case analysis, up to 27,200 acres of wildlife habitat in Parashant, up to 10,000 acres on Vermilion, and up to 20,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low as pinyon-juniper readily re-establishes itself in this zone.

Mojave Desert Ecological Zone. Impacts to Mojave Desert habitats would be similar to those described for vegetation treatments in this ecological zone under Alternative A. The magnitude of impacts to wildlife in Parashant would be similar to those described for Alternative C. The magnitude of impacts to wildlife in the Arizona Strip FO would be similar to those described for Alternative D. Using a worst-case analysis, up to 14,000 acres of wildlife habitat in Parashant and up to 2,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment

projects. The probability for this occurrence is considered low since treatment projects in this zone are typically limited in size and extent to limit potential impacts to desert tortoise.

Mojave - Great Basin Transition Ecological Zone. Impacts from vegetation treatments in this ecological zone would be similar to those described under Alternative A. Impacts to wildlife in Parashant would be similar to those described under Alternative C. The magnitude of impacts to wildlife in the Arizona Strip FO would be similar to those described for Alternative D. Using a worst-case analysis, up to 30,000 acres of wildlife habitat in Parashant and up to 6,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low.

Colorado Plateau Transition Ecological Zone: Impacts in this ecological zone would be similar to those described for vegetation treatments under Alternative A. The magnitude of impacts to wildlife in Vermilion and the Arizona Strip FO would be similar to those described for Alternative D. Using a worst-case analysis, up to 6,000 acres of wildlife habitat each in Vermilion and the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low.

Interior Chaparral Ecological Zone. Impacts to Interior Chaparral habitats would be similar to those described for vegetation treatments in this ecological zone under Alternative A. Impacts to wildlife in Parashant would be similar to those described under Alternative C. The magnitude of impacts to wildlife in the Arizona Strip FO would be similar to those described under Alternative D. Using a worst-case analysis, up to 300 acres of wildlife habitat in Parashant and up to 200 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low.

Plains - Grassland Ecological Zone. Impacts to Plains-Grassland habitats would be similar to those described for vegetation treatments in this ecological zone under Alternative A. The magnitude of impacts to wildlife in all three planning areas would be similar to those described for Alternative D. Using a worst case analysis, up to 22 acres of wildlife habitat in Parashant, up to 2,000 acres in Vermilion, and up to 20,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low.

Impacts from Soil, Water and Air Resources

Impacts would be similar in nature and scope to those described under Alternative A.

Impacts from Fish and Wildlife

Impacts would be similar to those described under Alternative C.

Impacts from Special Status Species

In Vermilion and the Arizona Strip FO, impacts would be similar to those described under Alternative A. In Parashant, impacts would be similar to those described under Alternative D, with the following exceptions

Desert Tortoise. Revocation of the Pakoon ACEC would have a negligible effect on wildlife management in the Mojave Desert. Management prescriptions from the former ACEC would be applied across the larger WHA.

Burrowing Owl. Burrowing Owl augmentations would not occur under Alternative E, making potential impacts similar to those described under as in Alternative A.

Impacts from Livestock Grazing

Impacts would be similar in nature and scope to those described under Alternative A. In Parashant, the magnitude of adverse effects would be less than that of Alternatives A and D, but greater than for other alternatives due to the amount of lands made available to grazing. In Vermilion, impacts would be similar to those described under Alternative B. In the Arizona Strip FO, impacts would be similar to those described under Alternative D.

Impacts from Recreation

Impacts would be similar in nature and scope to those described under Alternative A.

Impacts from Lands and Realty

For the Monuments, impacts would be similar in nature and scope to those described under Alternative A. For Arizona Strip FO, impacts would be similar in nature and scope to those described under Alternative B.

Cumulative Impacts

The geographic area for analysis of cumulative impacts to fish and wildlife resources is the three planning areas. Development pressure exists throughout the southwestern U.S., particularly in and adjacent to sources of water. As a result, community expansion has had negative impacts on fish and wildlife resources.

Community expansion has also led to increased pressure for water and developable lands. Land disposals have reduced available wildlife habitat outside of ACECs/critical habitat in the Mojave Desert portions of the Planning Areas by up to 400 acres since 1973. Issuance of ROWs outside of ACECs/critical habitat has also reduced these habitats by as much as 1,859 acres over the same time period. Acquisition of sensitive habitats within ACECs/critical habitat has increased protection of the species by shifting management emphasis toward conservation.

Demand for water for industrial, irrigation, and culinary use has had major long-term impacts on fish and wildlife resources. Disruptions of flow regimes from dams and diversions have altered habitat for fish and riparian dependent species. Reductions in water quality have had similar long-term impacts. Introduction of non-native plants and animals have resulted in impacts from competition for resources, trampling, predation, injury, and death. Tamarisk invasion in riparian areas has resulted in reductions of flow for native fishes, reductions in the overall size of the vegetative community, increased temperature and salinity, and increased risk of fire.

Mineral development has led to reduction of habitat quality and physical disturbance in a variety of habitats. Wildfires have reduced available Mojave Desert habitat by many thousands of acres through conversion of the vegetation from native communities to exotic annual grasses. Livestock grazing related activities has increased the probability of some terrestrial wildlife species being trampled. During years of drought and/or low productivity, livestock grazing has reduced forage availability for species that share habitats with them. Areas made unavailable to grazing are immune from such impacts, while seasonal grazing restrictions limit both the extent and duration of impacts. Some 128,005 acres of desert tortoise habitat were unavailable to livestock grazing since 1996. An additional 144,027 acres of desert tortoise habitat have seasonal grazing restrictions.

Recreational pursuits, particularly OHV use, have caused disturbance to most all species and their habitats. With the increase in local populations has come a dramatic increase in the level of OHV use, resulting in increased disturbance, injury, and mortality to fish and wildlife, particularly ground dwelling species with low mobility. Transportation corridors exist through the habitat of virtually all species found within the Planning Areas. Impacts vary by species and by the location, level of use, and speed of travel over the road. In some areas the habitat has been rendered unusable to species with narrow tolerances by long-term recreational use.

Implementation of plan decisions is expected to improve conditions for most species of fish and wildlife by focusing management attention and reducing or eliminating actions that lead to impacts.

Impacts from livestock grazing on Mojave Desert species would be minimized because more of this area would be unavailable for grazing. Water use in the region would continue to increase, affecting flows in the Virgin River, and continuing to cause a decline in populations of native fish and riparian dependent species. Efforts to remove or reduce tamarisk would increase in scope and size, leading to localized impacts but ultimately increasing the size and quality of habitat for riparian dependent species. Reduction in tamarisk would also increase flows for Virgin River fishes.

Increased demand for land for community services and recreational uses would occur, particularly in the area around Mesquite and Littlefield/Beaver Dam. Assuming land ownership follows the Proposed Plan, impacts would continue to increase at modest levels. The demand for new lands for development would likely lead to development of one or more Habitat Conservation Plans.

SPECIAL STATUS SPECIES

Special status species include both plants and animals that are federally or state listed, proposed or candidates for these lists, or included on the BLM and NPS sensitive species list. Because many special status species have very narrow habitat requirements and low tolerance for change, even small modifications to vegetation in their environment can lead to pronounced effects on the species. As a result, the majority of impacts to these species and their habitat have previously been discussed in the Vegetation and Fish and Wildlife sections.

Impacts to special status species from other management programs in the Planning Area include loss or alteration of native habitats, increased invasion of noxious weeds and other exotic weed species, decreased water availability, increased habitat fragmentation, changes in habitat and species composition, disruption of species behavior leading to reduced reproductive fitness and/or increased susceptibility to predation, and direct mortality of individuals. Surface disturbing actions that alter vegetation characteristics (e.g. structure, composition, and/or production) have the potential to affect habitat suitability for special status plants or animals, particularly where the disturbance removes or reduces cover and/or food resources. Even minor changes to vegetation communities have the potential to affect special status species.

Direct impacts to special status species from management activities may result in mortality or displacement of individuals, disturbance due to reduced air or water quality, and alteration of immediate environments through loss of or changes to key habitat components. Positive or negative effects are possible. Key habitat components include food availability or quality, cover from predators, thermal refugia, nesting/roosting/denning habitat, water availability and quality, travel corridors, and the like. Direct impacts may affect individuals, populations, or habitats for

the duration of the action, for a few days thereafter, for several growing seasons, or may continue indefinitely where the action results in permanent habitat loss.

Indirect impacts to special status species from management activities typically result from influences of post-disturbance succession, recovery, or rehabilitation of the habitat. Positive or negative effects are possible. These impacts may be long-term, depending on the severity of the habitat alteration, and may change species assemblages (relative abundances or species composition), species behaviors, or overall population trends, benefiting some species and negatively affecting others.

Methods and Assumptions

To analyze the potential effects of the alternatives on special status species, information was gathered from existing inventories, recovery plans, conservation agreements, State Heritage database files, relevant scientific literature, computer habitat models, and other sources identifying the potential distribution of these species in and adjacent to the Planning Area. The analysis is also based on professional expertise of BLM specialists at the Arizona Strip FO and the NPS staff at Lake Mead NRA, knowledge of the area, and a review of the relevant scientific literature. For most species described in Chapter 3, habitat inventories have been completed and distributions within the Planning Area have been mapped.

To comply with Section 7 of the Endangered Species Act, a Biological Assessment (BA) will be prepared to address impacts and mitigating measures on threatened and endangered species. See Appendix 2.E

In determining impacts, BLM and NPS staff considered how the effects of the action would affect listed or proposed species known or suspected to occur in an area. Impacts were measured against information about threats found in the Federal Register notice describing the listing of the species and the potential for the action to modify designated or proposed critical habitat. Direct and indirect impacts were considered together with impacts of activities that are interrelated or interdependent.

Impacts are quantified where possible. In absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

Negligible: The impacts on special status wildlife and/or plants would be at or below the level of detection, and the changes would be so slight that they would not be of any measurable or perceptible consequence to individuals or the population as a whole.

- Minor:** The impacts on special status wildlife and/or plants would be detectable but localized, small, and of little consequence to the population of any species. Mitigating measures, if needed to offset adverse effects, would be simple and successful.
- Moderate:** The impacts on special status wildlife and/or plants would be readily detectable and localized, with potential consequences at the population level. Mitigating measures, if needed to offset adverse effects, would be extensive and would probably be successful.
- Major:** The impacts on special status wildlife and/or plants would be obvious and would result in substantial consequences to the populations in the region. Extensive mitigating measures would be needed to offset adverse effects, and their success would not be guaranteed. Actions that would likely result in effects to special status species of this severity would not be authorized or undertaken.

The duration of impacts to special status species was defined as follows:

- Short-term:** The effect would generally last less than a single year or season.
- Long-term:** A change in a resource or its condition would last longer than a single year or season.

The following assumptions regarding special status species are made:

- Special status species habitat would be managed for the benefit of those species as a priority over other resources allocations and uses.
- All surface disturbing activities would include mitigation to reduce impacts to special status species and their habitat. Conservation measures developed for each listed or proposed species (Appendix 2.E) would be applied to any proposed project within the habitat of that species. Analysis of impacts and determinations of effects would include any and all mitigation and conservation measures.
- While most surface disturbing activities would not be authorized in special status species habitats, the planning decisions do not prohibit such actions. Inclusion of these decisions reflects the desire for an adaptive approach and allows for use of techniques that might be developed in the future. As a result, the analysis of environmental consequences and the determination of effects to special status species provide a worst case approach. The analysis includes implementation of decisions that would not typically be applied to special status species habitats.
- Prior to any surface disturbing activity, a special status species review would occur to determine whether any such species would be present in the project area.
- Any determination of May Affect would trigger ESA Section 7 consultation with the USFWS. A separate biological assessment would be prepared for this consultation.

- Four listed species are found in Parashant: desert tortoise (threatened), Bald Eagle (threatened), Mexican Spotted Owl (threatened), and California Condor (10J, proposed). Other special status species present are discussed in Chapter 3.
- Four listed species are found in Vermilion: Bald Eagle (threatened), Mexican Spotted Owl (threatened), California Condor (10J, proposed), and Welsh's milkweed (endangered). Other special status species present are discussed in Chapter 3.
- Twelve listed species are found in the Arizona Strip FO: desert tortoise (threatened), woundfin minnow (endangered), Virgin chub (endangered), Bald Eagle (threatened), Southwestern Willow Flycatcher (endangered), Yuma Clapper Rail (endangered), California Condor (10J, proposed), Mexican Spotted Owl (threatened), Brady pincushion cactus (endangered), Holmgren milk-vetch (endangered), Jones' cycladenia (threatened), and Siler pincushion cactus (threatened). Other special status species present are discussed in Chapter 3.

Impacts to Special Status Species

Impacts to special status species in the Planning Area would result from actions proposed under the following resource management programs:

- Travel Management
- Vegetation and Fire and Fuels Management
- Air, Water, and Soil
- Fish and Wildlife
- Special Status Species
- Minerals (Arizona Strip FO only)
- Livestock Grazing
- Recreation
- Lands and Realty

Alternative A: No Action

Impacts from Travel Management

Roads affect special status species by fragmenting habitat; reducing available habitat for breeding and foraging activities; providing access corridors for weed invasion, hunting, pollution, wildfires, and habitat-altering projects; increasing erosion; and increasing opportunities for collisions and variety of other disturbances that change wildlife movement and habitat use. Under this alternative, 7,095 miles of routes would be open to motorized use, including 1,715 in Parashant, 446 in Vermilion, and 4,934 in the Arizona Strip FO. As a result, the magnitude of impacts would be greater than under any other alternative.

It is not sufficient to merely compare total miles of routes when determining impacts as roads are not all equal in their effects on special status species due to variables such as road widths, location, and traffic type, speed, and volume. In general, the lower the speed and volume of traffic, the lower the likelihood of collision. Most scientific literature concerning the effects of transportation systems on wildlife species are based on paved roads with high traffic volumes that travel at high rates of speed. However, only a few roads in the Arizona Strip FO are paved and none of the roads within the Monuments are paved, and there are no plans to pave or authorize paving of any roads in the Monuments through the life of this Plan. The average speed for most roads in the Planning Area is generally less than 35 mph.

In general, little vegetation grows within the roadway. Since all transportation is limited to designated roads and trails, few if any direct impacts to special status plants would be expected. Minor, short-term indirect impacts could result from dust from traffic on the designated transportation system. Increased access into areas could lead to an increase in foot traffic or unauthorized off-road vehicle use in special status plant habitat.

Desert Tortoise (Parashant and Arizona Strip FO): The Desert Tortoise Recovery Plan (USFWS 1994) found that paved highways and unpaved and paved roads, trails, and tracks have profound impacts on desert tortoise populations and habitat. The USGS (2002) reviewed threats to desert tortoise and indicated that mortality is an important factor for tortoise populations along highways, affecting populations up to two miles or more away (von Seckendorff Hoff and Marlow 1997). However, mortality is a very low or non-existent threat for populations away from highways. The effects of roads on wildlife vary with road surface, traffic speed and volume, and density of the species. Most studies of the effects of routes on desert tortoise were conducted in areas of high density tortoise habitat (Boarman and Sazaki 1996; Boarman et al. 1997; von Seckendorff Hoff and Marlow 1997). Of these, only von Seckendorff Hoff and Marlow (1997) address dirt roads.

Desert tortoise habitat on the Arizona Strip is characterized by single-width dirt roads with maximum safe travel speeds of 35 mph. Public use of most of these routes involves fewer than 10 vehicles per day, with most use occurring during the inactive season. Desert tortoise densities are lower in Parashant and the Arizona Strip FO than anywhere else in the range of the species.

At least 62 percent of desert tortoise habitat within the Planning Area is within 0.5 miles of a route (Thompson, et. al 2004). All roads in Parashant and most roads in the Arizona Strip FO are unpaved and narrow with little to no crown. Drainage bars that drain perpendicular to the roadway are used rather than parallel ditches that might trap a tortoise. However, in the Arizona Strip FO, Interstate 15 acts as a permanent physical barrier to movement that isolates the Beaver Dam Slope and the Virgin Slope tortoise populations. County Route 91 southwest of Littlefield, Arizona, also fragments these two populations. North of Littlefield, vehicle traffic on Route 91 is a source of tortoise mortality, though the populations on either side of the route are still somewhat connected.

Systematic surveys for tortoise carcasses along roadways through the habitat have not been conducted. However, anecdotal evidence indicates that the incidence of collisions is very low, probably due to the low traffic volume and speeds of vehicles. The majority of collisions has occurred, and would likely continue to occur, along County Road 91. Installation of tortoise barrier fencing would significantly reduce the number of collisions. The remaining unpaved roads in the Beaver Dam and Virgin Slope ACECs have low to moderate impacts on desert tortoise as a result of the combination of traffic volume, speed, and tortoise density in these areas. Speed limits apply to vehicles associated with authorized actions in the Pakoon WHA. Due to the limited travel speeds, low traffic volume, and low tortoise densities, collisions in the WHA are considered to be extremely infrequent. As a result, impacts on desert tortoise from routes in the Pakoon WHA are considered negligible to minor.

Desert tortoise may be injured or killed as a result of collisions with vehicles traveling on the existing transportation system. In addition to providing many opportunities for accidental mortality, roads also act as a barrier to tortoise dispersal, fragment habitats (USFWS 1994; Boarman 2002), and provide access to remote areas. Impacts to desert tortoise dispersal and the degree of habitat fragmentation are difficult to assess, but are anticipated to be negligible to minor in the two planning areas.

Routes also facilitate increased human access to the habitat and provide a potential conduit for invasive plant species, increase opportunities for unlawful collection of tortoise, increase intentional or unintentional injury of animals from human handling, reduce forage where soils are compacted, and increase predation. Invasive exotic species, such as red brome and cheatgrass, are already common throughout the Mojave Desert. The role of current routes in the spread of these exotics is difficult to assess. Recreational use of desert tortoise habitat in the Planning Areas is limited to the tortoise inactive season and the spring months. After mid-May, these areas are generally too hot for most visitors. Camping and other recreational uses are rare, particularly in the warm summer months. Within the Monument and the desert tortoise ACECs, pulling off the road to camp is not allowed. Use of OHVs in the habitat is very limited except in the area surrounding Mesquite and Littlefield.

Little or no information is available regarding the levels of illegal handling and collection of desert tortoise. Tortoise collection was likely a much greater issue prior to the listing of the species. Current information from law enforcement personnel indicates no contacts have been made involving incidents of collection. Unlawful handling probably occurs on an infrequent basis, particularly along County Road 91. Use of vehicles off designated routes continues to be prohibited. Ravens and coyotes are common in desert tortoise habitat in the two planning areas. However, there is little or no information about the level of raven predation on desert tortoise in these areas, either on or away from routes.

No new permanent roads or trails would be constructed, and maintenance would continue at current standards. The construction of new, temporary roads to facilitate project implementation

would result in moderate, short-term direct impacts to desert tortoise, as some individuals would be injured, killed, or displaced during construction and rehabilitation work.

Negligible to moderate, short-term direct impacts could occur to desert tortoise from maintenance activities, including localized loss of habitat, disturbance, injury, or death of individual animals. Road maintenance improves conditions for vehicle travel, facilitating vehicular use and higher speeds. Such conditions may lead to increased injury or mortality of tortoises on roads. Tortoises could also be crushed on roads by a road grader. Maintenance often involves grading into washes to improve drainage off the road. Tortoises could be injured in drainages, and burrows constructed in the banks of washes could be damaged or destroyed. Tortoises could be trapped in collapsed burrows following road maintenance. Under this alternative, the potential for injury to or mortality of tortoises during maintenance activities would be limited by restricting non-emergency maintenance to the tortoise inactive season (October 15 to March 15).

Rehabilitation of closed roads or temporary roads where use is no longer required would have moderate, short- and long-term direct and indirect impacts depending upon the habitat and the closure method. Short-term direct impacts would include construction noise and dust and disturbance from human activity. Other direct impacts include displacement, loss of habitat, injury, or death of individuals during the rehabilitation phase. Indirect impacts include increased access into previously unused areas of tortoise habitat.

Following completion of rehabilitation actions, effects to desert tortoise would be similar to those described above for new temporary roads, depending upon the methods used. In addition, long-term benefits to desert tortoise would result from closing and rehabilitating roads through their habitat by eliminating or reversing many of the adverse effects described above.

Brady Pincushion Cactus, Holmgren Milk-vetch, Jones' Cycladenia, and Siler Pincushion Cactus (Arizona Strip FO only): Impacts to these listed plant species from implementation of the travel management system include reduced fitness as a result of dust, physical disturbance, and injury or mortality where vehicles drive over plants. Of these species, only Jones' cycladenia populations are located far enough from existing roads as to be at low risk from vehicles. Both Brady and Siler pincushion cactus populations are sufficiently close to roads as to be at risk from vehicles turning around or pulling off the road to camp. Holmgren milk-vetch and Siler pincushion cactus populations are located within areas commonly used by OHVs, though these areas are not open to off-road vehicle use. Impacts to these species are greatest following wet weather.

Impacts from Vegetation and Fire and Fuels Management

Vegetation and Fire and Fuels Management could affect special status species as described below. The scope and intensity these impacts, particularly long-term changes to habitat quality, would be minimized by implementation of conservation measures (Appendix 2.E).

Restoration and Vegetation Treatments: During restoration treatments, effects to special status species and their habitat could include disturbance of breeding, feeding, and sheltering activities; temporary or permanent loss of habitat or components; increased habitat fragmentation; increased susceptibility to predation; forced emigration; and/or direct injury or mortality. Reclamation of sites previously disturbed by facility development would have minor short- and long-term direct and indirect impacts. Short-term minor direct impacts would include reestablishment of native vegetation. Long-term minor direct impacts would include reestablishment of vegetation structure. Short-term minor indirect impacts would include reduced erosion and compaction, and increased infiltration. Long-term minor indirect impacts could include increased vegetation productivity.

Reclamation actions such as re-contouring, ripping compacted areas, replacing topsoil, seeding, and planting could injure or kill individuals. The magnitude of anticipated impacts would vary by the treatment method used, but would generally vary from minor to moderate, particularly for plants or animals with low mobility.

Following vegetation treatment, increased invasion of noxious weeds and other exotic weed species, decreased water availability, and long-term changes in habitat and species composition could occur. The duration of these effects would vary by treatment method, habitat, and community type; availability of appropriate seed; and amount and timing of precipitation. Temporary or permanent reductions in water quantity, quality, or access could lead to the same anticipated effects. Vegetation treatments in riparian areas that result in successful reduction of tamarisk and other invasive exotics would ultimately benefit most riparian dependent species, though treatments would initially have adverse effects.

Mechanical and chemical treatment methods could result in localized, short-term impacts to air quality, including fugitive dust, emission/exhaust from equipment, and chemical fumes. Temporary reduction in air quality could lead to reduced fitness, increased susceptibility to predation, or mortality among wildlife species.

Vegetation Products Use/Sale: Use and/or sale of vegetation products would not be authorized in Vermilion. Harvest of vegetative materials such as native seed, pinyon nuts, posts, and fuel wood would not be authorized in Parashant and the Arizona Strip FO unless associated with a research or restoration project. This would effectively limit such uses to a limited area under close monitoring. Post cutting, collection of dead and downed wood for campfires, Christmas tree harvest, and collection of pinyon nuts would have negligible to moderate direct and indirect effects on some special status species. Direct impacts include disturbance of individuals at breeding, feeding, or sheltering sites; loss of cover or similar habitat features; injury or death; increased risk of fire; increased risk of predation; and nest abandonment. Indirect impacts to species would include loss of forage or cover species, increased soil surface temperatures, and short or long-term changes in species composition and/or community structure. Impacts resulting from fuelwood harvest associated with restoration projects could lead to nest

abandonment among special status bird species. Salvage of vegetation that would be destroyed through surface disturbing activities would not be authorized in the Planning Area under this alternative.

Noxious Weeds: Management of noxious weeds may cause temporary negligible to moderate impacts to non-target plant species depending upon the method used (see Impacts to Vegetation section). Assuming proper application of approved herbicides, noxious weed management would be expected to have minor to moderate impacts to special status plants and negligible to minor effects on special status animals. Treatments designed to decrease or eliminate noxious weeds would benefit native vegetative communities in the long term by reducing or eliminating competition with noxious weeds, increasing forage and cover values, and restoring native vegetative communities.

Fire Suppression, Use, and Management: Effects of fire on special status species depend upon the severity of the fire and the methods and intensity of suppression efforts. Direct impacts of wildfire, prescribed fire, and fire suppression activities include injury or death of individuals or local populations; disturbance/displacement from breeding, feeding, and/or sheltering activities; and increased risk of predation. Wildfires may leave the surrounding soil and accumulated ash vulnerable to erosion and remove shading streamside vegetation, which would increase sedimentation and water temperature. Indirect impacts could include reduction in plant vigor or animal health, alteration or loss of plant communities, loss of seed-dispersal mechanisms, increased light penetration and temperatures, and loss of cover. Chemical retardants in the water may have adverse effects on vegetation and/or wildlife that forage upon them. Direct and indirect impacts from most suppression techniques would be short-term, temporary, and localized, particularly if sensitive habitats are mitigated or avoided. The timing of prescribed fire could minimize impacts. Refer to Impacts to Fish and Wildlife from Vegetation and Fire and Fuels Management for a more detailed discussion.

All Special Status Species: Impacts from implementation of restoration and vegetation treatments would vary by the method used to accomplish the treatment. Where fuel loads are excessive, failure to conduct vegetation treatments increase the risk of catastrophic fire and lead to loss of individuals or habitat.

Desert Tortoise (Parashant and Arizona Strip FO only): Authorization of vegetation treatment projects in desert tortoise habitat is unlikely. However, should such treatments occur, adverse effects would likely result to desert tortoise. Vegetation treatment projects would not be authorized in desert tortoise habitat during the active season (March 15 to October 15). Use of non-native seeds could lead to negligible to moderate adverse effects by replacing native species, rendering habitat unusable, and/or increasing fire frequency.

The Pakoon DWMA/ACEC in Parashant and the desert tortoise ACECs in the Arizona Strip FO would be closed to the collection of vegetative products. Use and/or sale of vegetation products

outside the DWMA/ACEC would have localized, negligible to minor impacts on desert tortoise. Few, if any, woodland products are available in desert tortoise habitat.

Noxious weed treatments in desert tortoise habitat may include chemical treatments. Effects of these actions on desert tortoise are expected to be negligible to minor. Desert tortoise should benefit from reduction or elimination of noxious weeds.

Desert tortoise habitat in the Mojave Desert has been severely altered from a variety of causes, leaving these non-fire-adapted habitats at risk from severe wildfires. The BLM and NPS would continue to monitor research on biological and chemical control that may be useful in the future to reduce exotic vegetation and restore habitat. The BLM and NPS would not use chemical or biological treatments in occupied or critical habitat for tortoises, as these tactics would not be effective in thinning or removing accumulations of fuel loads or in restoring habitat conditions in this vegetation type. Similarly, because this habitat has a low tolerance to fire or mechanical treatments, the BLM and NPS would not implement wildland fire use, prescribed burning, or mechanical treatments in habitats occupied by tortoises or designated as critical habitat.

Fire suppression operations in habitat supporting desert tortoise could protect critical habitat from long-term effects from fire. However, fire suppression operations could also adversely affect tortoises and lead to modifications of critical habitat. Direct impacts would occur from setting backfires, fireline construction, retardant drops, construction and use of staging areas within the habitat, and use of vehicles associated with suppression activities. Establishment of campsites and aircraft landing/fuel sites could result in death or injury of tortoises. Indirect impacts to desert tortoise from wildfire suppression could include reduction in quantity and/or quality of forage, soil disturbance or compaction, removal of vegetative cover for thermal protection and predator avoidance, and human disturbance. Creation of new routes used in fire suppression may facilitate OHV use and associated habitat damage, as well as the crushing of tortoises by vehicles or collection of animals as pets. Refuse left by fire crews could attract desert tortoise predator, such as ravens and coyotes. Effects to tortoises and their habitat from human disturbance associated with fire suppression activities would be short-term, ending when the suppression actions are complete.

Mexican Spotted Owl: Although the BLM believes that Mexican Spotted Owls do not currently breed within the Planning Area, owls may occasionally use the area for roosting, wintering, and dispersal. In the unlikely event that an undetected owl was present during vegetation management activities, effects to the species would be similar to those described for vegetation treatments above.

Use and/or sale of vegetation products in Parashant and the Arizona Strip FO would have localized, negligible to minor impacts on Mexican Spotted Owl. Preferred nesting habitat for the species is cool, shady, steep-walled canyons. Such areas are generally too steep and have too few trees to be suitable for woodland products harvest.

Impacts from implementation of noxious weed management actions would be similar to those described for vegetation treatments above. Effects of these actions on Mexican Spotted Owls are expected to be negligible. Owls should benefit from reduction or elimination of noxious weeds in their habitat.

In the unlikely event that an undetected owl was present during prescribed fire or fire suppression activities, adverse effects could occur depending upon the proximity to the animal. Low-flying aircraft, helispots, spike camps, or handline construction could disturb an undetected owl if the facilities or activities were located close to an unknown roosting site. In addition to habitat alteration, other impacts such as mortality, injury, disturbance, or displacement of owls could result from these activities. Undetected owls could also be disturbed by smoke, noise, and other human activity associated with fire management activities. Depending on the proximity to the fire, the bird should be able to relocate to an adjacent habitat area to escape disturbance.

Because of their great mobility, the lack of suitable roosting sites, lack of any previous observations, and lack of concentrated food sources, the potential for effects from vegetation management actions, including Fire Suppression, is considered negligible.

Bald Eagle: Although Bald Eagles do not currently breed within the Planning Area, they may occasionally use the area for foraging and roosting during the winter. In the unlikely event that a Bald Eagle was present during vegetation management activities, effects to the species would be similar to those described for vegetation treatments above.

Use and/or sale of vegetation products in Parashant and the Arizona Strip FO would have localized, negligible impacts to Bald Eagles. Preferred roosting habitat for Eagles would be open areas with elevated perches. Forest habitats where the woodland products harvest would occur would generally be too dense for Bald Eagle roosts or perches. In addition, there are no large water sources or other areas of concentrated prey availability within the Planning Area.

Impacts from implementation of noxious weed management actions would be similar to those described for vegetation treatments above.

In the unlikely event that an undetected Bald Eagle was present during prescribed fire or fire suppression activities, adverse effects would occur depending upon the proximity. Anticipated impacts would be similar to those described above for Mexican Spotted Owls.

Because of their great mobility, the lack of suitable roosting sites, lack of any previous observations, and lack of concentrated food sources, the potential for effects from vegetation management actions, including fire suppression, is considered negligible.

California Condor: Condors may experience direct impacts from mechanical or chemical fuel treatments in their nesting, roosting, or foraging territories. However, because of the specific, targeted nature of these methods, the gradual changes to vegetation, and the ability to avoid

Condors during application of the treatment, the potential for adverse effect is considered very low. Even large-scale operations such as chainings or pushes in pinyon-juniper habitat or restoration thinning in ponderosa pine should have little effect on Condors due to their very low level of anticipated use in these habitats.

Use and/or sale of vegetation products in Parashant and the Arizona Strip FO would have localized, negligible impacts to Condors. Preferred roosting habitat for Condors would be open areas with elevated perches. Woodcutting, Christmas tree harvest and other actions that lead to loss of trees or snags could lead to direct impacts if roost trees are removed. However, forest habitats where the woodland products harvest would occur would generally be too dense for California Condor roosts or perches.

Impacts from implementation of noxious weed management actions would be similar to those described for vegetation treatments above. Effects of these actions on California Condor are expected to be negligible.

In the unlikely event that a California Condor was present during prescribed fire or fire suppression activities, adverse effects would occur depending upon the proximity. Low-flying aircraft, helispots, spike camps, or hand-line construction could disturb Condors if the facilities or activities were located close to a roost or nesting site. In addition to habitat alteration, other impacts such as mortality, injury, disturbance, or displacement of Condors could result from these activities.

Condors could also be disturbed by smoke, noise, and other human activity associated with these fire management activities. Because Condors find their food visually, smoke could interfere with the ability of foraging birds to locate carcasses. Smoke could also make it harder for flying Condors to see obstacles such as aircraft or electrical transmission lines and increase the risk of a collision. Smoke may also disturb breeding or foraging activities of Condors. Condors may experience reduced foraging or breeding fitness due to inhalation of smoke and ash.

Other indirect impacts to California Condors may include long-term changes in their food supply, loss or changes to foraging habitat, and loss of roosting habitat in woodland habitats resulting from wildland or prescribed fire. However, because Condors find their food visually and because wildland and prescribed fires would open up a closed canopy woodland and make hidden carcasses more visible, the burning of thickly vegetated habitats would be beneficial to Condors.

Because Condors are a mobile species, the potential for direct impacts from fire suppression and use activities is low. In addition, conservation measures (Appendix 2.E) would be implemented, including pre-season and pre-mission briefings for fire suppression crews, pilots, and helitack crews; minimum altitudes and flight distances in known Condor areas; mandatory resource advisor on fires in Condor areas; making daily contact with Peregrine Fund personnel to determine location of

Condors; covering dip tanks to minimize collisions; and minimizing attractants such as trash. Helispots would generally be constructed away from areas used by Condors.

Implementation of vegetation management decisions would lead to mostly negligible to minor effects to Condors. However, because Condors are known to nest within Vermilion and may at some point nest within Parashant and the Arizona Strip FO, disturbance at a nest site is a possibility.

Southwestern Willow Flycatcher and Yuma Clapper Rail (Arizona Strip FO only): Special status bird species dependent upon riparian vegetation may be affected by implementation of vegetation treatments, collection of fuelwood for campfires, and fire use and/or suppression actions within the riparian corridor.

Effects to Southwestern Willow Flycatcher and Yuma Clapper Rail from implementation of vegetation treatments or restoration projects would vary by the method of treatment used. As with desert tortoise, vegetation treatment projects would generally not be proposed in habitat of these listed species except where doing so would enhance survival and recovery of these species. Direct impacts could include disturbance, injury, or mortality from personnel or vehicles in or adjacent to nesting habitat; nest abandonment; and loss of habitat. Indirect impacts would include reduced fitness or mortality resulting from loss of vegetative cover, increased temperatures at nesting sites from loss of shading, reduction or loss of available nest sites, reduction or loss of food resources, and increased risk of predation and/or nest parasitism. Effects would vary from short to long term.

Under this Alternative, the sale of vegetation products in the Virgin River Corridor ACEC would not be authorized. However, there is no prohibition against such actions within the riparian zone at Kanab Creek. In addition, impacts could result from collection of firewood for personal use. Direct, negligible to minor impacts could result if nests are disturbed during collection of wood. This is not considered a likely occurrence. Generally, little if any fuelwood is available in habitat areas for these species. However, collection of firewood in riparian areas could reasonably be expected for building a campfire. Campfires increase the probability of fire escaping and burning through the habitat area.

Effects from fire use and suppression include direct impacts such as disturbance, injury, or mortality from use of vehicles associated with fire suppression, impacts to eggs or nest structures from foam retardants or water drops, nest abandonment, mortality from construction of fire line through habitat, and loss of individuals from the fire itself. Indirect impacts include reduced fitness resulting from the actions described above.

Woundfin Minnow and Virgin River Chub (Arizona Strip FO only): Native Virgin River fishes may be affected by implementation of vegetation treatments and fire use and/or suppression actions within the riparian corridor.

Effects to Virgin River fishes from implementation of vegetation treatments or restoration projects would vary by the method of treatment used. As with desert tortoise, vegetation treatment projects would generally not be proposed in listed fish habitats except where doing so would enhance survival and recovery of these species. Direct impacts could include disturbance, injury, or mortality from use of vehicles associated with vegetation treatments, toxicity from chemical treatments or spills, or physical removal of habitat. Indirect impacts would include reduced fitness or mortality resulting from loss of vegetative cover, increased temperature from loss of shading, increased sedimentation from erosion in surrounding watersheds, reduction or loss of hiding cover, reduction or loss of food resources, and the potential for increased predation. Impacts would vary from short to long term.

Fish are affected by fire and fire suppression in a variety of ways. Direct impacts include disturbance, injury, or mortality from use of vehicles associated with fire suppression; toxicity from chemical spills or use of foam retardants; and the potential for fish to be sucked into water pumps or similar equipment. Indirect impacts would be similar to those described above for vegetation treatments, plus the introduction of ash, which could clog fish gills and pollute breeding or feeding habitats.

Brady Pincushion Cactus, Holmgren Milk-vetch, Jones' Cycladenia, and Siler Pincushion Cactus (Arizona Strip FO only): Impacts to these listed plant species from implementation of vegetation management decisions are considered negligible. No vegetation treatments would be undertaken in areas where these species occur. Few if any vegetative products would be available in these areas for sale. Fuels in the habitat of these species are sufficiently light that the probability of fire is extremely low.

Impacts from Soil, Water and Air Resources

Generally, watershed restoration projects would not be proposed within special status species habitats unless the project was considered essential for providing long-term benefits to one or more special status species. However, Alternative A does not include prohibitions on such actions in special status species habitats.

Impacts associated with vegetation treatments and restoration projects would be similar to those described in the Impacts to Vegetation from Vegetation and Fire and Fuels Management section above.

Construction of dams, dikes, and other water retention structures would have short-term impacts on vegetation resources similar to those described for vegetation treatments. The area of disturbance would vary by the action proposed, but generally would average less than five acres per structure.

Desert Tortoise (Parashant and Arizona Strip FO only): No watershed restoration or other treatment projects are specifically proposed within desert tortoise habitat under this alternative,

though such projects could be authorized where the project benefits or improves tortoise management. Most methods for treating Mojave Desert habitats would have little or no positive effects on such habitats and would likely increase the spread of invasive exotics such as cheatgrass. As a result, it is unlikely that any such projects would be proposed over the life of this Plan. Reclamation would be required for any such project authorized within the Pakoos DWMA/ACEC that would result in the loss or degradation of tortoise habitat. The habitat would then be restored or reclaimed as close to pre-disturbance conditions as practicable and would include planting or seeding of only native vegetation.

Minor to moderate direct impacts to desert tortoise could result from watershed restoration or vegetation treatment projects where individual tortoise or eggs are injured or killed by being crushed by the equipment used. Vehicles associated with surface disturbing actions have the potential to run over tortoise or their burrows. Ground disturbance would also encourage use of the area by predators, as would any trash or debris left on site from construction activities. Depending upon the methods for treatment, seeding, and/or reclamation and the availability of post-treatment precipitation, indirect adverse effects would occur from loss of tortoise forage plants, shelter sites and other forms of thermal cover, and an increase in ambient temperatures. Long-term changes in vegetation could adversely affect tortoise where treatment objectives are not met and/or where invasive exotics out-compete native plant species. Some individual tortoises may be displaced from the treatment site due to loss of necessary habitat components.

Mexican Spotted Owl: Watershed restoration treatment projects are proposed in the vicinity of Mt. Trumbull, including the Death Valley and Lang's Run areas. Habitats in these areas are primarily composed of ponderosa pine and pinyon-juniper communities. Mexican Spotted Owls in the Colorado Plateau region have shown a preference for cool, shady canyons and mixed conifer habitats for nesting. There are no mixed conifer stands within the Planning Area. Surveys for Mexican Spotted Owls have been conducted in proposed treatment areas and no suitable nesting habitat for the species was identified. Therefore, vegetation treatment projects would not occur in suitable nesting habitat for Mexican Spotted Owls. However, while nesting habitat for this species is rare or non-existent, wintering habitat is abundant. There is potential for the species to be found virtually anywhere in the Planning Area during the winter.

In the unlikely event that an undetected owl was present (roosting, foraging, dispersing, or wintering) during vegetation management activities, adverse effects would occur from disturbance by the noise and dust associated with treatment. Depending upon the proximity, the owl could be temporarily or permanently flushed from the site. Owls could also be disturbed by use of aircraft, potentially leading to collisions and mortality of individual owls.

Bald Eagle: Bald Eagles do not nest within the Planning Area but may range widely over the area during the winter months. Observations of Bald Eagles on the Planning Area are extremely rare. No Bald Eagle sightings have been recorded within 10 miles of the watershed restoration treatment projects proposed for the Death Valley and Lang's Run areas in Parashant. No watershed restoration or other treatment projects are specifically proposed within potential Bald

Eagle habitat under this alternative in the Arizona Strip FO, though such projects could be authorized where the project benefits or improves management of the species.

Adverse effects could occur where Eagles would be disturbed from roosting or foraging by the noise and dust associated with surface disturbing actions. Where aircraft are used in conjunction with the project, such as with aerial seedings, there is potential for Eagles to collide with aircraft or be disturbed from roosting or foraging. Collisions would likely lead to mortality of the individual.

Because of their great mobility, the infrequency of observations, and lack of concentrated food sources with suitable roosting sites nearby, the potential for effects to Bald Eagles from watershed restoration and treatment actions is considered negligible.

California Condor: Based on radio-telemetry data, California Condors probably range widely across the Planning Area, and may be observed throughout the year. Condors have been known to exhibit “curiosity” for human activities, and may be attracted to areas of disturbance. Condors have not been observed within 10 miles of the area of the proposed watershed restoration treatment projects in the Death Valley and Lang’s Run areas. The habitat in these areas is primarily composed of ponderosa pine and pinyon-juniper communities. Condors roost on ledges along cliff faces and generally forage in open habitats. The proposed treatment areas have been surveyed and do not include any suitable nesting habitat and little foraging habitat for this species.

In the unlikely event that a Condor entered the area of active watershed restoration activities, adverse effects could occur. Condors would be disturbed from roosting or foraging by the noise and dust associated with surface disturbing actions. Garbage and debris left at the site could be ingested by the birds, leading to reduced fitness, illness, or death. Condors could also be disturbed by use of aircraft, potentially leading to collisions and mortality of individual Condors.

In Parashant, because of their great mobility, the infrequency of observations, and paucity of suitable foraging areas or roosting sites, the potential for effects from watershed restoration and treatment actions is considered negligible.

In Vermilion, because of their great mobility, the frequency of observations, and presence of suitable foraging areas or roosting sites, the potential for effects from watershed restoration and treatment actions is considered moderate.

In Arizona Strip FO, implementation of Air, Water, and Soil resource decisions would lead to mostly negligible to minor effects to Condors. However, because Condors may at some point nest within the Arizona Strip FO, disturbance at a nest site is a small, but not discountable, possibility.

Southwestern Willow Flycatcher and Yuma Clapper Rail (Arizona Strip FO only): While no specific watershed restoration or other treatment projects are specifically proposed within riparian habitat for these species, such projects could be authorized where the project benefits or improves management of the species. Such projects could include restoration of tamarisk dominated sites to cottonwood-willow gallery forests or other riparian communities.

Woundfin Minnow and Virgin River Chub (Arizona Strip FO only): While no specific watershed restoration or other treatment projects are specifically proposed within habitat for these species, such projects could be authorized where the project benefits or improves management of the species.

Brady Pincushion Cactus, Holmgren Milk-vetch, Jones' Cycladenia, and Siler Pincushion Cactus (Arizona Strip FO only): No watershed restoration or other treatment projects are specifically proposed within special status plant habitats under this alternative, though such projects could be authorized where the project benefits or improves management of the species.

Impacts from Fish and Wildlife

All Special Status Species: Impacts to special status species may result from initial or supplemental transplants of big game species, restoration and other vegetation treatment projects, construction and maintenance of artificial water sources, and use of aircraft in wildlife management activities.

Desert Tortoise (Parashant and Arizona Strip FO): No big game transplants are planned within desert tortoise habitat. Supplemental releases of desert bighorn sheep could occur in the future, but these would be located at higher elevations above where tortoise would normally occur. Indirect impacts could result if vehicles used to transport big game animals for release introduce noxious weeds, thereby reducing habitat quality. Under this alternative, washing vehicles brought in from other areas is not a mandatory requirement.

There are no wildlife water developments within desert tortoise habitat in the Monument and no new artificial water sources are proposed.

Mexican Spotted Owl: Construction and maintenance of wildlife water development projects may result in negligible effects to Mexican Spotted Owl from use of aircraft. Construction activities at more remote sites occasionally require use of a helicopter to ferry supplies, materials, and/or work crews to the site. In addition, AGFD conducts annual or biennial aerial surveys to count pronghorn antelope and bighorn sheep. Most surveys are conducted from fixed-wing aircraft, though helicopters are occasionally used. With implementation of conservation measures and the ability of special status raptors to avoid aircraft, the potential for collisions is still considered very low.

Bald Eagle: Initial and supplemental transplants of big game wildlife species may result in negligible long-term benefits to Bald Eagles and California Condor by providing additional potential food sources. Indirect impacts could result if vehicles used to transport big game animals for release introduce noxious weeds, thereby reducing habitat quality. Under this alternative, washing vehicles brought in from other areas is not a mandatory requirement.

Construction of wildlife water development projects may result in negligible to minor effects to Bald Eagle and California Condor. Increased use of the area by wildlife species not previously present would lead to increased prey availability for predators and scavengers. This could result in beneficial effects for Bald Eagles and Condors. As many as 20 new wildlife water developments would be built throughout the life of this Plan.

California Condor: Impacts to Condors from implementation of wildlife transplants and construction and maintenance of wildlife water developments are discussed above with Bald Eagles. In addition, construction projects may leave environmental contaminants, waste products, trash, or other debris that could be ingested by California Condors. In addition to the conservation measures (Appendix 2.E) for California Condor, all construction projects must comply with project stipulations that address cleanup of these materials. Stipulations include covering open waste ponds with netting or otherwise making them inaccessible to wildlife. Because of the site-specific nature of these types of actions and the ability that Condors have to move away from or otherwise avoid project activities, the potential for adverse effect is considered very low.

Southwestern Willow Flycatcher and Yuma Clapper Rail (Arizona Strip FO only): No wildlife transplants are specifically proposed within riparian habitat for these species, though such projects could be authorized. In particular, habitat areas for Southwestern Willow Flycatcher have been identified in the Virgin River Gorge, within the Beaver Dam Mountains desert bighorn sheep habitat area. Supplemental transplants of sheep to this area could occur in the future. In addition, bighorn could be captured in this area for release in other locations. Any such transplants would be conducted outside of the breeding season of Southwestern Willow Flycatchers and Yuma Clapper Rail, which would minimize any potential impacts.

Woundfin Minnow and Virgin River Chub (Arizona Strip FO only): As with Southwestern Willow Flycatcher or Yuma Clapper Rail, captures and supplemental releases of desert bighorn sheep could be authorized within the Virgin River Gorge at some time in the future. Because desert bighorn walk in the river, there is a small possibility that sheep could step on eggs or young of native fish, leading to injury or mortality. However, the likelihood of this occurrence is considered so low as to be discountable.

Brady Pincushion Cactus, Holmgren Milk-vetch, Jones' Cycladenia, and Siler Pincushion Cactus (Arizona Strip FO only): Supplemental releases of desert bighorn sheep could occur within the habitat of Brady pincushion cactus. Similarly, releases of pronghorn antelope could occur in the habitat of Siler pincushion cactus. There is a small possibility that these animals

could step on and injure or kill listed plant species in these areas. However, the likelihood of this occurrence is considered so low as to be discountable.

Impacts from Special Status Species

Desert Tortoise (Parashant and Arizona Strip FO): In Parashant, designation of the Pakoon ACEC provides enhanced management capabilities for desert tortoise by minimizing effects from other resource management programs. Impacts from implementation of restrictions on authorized uses within listed species habitats are described under the resource program where the restrictions apply.

In the Arizona Strip FO, designation of the Beaver Dam Slope, Virgin Slope, and Virgin River Corridor ACECs provides enhanced management capabilities for desert tortoise by minimizing impacts from other resource management programs. Impacts from implementation of restrictions on authorized uses within listed species habitats are described under the resource program where the restrictions apply.

Southwestern Willow Flycatcher and Yuma Clapper Rail (Arizona Strip FO only): Designation of the Virgin River Corridor ACEC provides enhanced management capabilities for these species by minimizing impacts from other resource management programs. Impacts from implementation of restrictions on authorized uses within listed species habitats are described under the resource program where the restrictions apply.

Woundfin Minnow and Virgin River Chub (Arizona Strip FO only): Designation of the Virgin River Corridor ACEC provides enhanced management capabilities for these species by minimizing impacts from other resource management programs. Impacts from implementation of restrictions on authorized uses within listed species habitats are described under the resource program where the restrictions apply. In addition, Alternative A includes a decision to evaluate and protect instream flows for Virgin River fishes. These actions have beneficial effects to Virgin River fishes by protecting existing flows.

Brady Pincushion Cactus and Siler Pincushion Cactus (Arizona Strip FO only): Designation of the Marble Canyon ACEC provides enhanced management capabilities for Brady pincushion cactus by minimizing impacts from other resource management programs. Similarly, the Johnson Spring, Lost Spring Mountain, Moonshine Ridge, and Fort Pearce ACECs provide enhanced management and protection for Siler pincushion cactus. Impacts from implementation of restrictions on authorized uses within listed species habitats are described under the resource program where the restrictions apply.

Impacts from Minerals (Arizona Strip FO only)

In the Arizona Strip FO, impacts to special status species from minerals management actions could result from locatable mineral development, oil and gas development, and/or mineral

material sales/disposal. Impacts associated with these actions would include disturbance, injury, or mortality of individuals, particularly species with little or no mobility. Vehicles associated with mineral development activities could strike or run over listed species, or their breeding, feeding, or sheltering sites. Habitat could be degraded or otherwise modified, resulting in reduced fitness for the species. Chemicals used in mineral extraction may pose a hazard to listed species in the area. Such operations may also increase trash and debris at the site, encouraging predators of listed species.

Desert Tortoise (Arizona Strip FO only): Under Alternative A, desert tortoise ACECs would be available for fluid mineral leasing from October 15 to March 15, subject to a waivable no surface occupancy stipulation. Leasing of minerals is unlikely to occur in the ACECs as no economic occurrences of oil and gas resources have been found. However, the Arizona Strip has been only lightly explored for these resources. Potential for development of any geothermal resources in the area are low. Restricting surface-disturbing activities to the inactive season for tortoises would reduce the probability of some forms of take, such as tortoises being struck by vehicles on roads, but animals could still be killed or injured in their burrows and habitat could still be disturbed by mineral extraction.

Salable minerals, in the form of sand and gravel are abundant along the lower Virgin and Beaver Dam slopes. Most of the Virgin and Beaver Dam Slopes and areas along Beaver Dam Wash are recognized as having high potential for sand and gravel. While desert tortoise ACECs would be closed to mineral material sales, such actions could still be authorized in desert tortoise habitat outside of the ACECs. Direct impacts include disturbance, injury or mortality where tortoise are run over or crushed in their burrows, loss of habitat, increased risk of ingestion of foreign objects and toxic substances, and an increase in tortoise predators.

No locatable mineral mines are present in the ACECs and only one exploration site is known on the Beaver Dam Slope. However, the Beaver Dam Mountains outside the ACECs have moderate potential for placer gold and moderate to high potential for disseminated gold and breccia pipe minerals. The BLM requires a plan of operations, mitigation, reclamation, and bonding for these types of mineral developments. While mining activity has been very low in the past, there is reason to suspect increased demand for these resources in the future.

California Condor (Arizona Strip FO only): Because of their tendency toward apparent curiosity, Condors may be attracted to mineral extraction sites and may ingest debris or toxic substances that could lead to adverse effects to the species. Negligible effects could occur to these species in the form of noise, dust, and disturbance resulting from the equipment used for construction and maintenance of projects. These effects would be short term. Trash, debris, and waste materials left on site could be consumed by these birds, though project stipulations require that such trash be gathered and removed from the site.

Southwestern Willow Flycatcher and Yuma Clapper Rail (Arizona Strip FO only): As noted above for desert tortoise, the sale of sand and gravel materials within the Virgin River Corridor ACEC would not be authorized. In addition, habitat for these riparian bird species

within the Virgin River Gorge is also included within the Beaver Dam Mountains Wilderness, further limiting mineral exploration activities. However, oil and gas leasing and locatable mineral extraction could still occur outside of the Gorge within the Virgin River Corridor ACEC, as well as in the Kanab Creek ACEC. Impacts would be similar to those described above for all special status species. Restricting surface-disturbing activities to the non-breeding season for Southwestern Willow Flycatchers would eliminate disturbance effects from noise and dust. Direct impacts from loss of habitat would be limited or eliminated as a result of floodplain restrictions and consultation with the USFWS under ESA.

Woundfin Minnow and Virgin River Chub (Arizona Strip FO only): Effects to Virgin River fishes from implementation of minerals management actions would be similar in scope and extent to those described above for riparian birds.

Brady Pincushion Cactus, Holmgren Milk-vetch, Jones' Cycladenia, and Siler Pincushion Cactus (Arizona Strip FO only): Implementation of minerals management actions in special status plant habitats could lead to similar effects to those described above for other listed species. The Marble Canyon and Fort Pearce ACECs do not include prohibitions on sales of mineral materials as does the desert tortoise ACECs.

Impacts from Livestock Grazing

Effects to Special Status Species: Impacts to special status species could result from livestock stepping on special status animals or plants. Trampling is generally considered a negligible effect for sensitive animal species because of the mobility of the animals, though desert tortoises are an exception. Effects of trampling are minor to moderate for sensitive plant species. Livestock herbivory of sensitive plant species would result in minor to moderate effects, though none of the sensitive plants within the Planning Area are considered suitable livestock forage.

Desert Tortoise (Parashant and Arizona Strip FO): Grazing by livestock (cattle and sheep) may have direct and indirect effects on tortoise populations including mortality from crushing of animals or their burrows, destruction of vegetation, alteration of soil, augmentation of forage (e.g., presence of livestock droppings, and stimulation of vegetative growth or nutritive value of forage plants), and competition for food.

Some observations of tortoises being crushed by livestock exist in the literature, but often with little or no data to allow in-depth evaluation. Berry (1978, p. 28) stated that "smaller tortoises can be crushed easily by cattle or sheep," but provided no data to support the statement. In 1997, a BLM employee documented an incident of a tortoise being stepped on by a cow in the Beaver Dam Slope ACEC (Tim Duck, pers. comm.). No one has rigorously evaluated whether livestock crush a significant proportion of tortoise burrows (USGS 2002). Few cases in the literature document livestock trampling actual burrows and a small number of studies show increased number of collapsed burrows following grazing.

Grazing can affect soils by increasing soil compaction and decreasing infiltration rate (the capacity of the soil to absorb water). A lower infiltration rate means less water will be available for plants and more surface erosion may occur. In a review of studies investigating the hydrologic effect of grazing on rangelands, Gifford and Hawkins (1978) concluded that grazing at any intensity reduces the infiltration rate of the soil. Compared to areas not grazed, heavy grazing reduced infiltration rate by 50 percent and light to moderate intensities reduced infiltration by 25 percent. In contrast, Avery (1998) found significantly greater compaction at a livestock water source, but no difference between protected and grazed areas away from the water source. Soil compaction affects vegetation by reducing water absorption and water availability to plants and making it more difficult for plants to spread their roots, particularly taproots (Adams et al. 1982a, b). Experimental water run-off tests showed moderate grazing areas having 7 times the runoff of light grazing areas and heavily grazed areas had 10 times the runoff as lightly grazed areas (USGS 2002).

Grazing by cattle can alter vegetation in several ways, such as by causing damage from trampling, change in species composition perhaps resulting in type conversion (i.e., change in plant community type), and introduction of invasive plants. Grazing has been implicated in the proliferation of invasive plants in the Mojave Desert (Mack 1981, Jackson 1985, Brooks 1995). On the other hand, trampling by livestock may help to bury seeds and improve germination through their trampling action.

Livestock grazing during the spring months reduces the quantity of available forage for desert tortoise (Berry 1978, Karl 1981, Coombs 1979). Both cattle and desert tortoises consume annual plants in the spring if precipitation has been sufficient for annual production (Esque 1994). At other times, cattle consume primarily shrub species, such as bursage, ratany, and galleta grass. Outside of the spring months or in years when green annual plants are not available, a greater percentage of cactus, shrubs, and dried grasses and annuals are consumed by desert tortoises (Nagy and Medica 1986; Hohman and Ohmart 1980).

In an extensive study, Avery (1998) showed that cattle and tortoise diets overlap (38 percent in early spring, 16 percent in late spring). In late spring in the absence of cattle, tortoises primarily ate herbaceous perennials (91 percent of diet), whereas in the grazed areas, tortoises primarily ate annual grasses (59 percent) followed by herbaceous perennials (21 percent). The species of herbs also differed: in the enclosure, tortoises preferred desert dandelion (*Malacothrix glabrata*), whereas in the grazed areas, they primarily ate the exotic grass, splitgrass (*Schismus barbatus*).

Tortoises expand their home ranges and reproduction is reduced or eliminated when forage availability is very low (Tracy et al. 1994). Forage consumption by cattle exacerbates the effects of low forage availability on desert tortoise reproduction and home range size. Livestock grazing in years with poor rainfall and forage production may result in a reduction in recruitment of young tortoises into the population due to direct competition (Brussard 1994).

Tracy (1996) found that in years of very low annual productivity, such as during low rain years, tortoises lay fewer eggs. They also found that cattle grazing reduced tortoise forage abundance, which also cause tortoises to lay fewer eggs. The conclusion is that, in low rain years, cattle may remove enough forage to reduce tortoise reproductive output, resulting in competition.

No new range improvement projects are currently proposed in desert tortoise habitat; however, new projects could be proposed in the future. Construction and maintenance of range developments could result in minor disturbance of habitat. During construction, maintenance, and inspections of range improvements, some mortality or injury of desert tortoises could result through collisions with vehicles or other equipment. Increased access to new or existing range developments could lead to mortality of desert tortoises through collection, vandalism, crushing by vehicles, and shooting. Construction of range projects would have similar impacts to those described above for construction of artificial water sources.

Livestock grazing during years of abundant annual plant growth could help reduce the risk of wildfire in desert tortoise habitat. However, livestock have facilitated the spread and introduction of nonnative plants, which in turn fuel fires that destroy or severely degrade habitat and can result in direct mortality or injury of tortoises. Changes in vegetation communities induced by grazing may alter the quantity or nutritional value of forage available to tortoises, possibly contributing to malnutrition and elevated risk of contracting or becoming symptomatic for upper respiratory tract disease (URTD). Removing cattle may not affect a return to native plant communities.

Closing areas to grazing could lead to a reduction or cessation of maintenance, abandonment, and/or removal of livestock waters. Vegetation in these areas may or may not regenerate, depending upon the timing and duration of grazing, the extent of long-term changes in species composition, localized erosion, and the extent of soil compaction.

Managing allotments as forage reserves would have similar impacts to those described above for livestock grazing, except that grazing would occur less frequently. Livestock and permittees would be less familiar with the location of waters, forage areas, and other developments, resulting in more widespread, but less intensive impacts. Restoration, vegetation treatments, and water development maintenance would be performed more frequently on forage reserve allotments.

Allotments in the Beaver Dam and Virgin Slope ACECs were placed on winter grazing schedules after 1998. Vegetative trend studies at key areas should provide useful information for evaluating the effects of reducing the grazing season on desert tortoise. Key vegetative species on allotments with desert tortoise have been in late seral or potential natural community for more than a decade, despite many years of pervasive drought. At most key areas, bare ground has decreased, perennial grasses have remained static, and overall trend has also been static. These results suggest that vegetative communities were healthy prior to implementation of grazing restrictions and continue remain at or near their potential. Despite these somewhat encouraging

results, tortoise populations apparently continued to decline. It is clear that some aspects of livestock grazing have minor to moderate effects on desert tortoise and continue to contribute to the myriad of other factors affecting tortoise survival. However, the effects of grazing on desert tortoise and the contribution of this effect relative to other factors continue to be difficult to quantify. Because desert tortoise are long-lived species with low recruitment and because vegetation in the Mojave Desert changes very slowly over time, it may be decades before monitoring reflects the relative contribution of grazing on desert tortoise in the Planning Area.

In an effort to continue to try to determine the relative impacts of changes in grazing season of use on desert tortoise, the FEIS includes proposals to continue to authorize low to moderate levels of grazing in desert tortoise habitats under close monitoring, consistent with the recovery plan. Documenting changes in habitat conditions under various grazing regimes is essential to determining whether or not this is an effective method for reducing threats and promoting recovery of desert tortoise.

Impacts to desert tortoise from authorizing livestock grazing vary from minor to moderate and include both short- and long-term effects. The magnitude of these impacts would be greater for Alternative A than for any other alternative since more area is available for livestock grazing. These effects are not anticipated to be population level or recovery-unit-wide effects, despite the isolation of the Pakoon DWMA/ACEC from other desert tortoise populations.

Mexican Spotted Owl, Bald Eagle, California Condor: Impacts to special status raptors could occur from construction and maintenance of range improvement projects. Negligible impacts could occur to these species in the form of noise, dust, and disturbance resulting from the equipment used for construction and maintenance of projects. These effects would be short-term. Trash, debris and waste materials left on site could be consumed by these birds, though project stipulations require that such trash be gathered and removed from the site.

Welsh's Milkweed (Vermilion only): Impacts to this threatened plant species could occur from trampling by livestock and from construction and maintenance of range improvement projects within its habitat. Minor effects could occur to the species in the form of injury or mortality where vehicles or equipment used for construction and maintenance of projects runs over and crushes the plant. However, it is unlikely that such actions would be authorized where there was a possibility that the species could be impacted and most habitat for the plant is inside wilderness and inaccessible by vehicle. Trampling by livestock is considered an extremely rare occurrence since this species occurs on extremely sandy sites where livestock grazing is rare.

Southwestern Willow Flycatcher (Arizona Strip FO only): Livestock grazing has been identified as a significant contributor to the decline of the Southwestern Willow Flycatcher (Sogge et al 1995). Direct impacts include jostling of nests and other physical disturbances in the nesting areas. Grazing by livestock removes new shoots of native vegetation that could develop into suitable nesting habitat for Southwestern Willow Flycatchers. Indirect impacts include attracting nest parasites such as Brown-headed Cowbirds, slowing regeneration of habitat

areas, and reducing water quantity and quality. Grazing in adjacent upland areas may lead to an increase in erosion, sedimentation, and salinity in riparian habitats. Areas where seasonal grazing restrictions have been put into effect have not been adequately studied to determine the significance of non-growing season grazing practices. The magnitude of these impacts would be greater for Alternative A than for any other alternative since more area is available for livestock grazing.

Woundfin Minnow and Virgin River Chub (Arizona Strip FO only): Effects to Virgin River fishes from implementation of livestock grazing management actions would be similar to those described above for Southwestern Willow Flycatcher. Direct impacts include livestock stepping on fish eggs or fry, resulting in injury or mortality. Grazing by livestock removes cover plants that shade watering areas and keep temperatures within acceptable range for fish. Continued use by livestock leads to degradation and collapse of banks and loss of vegetation. Livestock wastes foul water sources and change the local water quality conditions. Effects on fish food supplies have not been well studied. Grazing in adjacent upland areas may lead to an increase in erosion, sedimentation, and salinity in the riparian habitats. The magnitude of these impacts would be greater for Alternative A than for any other alternative since more area is available for livestock grazing.

Brady Pincushion Cactus, Holmgren Milk-vetch, Jones' Cycladenia, and Siler Pincushion Cactus (Arizona Strip FO only): Livestock grazing may lead to long-term changes in soil and vegetation community dynamics, leading to unfavorable changes for rare plant species. However, research in this area has been inconclusive. Herbivory on special status plant species by livestock does not appear to be a problem. Injury or mortality of special status plants due to trampling by livestock has been infrequently documented in Brady and Siler pincushion cactus habitats. While the occurrence of injury or mortality from trampling is uncommon, typically less than three percent of plots, it exceeds the level of a discountable effect. See also the effects of livestock grazing on vegetation as described above for desert tortoise.

Impacts from Recreation

A wide variety of recreational activities occur all across the Arizona Strip. Commercial activities and organized non-commercial events of more than 50 participants would generally be authorized with a special recreation permit (SRP). Permits of this type typically allow for vehicular events such as motorcycle races or OHV or horseback tours, guided hiking or hunting trips, research oriented field schools, or orienteering events such as geo-caching. SRPs include conservation measures and other stipulations to reduce or eliminate effects to special status species.

All Special Status Species: Impacts to special status species from maintenance or restoration of natural remote settings would vary depending upon ecological zone and the method used to conduct the restoration. Impacts would be the same as those described for vegetation treatments

under Impacts from Air, Water, and Soil Resources and Impacts from Vegetation and Fire and Fuels Management.

Foot traffic through sensitive areas could trample, injure, or kill special status plants. Camping increases the likelihood of such effects. Collection of dead and down wood for firewood would increase the extent and severity of impacts to vegetation. Use restrictions on these types of activities help reduce or eliminate adverse impacts to special status plants.

Desert Tortoise (Parashant and Arizona Strip FO): Desert tortoise could be disturbed, injured, or killed as a result of the operation of motorized vehicles within their habitat. Authorized actions such as commercial recreation or competitive events increase the probability of death or injury of these animals resulting from collisions. Under this alternative, all competitive vehicular speed events would be prohibited in the Pakoon DWMA/ACEC and organized non-speed events would be limited to designated routes and would only be authorized between October 15 and March 15. Non-commercial vehicular events of less than 50 vehicles are non-discretionary actions. Minor to moderate adverse effects could result from vehicles colliding with desert tortoise from any of these events. The probability of collisions would be reduced dramatically where vehicle use is limited to the inactive season for desert tortoise.

Limiting vehicle camping to within 50 feet of designated routes would strictly limit off-highway driving and prevent creation of new routes that otherwise might occur by recreationists accessing camping sites. Campers in the Pakoon DWMA/ACEC are not commonly encountered, except perhaps during the hunting season. Some tortoise mortality and crushing of burrows could occur as a result of vehicles pulling off the road for camping, horseback riding, mountain biking, or other recreational pursuits.

Impacts to desert tortoise from authorizing recreational activities vary from minor to moderate and could be both short- and long-term.

Mexican Spotted Owl, Bald Eagle, and California Condor: Bird watching, big game hunting, and wildlife viewing are not BLM-authorized actions, though they are promoted in the RMP. Bird-watchers are drawn from across the country to catch a glimpse of a rare species, such as California Condor. However, the probability of recreational activities of this nature leading to contact between humans and special status raptors is low everywhere except in the immediate vicinity of the Condor release site at the Vermilion Cliffs, within high density recreation areas such as Paria Canyon, and in the immediate vicinity of Condor nesting, roosting, or foraging areas outside of the Planning Area. The combination of high mobility and the implementation of conservation measures greatly reduce the probability and severity of direct impacts to these species resulting from disturbance associated with recreational activities. The effects of hunting are not analyzed here because the authority for authorizing hunting permits lies with AGFD.

Southwestern Willow Flycatcher and Yuma Clapper Rail (Arizona Strip FO only): Recreational activities at the Beaver Dam Confluence area could lead to disturbance of Willow

Flycatcher or Clapper Rail nesting sites by humans. The probability of nest abandonment from such activities is probably low, but not discountable. In addition, trash and debris at the site could increase the presence of nest parasites of Willow Flycatchers, such as Brown-headed Cowbirds.

Woundfin Minnow and Virgin River Chub (Arizona Strip FO only): Recreation that could affect fish in the Virgin River are primarily dispersed, non-permitted activities such as swimming, wading, bird-watching, kayaking, mountain biking, and a variety of social activities. Most such activities occur during the spring and early summer months. Prior to this time, water levels are frequently too high and later in the summer the air temperatures are too high. These types of recreational activities could lead to disturbance of native fishes from breeding and/or foraging areas. The level of effect of these types of actions is so low that they have a negligible effect on native fish populations. Conservation measures in this Plan would further reduce the potential for adverse effects on native fish and wildlife populations.

Brady Pincushion Cactus, Holmgren Milk-vetch, Jones' Cycladenia, and Siler Pincushion Cactus (Arizona Strip FO only): Foot traffic through sensitive areas could trample, injure, or kill special status plants. Camping increases the likelihood of such effects. Collection of dead and down wood for firewood would increase the extent and severity of impacts to vegetation. Use restrictions on these types of activities help reduce or eliminate effects to special status plants. Because the likelihood for these events to occur in special status plant habitats is very low, the potential for these impacts is considered discountable.

Impacts from Lands and Realty Management

All Special Status Species: In the Monuments, impacts to special status species could result from issuance of ROWs necessary for access and/or maintenance needs to private or state in holdings, ROWs within the boundaries of existing ROWs or designated corridors, and where site-specific NEPA analysis determines that impacts to Monument objects or values would be negligible.

In the Arizona Strip FO, impacts to special status species could result from land tenure adjustments such as acquisition or disposal and issuance of ROWs. This alternative includes land exchanges or sales of up to 1,162 acres of BLM lands in the Virgin River corridor. Because none of the land exchanges involve riparian habitat, there would be no direct loss of riparian habitat; however there could be interrelated effects on adjacent riparian areas. For example, development and use of water resources on disposed lands that either drain into the Virgin River or supply water to an aquifer with connections to the river could lead to adverse effects to listed species.

Desert Tortoise (Parashant and Arizona Strip FO): In general, all special status species habitat would be retained in federal ownership, including all of the higher density tortoise habitat lands (formerly called Category I and II). These higher quality areas are all within the

boundaries of the Beaver Dam Slope or Virgin Slope ACEC. However, rapid growth in the Littlefield area has led to development on three or more sides of some parcels of low-density (formerly called Category III) tortoise habitat. These parcels are very difficult for the BLM to manage effectively. Depending upon the type of development, many of the resource values previously present on this land have been or will be lost. Public lands in Clark and Lincoln Counties, Nevada, and Washington County, Utah, are experiencing similar growth. As a result, public land sales have occurred or will occur in the future in these areas.

This Plan provides a long-term approach to resource management in the Littlefield area by focusing future community growth towards parcels that are difficult to manage and where resource damage has previously occurred. The majority of these areas are between the I-15 freeway and the Virgin River. Tortoise densities between these impassable barriers are very low, with little or no immigration from outside areas. Focusing growth and development in specific low-density areas emphasizes the BLM's intent to give highest priority for management to higher density lands within the ACECs. Some of these parcels would be identified for disposal under the R&PP act while others would be identified for competitive sale. Under the R&PP option, the BLM would only authorize disposal for recreational or public purposes, such as schools, libraries, and other community based developments. This would allow the BLM a wider range of mitigation options. Both types of disposal would allow the BLM to collect compensation monies that could be applied to habitat improvement projects for desert tortoise. For these reasons, the BLM has decided to identify these particular parcels of low-density tortoise habitat for disposal under the FEIS.

Impacts from issuance of ROWs would vary based upon the nature and purpose of the ROWs. Impacts in Parashant would be minor as any new ROWs or associated actions that had more than a negligible impact on Monument objects or values would not be authorized. Impacts in the Arizona Strip FO would be minor to moderate depending upon the nature of the action. New ROWs could increase vehicle traffic along existing routes, resulting in increased potential for injury or death of desert tortoise.

Southwestern Willow Flycatcher, Yuma Clapper Rail, Woundfin Minnow, and Virgin River Chub (Arizona Strip FO only): Removal of lands from federal ownership could have long term effects on urban development along the Interstate 15 corridor. An increase in urban development along the Interstate 15 corridor could lead to a decrease in water quantity and quality. An increase in the demand for water due to a larger human population could result in a lowered water table and possibly reduced flows in the river and associated riparian areas. However, hydrologic studies indicate that local groundwater aquifers are well below river level and may have little effect on flows in the river (ADEQ 1999). Despite this, development of lands adjacent to riparian areas along the river could lead to a reduction in the size and quality of riparian habitat. Direct impacts to these species include loss of available habitat for breeding, feeding, or sheltering activities, and injury or mortality as land is developed. An increase in development would likely result in an increase in the number of people using riparian areas,

increasing the chances of fire, OHV use, predation by pets and nest parasites, and the amount of trash and debris.

Alternative B

Impacts from Travel Management

Impacts to special status species would be the same as those described under Alternative A; however, due to the increase in number of miles of roads closed or open for administrative use only, impacts would occur over a smaller area than under any other alternative.

Impacts from Vegetation and Fire and Fuels Management

Impacts to special status species would be similar to those described under Alternative A, with the following exceptions and additions:

Using DFCs and DPC objectives to make decisions would enhance protection of sensitive resources and benefit uses by emphasizing consideration of those uses in planning. Employing seasonal restrictions on uses would also benefit special status species. Identifying ecological zones with unique DFCs, DPCs, and vegetation management actions would increase management capabilities.

Desert Tortoise: Under Alternative B, no planned vegetation treatment projects would be authorized in the Mohave Desert or Mohave-Great Basin Transition ecological zones. Within desert tortoise habitat, fire use would not be appropriate and would not be authorized.

The Pakoona WHA would be closed to the collection of vegetative products. Use and/or sale of vegetation products outside the WHA would have localized, negligible to minor impacts on desert tortoise.

Impacts from implementation of noxious weed management actions would be similar to those described under Alternative A, except that vegetative treatments would not be authorized in tortoise habitat. This would limit the ability to do noxious weed treatments. Effects of these actions on desert tortoise are expected to be negligible to minor.

Southwestern Willow Flycatcher and Yuma Clapper Rail (Arizona Strip FO only): Under this alternative, the sale of vegetation products in the Virgin River Corridor ACEC would not be authorized. However, there is no prohibition against such actions within the riparian zone at Kanab Creek. In addition, impacts could result from collection of firewood for personal use. Direct, negligible to minor impacts could result if nests are disturbed during collection of wood. This is not considered a likely occurrence. Generally, little if any fuelwood is available in habitat areas for these species. However, collection of firewood could reasonably be expected for building campfires. Campfires increase the probability of fire escaping and burning through

the habitat area. Impacts from fire use and suppression are described below in the Impacts for Vegetation and Fire and Fuels Management section.

Impacts from Soil, Water and Air Resources

Impacts to special status species in Parashant and Vermilion would be similar in nature and scope to those described under Alternative A. Impacts in the Arizona Strip FO would also be similar to those described under Alternative A, with the following exceptions/additions:

Desert Tortoise (Arizona Strip FO only): In the Arizona Strip FO, no watershed restoration or treatment projects would be authorized in the Mojave Ecological Zone, resulting in no impacts.

Southwestern Willow Flycatcher, Yuma Clapper Rail, Woundfin Minnow and Virgin River Chub (Arizona Strip FO only): Under Alternative B, no watershed restoration and treatment projects would be authorized in the Riparian Ecological Zone, resulting in no impacts.

Impacts from Fish and Wildlife

Impacts to special status species from wildlife management actions would be similar to those described under Alternative A, with the following exceptions and additions:

Providing access to public lands for the hunting and wildlife viewing would maintain routes through the habitat. Impacts to special status species from such routes would be the same as those described under Alternative A, Impacts from Transportation and Access.

Identification of priority wildlife species would benefit these species by increasing consideration for them in project design and implementation.

Impacts from Special Status Species

Impacts to special status species would be similar in scope and extent to those described under Alternative A, with the following exceptions/additions:

Desert Tortoise: Revocation of the Pakoon ACEC in Parashant would have a negligible effect on desert tortoise as management within the area would continue unchanged. While the name would be changed to the Pakoon WHA, the boundaries would remain the same as the former Pakoon ACEC. Management actions would be the same as under Alternative A and would thus result in the same impacts.

Relict Leopard Frog (Parashant only): Introducing relict leopard frogs at Pakoon Springs or other locations within Parashant would have short-term minor to moderate effects on special status bird species using the area (American Bittern, White-faced Ibis, and possibly Yellow-billed Cuckoo), depending upon the methods used during site preparation. Ponds at Pakoon

Springs would require complete removal of water, vegetation, and soil sterilization to remove bull frogs and other undesirable exotic species.

Brady Pincushion Cactus, Siler Pincushion Cactus, Jones' Cycladenia, Holmgren Milk-vech, Fickeisen Plains Cactus, Gierisch Mallow, and Paradine Plains Cactus (Arizona Strip FO only): Designation of the Marble Canyon, Johnson Spring, Lost Spring Mountain, Moonshine Ridge, Fort Pearce, Lone Butte, Black Knolls, Twist Hills, Clayhole, Buckskin, and Coyote Valley ACECs would be wholly beneficial for these listed plant species due to the proposed management prescriptions and increased focus on the needs of these species.

Impacts from Minerals (Arizona Strip FO only)

Impacts to special status species would be similar to those described under Alternative A.

Impacts from Livestock Grazing

Impacts to special status species from livestock grazing and related actions would occur over a smaller area than under other alternatives due to fewer areas that would be available for grazing. The types of impacts would be the same as those described under Alternative A, with the following exceptions/additions.

Desert Tortoise (Parashant and Arizona Strip FO): Making all desert tortoise habitats within the Planning Area unavailable to grazing would reduce the level of impact and potential for adverse modification to critical habitat. Remaining areas of desert tortoise habitat within the Monument have been burned and converted to annual grass communities. As such, these areas no longer possess the primary constituent elements of critical habitat and were therefore excluded from consideration as unavailable for grazing. The majority of the remaining areas of critical habitat within the Monument that was previously impacted by livestock grazing would begin to regenerate. Once cattle are removed, direct or indirect threats from livestock grazing would occur. The Mojave Desert communities would slowly regenerate, though wildfires would likely continue to periodically burn through the habitat. Livestock waters would require removal, leading to short-term habitat disturbance.

Impacts from Recreation

Impacts would be similar in scope and magnitude as those described under Alternative A.

Impacts from Lands and Realty

Impacts to special status species would be the same as those described under Alternative A for Parashant and Vermilion. In the Arizona Strip FO, the following would apply:

All Special Status Species: Impacts to special status species in the Arizona Strip FO could result from land tenure adjustments such as acquisition or disposal and issuance of ROWs. The magnitude of these impacts would be less under this alternative than under any other since fewer acres would be identified for disposal. Impacts from ROWs would vary by the type and nature of the action that precipitates the need for the ROW.

Alternative C

Impacts from Travel Management

Impacts to special status species would be similar to those described under Alternative A. However, due to the reduced number of roads open for public use under this alternative, the magnitude of impacts would be less than that under Alternative A, but greater than under Alternative B.

Impacts from Vegetation and Fire and Fuels Management

Impacts from vegetation treatments in all ecological zones could occur on more acres than under Alternative B, but less than under all other alternatives. The potential for impacts would be minimized as treatment projects would not be authorized unless some long-term benefits to the species were anticipated.

Southwestern Willow Flycatcher, Yuma Clapper Rail, Woundfin Minnow, and Virgin River Chub (Arizona Strip FO only): Impacts to riparian and aquatic special status species from vegetation treatments in this ecological zone would be the same as those described under Alternative A. Short term and long term impacts to these species could occur in the form of disturbance, temporary increases in erosion, and temporary displacement of these species from their habitats. Under this alternative, up to 1,000 acres in the Arizona Strip FO could be treated. Even using a worst-case scenario, no long-term loss of riparian habitat would occur because failed treatments would likely result in rapid revegetation by the same invasive exotics intended for removal. Treatment projects would be limited to cases where the project was necessary to provide long-term benefits to riparian and aquatic species.

Desert Tortoise (Parashant and Arizona Strip FO): Impacts to desert tortoise from vegetation treatments in this ecological zone would be the same as those described under Alternative A. Under this alternative, up to 70,000 acres of Mojave Desert habitat could be treated in Parashant and up to 5,000 acres in the Arizona Strip FO. Using a worst-case analysis, up to 14,000 acres of wildlife habitat in Parashant and up to 1,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low since vegetation treatments in this community would be limited in size and extent to minimize impacts to desert tortoise. Treatment projects would be limited to cases where the project was necessary to provide long-term benefits to desert tortoise.

Brady Pincushion Cactus, Siler Pincushion Cactus, Jones' Cycladenia, Holmgren Milk-vetch, Fickeisen Plains Cactus, Gierisch Mallow, and Paradine Plains Cactus (Arizona Strip FO only): Impacts to special status plants from vegetation treatments in the Plains - Grassland Ecological Zone would be the same as those described under Alternative A. Under this alternative, up to 50,000 acres of habitat could be treated in the Arizona Strip FO. Using a worst case analysis, up to 10,000 acres could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low since vegetation treatments in the habitat of these species would be limited to cases where the project was necessary to provide long-term benefits to one or more special status plants.

Impacts from Soil, Water and Air Resources

Impacts to special status species would be similar in scope and extent to those described under Alternative A. The magnitude of these impacts would be greater than for Alternative B, but less than that of other alternatives.

Impacts from Fish and Wildlife

Impacts to special status species would be similar in scope and extent to those described under Alternative A. The addition of new Watchable Wildlife areas in this alternative would increase visitation in sensitive habitats, thus increasing impacts.

Impacts from Special Status Species

In Parashant, impacts to special status species would be similar in scope and extent to those described under Alternative B. In Vermilion and the Arizona Strip FO, impacts would be similar to those described under Alternative A. The following exceptions/additions also apply:

Relict Leopard Frogs (Parashant only): Introduction of relict leopard frogs or other special status species at Pakoon Springs and/or Tassi Springs and Ranch would likely require extensive cattail and bullfrog eradication efforts. Permanently converting this habitat to a flowing water system could reduce or eliminate the habitat needs of other special status species, such as Yuma Clapper Rail, and preclude efforts to introduce such other species.

Desert Tortoise (Parashant and Arizona Strip FO): Augmenting existing Burrowing Owl populations and installing artificial nest burrows in the Pakoon Basin (Parashant) would have minor to moderate, long-term direct impacts to local tortoise populations. Burrowing Owls would likely prey upon young tortoise, leading to direct mortality and population declines for the species.

Jones' Cycladenia, Holmgren Milk-vetch, Fickeisen Plains Cactus, Gierisch Mallow, and Paradine Plains Cactus (Arizona Strip FO only): Failure to designate the Lone Butte, Black Knolls, Twist Hills, Clayhole, Buckskin, and Coyote Valley ACECs would not provide these species the same protections available within an ACEC.

Impacts from Livestock Grazing

Impacts would be similar in nature and scope to those described under Alternative A. The magnitude of adverse effects would be greater than under Alternative B, but less than under other alternatives.

Impacts from Minerals (Arizona Strip FO only)

Impacts to special status species would be similar to those described under Alternative A.

Impacts from Recreation

Impacts would be similar in nature and scope to those described under Alternative A.

Impacts from Lands and Realty

Impacts to special status species would be similar in nature and scope to those described under Alternative A for Parashant and Vermilion. The following additions/modifications apply to the Arizona Strip FO:

All Special Status Species (Arizona Strip FO only): Impacts to special status species could result from land tenure adjustments such as acquisition or disposal and issuance of ROWs. The magnitude of these impacts would be greater than under Alternatives A and B and the same as under Alternatives D and E. Impacts from ROWs would vary by the type and nature of the action that precipitates the need for the ROW.

Alternative D

Impacts from Travel Management

Impacts would be similar to those described under Alternative A. This alternative includes fewer miles of roads closed and more miles open than any other alternative except Alternative A. As a result, the magnitude of impacts would be greater than that of Alternatives B, C, and E, but less than Alternative A.

Impacts from Vegetation and Fire and Fuels Management

The magnitude of impacts from vegetation management would be greater than under Alternatives B, and C, equal to Alternative E, but less than that of Alternative A. See the section Impacts to Vegetation from Vegetation Treatments for more detailed analysis of methods used and total treatment acreages. Impacts from vegetation treatments in all ecological zones could occur on more acres than under any other alternative. The potential for impacts would be

minimized as treatment projects would not be authorized unless some long-term benefits to the species were anticipated.

Southwestern Willow Flycatcher, Yuma Clapper Rail, Woundfin Minnow and Virgin River Chub (Arizona Strip FO only): Impacts to riparian and aquatic special status species from vegetation treatments in this ecological zone would be the same as those described under Alternative A. Short-term and long-term impacts to these species could occur in the form of disturbance, temporary increases in erosion, and temporary displacement of these species from their habitats. Under this alternative, up to 5,000 acres in the Arizona Strip FO could be treated. Even using a worst-case scenario, no long-term loss of riparian habitat would occur because failed treatments would likely result in rapid revegetation by the same invasive exotics intended for removal. Treatment projects would be limited to cases where the project was necessary to provide long-term benefits to riparian and aquatic species.

Desert Tortoise (Parashant and Arizona Strip FO): Impacts to desert tortoise from vegetation treatments in the Mojave Desert Ecological Zone would be the same as those described under Alternative A. Under this alternative, up to 80,000 acres of Mojave Desert habitat could be treated in Parashant and up to 10,000 acres in the Arizona Strip FO. Using a worst case analysis, up to 16,000 acres of wildlife habitat in Parashant and up to 2,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low since vegetation treatments in the Mojave Desert Ecological Zone would be limited in size and extent to minimize impacts to desert tortoise. In addition, treatment projects would be limited to cases where the project was necessary to provide long-term benefits to desert tortoise.

Brady Pincushion Cactus, Siler Pincushion Cactus, Jones' Cycladenia, Holmgren Milk-vetch, Fickeisen Plains Cactus, Gierisch Mallow, and Paradine Plains Cactus (Arizona Strip FO only): Impacts to special status plants from vegetation treatments in the Plains - Grassland Ecological Zone would be the same as those described under Alternative A. Under this alternative, up to 100,000 acres of habitat could be treated in the Arizona Strip FO. Using a worst case analysis, up to 20,000 acres of could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low since vegetation treatments in the habitat of these species would be limited to cases where the project was necessary to provide long-term benefits to one or more special status plants.

Impacts from Soil, Water and Air Resources

Impacts would be similar in nature and scope to those described under Alternative A. The magnitude of these impacts would be less than that of Alternative A, equal to that of Alternative E, and less than that of Alternatives B and C.

Impacts from Fish and Wildlife

Impacts to would be similar in scope and extent to those described under Alternative C.

Impacts from Special Status Species

Impacts would be similar in scope and extent to those described under Alternative B, with the following additions and/or exceptions:

Relict Leopard Frogs (Parashant only): Impacts would be similar in scope to those described under Alternative C.

Desert Tortoise (Parashant and Arizona Strip FO): Impacts would be similar to those described under Alternatives B and C, but would occur on an additional 7,982 acres in the Pakoon WHA at Grand Gulch Wash.

Impacts from Minerals (Arizona Strip FO only)

Impacts would be similar in nature and scope to those described under Alternative A.

Impacts from Livestock Grazing

Impacts would be similar in nature and scope to those described under Alternative A. The magnitude of impacts would be less than that of Alternative A, but greater than for other alternatives.

Impacts from Recreation

Impacts would be similar in nature and scope to those described under Alternative A.

Impacts from Lands and Realty

Impacts would be similar in nature and scope to those described under Alternative A for Parashant and Vermilion. The following apply to the Arizona Strip FO:

All Special Status Species (Arizona Strip FO only): Impacts to special status species could result from land tenure adjustments such as the acquisition or disposal and issuance of ROWs. The magnitude of these impacts would be greater than under Alternatives A and B but the same as under Alternatives C and E. Impacts from ROWs would vary by the type and nature of the action that precipitates the need for the ROW.

Alternative E: Proposed PlanImpacts from Travel Management

Impacts would be similar to those described under Alternative A. In Parashant, 1,404 miles would remain open for motorized use by the public, a decrease of 311 miles (18 percent) compared to Alternative A. In Vermilion, 377 miles would remain open for motorized use by the public, a decrease of 69 miles (15 percent) compared to Alternative A. In the Arizona Strip FO, 2 miles of routes would be closed initially, so the magnitude of impacts to wildlife would be similar to Alternative A. However, in the future, route designation decisions would be made and it is likely that some roads would be closed. Due to the miles of road open for public use under this alternative, the magnitude of impacts would be greater than under Alternatives B and C, but less than under Alternatives A and D.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be the same as under Alternative D. The potential for impacts would be minimized as treatment projects would not be authorized unless some long-term benefits to the species were anticipated.

Southwestern Willow Flycatcher, Yuma Clapper Rail, Woundfin Minnow, and Virgin River Chub (Arizona Strip FO only): Impacts to riparian and aquatic special status species from vegetation treatments in this ecological zone would be the same as those described under Alternative A. Short-term and long-term impacts to these species could occur in the form of disturbance, temporary increases in erosion, and temporary displacement of these species from their habitats. Under this alternative, up to 5,000 acres in the Arizona Strip FO could be treated. Even using a worst-case scenario, no long-term loss of riparian habitat would occur because failed treatments would likely result in rapid revegetation by the same invasive exotics intended for removal. In addition, treatment projects would be limited to cases where the project was necessary to provide long-term benefits to riparian and aquatic species.

Desert Tortoise (Parashant and Arizona Strip FO): Impacts to desert tortoise from vegetation treatments in this ecological zone would be the same as those described under Alternative A. Under this alternative, up to 80,000 acres of Mojave Desert habitat could be treated in Parashant and up to 10,000 acres in the Arizona Strip FO. Using a worst-case analysis, up to 16,000 acres of wildlife habitat in Parashant and up to 2,000 acres in the Arizona Strip FO could be lost from failed vegetation treatment projects. The probability for this occurrence is considered low since vegetation treatments in this community would be limited in size and extent to minimize impacts to desert tortoise. In addition, treatment projects would be limited to cases where the project was necessary to provide long-term benefits to desert tortoise.

Brady Pincushion Cactus, Siler Pincushion Cactus, Jones' Cycladenia, Holmgren Milk-vetch, Fickeisen Plains Cactus, Gierisch Mallow, and Paradine Plains Cactus (Arizona Strip FO only): Impacts to special status plants from vegetation treatments in the Plains - Grassland Ecological Zone would be the same as those described under Alternative A. Under this alternative, up to 100,000 acres of habitat could be treated in the Arizona Strip FO. Using a worst-case analysis, up to 20,000 acres of could be lost from failed vegetation treatment projects. The probability for this occurrence is considered very low since vegetation treatments in the habitat of these species would be limited to cases where the project was necessary to provide long-term benefits to one or more special status plants.

Impacts from Soil, Water and Air Resources

Impacts would be the same as under Alternative D.

Impacts from Fish and Wildlife

Impacts to would be similar in scope and extent to those described under Alternative C.

Impacts from Special Status Species

Impacts would be similar in scope and extent to those described under Alternative A for Vermilion and the Arizona Strip FO. Impacts would be similar to those described under Alternative B for Parashant. The following additions and/or exceptions would also apply:

Relict Leopard Frogs (Parashant only): Impacts would be similar to Alternative C.

Desert Tortoise (Parashant and Arizona Strip FO): As under Alternatives A and B, Burrowing Owl populations would not be augmented in Parashant, eliminating the potential for adverse effects from this action.

Impacts from Minerals (Arizona Strip FO only)

Impacts would be similar to those described under Alternative A.

Impacts from Livestock Grazing

The magnitude of impacts would be less than that of Alternatives A and D, but greater than under the other alternatives.

Mexican Spotted Owl, Bald Eagle, California Condor: As with Alternative B, closing the River Pasture of the Lees Ferry Allotment to livestock grazing would further reduce potential for impacts to special status raptors that might use Paria Canyon.

Impacts from Recreation

Impacts would be similar in nature and scope to those described under Alternative A.

Impacts from Lands and Realty

Impacts would be similar in nature and scope to those described under Alternative A in Parashant and Vermilion. In the Arizona Strip FO, impacts would be the same as under Alternatives C and D.

Cumulative Impacts

The geographic area for analysis of cumulative impacts to special status species is the southwestern region of the United States. The distribution of several listed species extends well beyond the Planning Area boundary. For example, Siler pincushion cactus is also found in portions of southern Utah; desert tortoise range widely across the Mojave Desert; Southwestern Willow Flycatcher, Yuma Clapper Rail, and Yellow-billed Cuckoo are found in riparian habitats throughout the southwest; and Mexican Spotted Owls may be found in canyon and mixed conifer forests in the region. Activities that occur virtually anywhere within the Virgin River watershed have the potential to affect woundfin minnow, Virgin chub, and other native fishes. Bald Eagles are even more widely distributed, but the lack of consistent or significant use by this species in the Planning Area was grounds for limiting the area of consideration to the southwestern U.S.

Among the contributing factors in the decline of most or all of these species is the loss or fragmentation of available habitat. Because the Planning Areas is at the edge of several major physiographic regions, most of the listed species found here are at the edge of their range. Most of these species depend upon rare or unique habitats, such as riparian areas for Southwestern Willow Flycatcher and Yuma Clapper Rail, the Virgin River for woundfin minnow and Virgin chub, and the Mojave Desert for desert tortoise. Most listed plant species have very narrow habitat requirements and are not able to grow or survive outside of these areas. Development pressure exists throughout the southwestern U.S., particularly in and adjacent to sources of water. As a result, community expansion has had adverse effects on special status species.

Community expansion has also led to increased pressure for water and developable lands. Land disposals outside of ACECs/critical habitat have reduced available desert tortoise habitat by up to 400 acres since 1973. Issuance of ROWs outside of ACECs/critical habitat has also reduced tortoise habitat by as much as 1,859 acres over the same time period. Acquisition of special status species habitat within ACECs has increased protection of the species by shifting management emphasis toward conservation. Demand for water for industrial, irrigation, and culinary use has had major long-term effects on special status fish. Disruptions of flow regimes from dams and diversions have altered habitat for fish and riparian dependent species. Reductions in water quality have had similar long-term effects. Introduction of non-native plants and animals have resulted in adverse effects to listed species from competition for resources, trampling, predation, injury, and death. Tamarisk invasion in riparian areas has resulted in

reductions of flow for native fishes, reductions in the overall size of the vegetative community, increased temperature and salinity, and increased risk of fire. However, the invasion of tamarisk has also increased available nesting habitat for Southwestern Willow Flycatcher.

Wildfires have reduced available desert tortoise habitat by over 150,000 acres in the Pakoosn WHA through conversion of the vegetation from native communities to exotic annual grasses. Mineral development has led to reduction of habitat quality and physical disturbance in desert tortoise and endangered plant habitats. Livestock grazing has increased the danger of trampling of listed species such as endangered plants and desert tortoise. During years of drought and/or low productivity, livestock grazing has reduced forage availability for desert tortoise. Some 128,005 acres of desert tortoise habitat have been made unavailable to livestock grazing since 1998. An additional 144,027 acres of desert tortoise habitat have seasonal grazing restrictions. These actions have reduced or eliminated competition with livestock in these areas.

Recreational pursuits, particularly OHV use, have caused disturbance to most all species and their habitats. With the increase in local populations has come a dramatic increase in the level of OHV use, resulting in increased disturbance, injury, and mortality to listed plants and ground dwelling species with low mobility. Transportation corridors cross through the habitat of virtually all listed species found within the Planning Area. Adverse effects vary by species and by the location, level of use, and speed of travel over the road. In some areas, the habitat has been rendered unusable to listed species by long-term recreational use.

Implementation of plan decisions is expected to improve conditions for special status species by giving these species priority status, focusing management attention, and reducing or eliminating actions that lead to adverse effects. Among species currently listed, the status of desert tortoise, relict leopard frog, Bald Eagle, Southwestern Willow Flycatcher, Yuma Clapper Rail, Yellow-billed Cuckoo, California Condor, Mexican Spotted Owls, Burrowing Owls, Siler pincushion cactus, Jones' cycladenia, Welsh milk-weed, Brady pincushion cactus, and Holmgren milk-vetch should remain stable or improve.

Impacts from livestock grazing on desert tortoise would be minimized. Water use in the region would continue to increase, affecting flows in the Virgin River and continuing to cause a decline in populations of roundfin minnow and Virgin River chub. Efforts to remove or reduce tamarisk would increase in scope and size, leading to localized impacts but ultimately increasing the size and quality of habitat for riparian dependent species such as Southwestern Willow Flycatcher, Yuma Clapper Rail, and Yellow-billed Cuckoo. Reduction in tamarisk would also increase flows for Virgin River fishes. Increased demand for land for community services and recreational uses would occur, particularly in the area around Mesquite and Littlefield/Beaver Dam. Assuming land ownership follows the Proposed Plan for this RMP, impacts would continue to increase at modest levels. The demand for new lands for development would likely lead to development of one or more Habitat Conservation Plans, providing compensation funds and other benefits to desert tortoise and riparian dependent birds. However, such plans also include compromises in the form of further habitat loss and fragmentation. As adjacent lands are

developed, feedlots and agricultural fields adjacent to riparian areas would be reduced or eliminated, altering, and perhaps decreasing available habitat for Brown-headed Cowbirds. This could result in a beneficial effect to Southwestern Willow Flycatchers.

WILD BURROS

Impacts to Burros

Wild Burros have only been known to populate the area around Lower Grand Wash Cliffs, Grand Wash Bay, and Tassi Springs of Parashant, which includes BLM and NPS lands. To protect the Mojave population of the desert tortoise, the herd management level was set at zero in the Arizona Strip RMP Mojave Desert Amendment (BLM 1998). The Lake Mead NRA Burro Management Plan (1995) established those areas populated with burros within the NRA as zero use. These decisions would be carried through under all the alternatives. As a result, any burros who enter the planning area would continue to be removed, as funding and resources allow.

CULTURAL RESOURCES

This section presents potential impacts of the alternatives on cultural resources, specifically archaeological, historical, and resources of importance to American Indians, as determined through changes in the resources or access to them. The locations of most cultural resource sites in the Planning Area are not known. See Chapter 3 for a discussion of cultural resources in the Planning Area.

The archaeological, historical, and/or traditional cultural property (TCP) settings may contribute to a site's eligibility for placement on the NRHP. Such eligibility may be affected if such settings are altered, disturbed, or destroyed.

Archaeological and historical resources may be impacted by unauthorized collection and excavation, vandalism, erosion, trampling, OHV use off-road, fire, soil compaction, and mechanized surface disturbance. Indirect impacts may cause surface disturbance that allows subsequent soil erosion and undermining of sites and structures. Indirect impacts may also allow access or lack of access for vandalism.

Resources of importance to American Indians may be impacted by unauthorized collection, vandalism, erosion, trampling, OHV use off-road, fire, mechanized surface disturbance, and loss of access to sacred or traditional use areas.

Methods and Assumptions

To analyze the potential effects of the alternatives on archaeological and historical resources, information was gathered from inventories and excavations in and adjacent to the Planning Area; however, approximately 3 percent of the Planning Area has been inventoried and only a handful

of excavations have been conducted. The analysis is also based on professional expertise of BLM specialists at the Arizona Strip FO and the NPS staff at Lake Mead NRA and a review of the relevant scientific literature.

Indians, information was gathered through consultation with tribal governments and individual tribal members, the Cultural Landscape and Place Name Study (Stoffle et al. 2004; Austin and Dean 2004), and a review of relevant literature.

Effects are quantified where possible. In absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible. The following guidance was used to describe the intensity of impacts to archaeological and historic resources:

- Negligible:** The impact would not be detectable. The effect on archaeological or historic sites would be at the lowest levels of detection, barely measurable with any perceptible consequences, either beneficial or adverse, on archaeological or historic resources.
- Minor:** The impact would be detectable. The beneficial or adverse effect on archaeological or historic sites would be measurable or perceptible, but it would be slight and localized within a relatively small area for a site or group of sites. The action would not affect the character or diminish the features of a NRHP eligible or listed site and would not have a permanent effect on the integrity of any site.
- Moderate:** The impact would be readily apparent. The adverse impact would be measurable and perceptible. The action would change one or more character-defining features of an archaeological or historic resource, but it would not diminish the integrity of the resource to the extent that its NRHP eligibility would be jeopardized.
- Major:** The impact would be severe. The adverse impact on archaeological or historic sites would be substantial, noticeable, and permanent. For NRHP eligible or listed archaeological sites, the action would change one or more character defining features of the resource, diminishing the integrity of the resource to the extent that it would no longer be eligible for listing in the NRHP.

The following guidance was used to describe the intensity of impacts to resources of importance to American Indians:

- Negligible:** The impact on American Indian areas of concern and access would be at the lowest levels of detection, barely measurable with any perceptible consequences, either beneficial or adverse.

- Minor:** The impact on American Indian areas of concern and access would be measurable or perceptible, but it would be slight and localized in a relatively small area. The action would not affect the character or access to traditional use or sacred areas. It would not have a permanent effect on the integrity of any ethnographic resource or traditional use area.
- Moderate:** The impact would be measurable and perceptible. The action would change one or more characteristics or defining features of the ethnographic resource or traditional use area, but it would not diminish the integrity of the resource to the extent that it would no longer qualify for the NRHP. Access to sacred or traditional use areas would be affected and could cause changes in traditional use patterns.
- Major:** The impact on resources of importance to American Indians would be substantial, noticeable, and permanent. The action would change or affect one or more character defining features of an ethnographic resource or traditional use area; diminish the integrity of the resource to the extent that it no longer would be able to sustain traditional or sacred uses; or prevent access to sacred or traditional use areas.

The area of analysis for cumulative effects on archaeological and historic resources and resources of importance to American Indians was defined as northern Arizona, southwestern Utah, and southeastern Nevada.

The following assumptions are made for cultural resources:

1. All laws for the management and protection of cultural resources would be followed, to the extent allowed by budget and available personnel.
2. Section 106 inventories and mitigation would be conducted for all proposed projects, as required by NHPA, under each alternative.
3. Some proactive Section 110 inventory, research, stabilization, or preservation would be accomplished in the Planning Area each year.
4. NRHP listed and some NRHP eligible sites as well as the cultural resources in the ACECs would be monitored for vandalism and protected or stabilized, as necessary.
5. All surface disturbing activities include mitigation to reduce impacts to cultural resources. Analysis of impacts includes all mitigation.

Impacts to Archaeological and Historical Resources

Impacts to archaeological and historical resources in the Planning Area would result from actions proposed under the following resource management programs:

- Travel Management
- Wilderness Characteristics
- Vegetation and Fire and Fuels Management
- Visual
- Cultural Resources
- Minerals (Arizona Strip FO only)
- Livestock Grazing
- Recreation
- Special Designations (Arizona Strip FO only)
- Lands and Realty (Arizona Strip FO only)

Alternative A: No Action

Impacts from Travel Management

Archaeological and Historical Resources: Impacts to cultural resources primarily stem from management actions that restrict or increase access. Increased access to cultural sites could increase contact by visitors who could intentionally damage sites by collecting surface artifacts, vandalizing, illegally digging, or otherwise excavating the sites. Visitors can also unintentionally damage sites by camping or driving across them. In fact, studies have shown that damage to sites is mainly concentrated within several hundred yards of roads (Sullivan et al. 2002). Reducing such access by closing roads or restricting travel could thus protect cultural resources (Bungart and Raney 2006). On the other hand, increased access can allow for the increased presence of law enforcement, cultural resource personnel, and site stewards for purposes of monitoring sites and areas. Increasing access could also increase the amount of cultural resource inventories and research as it would decrease the cost of excavation, inventory, or recording. Finally, increased access would allow for the increased presence of the public, which can also deter vandalism. This is suggested by recent Archaeological Resources Protection Act (ARPA) cases in the Arizona Strip and in southern Utah showing that pothunters in the area tend to select isolated sites in order to excavate without getting caught. As a result, more and more pothunters in the area are using OHVs or 4-wheel drive vehicles to access and vandalize sites in roadless areas.

Under Alternative A, motor vehicles would be restricted to designated roads and no areas of the Monuments would be authorized for cross-country, off-road vehicle use, except for authorized administrative and emergency purposes. This would limit direct and indirect impacts associated with motorized vehicle use on or near sites. This alternative designates the most miles of routes open to motorized/mechanized use by the public over any other alternative resulting in moderate impacts to cultural resources. This would allow continued access for vandalism of cultural resources and for continued monitoring of the area to stop such damage. It would also provide access for researchers.

Implementation of travel management decisions under Alternative A would contribute to cultural resource protection by prohibiting additional proliferation of roads by individuals within the Planning Area, which would help protect archaeological and historical sites. Development of a transportation plan in the Monuments would also enhance cultural site access for visitation, research, and protection. Overall impacts to archaeological and historical resources would be moderate.

Resources of importance to American Indians: Alternative A would provide the most motorized access to TCPs by American Indians. It would also allow for continued access, damage, and vandalism to TCPs of American Indians and archaeological sites by other visitors using motorized and mechanized vehicles. Impacts would range from negligible to minor.

Impacts from Wilderness Characteristics

No areas would be identified for wilderness characteristics under Alternative A.

Impacts from Vegetation and Fire and Fuels Management

Archaeological and Historical Resources: Restoration activities would continue to be implemented and would affect archaeological and historical resources. In particular, restoration of Great Basin, Ponderosa Pine, and Riparian ecological zones could directly affect archaeological and historical resources. Eradication of noxious weeds may involve surface disturbance, which would impact archaeological and historical sites. Sites eligible for listing on the NRHP in these areas would continue to be avoided by any surface disturbing activity and a buffer of 40 meters would continue to be established around village sites, as requested by the Tribes. Mitigation of some impacts would be provided by following Section 106 procedures.

Prescribed fires would continue to be allowed across sites not vulnerable to destruction by fire, such as areas that have already burned many times in the past. Areas excluded from fire treatment would be rock art, wooden structures or features, and any area vulnerable to the indirect effects of subsequent erosion. Fire suppression activities may require use of heavy equipment that can directly impact archaeological and historical resources through surface disturbance. Wildland fires may destroy or alter archaeological and historical sites susceptible to damage from fire, heat, or smoke. Fire suppression activities overall would help to stop wildland fire and ultimately protect archaeological and historical resources that might be destroyed or damaged by fire. Therefore, impacts from all vegetation management, including fire and fuels management, would be minor to moderate, considerably less in intense to wildland fires that would destroy wooden features and structures and damage rock art and surface features.

Vegetation treatments would have indirect impacts on cultural resources from increased erosion and displacement and destruction of surface artifacts and, in some cases, destruction of surface and buried structures and features. Overall impacts from vegetation management would result in direct and indirect impacts to archaeological and historical resources, which could be partially

mitigated during compliance with NEPA and Section 106 of the NHPA. Projects would be redesigned to avoid historic properties or those eligible for or listed on the NRHP, thus mitigating some of the direct and indirect impacts.

In Vermilion, there have been minimal vegetation treatments projects in the past because fuel loads are generally low, reducing the chance of catastrophic fire. As a result, any treatments to reduce fuel load in the Monument would be small scale and localized, resulting in negligible to minor impacts, depending on site-specific projects. Riparian invasive and exotic species removal could occur in some riparian areas and may directly impact archaeological and historical resources. However, treatment efforts would help to stop root damage and erosion of deposits and structures from invasive species and help to keep archaeological and historical resources intact. Mitigation associated with compliance with NEPA and NHPA would help to redesign projects so that sites are avoided or measures are taken to protect these resources.

Resources of importance to American Indians: The above impacts to cultural and archaeological resources would also apply to resources of importance to American Indians, with the addition that restoration, including fire and fuels management, could increase some native vegetation important to American Indians. For example, during the Mt. Trumbull restoration efforts in the mid-1990s, large amounts of native tobacco grew in the treatment areas in the years following restoration and subsequent fire treatments where it had not occurred before treatment. Historically, American Indians burned areas in the Arizona Strip prior to Euro-Americans arrival to encourage growth of native plants, as well as for other reasons. Restoration efforts benefit some types of native vegetation and provide additional locations for American Indians to collect such vegetation. Impacts from all vegetation treatments, including fire and fuels management, on resources of importance to American Indians would be moderate. Traditional uses of and access to resources would continue and would be sustainable.

Impacts from Visual Resources

Archaeological and Historical Resources: VRM classes I and II categories would help protect cultural resource sites and landscapes from visual intrusions and surface disturbance on 42 percent of Parashant, 100 percent of Vermilion, and 33 percent of the Arizona Strip FO under Alternative A; however, such categories could also limit research excavations. Major modifications to the visual landscape could be allowed in VRM Class IV areas on 26 percent of the Monuments and almost half (47 percent) of the Arizona Strip FO. Maintenance and/or enhancement of night sky conditions at the local level would protect historic and prehistoric landscapes. Impacts would be minor.

Resources of importance to American Indians: The above impacts would also apply to TCPs and landscapes associated with them.

Impacts from Cultural Resources

Archaeological and Historical Resources: Maintaining the designated Public Use Sites in all three planning areas would provide opportunities to educate the public about past activities on the Monument and allow for public enjoyment of these resources. However, designated Public Use sites could also lead to damage and vandalism at the sites or sites near them.

Cultural inventories, documentation, research, protective measures, monitoring, and site steward patrols would continue to provide information about the past in the Planning Area and to protect cultural resource sites. The impact to archaeological and historical sites would be minor.

Resources of importance to American Indians: Continuing to interpret and direct the public to Public Use Sites could lead to damage and vandalism to resources of importance to American Indians at these areas. Opportunities also would be available to interpret and explain past and current American Indian uses of the resources and areas near these public use sites from an American Indian perspective. Interpreting sites could also help foster conservation ethics by educating visitors about these resource values. However, the presence of the general public at some of these sites may deter American Indian visits and activities. Impacts would be moderate and site specific.

Impacts from Minerals (Arizona Strip FO only)

Archaeological and Historical Resources: Most of the Arizona Strip FO would be open to mineral exploration and development. Direct impacts to archaeological and historical resources from associated ground disturbance would be moderate.

Indirect impacts could also occur from unauthorized collection of artifacts by mine workers at archaeological sites near uranium mines. Impacts would be site specific and could be major, resulting in loss of information on local and regional history and prehistory.

Under Alternative A, approximately 10 percent of the Arizona Strip FO would be closed to mineral material disposals and thus protected from related impacts. Mineral material disposals would continue to be allowed in most ACECs, thus potentially impacting significant archaeological and historical resources. Impacts would be mitigated by following Section 106 procedures.

Resources of importance to American Indians: The above impacts for archaeological and historical resources would also apply to resources of importance to American Indians, with the addition that mining activities could disrupt access to TCPs and the additional noise and disturbance associated with active mining sites could disturb some activities at nearby TCPs. Impacts would be site specific. Section 106 procedures may reduce some impacts.

Impacts from Livestock Grazing

Archaeological and Historical Resources: Compaction of soil, increased erosion, and displacement of artifacts associated with livestock grazing would continue under Alternative A. Impacts to archaeological and historic resources would be minor, but more widespread compared to the other alternatives due to more lands being open to grazing.

Resources of importance to American Indians: The above impacts for archaeological and historic resources would apply to resources of importance to American Indians.

Impacts from Recreation

Archaeological and Historical Resources: Recreation use in the Planning Area would increase due to an increase in regional population, as well as new interest in the area due to the designation of the Monuments. Collection and vandalism to archaeological and historical sites by visitors is also expected to increase. Some sites would be monitored, as applicable, deterring adverse impacts from visitors. A substantial portion of monitoring would continue to be conducted by site stewards, who would assist in providing information to apprehend vandals. Law enforcement personnel would continue to be used to detect and deter looters and vandals. Educational efforts would continue to encourage protection of cultural resources and generate an appreciation of the values being protected. The impact would be detectable but slight and localized within small areas.

More public land users and more intense recreational use on Arizona Strip FO lands near the communities would result in more direct and indirect impacts to archaeological and historical resources than in the Monuments. Impacts in some-specific areas near communities or on some types of archaeological sites, such as caves, rock shelters, or rock art, could be moderate or major for specific targeted sites.

Visitors conducting activities under SRPs or outfitters and guides permits would be educated about the provisions of the ARPA and Native American Grave Protection and Repatriation Act (NAGPRA), which would help protect archaeological and historical sites. Establishment of visitor limits, supplemental rules, or restrictions based on various strategies, including carrying capacity or limits of acceptable change (LAC), on a case-by-case basis could protect archaeological and historical sites.

Resources of importance to American Indians: The above impacts for archaeological and historical resources would also apply to resources of importance to American Indians, with the exception that additional recreational use could interfere with traditional uses in some areas. Impacts would be moderate.

Impacts from Special Designations

Archaeological and Historical Resources: Maintaining the two existing ACECs in Parashant and five ACECs in the Arizona Strip FO that were designated to protect archaeological and historical sites would continue to provide such protection. The protection measures provided by ACEC designations would be more important in the Arizona Strip FO compared to Parashant, as Monument designation, alone, would provide similar or higher forms of protection in the latter.

Resources of importance to American Indians: The above impacts for archaeological and historical resources would also apply to resources of importance to American Indians.

Impacts from Lands and Realty

Archaeological and Historical Resources: Land disposals would impact archaeological and historical resources because the disposed lands and associated resources would lose the protection provided by federal laws. Impacts would be direct, long term, and minor to major, depending on the location of the lands to be disposed and the nature of the cultural resources on them. Land use authorizations such as ROWs, permits, or leases would cause direct and indirect long term impacts to archaeological and historical resources and would be mitigated under NEPA and Section 106 of NHPA. Overall impacts from lands and realty would be site specific and moderate.

Resources of importance to American Indians: The above impacts to archaeological and historical resources from land use authorizations and land disposals would also apply to resources of importance to American Indians.

*Alternative B*Impacts from Travel Management

Archaeological and Historical Resources: In the Monuments under Alternative B, roughly one third the miles of motorized and mechanized routes would be open to the public compared to Alternative A. This would be the least among all the alternatives. In addition, the most miles of roads would be closed under this alternative. Compared to Alternative A, these route designations would result in a decrease of unintentional impacts such as driving or camping on or near sites. On the other hand, fewer open routes under Alternative B may increase vandalism because of reduced areas receiving public and agency monitoring, thus shielding illegal activity from public view. In addition, scientific research would be more expensive under this alternative than under any other because of the challenge of access. Overall impacts to archaeological and historical resources would be moderate.

In the Arizona Strip FO, impacts would be similar to impacts discussed under Alternative A because most of the routes for the Arizona Strip FO remain to be inventoried, evaluated, and

designated after this FEIS is complete. Impacts from travel on archaeological and historical resources would thus continue to be moderate.

Resources of importance to American Indians: Alternative B would limit access so that more traditional areas and sites would remain undisturbed by visitors; however, it would also increase difficulty of access by American Indians for purposes of collecting resources and using TCPs. Overall impacts would be moderate.

Impacts from Wilderness Characteristics

Archaeological and Historical Resources: The most acres to maintain wilderness characteristics in the Monuments would occur under Alternative B, resulting in the greatest potential for excluding motorized and mechanized access and any associated vandalism or damage. This would increase protection of archaeological and historical resources from impacts associated with vehicular travel, but could also increase opportunities for vandalism due to reduced agency and public monitoring. Impacts would be moderate.

In the Arizona Strip FO, impacts would be similar to those discussed under Alternative B for the Monuments, except that not as many acres would be allocated under this alternative as under Alternative C. Impacts would be minor.

Resources of importance to American Indians: Impacts would be similar to those described for archaeological and historic resources because the areas identified with wilderness characteristics would also protect American Indian TCPs while, at the same time, make it harder for American Indians to access such resources. The impacts would be moderate in the Monuments and minor in the Arizona Strip FO.

Impacts from Vegetation and Fire and Fuels Management

Archaeological and Historical Resources: Alternative B proposes the least amount of acreage for vegetation treatment projects among the alternatives, which would result in the least potential for damage to archaeological and historical resources from such projects. Impacts would be minor.

Having no planned vegetation treatments in the Riparian and Ponderosa Pine ecological zones under Alternative B would benefit archaeological and historical sites within these zones. All other vegetation treatment projects under this alternative, particularly those in the Great Basin Ecological Zone, would have a minor impact because such projects would have site-specific review under NEPA, which could require project redesign to avoid or mitigate historic properties, or those eligible for or listed on the NRHP.

In Parashant, restoration of Pakoon Springs would result in moderate impacts to archaeological and historical resources, even though the emphasis would be on natural processes. Some impacts could be mitigated and the project would comply with Section 106 of NHPA.

Resources of importance to American Indians: The types of impacts would be the same as described above for archaeological and historical resources.

Impacts from Visual Resources

Archaeological and Historical Resources: VRM classes I and II would help to protect cultural resource sites and landscapes from visual intrusions and surface disturbance on nearly all acres of the Monuments under Alternative B, which is the most area covered among the alternatives; however, this could also limit research excavations. Maintenance and/or enhancement of night sky conditions at the local level would protect historic and prehistoric landscapes. Impacts would be minor.

VRM classes I and II would protect cultural resource sites and landscapes from visual intrusions and surface disturbance on approximately one third of the Arizona Strip FO under Alternative B, which represents fewer acres of protection compared to Alternative A, but more when compared to the other Alternatives. Impacts would be minor.

Resources of importance to American Indians: Impacts would be the same as described above for archaeological and historical resources as the protected areas under VRM classes I and II would also include American Indian TCPs and important landscapes. Impacts would be moderate.

Impacts from Cultural Resources

Archaeological and Historical Resources: Four additional public use sites in Parashant, three new sites in Vermilion, and one additional site in the Arizona Strip FO would increase the interpretive/educational opportunities throughout the Planning Area. Impacts from the remaining actions and allowable uses would be the same as described under Alternative A and remain minor.

Resources of importance to American Indians: Impacts would be the similar as those described above for archaeological and historic resources. More public use sites identified under this alternative would provide more opportunities for educating the public, but could also disrupt American Indian activities at or near these sites.

Impacts from Minerals (Arizona Strip FO only)

Archaeological and Historical Resources: Among the alternatives, Alternative B proposes the least amount of acreage to be open and available for mineral exploration and development with

no or minimal restrictions. This action would result in the least amount of surface disturbance and consequential impacts to archaeological and historic resources. Effects would be site specific and moderate for specific archaeological and historical resources.

Resources of importance to American Indians: Impacts would be the same as described above for archaeological and historic resources.

Impacts from Livestock Grazing

Archaeological and Historical Resources: In Parashant under Alternative B, impacts to cultural resources from livestock grazing would be eliminated in the Pakoon Springs and Tuweep Allotments and the Cane Springs pasture of the Mud and Cane Allotment because they would be unavailable to grazing.

In Vermilion, unavailability of the River Pasture of the Lees Ferry Allotment for livestock grazing would reduce impacts to cultural resources in this area.

Other livestock grazing impacts in the Monuments would continue. These actions would have a minor impact to archaeological and historical resources. In Arizona Strip FO, impacts from livestock grazing would be the same as under Alternative A.

Resources of importance to American Indians: Impacts would be the same as described above for archaeological and historic resources.

Impacts from Recreation

Impacts would be the same as described under Alternative A for both archaeological and historic resources and resources of importance to American Indians.

Impacts from Special Designations

Archaeological and Historical Resources: The two existing ACECs would not be continued in Parashant under Alternative B, and no new ACECs would be created. Impacts would be negligible as Monument status provides superior protection to that provided under ACEC designation.

In Arizona Strip FO under Alternative B, all the ACECs under Alternative A would remain in place. In addition, the Marble Canyon, Lost Spring, Moonshine Ridge, and Johnson Spring ACECs would increase in size and one new ACEC (Kanab Creek) would be created, which would provide additional protection to archaeological and historical resources in that area. As a result, Alternative B proposes the most acres to be covered by ACEC designation for protection of cultural resources in the Arizona Strip FO among the alternatives. Impacts would be moderate and beneficial.

Resources of importance to American Indians: Impacts would be the same as described under archaeological and historic resources as the ACEC protection would also apply to sites and locations of importance to American Indians, including TCPs.

Impacts from Lands and Realty (Arizona Strip FO only)

Impacts would be the same as described under Alternative A for both archaeological and historic resources and resources of importance to American Indians.

Alternative C

Impacts from Travel Management

Archaeological and Historical Resources: Compared to Alternative A in the Monuments, fewer roads would be open to the public under Alternative C, resulting in more expensive research and fewer opportunities to detect and deter vandalism. Fewer open roads would also decrease access to cultural sites by visitors who could collect artifacts and/or damage sites by camping on them or driving across them. While Alternative C proposes, seven times the miles of routes open for administrative use only compared to Alternative A, use on such roads would be minimal and result in few impacts. Overall impacts would be moderate and less intense as under Alternative B, which proposes even fewer roads open to the public.

In the Arizona Strip FO, impacts from Travel Management would be the same as described under Alternative A.

Resources of importance to American Indians: As discussed above for archaeological and historic resources in the Monuments, Alternative C would limit access compared to Alternative A, which would protect traditional areas and sites from disturbance by visitors, including vandals; however, reduced access would also affect American Indians for collecting resources and using TCPs. Impacts would not be as intense as Alternative B and would be minor.

Impacts from Wilderness Characteristics

Archaeological and Historical Resources: Impacts in the Monuments would be similar to Alternative B, although not as intense as roughly half as many acres would be maintained with wilderness characteristics under Alternative C. Impacts would be minor.

In the Arizona Strip FO, the most acres with wilderness characteristics would occur under Alternative C. Impacts would thus be the same as described Alternative B, but more intense. The impacts would be minor.

Resources of importance to American Indians: Impacts would be the same as described above for archaeological and historic resources.

Impacts from Vegetation and Fire and Fuels Management

Archaeological and Historical Resources: Impacts would be similar to those described under Alternative B, although more intense as Alternative C proposes more acreage for vegetation restoration, which would result in increased potential for impacts to archaeological and historical resources. Impacts would remain minor because Section 106 procedures would be followed.

In Parashant, restoration of Pakoon Springs would result in more disturbances to surface and subsurface archaeological and historical resources, resulting in moderate impacts. Mitigation measures as a result of Section 106 compliance may reduce impacts.

Resources of importance to American Indians: In Parashant, restoration of Pakoon Springs would result in more surface disturbance to archaeological resources of importance to American Indians resulting in a major impact. Increased acreage for vegetation restoration in the Planning Area would also result in greater impacts to archaeological resources; however, restoration also may increase native vegetation of importance to American Indians. Overall impact would be moderate.

Impacts from Visual Resources

Archaeological and Historical Resources: Under Alternative C, 75 percent of Parashant and 99 percent of Vermilion would be designated VRM classes I and II, which would protect cultural resource sites and landscapes from visual intrusions and surface disturbance, although to a less extent when compared to Alternative B. Also under Alternative C, 24 percent of Parashant and less than one percent of Vermilion would be designated VRM classes III and IV, which would allow some modifications of the existing character of the visual landscape, resulting in minor impacts.

In Arizona Strip FO, impacts would be similar to those described under Alternative A.

Resources of importance to American Indians: Impacts would be the same as described above for archaeological and historical resources.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative B for both archaeological and historic resources and resources of importance to American Indians.

Impacts from Minerals (Arizona Strip FO only)

Impacts would be the same as described under Alternative A for both archaeological and historic resources and resources of importance to American Indians.

Impacts from Livestock Grazing

Impacts would be the same as described under Alternative B for both archaeological and historic resources and resources of importance to American Indians.

Impacts from Recreation

Impacts would be the same as described under Alternative A for both archaeological and historic resources and resources of importance to American Indians.

Impacts from Special Designations

Archaeological and Historical Resources: For Parashant, impacts would be the same as described under Alternative B. For the Arizona Strip FO, roughly 40 percent of the acres would be under ACEC protection compared to Alternative B, which would result in less protection to archaeological and historical resources afforded by ACEC designation. More protection would be offered, however, when compared to Alternative A.

Resources of importance to American Indians: Impacts would be the same as described under archaeological and historic resources as the ACEC protection would also apply to sites and locations of importance to American Indians, including TCPs.

Impacts from Lands and Realty (Arizona Strip FO only)

Impacts would be the same as under Alternative A, except that there would be 131 more acres identified for exchange, sale, or lease. Impacts would remain moderate and mitigated under Section 106 of NHPA.

Resources of importance to American Indians: Impacts would be the same as described above for archaeological and historical resources.

*Alternative D*Impacts from Travel Management

Archaeological and Historical Resources: With the exception of Alternative A, the greatest access for all motorized and mechanized vehicle users, including the OHV community, would be provided under Alternative D, resulting in a moderate impact to archaeological and historical

resources due to potential damage to sites caused by visitors, either intentionally or unintentionally. Access for research would be easier and more cost effective under this alternative than under any other except Alternative A. Monitoring of sites, both privately and federally, would also be more efficient under Alternative D compared to all other alternatives except A.

Resources of importance to American Indians: Impacts would be similar to those above for archaeological and historic resources in the Monuments. Having easier access to various sites in the Planning Area, with the exception of Alternative A, would aid American Indians in collecting resources and using TCPs. Ease of access, however, would also increase the potential for traditional areas and sites to be disturbed by visitors, including vandals. However, that same access affords more opportunities for site stewards, law enforcement personnel, and other BLM personnel to monitor and detect or deter vandalism

Impacts from Wilderness Characteristics

Archaeological and Historical Resources: Alternative D would identify the fewest acres as having wilderness characteristics when compared to the other action alternatives. This would create a greater potential for unintentional and direct impacts to archaeological and historical resources due to increased motorized access. There could also be fewer opportunities for vandalism compared to the other action alternatives as more access would be provided for site stewards, law enforcement, and the general public. Overall impacts would be minor.

Resources of importance to American Indians: Impacts would be the same as described above for archaeological and historic resources, with the exception that fewer acres allocated to maintain wilderness characteristic would increase motorized access to American Indians for traditional uses. Impacts would be minor.

Impacts from Vegetation and Fire and Fuels Management

Archaeological and Historical Resources: Impacts would be the same as described under Alternative C, with the exception that more acres are proposed for vegetation treatment in the Great Basin and Ponderosa Pine ecological zones under Alternative D. This would result in more widespread impacts to archaeological and historical resources. Impacts would be minor to moderate even though NEPA and NHPA mitigation would occur prior to project implementation.

Resources of importance to American Indians: Impacts would be the same as described for archaeological and historical resources. Larger acreages proposed for vegetation treatment would have greater surface disturbance resulting in more impacts to archaeological sites and TCPs considered important to American Indians. The same vegetation treatments could also provide more opportunities for native vegetation to prosper, such as native tobacco. Impacts would be moderate.

Impacts from Visual Resources

Archaeological and Historical Resources: In Parashant and Vermilion, the fewest acres under any alternative other than Alternative A are proposed for VRM classes I and II under Alternative D. This means that the visual integrity of historic and archaeological landscapes and resources in the Monuments would not be protected as much as under other alternatives. Impacts would be moderate.

In Arizona Strip FO, about one-eighth of the planning area would be managed under VRM classes I and II. This would protect archaeological and historical sites and their contexts over a larger area than under Alternative A, but not as much as under Alternatives B and C. Impacts would be minor.

Resources of importance to American Indians: Impacts would be the same as described above for archaeological and historical resources.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative B for both archaeological and historical resources and resources of importance to American Indians.

Impacts from Minerals (Arizona Strip FO only)

Archaeological and Historical Resources: Impacts would be the same as described under Alternative A, except that there would be an increase in the amount of acreage open for mineral development with the least restrictions. Impacts from mineral exploration or development would be moderate because, even after mitigation, some residual cultural resource values would be lost.

Resources of importance to American Indians: Impacts would be the same as described above for archaeological and historical resources, with the addition that access to TCPs could be affected. In addition, noise and disturbance from active mining sites could affect some site-specific uses at TCPs. Impacts would be moderate, with some major impacts in site-specific areas.

Impacts from Livestock Grazing

Impacts would be the same as described under as Alternative A for both archaeological and historical resources and resources of importance to American Indians.

Impacts from Recreation

Impacts would be the same as described under Alternative A for both archaeological and historical resources and resources of importance to American Indians.

Impacts from Special Designations

Archaeological and Historical Resources: Impacts in Parashant would be the same as described under Alternative B. In the Arizona Strip FO, Alternative D proposes the least amount of acres among the alternatives that would be under ACEC designation protecting cultural resources. Impacts would be moderate.

Resources of importance to American Indians: Impacts would be the same as described above for archaeological and historical resources.

Impacts from Lands and Realty (Arizona Strip FO only)

Impacts would be the same as described under Alternative C for both archaeological and historical resources and resources of importance to American Indians.

*Alternative E: Proposed Plan*Impacts from Travel Management

Archaeological and Historical Resources: The types of impacts would be the same as described under Alternative A. In the Monuments, the magnitude of impacts would be greater than under Alternatives B and C but less than under Alternatives A and D due to the miles of routes open to the public. Overall impacts would be moderate.

Resources of importance to American Indians: Impacts would be similar to those described above for archaeological and historical resources.

Impacts from Wilderness Characteristics

Archaeological and Historical Resources: In the Monuments, site damage resulting from motorized access due to the number of acres managed for wilderness characteristics would be more likely under Alternative E than under Alternatives B and C, and less likely when compared to Alternative D. However, there would also be less potential under this alternative than under Alternatives B and C and more than under Alternative D for vandalism of sites away from monitoring by law enforcement, site stewards, and BLM and NPS staff.

In the Arizona Strip FO, impacts would be similar to those described under Alternative D.

Resources of importance to American Indians: Impacts would be similar to those described above for archaeological and historical resources.

Impacts from Vegetation and Fire and Fuels Management

Archaeological and Historical Resources: Overall impacts would be the similar to those described under Alternatives C or D due to similar acres being proposed for treatment, depending upon ecological zone.

In Parashant, restoration and facilities proposed for Pakoon Springs could impact archaeological and historical resources more than under any other alternative. Protective barriers to protect resources would help to stop damage to these resources. Development of interpretive trails and facilities at Cane Springs could also impact archaeological and historical resources. The opportunities for environmental education at both Pakoon and Cane springs would enhance the understanding, appreciation, and protection of archaeological and historical resources at these sites as well as the Mojave Desert and Great Basin regions. Impacts would be moderate.

Resources of importance to American Indians: Impacts would be the same as described under Alternative D

Impacts from Visual Resources

Impacts would be the same as described under Alternative B in the Monuments and the same as Alternative D in the Arizona Strip FO for both archaeological and historical resources and resources of importance to American Indians.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative B for both archaeological and historical resources and resources of importance to American Indians, with the exception that there would be fewer acres under ACEC protection in the Arizona Strip FO.

Impacts from Minerals (Arizona Strip FO only)

Archaeological and Historical Resources: Impacts would be the same as described under Alternative A. Impacts would be slightly less intense as there would be more acres available with restrictions, although this amount would be less than that proposed under Alternative D. Impacts would be moderate.

Resources of importance to American Indians: Impacts would be the same as described under Alternative D.

Impacts from Livestock Grazing

Impacts would be the same as described under Alternative A for both archaeological and historical resources and resources of importance to American Indians.

Impacts from Recreation

Impacts would be the same as described under Alternative D for archaeological and historical resources. Impacts would be the same as described under Alternative A for resources of importance to American Indians.

Impacts from Special Designations

Archaeological and Historical Resources: The types of impacts would be similar to those described under Alternative A, although more widespread as more acres would be under ACEC protection for archaeological and historical resources. Alternative E also proposes more ACEC acres compared to Alternatives C and D, but considerably fewer acres compared to Alternative B.

Resources of importance to American Indians: Impacts would be the same as discussed above for archaeological and historical resources.

Impacts from Lands and Realty (Arizona Strip FO only)

Impacts would be the same as described under Alternatives C for both archaeological and historical resources and resources of importance to American Indians.

Cumulative Impacts

Archaeological and Historical Resources: The increase in regional population and popularity of the Monuments is correlated to an increase in damage to archaeological and historical resources from visitation, including that caused by vandalism. Vegetation treatments, mineral development, disposal of public lands, land use authorizations, and livestock grazing would continue to impact archaeological and historical resources. Conversely, creation of the National Monuments on the Arizona Strip and additional wilderness areas west of the Planning Area in Nevada, as well as additional public awareness of the potential irretrievable loss of open spaces and cultural resources, may provide additional protection and more funding to conduct research and preserve archaeological and historical sites in the region.

Proposed actions by the Washington County Water Conservancy District such as the Lake Powell Pipeline or the proposed flood control reservoir at Ft. Pearce would also cause direct and indirect long term impacts to archaeological and historical resources. Other actions proposed by local communities under R&PP leases/conveyances could also impact archaeological and

historical resources. However, these impacts could be mitigated under Section 106 of the NHPA.

Resources of importance to American Indians: Increasing regional population and the resulting increase in visitation and use of the Planning Area would result in degradation of the vegetation in some areas and on some TCPs, as well as loss of the original landscape context, such as the natural quiet and isolation. This may affect some TCPs and interfere with some traditional uses. The creation of the Monuments, as well as other Monuments, national parks, NRAs, wilderness areas, and other protected places in the surrounding area would offer long-term protection of traditional landscapes and allow traditional uses to continue in some areas.

VISUAL RESOURCES

This section presents potential impacts of the alternatives on visual resources, specifically the potential for various management scenarios to create visual changes or contrasts, given the desired visual resource objectives proposed for each alternative. Additionally, the potential impacts of alternatives that may increase sources of artificial light at night; reduce the scenic quality ratings, as seen from high sensitivity foreground or middle ground viewpoints; block or disrupt existing views; or reduce public opportunities to view scenic resources are presented.

Methods and Assumptions

To the extent practical, spatial data was used to compare the proposed management of each alternative to the VRM classes (objectives). In the case of VRM class designations, evaluations were made against the current condition of visual resources. Current conditions were identified through a recent updated visual inventory of the Planning Area, which was used to assign visual resource inventory (VRI) classes to existing visual resources. Impacts from VRM class designations proposed under all of the alternatives, including Alternative A, are measured against VRI classes. Impacts would be expected in situations where VRM class designations differ from VRI classes identified. Figures 4.1 – 4.12 are used to illustrate the discrepancies.

Various actions that might create changes to the basic landscape elements of form, line, color, and texture were considered in the estimation of impacts. In addition, viewing time-of-day, season, and duration were considered, where possible. Potential impacts to scenic quality were estimated by evaluating the potential for management actions to noticeably change one or more of the seven factors (landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications) evaluated during the inventory. The results of analysis describe the potential for reduction, maintenance, or enhancement of overall baseline visual settings for each alternative.

Effects are quantified where possible. In absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible:** The impact would not be detectable. The effect on visual resources, or the ability to access and/or enjoy them, would be at the lowest levels of detection, barely measurable with any perceptible consequences, either beneficial or adverse, on visual resources.
- Minor:** The impact would be detectable. The effect on visual resources, or the ability to access and/or enjoy them, would be measurable or perceptible, but it would be slight and localized within a relatively small area. The action would not permanently affect visual character or diminish quality features.
- Moderate:** The impact would be readily apparent. The adverse impact would be measurable and perceptible. The beneficial impact would be readily apparent. The action would change one or more character-defining features or opportunities of the visual resource, but it would not diminish the integrity of the resource to the extent that it would be permanently jeopardized.
- Major:** The impact would be severe. The adverse impact on visual resources, or the ability to access and/or enjoy them, would be substantial, noticeable, and permanent. Conversely, the beneficial impact would be a substantial improvement to existing contrast, scenic quality, or generate important new viewing opportunities. The action would change one or more character defining features of the resource, diminishing or improving the integrity of the resource to the extent that it would be permanently changed.

The following assumptions regarding the future management of visual resources are made:

- All laws for the management and protection of visual resources would be followed, to the extent allowed by the budget and available personnel.
- Any new surface disturbing activities proposed would be subject to NEPA analysis, including a VRM contrast rating.
- Activities proposed that would not initially meet VRM objectives for the area would be mitigated to the extent needed to meet the objectives. Those activities proposed that could not be mitigated would not be authorized.
- Some proactive restoration of areas that do not meet desired visual resource objectives may be completed each year.
- VRI classes are informational in nature and provide the basis for considering visual values in the RMP process. VRM classes (I, II, III, and IV) are designated through the land use planning process, and the designation of VRM classes is based on management decisions made in RMPs.
- All actions proposed during the RMP process must consider the importance of the visual values and the effects the project may have on these values.

Impacts to Visual Resources

Impacts to Visual Resources would result from actions proposed under the following resource management programs:

- Travel Management
- Wilderness Characteristics
- Vegetation and Fire and Fuels Management
- Soil, Water, and Air
- Fish and Wildlife
- Special Status Species
- Visual Resources
- Cultural Resources
- Special Designations (Wilderness)
- Livestock Grazing
- Lands and Realty
- Recreation and Visitor Services

Alternative A: No Action

Impacts from Travel Management

Under Alternative A, Travel Management Areas (TMAs) would not be identified. Keeping wilderness and some other sensitive areas closed to motorized and mechanized vehicle use would protect visual resources and non-motorized viewing opportunities on 285,268 acres in Parashant, 89,828 acres in Vermilion, and 123,100 acres in the Arizona Strip FO. Impacts would be indirect and long term. Managing Parashant's 1,715 miles, Vermilion's 446 miles, and Arizona Strip FO's 4,934 miles of existing open routes as designated open routes would continue to influence the landscape. Travel on these routes would continue to produce intermittent dust, causing indirect, short-term, negligible to moderate visual contrasts with the landscape. The visual impact of 71 miles of existing closed routes in Parashant, 105 miles in Vermilion, and 3 miles in the Ferry Swale area of the Arizona Strip FO, all of which are mainly within wilderness areas, would continue to diminish, either by direct active reclamation actions or by indirect natural processes. Additionally, actions such as rerouting certain alignments, monitoring the creation of unauthorized routes and obscuring/rehabilitating those found, and active and/or passive natural reclamation of any temporary routes would enhance visual resources by reducing visual contrasts on a localized, long-term basis. Active reclamation of routes would reduce contrast more quickly in the short-term.

Employing a designated Travel Management system of existing routes would indirectly ensure that the public would continue to have the opportunity to view scenic resources over the long-term. No travel management actions under Alternative A would block or disrupt views as seen from a variety of popular viewing locations. Restricting travel to designated routes would reduce

the potential for creation of new impacts outside those routes. Impacts would be long term and range from negligible to minor. Constraining road maintenance to within the existing disturbed travel surface areas would reduce the potential for increasing the impacts of designated routes. Impacts would be direct, localized, short or long term, and range from minor to moderate. The continued use of existing material sites on BLM lands for road maintenance would affect visual resources over the long term on a localized basis. New material sites would result in negligible to moderate impacts, depending on pit location as viewed from key observation points, quantity of material to be removed, and compatibility of subsurface/surface soil color.

Vehicles traveling along roads, aircraft landing and/or overhead, and nighttime road-related construction and/or maintenance work are the only significant sources of transportation-related artificial light at night that could be seen in the Planning Area. Impacts to night sky would generally be short-term, localized, and negligible. However, in the case of major, nighttime roadwork using high power artificial lighting, impacts to night sky conditions could be moderate, though short-term and localized.

Impacts from Wilderness Characteristics

No areas with wilderness characteristics are proposed under Alternative A.

Impacts from Vegetation and Fire and Fuels Management

Over the long term, restoration and vegetative treatments designed to improve ecological conditions could indirectly enhance visual resources on a localized basis. However, in the short-term, methods used to achieve improved ecological conditions could directly create visual changes to landscape form, line, color, and texture. Such impacts would range from minor to moderate, depending on scope and magnitude of treatment and the methods used. Chemical and biological methods would tend to gradually create visual contrasts that mimic natural ecological change, whereas fire and mechanical methods would create such contrasts more suddenly and noticeably. Depending on the VRM class where a particular treatment is conducted, impacts to the landscape could either meet or not meet the visual objective for the class. For example, treatments that create moderate change in VRM Class III areas would likely meet the visual standard, whereas moderate change that attracts attention in a VRM Class I or II area would not. Under Alternative A, the amount of acreage that could be treated in each ecological zone would not be limited; theoretically and with sufficient funds, widespread landscape change could occur if all acres needing treatment in the Planning Area were treated. Under this extreme, impacts would be major, although this scenario is very unlikely. The possibility of localized, moderate to major impacts would be reduced by prohibiting chaining and other methods that cause substantial surface disturbances resulting in visual landscape changes in VRM Class I and II areas. Depending on location, the application of seasonal restrictions, temporary reductions, or elimination of other authorized activities in some vegetation treatment areas could directly reduce opportunities for the public to view some scenic resources. Ongoing cleanup of the

abandoned equipment and materials at Pakoon Springs would indirectly improve visual quality in the area over the long term.

Under the current wilderness management plan, within the Mt. Trumbull Wilderness, wildland fire would be the only treatment method considered for the ponderosa pine atop Mt. Trumbull forest, which has the potential for minor impacts to visual resources in that area. Large fire management camps using artificial lighting could directly affect night sky conditions on a localized, short-term basis. The ongoing application of minimum impact suppression tactics and minimum tool policy for fire operations in wilderness and NPS-proposed wilderness areas would indirectly contribute to maintaining landscape character in these areas.

Impacts to visual resources from prevention and mitigation programs aimed at reducing unwanted ignitions in wildland fire use and non-wildland fire use areas would be similar to those described above for vegetative treatments. However, actions related to prevention could reduce human-caused ignitions and related visual impacts caused by fire. Impacts would range from minor to moderate. Post fire rehabilitation methods, such as seed drilling, mulching, netting, or hydroseeding, could directly result in localized visual contrasts. Impacts would be minor to moderate in the short term, but become negligible in the long term. Wildland fires and prescribed fires would result in smoke, causing short-term minor to moderate impacts on visual resources, including the night sky. Such fires would also affect visual resources due to increased vehicle traffic, fire lines, and the contrast between burned and unburned areas. The latter could vary in size from a few acres to tens of thousands of acres.

Noxious weeds could affect visual resources to a minor degree by replacing native vegetation and creating changes in existing landscape form, color, or texture. Attempts to control or eliminate noxious weeds would reduce such impacts. This impact would not apply to areas along the Paria River as no removal efforts would be applied to this area. In Parashant and Arizona Strip FO, visual impacts created by the localized, small-scale collection or use of vegetative materials would be negligible; however, any vegetation removal associated with larger-scale research or restoration efforts could produce impacts similar to those described above for mechanical vegetative treatments. This impact would not apply to Vermilion as the Monument would be closed to the sale of vegetative products.

Impacts from Soil, Water, and Air

Soil: Placing restrictions and guidelines on surface disturbing and reclamation activities in all three planning areas under Alternative A, and requiring the removal of facilities or improvements no longer necessary and reclaiming such sites, would mitigate visual contrasts created by a variety of resource management projects. Impacts would be localized, both short and long term, and range from moderate to major. Actions to improve riparian and watershed condition in areas of moderate to severe erosion would affect visual resources in a manner similar to those described under Impacts from Vegetation and Fire and Fuels Management.

Water: Over the long term, avoiding floodplain occupancy and development in all three planning areas would moderately reduce the potential for creating localized visual contrasts in the existing landscape. However, it would also reduce the possibility for developing recreation sites that could enhance the public's opportunity to view scenic, riparian resources.

Air: Requiring the mitigation of impacts from fugitive dust during surface disturbing projects would help maintain visual resource conditions.

Impacts from Fish and Wildlife

Under Alternative A, existing public access for hunting and wildlife viewing opportunities would be preserved. Maintaining the Mt. Trumbull Watchable Wildlife Area in Parashant would continue to attract visitors for the purpose of viewing wildlife in their natural settings. Rudimentary facilities could be developed in this Watchable Wildlife area and result in localized, long-term impacts to visual resources ranging from negligible to minor. No impacts from Watchable Wildlife areas would occur in Vermilion or the Arizona Strip FO as no such areas would be maintained.

Restoring native wildlife populations could result in larger wildlife populations that may occasionally over-utilize vegetation on a localized, short-term basis, creating a visual contrast that would be negligible to minor. Constructing and/or modifying of wildlife water developments would create visual contrasts with surrounding landscapes. Impacts would be localized and long-term and range from minor to moderate, depending on the placement, design, and use of native materials and the area's VRM class designation. Placing a priority on maintaining existing facilities over constructing new facilities would reduce the potential for affecting visual resources at new sites. Impacts would be long term and localized, and range from minor to moderate. Limiting fence construction in pronghorn habitat would cause a minor reduction in the potential for new impacts to visual resources.

Impacts from Special Status Species

The protective management prescribed for special status species (including those relating to riparian habitats, ACECs, and non-ACEC habitats) would generally complement the maintenance of landscape character and the conservation of visual resources. Restoration measures that involve surface- or vegetation-disturbing components, however, would create noticeable contrast or reduce scenic quality ratings. Such impacts would be direct and short term, and could range from minor to moderate, depending on the type of treatment/restoration and the amount of change that it would cause to existing landscape form, line, color, or texture. Reducing or restricting public access in special status species habitats could reduce public opportunities to view some scenic resources. Impacts would be direct and long term, and could range from negligible to moderate, depending on the type and location of the restriction and its overlap with known scenic viewing locations.

Impacts from Visual Resources

Under Alternative A, designated wilderness areas would continue to be designated VRM Class I, which would provide long-term maintenance of existing landscape character and viewing opportunities. Any future wilderness or wild and scenic river designations made by Congress would result, by policy, in the affected lands being automatically designated VRM Class I. This would represent a shift from existing combinations of Class II, III, and IV areas to the highest visual management standard, preserving existing landscape character.

Use of the VRM contrast rating process would continue to provide site-specific visual analysis of proposed surface-disturbing activities to ensure that such projects meet visual objectives in project areas through design features and/or mitigation. Both short-term and long-term, indirect effects would accrue over the life of the Plan as management practices are constrained by the contrast rating process to sustain or enhance visual landscapes. Research design proposals would be required to mitigate impacts to scenic quality and conform to the designated VRM class objectives. Under Alternative A, actions to restore natural conditions or appearance in areas already modified may succeed on a localized basis, reducing some visual contrast in the long term.

Under Alternative A, no special provisions would be made to manage, reduce, or preclude actions or facilities that contribute to unnatural night sky conditions. In the long term, this could result in the production of artificial light sources that could affect night skies.

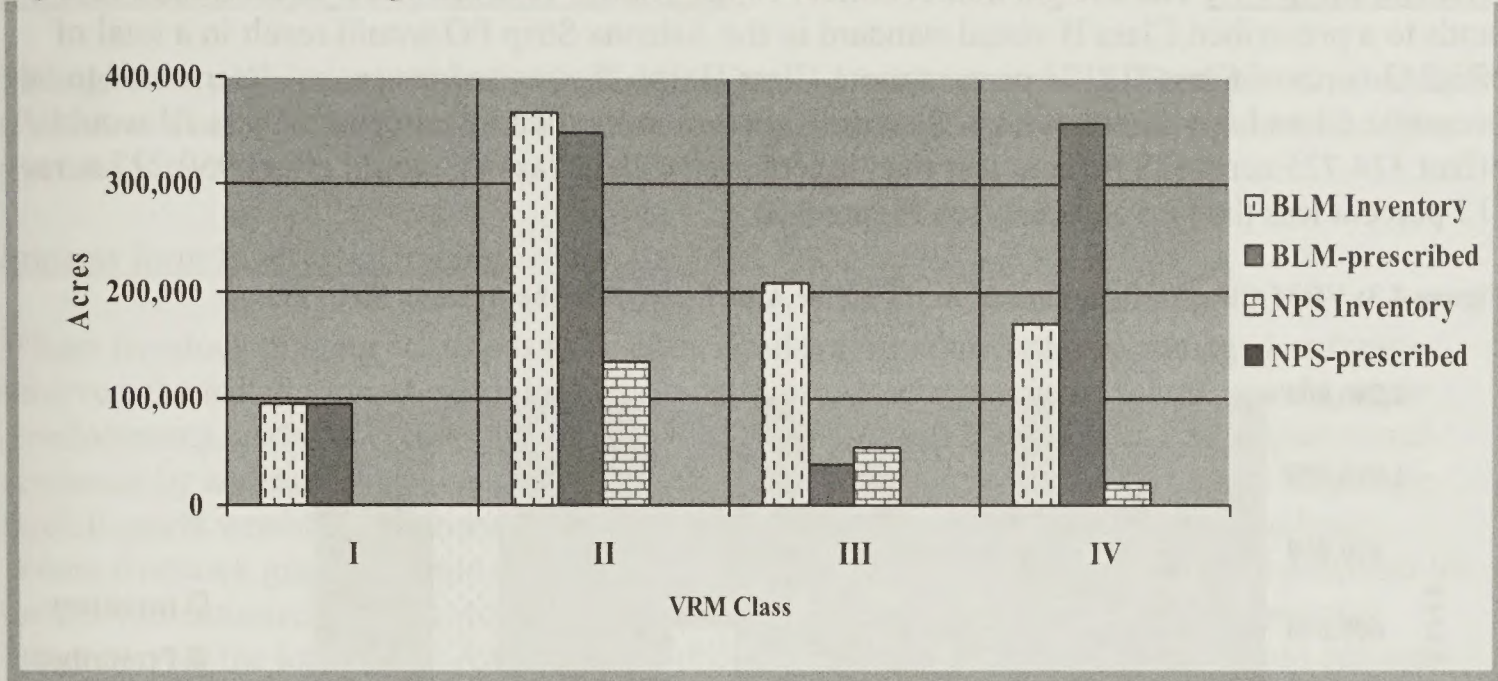
Under Alternative A, current VRM classes in all three planning areas as assigned to BLM lands in the 1992 Arizona Strip RMP would continue. NPS lands in Parashant would remain unassigned. However, in the long term, NPS wilderness management practices would indirectly continue to maintain inherent visual values on the majority of the NPS portion of the Monument. Specific impacts to each of the three planning areas relating to specific VRM class designations are presented below:

Parashant: In the Mt. Trumbull and Parashant RCAs, visual resources would receive a minor commitment of lands with Class III and IV values to a more protective Class II management standard, which would retain the existing character of the landscapes and, generally, allow natural processes to be major agent of change to existing landscapes. Over time, landscapes in Parashant would appear more natural as the signs of management activities become less obvious. The overall commitment to a Class II visual standard on BLM lands under Alternative A would be about 5 percent less than the revised inventory determined to be present (see Figure 4.1).

Under Alternative A's VRM class designation, 81 percent of lands with Class III inventory values in the Pakoon Basin, Poverty Mountain, and southern Shivwits Plateau and 5 percent of lands with Class II inventory values in the Hobble Canyon, Tweed Points, Jump Canyon and Hidden Hills, would primarily be managed under Class IV visual standard. The long-term, indirect result could involve major visual changes allowed to the landscape on up to 339,897

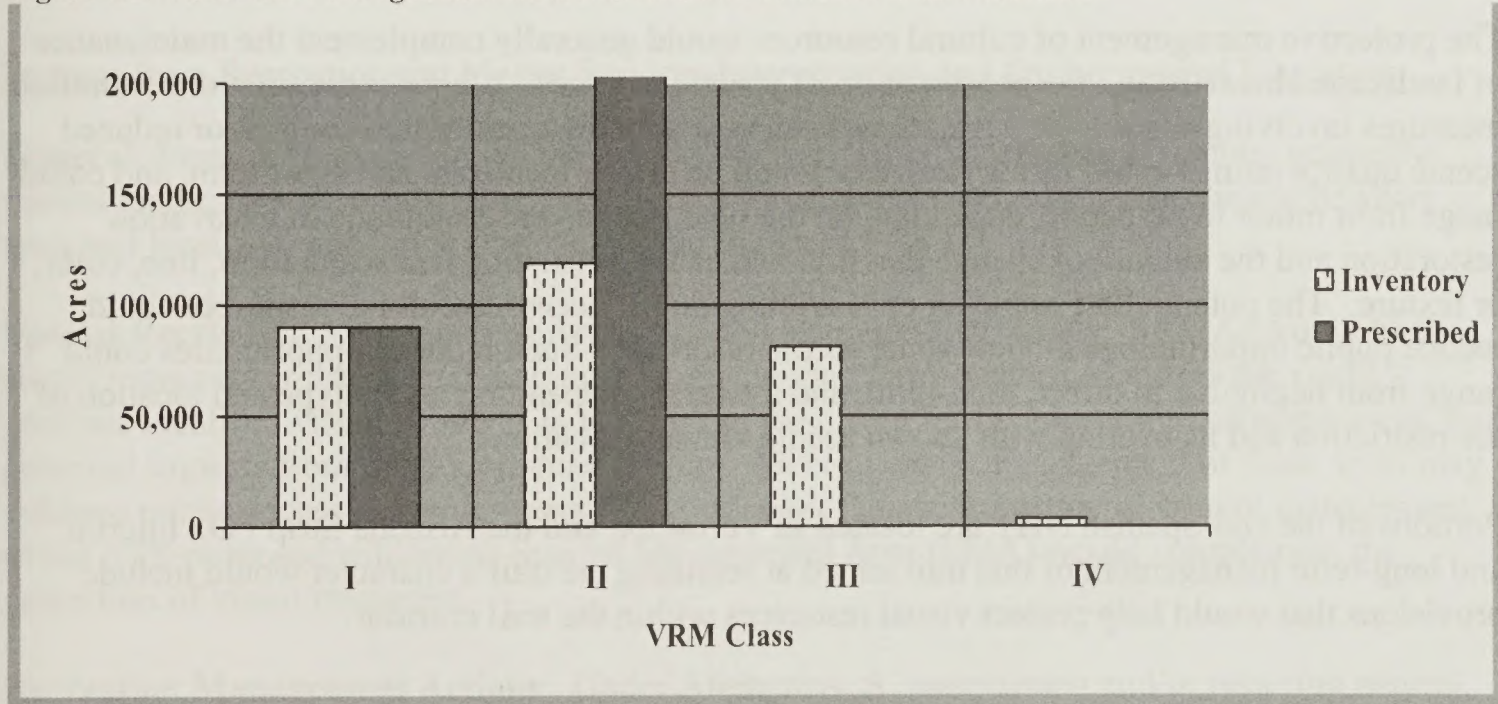
acres, which is 108 percent more than current VRI conditions indicate are present for Class IV values (see Figure 4.1). Impacts could increase by potentially allowing more activities resulting in major modifications of the existing landscape character to dominate certain views, limit some public viewing opportunities, and reduce scenic quality; however, such impacts would be minimized to the extent possible through careful project location, minimal disturbance, and project design that would repeat the basic landscape elements.

Figure 4.1: VRM Class Designations in Acres under Alternative A in Parashant



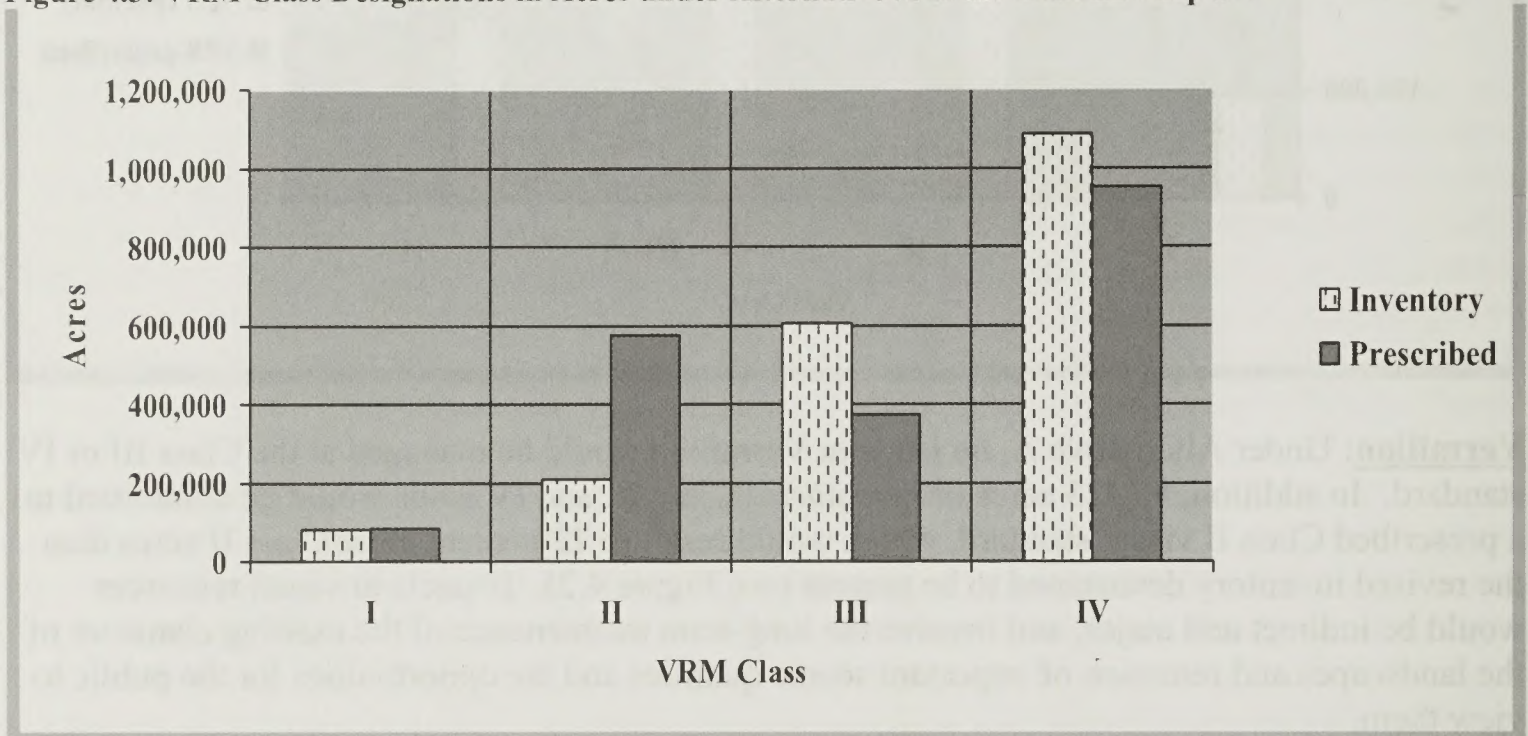
Vermilion: Under Alternative A, no lands in Vermilion would be managed at the Class III or IV standard. In addition, 85,223 acres of inventoried Class III and IV lands would be committed to a prescribed Class II visual standard, which would result in 72 percent more Class II acres than the revised inventory determined to be present (see Figure 4.2). Impacts to visual resources would be indirect and major, and involve the long-term maintenance of the existing character of the landscapes and retention of important scenic qualities and the opportunities for the public to view them.

Figure 4.2: VRM Class Designations in Acres under Alternative A in Vermilion



Arizona Strip FO: The designation of almost 364,380 acres of inventoried Class III and IV lands to a prescribed Class II visual standard in the Arizona Strip FO would result in a total of 573,243 acres of Class II (174 percent more Class II than the revised inventory determined to be present). Class I would affect 82,828 acres (3 percent more than inventoried); Class III would effect 374,725 acres (38 percent less than inventoried); and Class IV would effect 950,227 acres (12 percent less than inventoried; see Figure 4.3).

Figure 4.3: VRM Class Designations in Acres under Alternative A in the Arizona Strip FO



Impacts from Cultural Resources

The protective management of cultural resources would generally complement the maintenance of landscape character and the conservation of visual resources. Where excavation or restoration measures involving surface- or vegetation-disturbing activities, noticeable contrast or reduced scenic quality ratings could result. Impacts would be direct, localized, and short term, and could range from minor to moderate, depending on the type, scope, and magnitude of excavation/restoration and the amount of change that it would cause to existing landscape form, line, color, or texture. The potential for reducing or restricting public access to cultural resources could reduce public opportunities to view some scenic resources. Such reduced opportunities could range from negligible to direct, long-term, and moderate, depending on the type and location of the restriction and its overlap with known scenic viewing locations.

Portions of the Old Spanish NHT are located in Vermilion and the Arizona Strip FO. Interim and long-term management of this trail aimed at retaining the trail’s character would include provisions that would help protect visual resources within the trail corridor.

Impacts from Special Designations (Wilderness)

Management policies associated with BLM designated wilderness and NPS proposed wilderness (Parashant only) would contribute to preserving existing landscape character to a major degree over the long term.

Impacts from Livestock Grazing

Where livestock grazing continues to be authorized and/or allotments are managed as forage reserves, the installation of additional fences or livestock improvements (cattle guards, water developments, and roads necessary to access improvement sites) could directly impact visual resources by adding forms, lines, colors, and textures not found in the surrounding landscape. Such impacts would be localized, long term, and could range from negligible to moderate. Where livestock grazing would not be available on 199,350 acres in Parashant, the potential for the abovementioned impacts would be eliminated, effectively maintaining visual resource integrity over the long term. Any removal of livestock facilities in these areas would enhance visual resources in the long term by bringing the area back into its natural or near-natural condition. Moderate to heavy utilization of forage where livestock numbers are concentrated would create contrasts that would be noticeable to the casual observer. These impacts would typically be long term, direct, localized, and range from minor to moderate. The duration of such impacts would be reduced on 144,023 acres in the Arizona Strip FO where season of use restrictions would be instituted under Alternative A. Implementing the Arizona Standards for Rangeland Health on both BLM and NPS lands and maintaining Vital Sign resources in good condition or improving status on NPS lands would increase the potential for directly improving or enhancing visual resources. Impacts would be widespread, long term, and range from minor to moderate.

Impacts from Recreation and Visitor Services/Interpretation and Environmental Education

General: Impacts from relying on the maintenance and/or enhancement of remote, generally natural landscapes to sustain a variety of recreation activities and experiences would be short term and localized, and range from negligible to minor.

Special Recreation Management Areas/Special Management Areas: SRMAs would likely attract more visitor use to the Planning Area in the long term. Increased visitor use could generate localized visual contrasts in the form of dust from traffic, changes to camping areas, and potential impacts from illegal, off-road driving. More intensive management of these areas may enhance public access to scenic views and overlooks. The continuation of current management of the NPS-proposed wilderness Special Management Area (SMA) would complement the protection of visual resources.

Recreation Management Actions: Under Alternative A, maintaining and/or restoring natural, remote settings would help preserve visual landscapes over the long term. Current recreation management decisions aimed at minimizing signing in Area B, focusing the few recreation-

related facilities in roaded-natural portions of Area A, and signing to minimize OHV damage would complement protection of visual resources. The placement and design of recreation developments, facilities, and projects could contrast with the natural landscape, although they would be planned to minimize any potential contrasts and to meet the VRM objectives of the area, thus reducing impacts.

Recreation Monitoring: Establishing recreation carrying capacities could reduce recreation-related impacts to visual resource and reduce the potential of new impacts. Impacts would be indirect and range from negligible to minor.

Recreation Marketing: Providing information to visitors regarding recreation opportunities, interpretation of natural and human history, and specific rules and regulations would continue to improve land-use behaviors that are compatible with visual resources. Impacts would be direct and range from negligible to minor.

Recreation Administration: Dispersed recreation activities would create fewer impacts to visual resources than more intensive, concentrated recreation uses. Closing and/or rehabilitating undeveloped sites would restore the visual resources of those sites. Placing limits/restrictions on camping, recreation activities in sensitive areas, motor speed events, and competitive events would reduce recreation-related impacts on visual resources. Impacts would be long term. Requiring the use of weed-free feed for recreational stock would continue to reduce the potential for visual contrasts created by noxious weed infestations. Continuing visitor use limits in Paria Canyon and Coyote Buttes (Vermilion only) would complement the maintenance of visual resource conditions by reducing the potential for visual impacts attributable to larger numbers of visitors at-one-time at popular attraction sites.

Impacts from Lands and Realty

Management prescriptions related to acquisition, retention, and withdrawals, especially within the Monuments, would generally complement the maintenance of existing landscape character and public opportunities to view visual resources. Land use authorizations involving new surface- or vegetation-disturbing components, primarily restricted to the Arizona Strip FO, would result in direct, localized, short- and long-term impacts, which could include a reduction in scenic quality ratings. Such changes could range from minor to moderate, depending on the type of authorization and the amount of change it would cause to existing landscape form, line, color, or texture.

In the Arizona Strip FO, up to 25,188 acres could potentially leave Federal ownership through various forms of disposal. The potential for the loss of public viewing of scenic resources on these lands would be low. However, development of disposed lands could create minor to major, long-term, direct, localized visual contrasts with the surrounding landscape.

Alternative BImpacts from Travel Management

Impacts from OHV closed area designations and prohibitions on new road construction would be similar to those described under Alternative A in the Monuments. Differing from Alternative A, TMAs would be identified under Alternative B. The Rural TMA would only apply to the Arizona Strip FO. Management of visual resources on 9 percent of this planning area in the Rural TMA would range from retaining the existing character of the landscape and scenic backdrops or settings for communities to providing for management activities that require major modifications. Because such modifications could be evident to the casual viewer, but would usually replicate the basic elements found in the predominant natural features of the characteristic landscape, the overall impact to visual resources in the Rural TMA could be minor to moderate. Management of the Backways TMA would retain the existing character of the landscape on 9 percent of Parashant, 2 percent of Vermilion, and 14 percent of the Arizona Strip FO. Although some modifications to the landscape would occur, because such modifications would be required to blend with the surrounding landscape, the overall impact to visual resources in the Backways TMA would be minor. Impacts from managing the Specialized TMA on 4 percent of Parashant, 12 percent of Vermilion, and 40 percent of the Arizona Strip FO, would range from retaining the existing character of the landscape to allowing major modification. Because such modifications could be evident to the casual viewer, although they would usually replicate the basic elements found in the predominant natural features of the characteristic landscape, the overall impact to visual resources in the Specialized TMA could range from minor to moderate. The majority of the Monuments (86-87 percent) would be managed under the Primitive TMA, while 37 percent of the Arizona Strip FO would be managed under this TMA. Impacts within this TMA could range from preserving to providing for partial retention of the existing character of the landscape. Although some modifications to the landscape would be allowed in the Primitive TMA, such modifications would need to be unnoticeable or blend with the surrounding landscape. As a result, impacts to visual resources in the Primitive TMA would range from negligible to minor.

In the long-term, the combined total of 1,740 miles of roads open to the public and to administrative use only in Parashant and 460 such miles open in Vermilion would bring about the types of visual influences described under Alternative A, although impacts would be reduced 24 and 17 percent, respectively, with fewer miles open under Alternative B. Since the majority of the 445 miles of routes in Parashant and 179 miles of routes in Vermilion proposed for closure and rehabilitation under Alternative B would be tertiary routes where existing visual influence is generally negligible to minor, the overall long-term, indirect enhancement to visual resources would only be negligible on a localized basis and minor on a widespread basis. Impacts from actions such as rerouting and monitoring the creation of unauthorized routes and closing those found would be the same as described under Alternative A. Overall impacts from intermittent dust and to night sky conditions would also be the same as described under Alternative A, even though there would be a 64 percent reduction in roads open to the public under Alternative B in

Parashant and 61 percent reduction in Vermilion. Based on information gathered from traffic counters on several primary roads, a 71 percent increase in annual traffic is expected to occur throughout Parashant over the life of the Plan. Traffic in Vermilion is expected to increase by 405 percent. Thus, although a 61 to 64 percent reduction in public open roads under Alternative B would reduce the amount of potential traffic on all roads, the actual use of the primary roads, where the majority of traffic occurs, is expected to remain static or experience a minor to major increase over the life of the Plan. The 52 to 63 percent reduction in open roads to the public, however, would affect opportunities to view some scenic resources if critical viewing routes are closed. Impacts would be long term and range from a moderate to major. The impacts from restricting travel to designated routes, route maintenance actions, and existing and new road material sites would be the same as described under Alternative A.

Impacts in the Arizona Strip FO from implementing Alternative B would differ from the Monuments in the following ways:

- The impacts of Closed OHV area designations in designated wilderness and Marble Canyon ACEC would take place on 92,648 acres or 25 percent less than Arizona Strip Alternative A.
- The effects of the designated Travel Management system for the Ferry Swale Sub-regions would occur on 34 miles of open public roads, 14 miles of administrative-use-only roads, and 0 miles of open for non-motorized/non-mechanized use; the combined total of 48 miles perpetuate the types of visual influences already described in Alternative A, only on 8 percent fewer miles.
- The visual effects of actions related to closed routes would take place on 7 miles closed and rehabilitated in the Arizona Strip, or a 133 percent increase from Alternative A.
- The impacts related to intermittent dust, night sky conditions, and viewing opportunities described in Parashant Alternative B would be similar in Arizona Strip, though attributable to 64 percent fewer open public roads from Alternative A and to the absence of any Open OHV areas and motorized speed events.
- Pending future route designation decisions, managing 4,934 miles of existing routes as a 'preliminary route network' (within the Littlefield, St. George Basin, Colorado City, Main Street, Uinkaret, Yellowstone Mesa, Kanab Plateau, Grama Canyon, Buckskin, White Sage, and House Rock Sub-regions), would be a continuation of the existing visual influence that existing system has on the landscape.
- Use of the primary roads could increase 173 percent over the life of the plan.
- Allowing motorized-vehicles to pull off designated routes 100 feet either side of centerline in "limited" area designations, may result in short-term and long-term, direct and localized negligible to moderate visual landscape changes.

Impacts from Wilderness Characteristics

The combination of management actions and allowable uses aimed at maintaining areas having wilderness characteristics would generally complement the retention or preservation of visual resources and existing landscapes. Under Alternative B, such complementary management

would occur on 39 percent of Parashant, 33 percent of Vermilion, and 2 percent of the Arizona Strip FO, which does not include existing wilderness or NPS-proposed wilderness.

Impacts from Vegetation and Fire and Fuels Management

Localized impacts to visual resources from restoration and vegetative treatment methods would be the same as those described under Alternative A. However, impacts would be less widespread under Alternative B because only 2 to 3 percent of each of the three planning areas could be treated, which would result in a major reduction in potential impacts to visual resources compared to Alternative A (under which the entire Monument could be treated). Such treatments would also be limited to two ecological zones in Parashant and the Arizona Strip FO and one ecological zone in Vermilion, limiting the area of impact compared to Alternative A where all ecological zones could be treated. Impacts from the possible treatments proposed under Alternative B would be long-term, site-specific, and range from negligible to minor. The potential for moderate to major, short- and long-term impacts on NPS lands in Parashant would be reduced by prohibiting chaining and other methods that cause substantial surface disturbance; however, such impacts could occur on BLM lands. Potential impacts to opportunities to view some scenic resources due to possible seasonal restrictions, temporary reductions, or elimination of authorized activities in some vegetation treatment areas would be the same as described under Alternative A. Restoration efforts proposed for Pakoon Springs would have negligible impacts to visual resources in that allotment while closing the Cane Springs pasture of the Mud and Cane Allotment and removing the fencing around the spring under Alternative B would slightly enhance visual resources in the area. Restoration efforts to remove invasive plant species along the Paria River would be limited to the use of non-powered, hand tools. As a result, the scope of any one project would be minimized, and impacts would be short term and minor.

Under Alternative B, the wilderness management plan would be amended to allow for wildland fire use to be used for restoration efforts in the Ponderosa Pine forest of Mt. Trumbull, which could result in minor to moderate impacts to visual resources in the short term, and negligible to minor impacts in the long term. Because the results of management-ignited fire can emulate natural-ignition fires and natural ecological change, the use of fire to restore ecological condition and enhance wilderness character could meet VRM Class I objectives. The application of minimum impact suppression tactics and minimum tool policy for fire operations in wilderness and NPS-proposed wilderness areas would be the same as described under Alternative A.

Impacts to visual resources from prevention and mitigation programs, wildland fires, prescribed fires, and post fire rehabilitation methods and efforts would be the same as described under Alternative A, as would impacts to night sky conditions from operating large fire management camps.

Impacts to visual resources from noxious weed prevention/elimination would be the same as described under Alternative A, as would research/restoration-related use of vegetative materials, but only on the acres described above for restoration treatments.

Impacts from Soil, Water, and Air

Impacts from Air, Water, and Soil would be the same as described under Alternative A, with the exception that, under the soils program, impacts from watershed improvements/treatments would primarily be localized in the Upper Lang's Run, Black Rock Mountain, Upper Parashant, Lower Hurricane Valley, Fort Pearce Salinity Area, Clayhole Flood Control Structures Area, and Wild Band Valley watersheds in Parashant and/or Arizona Strip FO. Riparian and watershed improvements/treatments would be considered for all watersheds in Vermilion, which would affect visual resources in a manner similar to general impacts that would stem from vegetation management.

Impacts from Fish and Wildlife

Impacts would be the same as described under Alternative A, with a few exceptions. Under Alternative B, public access for hunting and wildlife viewing opportunities could be greatly reduced by route designation decisions. No new water developments or improvements would occur on NPS lands in Parashant, preventing the creation of new visual contrasts related to such developments. In addition, fences not necessary for range management or other administrative purposes would be removed under Alternative B, which would improve visual landscape conditions. Finally, in the Arizona Strip FO, protective management prescribed for Bighorn Sheep ACECs would generally complement retention of visual resources on 48,076 acres or two percent of the Arizona Strip. Impacts would be long term and localized, ranging from minor to moderate.

Impacts from Special Status Species

Overall impacts would be the same as described under Alternative A.

Impacts from Visual Resources

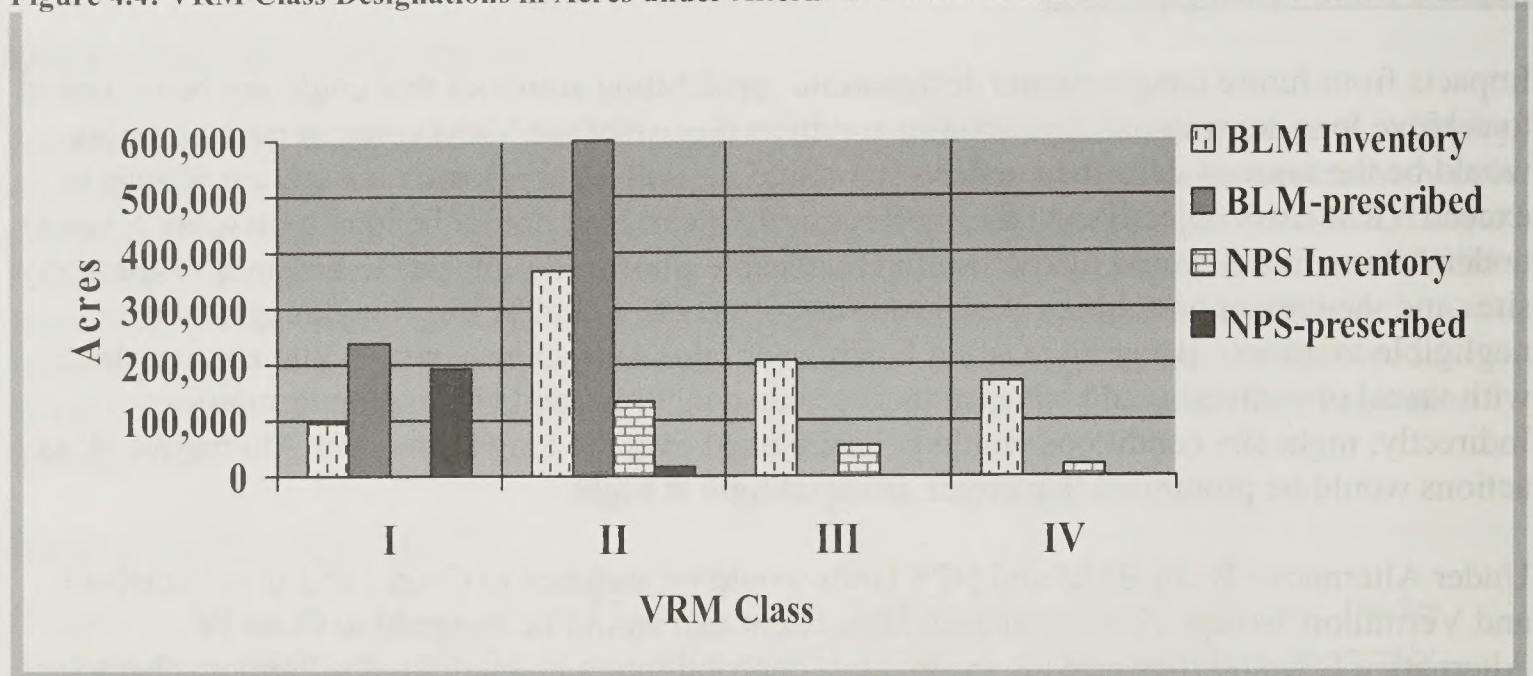
Impacts from future congressional designations, prohibiting activities that could not be mitigated to achieve long-term visual objective(s), and from the use of the VRM contrast rating process would be the same as described under Alternative A. Allowing research/restoration actions to exceed VRM class objectives in the short term (0-5 years) but not in the long term (over 5 years) under Alternative B would likely result in noticeable, short-term impacts to research/restoration sites and viewing opportunities near those sites. Impacts would be direct and range from negligible to minor. Bringing existing facilities or other landscape contrasts into conformance with visual objectives would enhance local scenic conditions and viewing opportunities. Indirectly, night sky conditions would be maintained over the long term under Alternative B, as actions would be prohibited that create artificial light at night.

Under Alternative B, all BLM and NPS lands would be assigned to Class I and II in Parashant and Vermilion, except 12 acres in each Monument that would be assigned to Class IV. Alternative B would thus provide the greatest contribution to maintaining the "remote character" of the Monuments. How impacts to each of the three planning areas relating to specific VRM class designations under Alternative B compare to Alternative A are presented below:

Parashant: The types of impacts to visual resources from designating VRM Class I under Alternative B would be similar to those described under Alternative A, albeit more widespread as roughly 32 percent more of the Monument would be designated to this VRM Class, including all 190,478 acres of NPS-proposed wilderness lands and 145,084 acres identified with wilderness characteristics.

Designating the remainder of the Monument as VRM Class II (except 12 acres as Class IV) would represent a 64 percent increase over the inventoried Class II BLM lands compared to Alternative A, and an 87 percent decrease from the inventoried NPS Class II lands (those lands would be designated VRM Class I, as discussed above; see Figure 4.4). The types of impacts from VRM Class II designations would be similar to those described under Alternative A, although more widespread as 77 percent more lands would be designated VRM Class II under Alternative B. Impacts to visual resources would be indirect and major, and involve the long-term conservation of landscapes and retention of important scenic qualities and the opportunities for the public to view them. Additionally, under Alternative B, visual resources on 59 percent of the Monument with inventoried Class III and IV values would be managed under VRM Class I and II, which would provide long-term maintenance of the existing character of the landscape.

Figure 4.4: VRM Class Designations in Acres under Alternative B in Parashant



Vermilion: Under Alternative B, 42 percent more of the Monument would be designated VRM Class I compared to the total acres of identified VRI Class I lands. Designating the remainder of the Monument to VRM Class II would represent a 40 percent increase over the inventoried Class II lands, although this would represent a decrease compared to Alternative A, as those lands would be designated VRM Class I and thus experience more long-term conservation/retention of the existing landscape. Additionally, visual resources on 29 percent of the of the Monument with inventoried Class III and IV values would be managed under VRM Class I and II, which would provide long-term maintenance of the existing character of the landscape. The remaining 12 acres are where the various existing mineral material sites are located and would be assigned to Class IV, which would allow for localized, moderate, and long-term visual contrast. Figure 4.5 illustrates the VRM Class designations under Alternative B in Vermilion.

Arizona Strip FO: Under Alternative B, 11 percent more would be designated VRM Class I compared to Alternative A, which would be 13 percent more than the total acres of identified VRI Class I lands. The additional acreage is associated with some areas having wilderness characteristics. The designation of 437,256 acres to a Class II VRM standard would represent a 109 percent increase over the inventoried Class II lands and a 24 percent decrease from Alternative A. The designation of 1,379,468 acres to a Class III VRM standard would represent a 128 percent increase over the inventoried Class III lands and a 268 percent increase from Alternative A. The designation of 72,803 acres to a Class IV standard would represent a 93 percent decrease from the inventoried Class IV lands and Alternative A. Figure 4.6 illustrates the VRM Class designations under Alternative B in the Arizona Strip FO.

Figure 4.5: VRM Class Designations in Acres under Alternative B in Vermilion

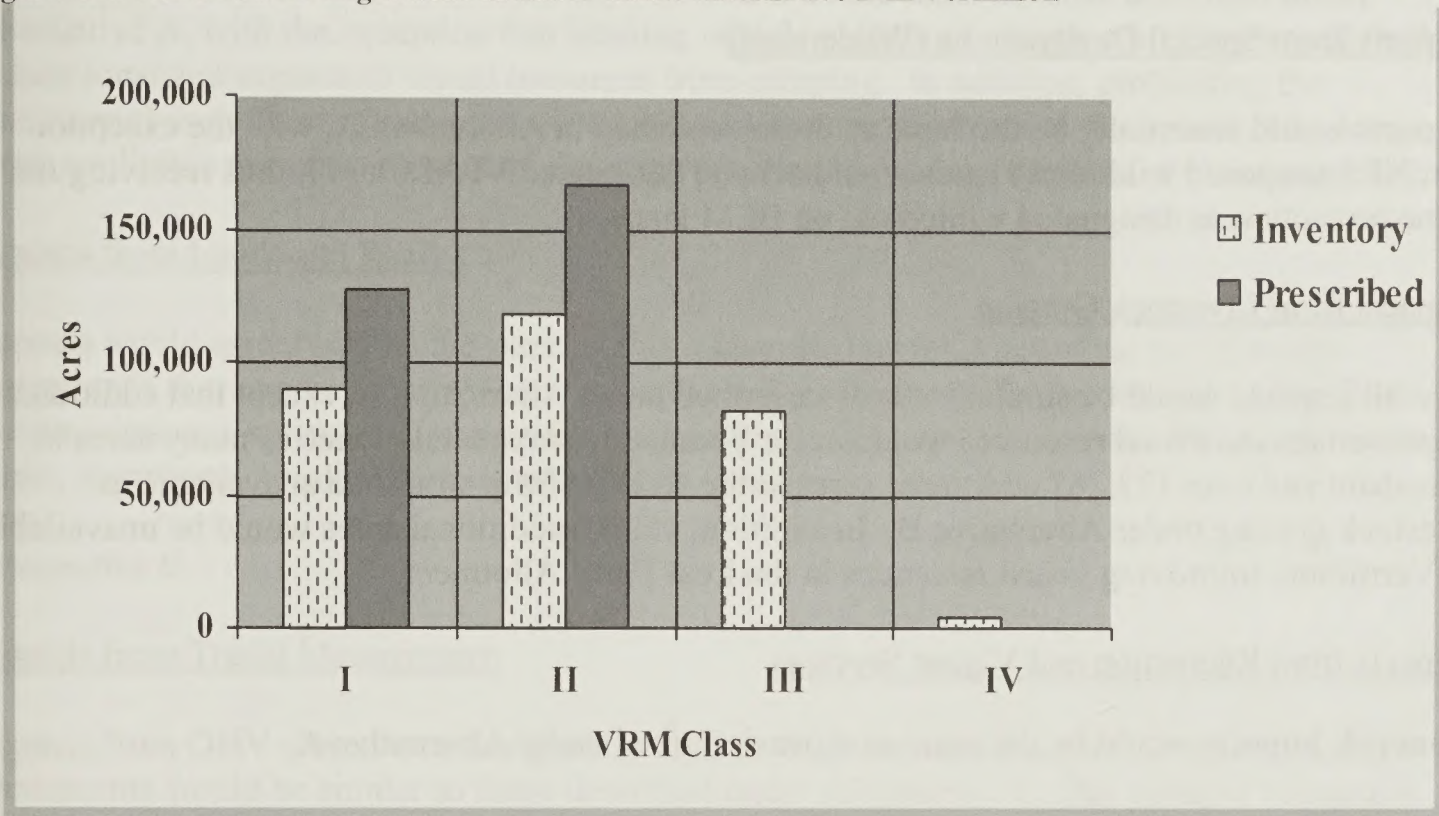
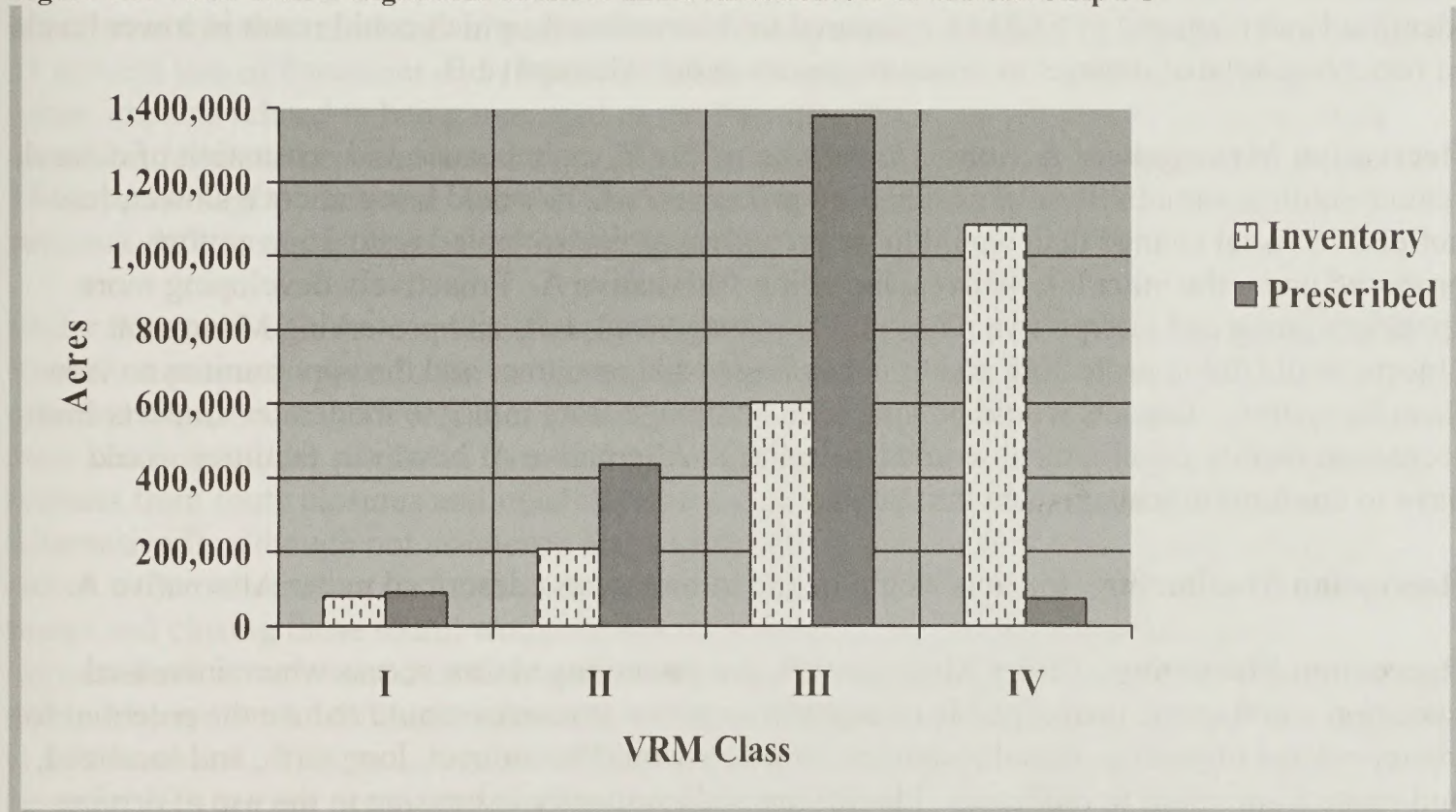


Figure 4.6: VRM Class Designations in Acres under Alternative B in Arizona Strip FO



Impacts from Cultural Resources

Overall impacts would be the same as described under Alternative A.

Impacts from Special Designations (Wilderness)

Impacts would essentially be the same as those described in Alternative A, with the exception that NPS-proposed wilderness lands would also be designated VRM Class I, thus receiving the same protection as designated wilderness on BLM lands.

Impacts from Livestock Grazing

Overall impacts would be similar to those described under Alternative A, except that additional improvements to visual resources would occur because approximately twice as many acres in Parashant and over 127,267 additional acres in the Arizona Strip would be unavailable to livestock grazing under Alternative B. In addition, 15,610 additional acres would be unavailable in Vermilion, improving visual resources in the Lees Ferry Allotment.

Impacts from Recreation and Visitor Services

General: Impacts would be the same as those described under Alternative A.

Special Recreation Management Areas/Special Management Areas: A little over one-half the acres of Monument lands and 36 percent less lands in the Arizona Strip FO would be identified and managed as SRMAs compared to Alternative A, which could result in lower levels of recreation-related impacts to visual resources under Alternative B.

Recreation Management Actions: Under Alternative B, maintenance and restoration of natural, remote settings would rely solely on natural processes, which would bring about a slower, less-noticeable visual change than would more proactive, project-oriented restoration actions proposed under the other alternatives, including Alternative A. Proactively developing more specific signing and interpretive plans tied to management units and preserving Monument objects would aid in protecting and/or enhancing visual resources and the opportunities to view them by visitors. Impacts would be long term and range from minor to moderate. Impacts from recreation facility development would be similar to Alternative A; however, facilities would have to conform to management unit goals.

Recreation Monitoring: Impacts would be the same as those described under Alternative A.

Recreation Marketing: Under Alternative B, not promoting visitor access where increased visitation could create unacceptable changes to sensitive resources would reduce the potential for visitor-related impacts to visual resources. Impacts would be indirect, long term, and localized, and range from minor to moderate. Identifying and eventually increasing in the use of driving tours routes would enhance opportunities to view scenic resources. Impacts would be direct and long term. On the other hand, increased use of driving routes would increase fugitive dust along such routes. These impacts would be direct, localized, and short term.

Recreation Administration: Overall impacts would be the same as those described under Alternative A, with the exception that limiting vehicle camping to designated sites would further reduce localized impacts to visual resources from camping. In addition, prohibiting the commercial use of horses and pack stock in Paria Canyon could reduce the potential for long-term, negligible to minor impacts to viewing opportunities and the creation of visual contrasts.

Impacts from Lands and Realty

Impacts would essentially be the same as those described under Alternative A. The only exception is that ongoing maintenance by Arizona Department of Transportation (ADOT) of existing drainage structures/areas on the north side of Highway 89A in Vermilion would create direct, short-term, localized minor to moderate visual contrasts.

Alternative C

Impacts from Travel Management

Impacts from OHV closed area designations and prohibitions on new road construction in the Monuments would be similar to those described under Alternative A. The types of impacts to visual resources from the management of TMAs would be the same as described under Alternative B, although 18 percent more of Parashant and 18 percent more of Vermilion would experience minor to moderate impacts related to being managed as the Specialized TMA, while 21 percent less of Parashant and 18 percent less of Vermilion would experience negligible to minor impacts related to being managed as the Primitive TMA. In addition, The Rural TMA would be delineated on less than 1 percent of Vermilion. Since the acres proposed for each TMA varies slightly between Alternatives B and C in the Arizona Strip FO (within +/- 2 percent), differences in impacts would be minimal.

Under Alternative C, the combined total of 1,519 miles of roads in Parashant and 446 miles in Vermilion proposed open to the public and to administrative use would be a 13 percent and 3 percent reduction, respectively, compared to Alternative A. Long-term impacts from travel on these roads would be similar to those described under Alternative A, albeit somewhat reduced. Impacts from route closures and rehabilitation would be similar to those described under Alternative B, although not as intense and widespread as only half as many routes would be closed under Alternative C. Impacts from rerouting and monitoring the creation of unauthorized routes and closing those found would be the same as those described under Alternative A. Impacts from intermittent dust and to night sky conditions would also be similar those described under Alternative A, although reduced due to the reduction in roads open to the public compared to Alternative A. This reduction would also result in minor, long-term impacts to public opportunities to view some scenic resources if critical viewing routes are closed. The impacts from restricting travel to designated routes, route maintenance actions, and existing and new road material sites would be similar to those described under Alternative A, although additional route improvement activities (e.g., grading, widening, realignment, etc.) could create localized, long-

term, minor to moderate impacts within standard maintenance widths, rather than merely within existing roadbed disturbance zones.

Impacts in the Arizona Strip FO from implementing Alternative C would differ from the Monuments in the following ways:

- The effects of the designated Travel Management system for the Ferry Swale Sub-regions would occur on 48 miles of open public roads, 5 miles of administrative use only roads, and 0 miles of open for non-motorized/non-mechanized use; the combined total of 53 miles perpetuate the types of visual influences already described in Alternative A, only on less than 1 percent fewer miles.
- The visual impacts of actions related to closed routes would take place on 2 miles closed and rehabilitated in the Ferry Swale area of the Arizona Strip, or a 71 percent decrease from Alternative B.
- The impacts related to intermittent dust, night sky conditions, and viewing opportunities described in Parashant Alternative B could be similar in the Littlefield and Ferry Swale Sub-regions, though attributable to 8 percent fewer open public roads than Alternative A.
- Use of the 1,481-acre Open OHV area designations and the larger motorized speed event area could impact visual resources with negligible to moderate amounts of airborne dust on a short-term, localized basis. The Open OHV areas could result in minor to moderate visual contrast over the long-term as unlimited off-road use creates new routes.
- The effects of a 'preliminary route network' pending future route designation decisions for applicable sub-regions would be similar to Alternative B; however, for those sub-regions or parts of sub-regions that would be within a 'limited to existing roads and trails' OHV area designation, the impacts to visual resources would be similar to those described for Parashant under Alternative A.

Impacts from Wilderness Characteristics

Overall impacts would essentially be the same as those described under Alternative B. Complementary management relating to wilderness characteristics would occur on roughly 45 and 58 percent less acres than proposed under Alternative B in Parashant and Vermilion, respectively. There would be approximately 68 percent more acres than proposed under Alternative B in the Arizona Strip FO.

Impacts from Vegetation and Fire and Fuels Management

Localized impacts to visual resources from restoration and vegetative treatment methods would be the same as those described under Alternative A. However, only 10 percent of Parashant and the Arizona Strip FO and 14 percent of Vermilion could be treated, which would be a major reduction in potential impacts compared to Alternative A (under which the entire Monument could be treated), although the potential for impacts would be greater than under Alternative B. Impacts from treating 10 – 14 percent of the Monument would be long term and minor, and be

restricted to three ecological zones on NPS lands, but more widespread on BLM lands as they would potentially occur in all ecological zones. Under Alternative C, impacts due to restrictions on chaining and other methods that cause substantial surface disturbance would be the same as described under Alternative A. Potential impacts to public opportunities to view some scenic resources due to possible seasonal restrictions, temporary reductions, or elimination of authorized activities in some vegetation treatment areas would be the same as under Alternative A. Under Alternative C, active restoration methods would be employed at Pakoon Springs, which could result in short-term, minor to moderate impacts, depending upon method used. In the long term, a restored wetland area would moderately enhance both visual quality and the opportunities for public viewing. Closing Cane Springs to grazing and installing fencing around the springs would enhance existing visual resources, while developing the site for interpretation would moderately enhance public opportunities for viewing riparian scenery. While a rest area/picnic area would further enhance such viewing opportunities, facility development to accomplish that aim could produce direct, localized, visual contrast that may not meet VRM Class II objectives. Impacts would range from minor to moderate.

Impacts to night sky conditions from operating large fire management camps would be the same as described under Alternative A. The application of minimum impact suppression tactics and minimum tool policy for fire operations in wilderness and NPS-proposed wilderness areas would indirectly be the same as described under Alternative A. Impacts to visual resources from prevention and mitigation programs and wildland fires, prescribed fires, and post fire rehabilitation methods and efforts would be the same as under Alternative A.

Impacts to visual resources from noxious weed prevention/elimination would be the same as described under Alternative A, with the exception that impacts from using non-motorized hand tools to remove invasive weeds along the Paria River would be the same as described under Alternative B. Impacts from restoration treatments at Mt. Trumbull would be the same as described under Alternative B. Impacts from research/restoration-related use of vegetative materials would be the same as described under Alternative A, but only on the acres described above for restoration treatments.

Impacts from Soil, Water, and Air

Impacts would be the same as those described under Alternative B.

Impacts from Fish and Wildlife

Under Alternative C, public access for hunting and wildlife viewing opportunities could be somewhat reduced by route designation decisions compared to Alternative A, although impacts would be not as intense as under Alternative B. The types of impacts from the management of Watchable Wildlife areas would be similar to those described in Alternative A, although more widespread as four new Watchable Wildlife areas would be identified in Parashant, one in Vermilion, and five in the Arizona Strip FO.

Impacts from management activities carried out to restore native wildlife populations would be the same as described under Alternative A. Impacts related to the construction of wildlife habitat improvement projects and fences in pronghorn habitat would be the same as those described under Alternative B.

Impacts from Special Status Species

Impacts would essentially be the same as those described under Alternative A.

Impacts from Visual Resources

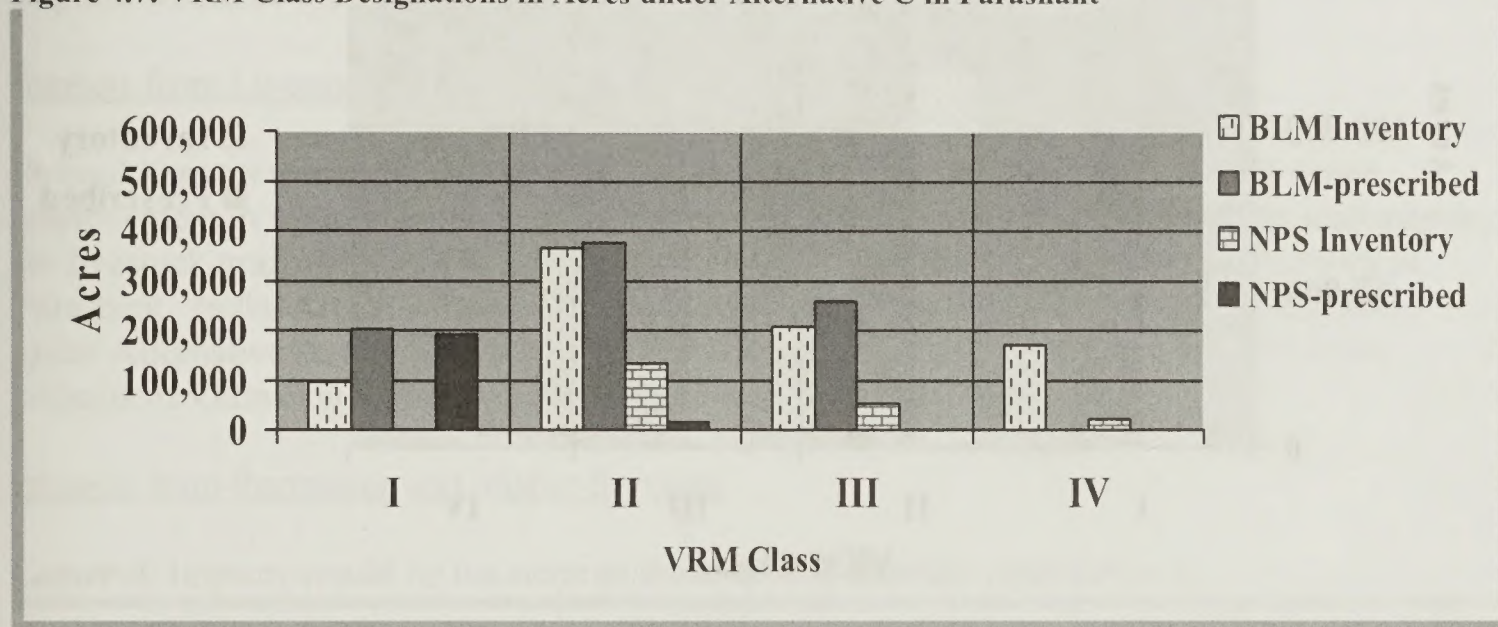
Impacts from future congressional designations of wilderness or wild and scenic rivers would be the same as described under Alternative A. Impacts from prohibiting activities that could not be mitigated to achieve long-term visual objective(s) and from the use of the VRM contrast rating process would be the same as described under Alternative A. Allowing research/restoration actions that would be allowed to exceed VRM objectives would have the same short-term effects as described under Alternative B. Under Alternative C, the requirement that new facilities not attract attention at night would directly contribute to maintaining current night sky conditions in the short-term and moderately reducing the potential for new artificial light sources in the long-term. Additionally, night sky conditions could moderately improve over the long-term through direct mitigation of existing artificial light sources in the Monument.

How impacts to each of the three planning areas relating to specific VRM class assignments under Alternative C compare to Alternative A and/or B are presented below:

Parashant: Impacts from designating VRM Class I under Alternative C would be similar to that described under Alternative B, although slightly reduced due to 8 percent fewer acres being designated in Parashant. The types of impacts to visual resources and their availability for viewing by the public would be the same as described under Alternative B; however, the overall commitment to both Class I and II visual standards under Alternative C would cover 25 percent fewer acres than proposed under Alternative B and 75 percent more than proposed under

Alternative A. As Figure 4.7 demonstrates, 32 percent more lands would be assigned to Class I and II than the VRI determined to be present. Due to the nature of the Class III objectives, existing visual resources and viewing opportunities could be affected in the short-term by management practices that have the potential to create contrast, such as certain types of vegetation treatments. Impacts would be direct and range from minor to moderate.

Figure 4.7: VRM Class Designations in Acres under Alternative C in Parashant



Vermilion: Under Alternative C for Vermilion, impacts from VRM Class I designations would be similar to those described under Alternative B, albeit on 17 percent fewer acres. Impacts from the overall commitment to both Class I and II visual standards under Alternative C would be similar to Alternatives A and B as only one percent fewer acres would be covered, which would represent 41 percent more than the VRI determined to be present (see Figure 4.8).

Arizona Strip FO: The designation of 80,760 acres to Class I would represent about the same acreage that was inventoried and two percent less acres than under Alternative A (see Figure 4.9). The designation of 202,091 acres to a Class II VRM standard would represent three percent less than the inventoried Class II lands and a 65 percent decrease from Alternative A. The designation of 1,625,409 acres to a Class III VRM standard would represent a 168 percent increase over the inventoried Class III lands and a 334 percent increase from Alternative A. The effects of a Class IV standard would be the same as described for the Arizona Strip FO under Alternative B.

Figure 4.8: VRM Class Designations in Acres under Alternative C in Vermilion

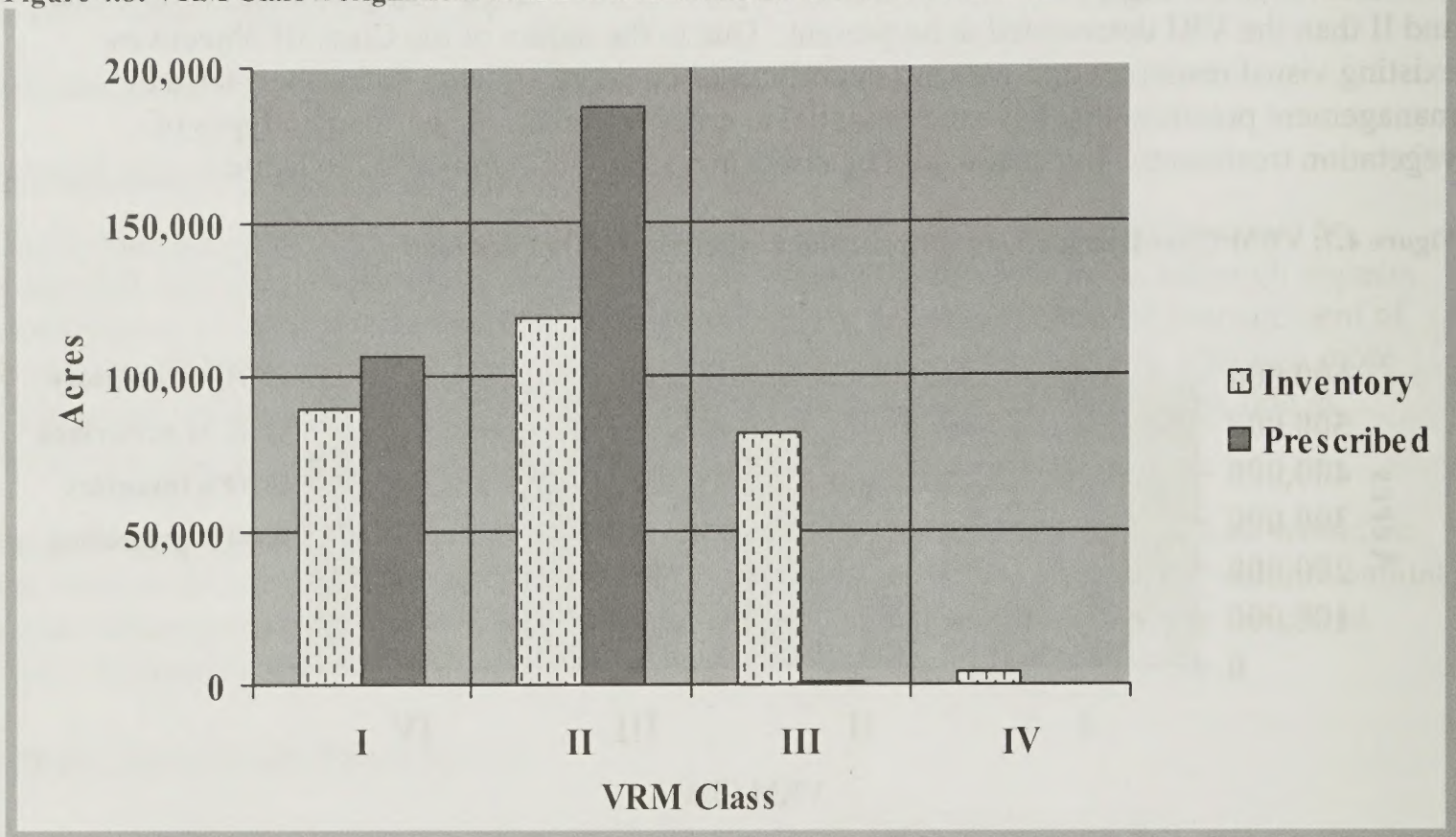
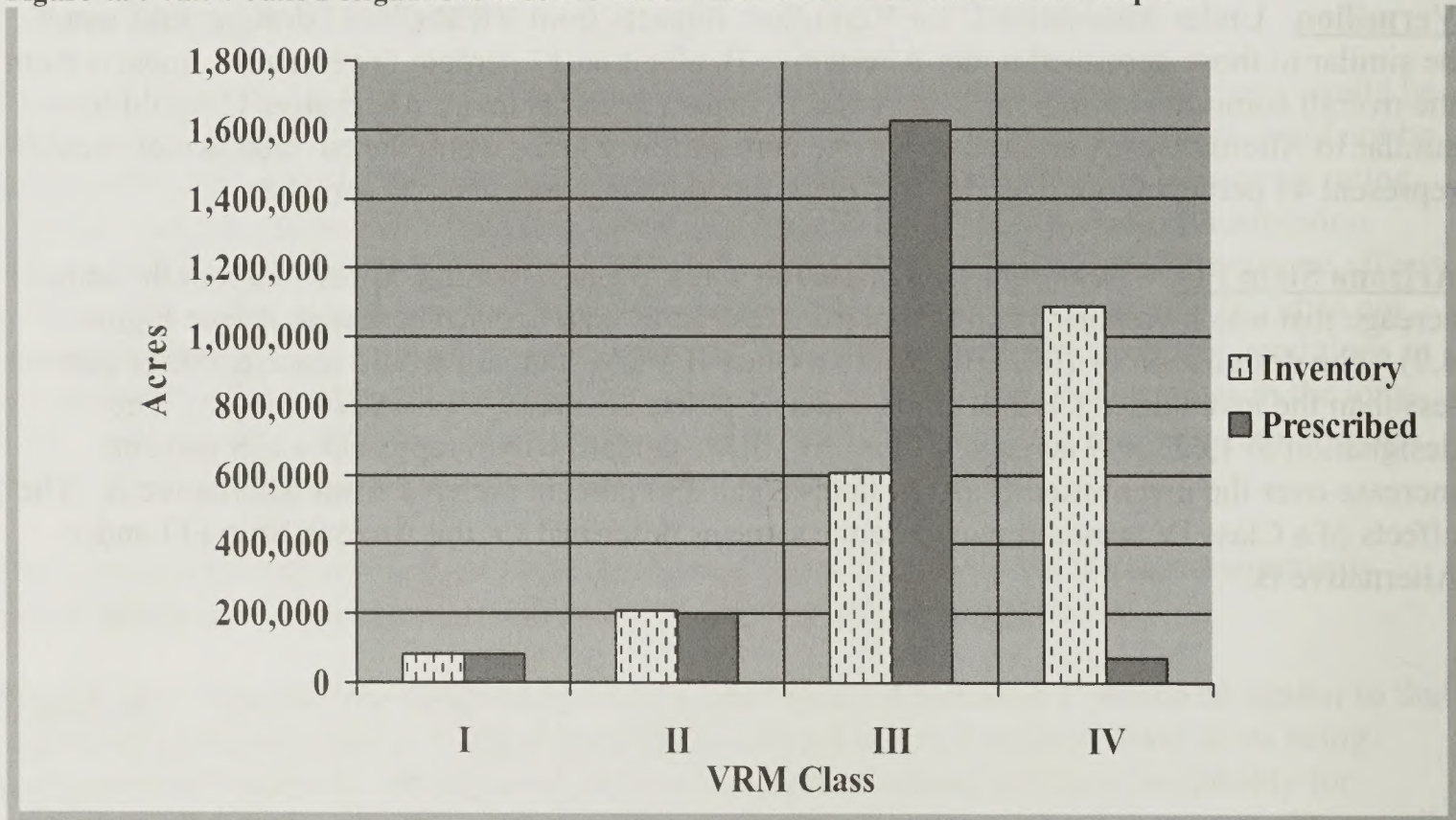


Figure 4.9: VRM Class Designations in Acres under Alternative C in the Arizona Strip FO



Impacts from Cultural Resources

Overall impacts would be the same as those described under Alternative A.

Impacts from Special Designation (Wilderness)

Impacts would be the same as those described under Alternative B.

Impacts from Livestock Grazing

Overall impacts would be similar to those described under Alternative A, although some improvement in visual quality would occur on 16 percent more acres that would be unavailable for livestock grazing and 49,113 additional acres that would receive seasonal restrictions in Parashant. In the Arizona Strip FO, impacts could occur on 0 acres unavailable for grazing under Alternative A, although seasonal restrictions would limit impacts on 151,475 acres. Impacts in Vermilion would be the same as described under Alternative A.

Impacts from Recreation and Visitor Services

General: Impacts would be the same as those described under Alternative A.

Special Recreation Management Areas/Special Management Areas: Overall impacts from SRMA identification and management would be similar to Alternative A, albeit more widespread in Parashant due to over two and a half times more acres being allocated as SRMAs. Impacts would also be more widespread in the Arizona Strip FO, as 16 percent more lands would be allocated as SRMAs. Impacts would be slightly increased in Vermilion as 227 percent more lands would be identified as SRMAs under Alternative C compared to Alternative B and remain the same when compared to Alternative A.

Recreation Management Actions: Impacts from maintenance and restoration of natural, remote settings would be similar to Alternative A. However, the possible use of active restoration projects in tandem with natural processes could create negligible to moderate visual contrast, depending on the type of method chosen. The impacts of the remaining recreation management actions would be similar to Alternative B.

Recreation Monitoring: Overall impacts would be similar to those described under Alternative A, with the exception that using the LAC model could increase potential for timelier, appropriate response to recreation-caused resource impacts that affect visual resources.

Recreation Marketing: Impacts would be the same as those described under Alternative B.

Recreation Administration: Overall impacts would be the same as those described under Alternative A, with the exception that possible extensions beyond the 14-day camping limit could slightly increase impacts.

Impacts from Lands and Realty

Impacts would essentially be the same as those described under Alternative A for Parashant and the Arizona Strip FO, but similar to Alternative B for Vermilion.

Alternative D

Impacts from Travel Management/Transportation Facilities

Impacts from OHV closed area designations and prohibitions on new road construction in the Monuments would be similar to those described under Alternative A. In Vermilion and the Arizona Strip FO, the types of impacts to visual resources from the management of TMAs would be similar to those described under Alternative C due to similar allocations (+/- 1 percent). In Parashant, 21 percent more lands in that Monument would experience minor to moderate impacts related to being managed as the Specialized TMA compared to Alternative B (5 percent more compared to Alternative C), while 20 percent less of the Monument would experience negligible to minor impacts related to being managed as the Primitive TMA (5 percent less compared to Alternative C).

Under Alternative D, the combined total of 1,614 miles of roads proposed open to the public and to administrative use in Parashant and 467 miles in Vermilion would be a 7 percent reduction and 2 percent increase, respectively, compared to Alternative A. This would represent an increase compared to Alternatives B and C. Long-term impacts from travel on these roads would be similar to those described under Alternative A, albeit slightly reduced. Impacts from route closures and rehabilitation would be similar to those described under Alternative B, although not as intense or widespread as less than one-third (36 percent) as many routes would be closed under Alternative D in Parashant and less than a half in Vermilion. Impacts from actions such as rerouting and monitoring the creation of unauthorized routes and closing those found would be the same as described under Alternative A. Impacts from intermittent dust and to night sky conditions would also be similar to those described under Alternative A, although somewhat reduced due to a reduction in roads open to the public compared to Alternative A. The reduction would also result in a negligible, long-term impact to the public's opportunity to view some scenic resources if critical viewing routes are closed. The impacts from restricting travel to designated routes, route maintenance actions, and existing and new road material sites would be the same as described under Alternative A, with the exception that route upgrades would have to be consistent with desired management unit goals and TMA objectives, which would complement the protection of visual resources.

Impacts in the Arizona Strip FO from implementing Alternative D would differ from the Monuments in the following ways:

- The effects of the designated Travel Management system for the Ferry Swale Sub-regions would occur on 51 miles of open public roads, 3 miles of administrative use only roads, and 0 miles of open for non-motorized/non-mechanized use; the combined total of 54 miles perpetuate the types of visual influences already described under Alternative A, only on less than 1 percent fewer miles.
- The visual impacts of actions related to closed routes would take place on 1 miles closed and rehabilitated routes in the Ferry Swale Sub-regions, or a 66 percent increase from Alternative A.
- The impacts related to intermittent dust, night sky conditions, and viewing opportunities described in Parashant Alternative B would be similar in the Littlefield and Ferry Swale Sub-regions, though attributable to 11 percent fewer open public roads than Alternative A.
- Use of the 7,186-acre Open OHV area designations (385 percent larger than proposed under Alternative C) and the case-by-case consideration of motorized speed events anywhere in the Arizona Strip could impact visual resources with minor to major amounts of airborne dust on a short-term, localized basis. The Open OHV areas could result in moderate visual contrast over the long term as unlimited off-road use creates new routes.
- The effects of a 'preliminary route network' pending future route designation decisions for applicable sub-regions would be similar to Alternative B, however, for those sub-regions or parts of sub-regions that would be within a 'limited to existing roads and trails' OHV area designation, the impacts to visual resources would be similar to those described for Parashant Alternative A.

Impacts from Wilderness Characteristics

Overall impacts would essentially be the same as those described under Alternative B for Parashant and Arizona Strip FO, albeit less widespread as complementary management relating to wilderness characteristics would occur on 62 percent less acres under Alternative D. Similar to Alternative A, no areas with wilderness characteristics are proposed for management in Vermilion under Alternative D. There would be 25 percent fewer acres proposed in Arizona Strip FO under Alternative D than Alternative B.

Impacts from Vegetation and Fire and Fuels Management

Localized impacts to visual resources from restoration and vegetative treatment methods would be the same as those described under Alternative A. However, impacts would be less widespread under Alternative D, as only 20 percent of Parashant, 22 percent of the Arizona Strip FO, and 31 percent of Vermilion could be treated, which would be a major reduction in potential impacts compared to Alternative A (under which the entire Monument could be treated), but would pose a greater potential for impacts compared to Alternative B and C. Impacts from treating 20-31 percent of the three planning areas would be long-term and widespread, as some

treatments would be conducted in all ecological zones. Under Alternative D, impacts due to restrictions on chaining and other methods that cause substantial surface disturbance in VRM Class I and II areas would be the same as described under Alternative A. Potential impacts to public opportunities to view some scenic resources due to possible seasonal restrictions, temporary reductions, or elimination of authorized activities in some vegetation treatment areas would be the same as Alternative A. Impacts from restoration activities at Pakoon Springs would be similar to those described under Alternative C. In addition, developing the site for interpretation would moderately enhance public opportunities for viewing riparian scenery. While a campground/picnic area would further enhance such viewing opportunities, facility development to accomplish that aim could produce direct, localized, and minor to moderate visual contrast that may not meet VRM Class II objectives. Impacts from the continuation of grazing and the installation of fencing around upper Cane Spring would be similar to those described under Alternative A.

Potential impacts from fire-related ecological restoration activities on Mt. Trumbull would be the same as described under Alternative B. However, the “falling and bucking” of smaller diameter trees and brush adjacent to old growth trees would produce localized, short-term visual contrast that would not meet VRM Class I objectives. Initial and repetitive burning of treatment areas would consume felled trees and stumpage, reducing the visual contrast to meet Class I objectives over the long term. Impacts to night sky conditions from operating large fire management camps would be the same as under Alternative A. Impacts from minimum impact suppression tactics and minimum tool policy for fire operations in wilderness and NPS-proposed wilderness areas would be the same as described under Alternative A, as would impacts from prevention and mitigation programs and from wildland fires, prescribed fires, and post fire rehabilitation efforts.

Impacts to visual resources from noxious weed prevention/elimination would be the same as described under Alternative A, as would research/restoration-related use of vegetative materials, but only on the acres described above for restoration treatments. Impacts from using non-motorized hand tools to remove invasive weeds along the Paria River would be the same as described under Alternative B.

Impacts from Air, Water, and Soil

Impacts would be the same as those described under Alternative B.

Impacts from Fish and Wildlife

Impacts would be similar to those described under Alternative C, with the exception that the reduction in public access for hunting and wildlife viewing opportunities would not be as great when compared to Alternative A.

Impacts from Special Status Species

Impacts would essentially be the same as those described in Alternative A.

Impacts from Visual Resources

Impacts from future congressional designations of wilderness or wild and scenic rivers would be the same as described under Alternative A. The effects of prohibiting activities that could not be mitigated to achieve long-term visual objective(s) and the use of the VRM contrast rating process would be the same as described under Alternative A. Impacts research/restoration actions that would be allowed to exceed onsite VRM objectives would have the same short-term effects described under Alternative B. Impacts to night sky conditions would essentially be the same as those described under Alternative C.

How impacts to each of the three planning areas relating to specific VRM class designations under Alternative D compare to the previous alternatives is presented below:

Parashant: Under Alternative D, the types of impacts to visual resources from VRM Class I designations would be similar to that described under Alternative B and C, but on 60 percent and 53 percent fewer acres respectively. The overall commitment to both Class I and II visual standards on under Alternative D would be 28 percent less than proposed under Alternative B, 27 more than the VRI determined to be present (see Figure 4.10), and 71 percent more than proposed under Alternative A.

Vermilion: Impacts would essentially be the same as those described under Alternative A, with the exception that designating 12 total acres at various existing mineral material sites as VRM Class IV would cause long-term, localized, and moderate visual contrasts. Figure 4.11 illustrates the discrepancies between VRM classes proposed and VRI classes.

Figure 4.10: VRM Class Designations in Acres under Alternative D in Parashant

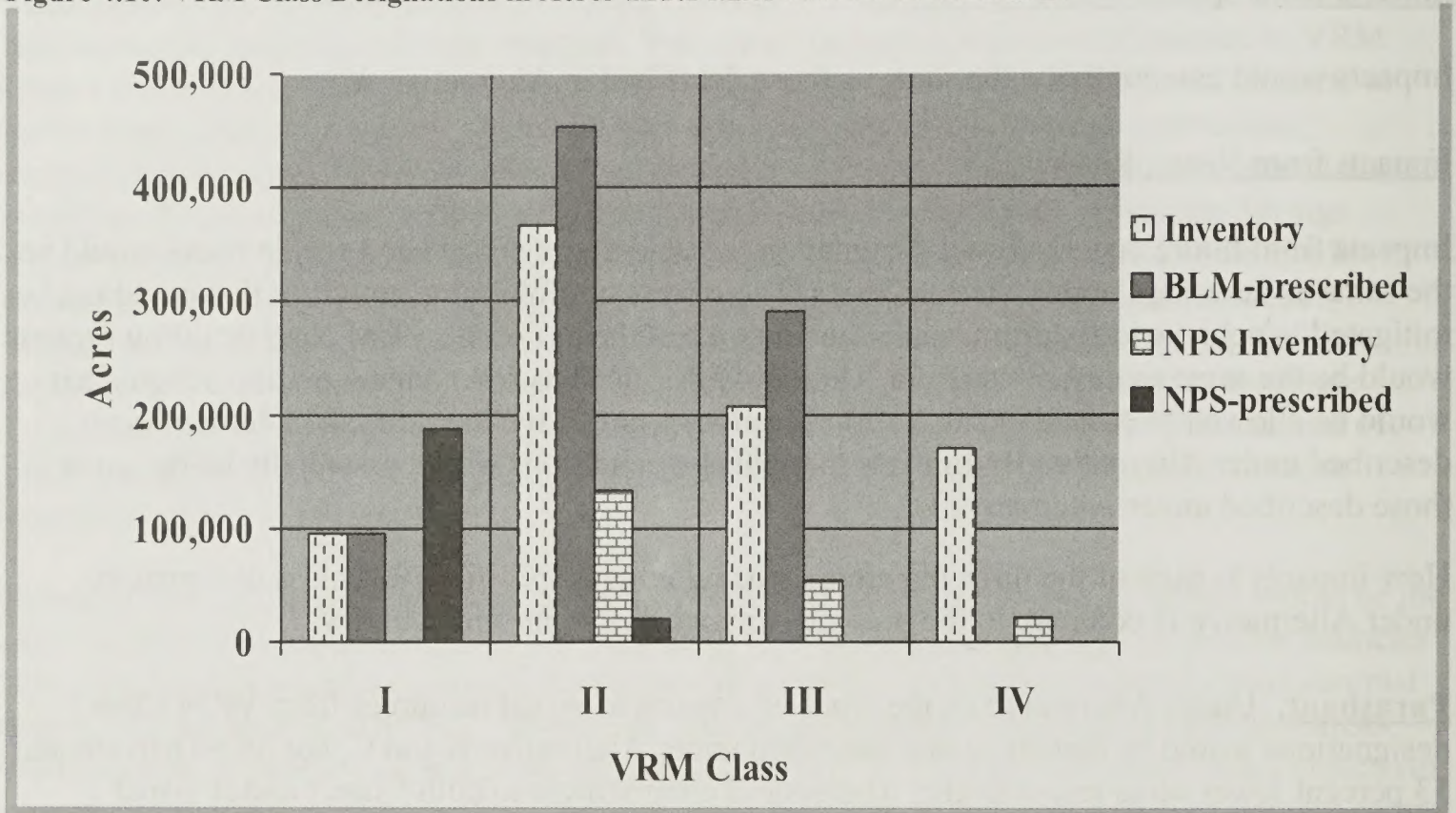
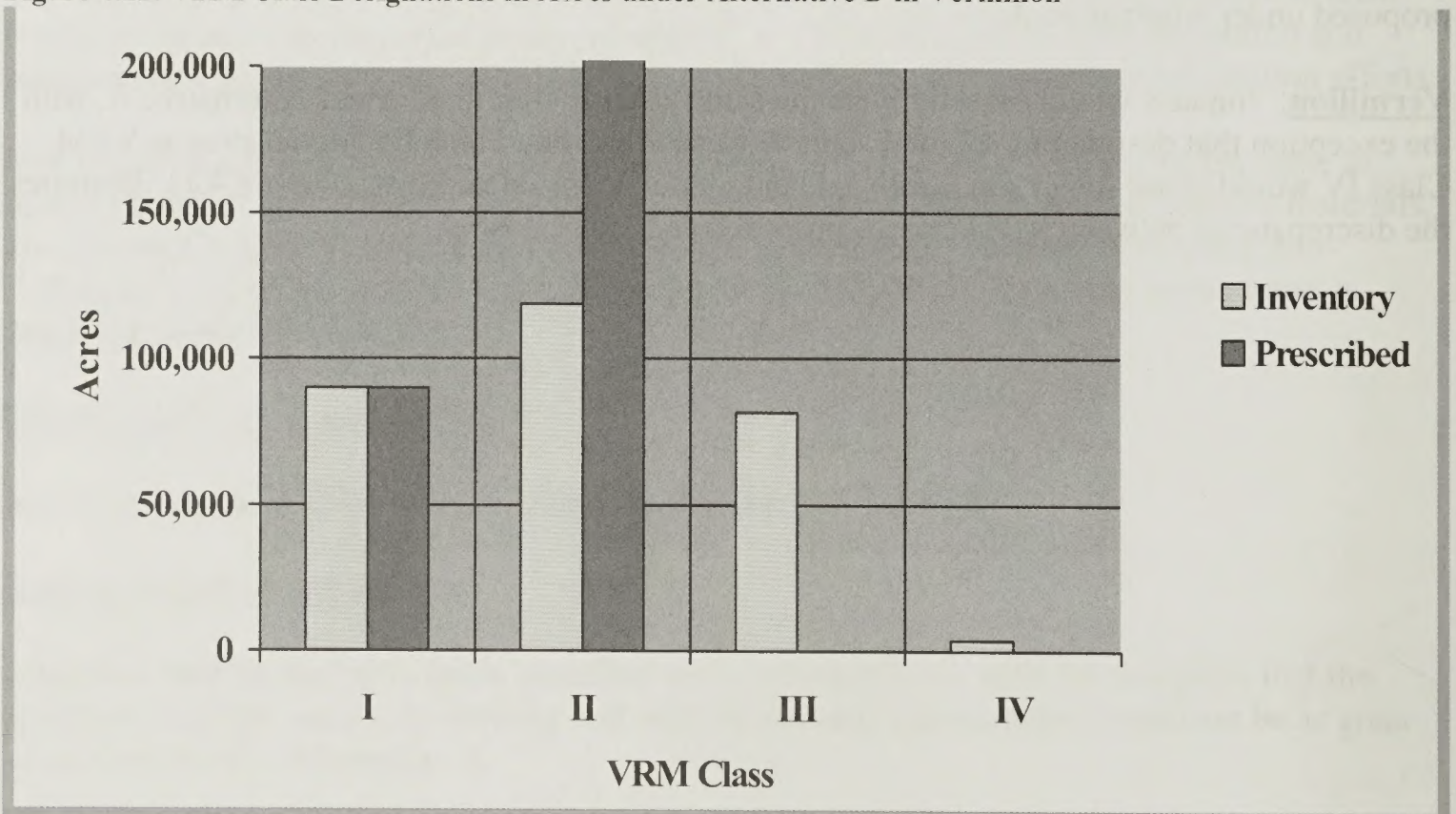
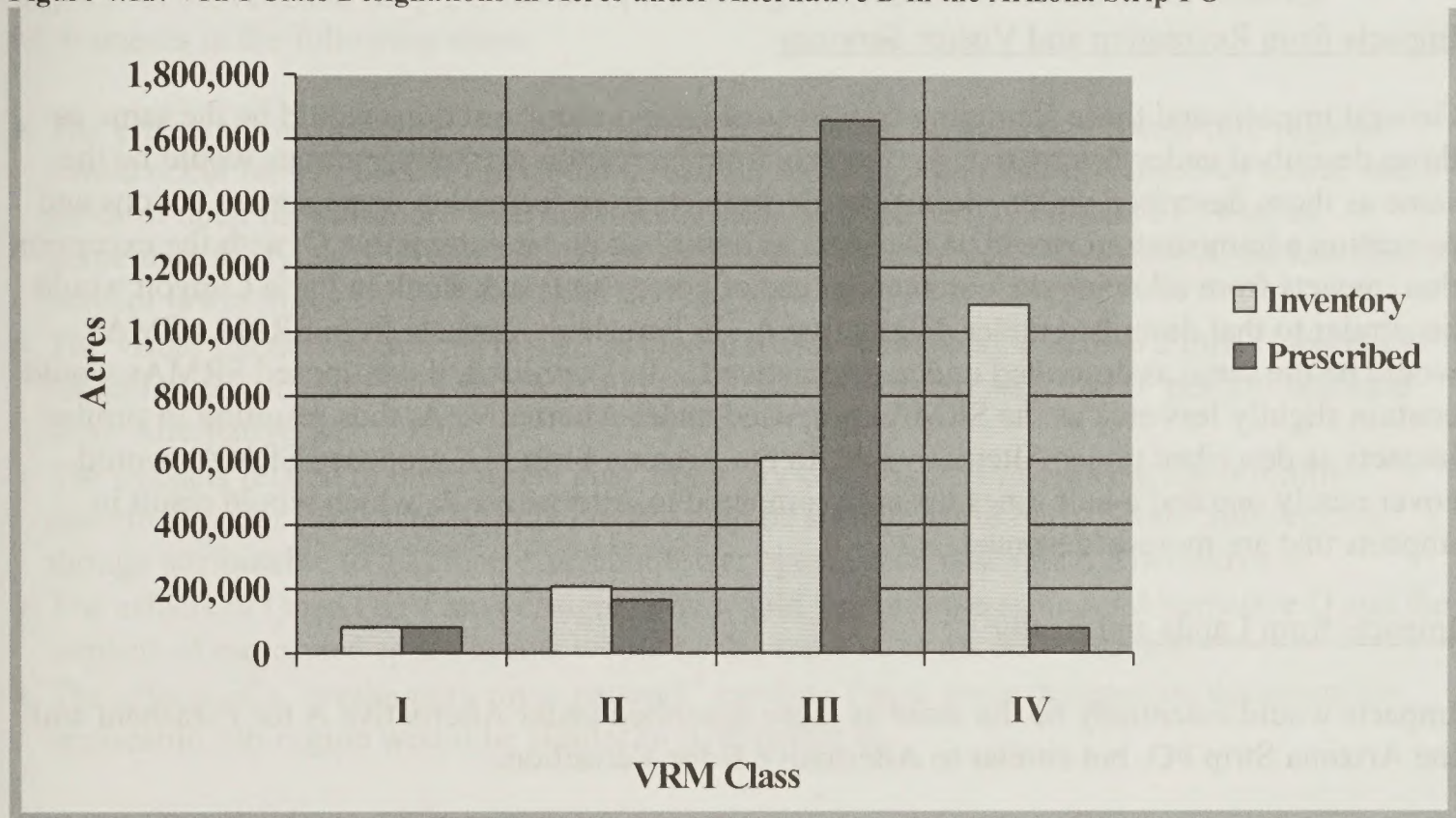


Figure 4.11: VRM Class Designations in Acres under Alternative D in Vermilion



Arizona Strip FO: The effects of a Class I standard would be the same as under Arizona Strip Alternative C. The designation of 164,932 acres to a Class II VRM standard would represent a 21 percent decrease from the inventoried Class II lands and a 71 percent decrease from Alternative A. The designation of 1,656,576 acres to a Class III VRM standard would represent a 173 percent increase over the inventoried Class III lands and a 342 percent increase from Alternative A. The designation of 72,797 acres to a Class IV standard would represent a 93-92 percent decrease from the inventoried Class IV lands and Alternative A. Figure 4.12 illustrates the discrepancies between VRM classes proposed and VRI classes.

Figure 4.12: VRM Class Designations in Acres under Alternative D in the Arizona Strip FO



Impacts from Cultural Resources

Overall impacts would be the same as those described under Alternative A

Impacts from Special Designation (Wilderness)

Impacts would essentially be the same as those described under Alternative B. However, active restoration efforts could create minor, short-term visual change, depending on the scope and magnitude of the methods used. In the long-term, successful restoration efforts would not be noticeable.

Impacts from Livestock Grazing

Overall impacts would be similar to those described under Alternative A, although some improvement to visual quality would occur on 3 percent more acres that would be unavailable for livestock grazing in Parashant and 56,309 additional acres that would receive seasonal restrictions. In Vermilion, impacts would be the same as under Alternative C due to the same number of acres unavailable to grazing and similar number of acres covered by seasonal restrictions. However, in the Arizona Strip FO, there would be 5 percent more acres that would receive seasonal restrictions when compared to Alternative A.

Impacts from Recreation and Visitor Services

General impacts and those stemming from recreation monitoring actions would be the same as those described under Alternative A. Impacts from recreation marketing actions would be the same as those described under Alternative B. Impacts from recreation management actions and recreation administration would be the same as described under Alternative C, with the exception that impacts from allowing the commercial use of horses and pack stock in Paria Canyon would be similar to that described under Alternative A. In Parashant, impacts from SRMAs/SMAs would be the same as described under Alternative C. In Vermilion, the proposed SRMAs would contain slightly less area as the SRMAs proposed under Alternative A, thus resulting in similar impacts as described under Alternative A. In the Arizona Strip FO, proposed SRMAs would cover nearly one and a half times the area compared to Alternative A, which would result in impacts that are more widespread.

Impacts from Lands and Realty

Impacts would essentially be the same as those described under Alternative A for Parashant and the Arizona Strip FO, but similar to Alternative B for Vermilion.

Alternative E: Proposed Plan

Impacts from Travel Management/Transportation Facilities

Impacts from OHV closed area designations and prohibitions on new road construction would be similar to those described under Alternative A. Impacts from management of TMAs would be similar to those described under Alternative C as TMA designations proposed are only within a 1 percent difference in all three planning areas.

Under Alternative E, impacts from the combined total of roads open to the public and to administrative use in the Monuments would be similar to those described under Alternative C due to similar number of miles. Impacts from route closures and rehabilitation would be similar to those described under Alternative B, although not as intense and widespread as less than half the miles of routes in Parashant and 37 percent in Vermilion would be closed under Alternative E compared to Alternative B. Impacts from rerouting and monitoring the creation of unauthorized

routes and closing those found would be the same as under Alternative A. Impacts from intermittent dust and to night sky conditions would also be similar to those described under Alternative A, although reduced due to a reduction in roads open to the public compared to Alternative A. This reduction would also result in negligible to minor, long-term impacts to public opportunities to view some scenic resources if critical viewing routes are closed. The impacts from restricting travel to designated routes and existing and new road material sites would be similar those described under Alternative A. Impacts from route maintenance/improvement actions would be the similar to those described under Alternative D.

Impacts in the Arizona Strip FO from implementing Alternative D would differ from the Monuments in the following ways:

- The effects of the designated Travel Management system for the Ferry Swale Sub-regions would occur on 49 miles of open public roads, 5 miles of administrative use only roads, and 0 miles of open for non-motorized/non-mechanized use; the combined total of 54 miles perpetuate the types of visual influences already described under Alternative A, on less than 1 percent fewer miles.
- The visual impacts of actions related to closed routes would take place on 2 miles closed and rehabilitated routes in the Littlefield and Ferry Swale Sub-regions, or a 33 percent decrease from Alternative A.
- The impacts related to intermittent dust, night sky conditions, and viewing opportunities described under Parashant Alternative B would be similar in the Ferry Swale Sub-regions, though attributable to less than 1 percent fewer open public roads than Alternative A.
- The effects of Open OHV area designations would be the same as under Alternative D and the impacts of motorized speed events would be the same as under Alternative C.
- The effects of a 'preliminary route network' pending future route designation decisions for applicable sub-region would be similar to Alternative B.

Impacts from Wilderness Characteristics

Overall impacts would be similar to those described under Alternative B, albeit less widespread because complementary management relating to wilderness characteristics under Alternative E would occur on 49 percent less acres in Parashant and 63 percent less acres in Vermilion. There would be 24 percent less acres in Arizona Strip FO under Alternative E than under Alternative B.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be the same as described under Alternative D.

Impacts from Air, Water, and Soil

Impacts would be the same as those described under Alternative B.

Impacts from Fish and Wildlife

Overall impacts would be most similar to those described under Alternative C.

Impacts from Special Status Species

Impacts would essentially be the same as those described under Alternative A.

Impacts from Visual Resources

Impacts from future Congressional designations of wilderness or wild and scenic rivers would be the same as described under Alternative A. The effects of prohibiting activities that could not be mitigated to achieve long-term visual objective(s) and the use of the VRM contrast rating process would be the same as described under Alternative A. Impacts from research/restoration actions that would be allowed to exceed VRM objectives would have the same short-term effects described under Alternative B. Impacts to night sky conditions would essentially be the same as those described under Alternative C.

Impacts from VRM Class designations in Parashant would be essentially the same as those described under Alternative C, except that they would apply to 103,467 fewer VRM Class I acres and 198,724 more VRM Class II acres. Impacts from VRM Class designations in Vermilion under Alternative E would be the same as those described under Alternative D due to the same allocations. In the Arizona Strip FO, the effects of a Class I standard would be the same as under Alternative C, while the effects of a Class IV standard would be 7 percent less as under Arizona Strip Alternative D. The designation of 368,032 acres to a Class II VRM standard would represent a 76 percent increase from the inventoried Class II lands and a 36 percent decrease from Alternative A. The designation of 1,459,374 acres to a Class III VRM standard would represent a 141 percent increase over the inventoried Class III lands and a 289 percent increase from Alternative A.

Impacts from Cultural Resources

Overall impacts would be the same as those described under Alternative A

Impacts from Special Designation (Wilderness)

Impacts would be the same as those described under Alternative D.

Impacts from Livestock Grazing

Overall impacts would be the similar to those described under Alternative C in Parashant, Alternative B in Vermilion, and Alternative A in the Arizona Strip FO.

Impacts from Recreation and Visitor Services/Interpretation and Environmental Education

General impacts would be the same as described under Alternative A, while impacts from recreation marketing actions would be the same as described under Alternative B. Impacts from recreation management, monitoring, and administration actions would be similar to that described under Alternative C, while impacts from SRMAs/SMAs would be the same as described under Alternative D.

Impacts from Lands and Realty

Impacts would essentially be the same as those described under Alternative A for Parashant and the Arizona Strip FO, but similar to Alternative B for Vermilion.

Cumulative Impacts

The geographic area for analysis of cumulative impacts to visual resources is northern Arizona, southwestern Utah, and southeastern Nevada. Over time, continued population growth of the large and small communities in this area would erode natural night sky conditions in the Planning Area. During the life of the Plan, the development of large blocks of Arizona State Trust lands for residential, commercial, urban, and other community expansion purposes would shift much of the recreation use that currently takes place on those lands to adjacent public lands. Such a shift would produce an increase in the creation of illegal routes and fugitive dust that would noticeably change the visual character of affected public lands.

The growing need to decrease the potential for catastrophic fire in the region through mechanical treatments aimed at reducing fuel loads would gradually alter landscapes where treatments are conducted. Smoke from prescribed fires used for the same purpose would sporadically affect the quality of viewsheds and interfere with the public's viewing of scenery. The potential for noxious weed invasions in the region to change existing landscape form, texture, and color over large areas in a relatively short time would continue to increase.

Extended drought conditions combined with construction activities (related to urban growth) and increased use of dirt roads in the region (related to the growing numbers of visitors) would contribute to more frequent and prolonged periods of fugitive dust, which would affect the quality of visual resources. Conversely, diligent application of Standards for Rangeland Health, the maintenance of Vital Sign resources on NPS lands, reclamation practices, restoration projects, and the progression toward achieving DFCs for vegetation management would noticeably reduce the potential for fine soil particles to become airborne. Such practices would, if successful, improve scenic quality on sites that historically have been compromised.

Continued application of visual resource design principles for permitted projects, activities, and uses on public lands would do much to maintain visual resources within the Planning Area. A shift toward renewed uranium exploration and extraction activities would create visual contrasts in non-Monument areas. As some shifting in the region occurs from agricultural-related

businesses to recreation and tourism, some landscapes would be visually enhanced by the removal of unneeded structures. However, such a shift would create other impacts to visual resources by providing for more structured recreation, accompanied by increased visitation. Management of areas such as wilderness, proposed wilderness, areas having wilderness characteristics, and various ACECs would contribute to maintaining or enhancing landscape conditions on scattered, large tracts of public land.

WILDERNESS CHARACTERISTICS

This section presents potential impacts from the proposed alternatives to areas having wilderness characteristics. Analyzed are management actions that either enhance or diminish those characteristics most often associated with wilderness (i.e., solitude, naturalness, and outstanding opportunities for primitive and unconfined recreation). In the Planning Area, these characteristics are primarily influenced by the number and proximity of motorized travel corridors, the volume and type of traffic on those corridors, and the quantity and type of recreational users. Noise from motorized travel can degrade solitude, motorized intrusions can cause surface disturbances that impact naturalness, and both types of impacts can reduce opportunities for primitive and unconfined recreation. To a lesser extent, range and wildlife management projects can affect areas with wilderness characteristics. These impacts normally come from vegetation treatments and the installation, maintenance, and use of range/wildlife catchments and wildlife “drinkers” (i.e., manmade water sources).

The plan alternatives provide a wide range of acreage combinations that are proposed for maintaining wilderness characteristics (refer to Table 2.10). In order to provide an appropriate array of management alternatives for wilderness characteristics, an objective scoring criteria (Appendix: 3.D) was developed to prioritize areas that, early in the planning process, had been assessed and found to have all three wilderness characteristics (i.e., solitude, naturalness, and outstanding opportunities for primitive and unconfined recreation). Each area that had been assessed and found to have the three characteristics was scored on three criteria: the value of the characteristics (e.g., condition, uniqueness, relevance, and importance); the need (i.e., trend and risk) for that particular area, given existing and future tendencies; and whether the area was practical to manage for maintenance of the wilderness characteristics.

Methods and Assumptions

The analysis of potential impacts to wilderness characteristics is based on visitor use reporting statistics from the Arizona Strip FO and the Recreation Management Information System (RMIS), which provide information on the number and types of recreational use within areas containing wilderness characteristics, and on the wilderness characteristics assessments, which were conducted between April 2002 and May 2004. The assessments provide boundary data, as well as narrative information on type and quality of areas with wilderness characteristics. Spatial/GIS information was also used in this analysis, such as wildlife habitat boundaries, range and wildlife developments, wilderness characteristic boundaries, transportation inventory,

transportation designations, ecological zones, vegetation types, and known historical/cultural sites. In the absence of data, analyses were based on the knowledge base of local recreation/wilderness planners. All areas referenced as containing wilderness characteristics have been assessed and shown to possess all three wilderness characteristics.

Impacts are quantified where possible. In the absence of quantifiable data, professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. Impacts to each of the three wilderness characteristics can be quite different. For instance, naturalness, solitude, and opportunities for primitive/unconfined recreation can all be impacted by surface disturbing activities; but only solitude and opportunities for primitive/unconfined recreation can be impacted when no surface disturbance is present. Despite these differences, the intensities of impacts to each wilderness characteristic can be described using the following guidance:

- Negligible: The impact is at the lower level of detection; there would be no measurable change.
- Minor: The impact is slight but detectable; there would be a small change.
- Moderate: The impact is readily apparent; there would be a measurable change that could result in a small but permanent change.
- Major: The impact is severe; there would be a highly noticeable, long-term, or permanent measurable change.

The following assumptions regarding the future management of lands with wilderness characteristics are made:

- All guidelines for the maintenance of wilderness characteristics, as identified in this document would be followed, to the extent allowed by existing budget and available personnel.
- Any new surface disturbing activities proposed would be subject to NEPA analysis. Activities proposed that would not initially meet wilderness characteristic objectives for the area would be mitigated to the extent needed to meet the objectives.

Impacts to Wilderness Characteristics

Impacts to areas having wilderness characteristics would result from actions proposed by the following resource management programs:

- Travel Management
- Wilderness Characteristics
- Vegetation Management
- Fish and Wildlife
- Special Status Species
- Visual Resources
- Cultural Resources
- Livestock Grazing
- Recreation
- Lands and Realty

Alternative A: No Action

Under Alternative A, no areas identified as having wilderness characteristics would exist. The current management plan (No Action) makes no provision for maintaining wilderness characteristics because it (the 1992 Arizona Strip RMP) predates the agency policy that allowed identification of wilderness characteristics. Therefore, it must be noted that Alternative A describes impacts only to the lands assessed and found to have wilderness characteristics and the potential effects from the absence of prescriptively maintaining these areas. Alternatives B through E evaluate the effects of plan alternatives on both the lands with wilderness characteristics and the prescriptively managed acreage for each alternative.

Impacts from Travel Management

Under Alternative A, no routes would be closed in the Planning Area. In addition, 637 miles of routes in Parashant, 280 miles in Vermilion, and 430 miles in the Arizona Strip FO that run parallel to or are located within the lands with wilderness characteristics would be potentially open to motorized and mechanized vehicle use by the public. These routes could have a moderate impact on the lands with wilderness characteristics, as vehicle traffic could degrade solitude, naturalness, and opportunities for primitive/unconfined recreation. The effects would be direct and long-term. While the remote nature of much of the Planning Area would forestall these effects in the short-term, over time there could be a general eroding of the quality of such characteristics.

The majority of the lands with wilderness characteristics in Vermilion are on the Paria Plateau, with the remainder found in the Ferry Swale area. Both areas consist of rolling, sandy terrain, and quite often, a route or road defines the edge of the lands with wilderness characteristics. Because of the deep sand throughout the area, these routes are poor impediments to motorized

intrusion, particularly from OHV traffic. This vulnerability places the lands with wilderness characteristics in these areas at a higher risk for the impacts described above.

Impacts from Wilderness Characteristics

Field assessments conducted as part of the planning process determined that the lands with wilderness characteristics in the Planning Area are as follows: 440,899 acres in Parashant, 97,380 acres in Vermilion, and 158,033 acres in the Arizona Strip FO. As previously stated, under Alternative A, none of these wilderness characteristics areas would be maintained. Therefore, no proactive management to maintain wilderness characteristics would be undertaken, which would allow all of the lands with wilderness characteristics to be affected by other resource impacts as identified throughout this section. Alternative A, therefore, proactively maintains the least (none) amount of the lands with wilderness characteristics among the alternatives.

Impacts from Vegetation Management

Lands with wilderness characteristics make up 42 percent of the total acreage of Parashant, 33 percent of Vermilion, and eight percent of the Arizona Strip FO. Under Alternative A, vegetation treatments could have minor to moderate, localized impacts on these lands because no prescriptive maintenance of these areas would occur. These impacts could be short-term and direct, reducing solitude, naturalness, and opportunities for primitive/unconfined recreation, depending on the type and scope of work being performed.

Impacts from Fish and Wildlife

Wildlife Habitat Improvement Projects: Twenty-two wildlife drinkers located within the lands with wilderness characteristics in Parashant would remain in place under Alternative A. On NPS lands, four existing water features would remain as part of the cultural landscape. No such drinkers are located within the lands with wilderness characteristics in Vermilion or the Arizona Strip FO. Motorized access to the existing drinkers in Parashant would continue for maintenance purposes, which could have minor impacts on the lands with wilderness characteristics with regard to opportunities for solitude and naturalness. New drinkers and other wildlife developments could potentially be developed on BLM lands in all three planning areas. The construction and maintenance of any future wildlife developments could have minor impacts on the lands with wilderness characteristics because no prescriptive maintenance of these areas would occur. Naturalness and opportunities for solitude could be affected by the addition and motorized use of new routes and structures. However, such facilities, in so far as they would cultivate sustainable, viable wildlife populations over time, could enhance wildlife components of naturalness and opportunities for certain primitive types of recreation. Impacts would be direct, localized, and minor.

Vegetation Treatment Projects for Wildlife: Maintaining existing treatments and initiating new treatments to meet vegetation DFCs could affect the lands with wilderness characteristics because no prescriptive maintenance of these areas would occur. Solitude and naturalness could experience short-term impacts while work was being conducted. Long-term impacts would depend on the size and scope of the project.

Restoration of Native Wildlife Populations: There could be a temporary loss of solitude during release operations for bighorn sheep and other species in the lands with wilderness characteristics. These impacts would be minor and localized and would be offset by enhanced opportunities for wildlife viewing in the long term.

Impacts from Special Status Species

Under Alternative A, special status species management actions for fire suppression, grazing, species reintroduction, vegetation management, and recreation could all impact the lands with wilderness characteristics depending on the type and scope of the project proposed. In order to protect special status species, such actions generally rely on minimum surface disturbance, which would result in direct, localized, and negligible to minor impacts to the lands with wilderness characteristics.

Impacts from Visual Resources

In Parashant, VRM Class III or IV designations would overlap 229,927 acres of the lands with wilderness characteristics, while VRM Classes I or II designations would overlap 204,653 acres. In Arizona Strip FO, VRM Class III or IV designations would overlap 70,107 acres of the lands with wilderness characteristics, while VRM Classes I or II designations would overlap 87,924 acres. VRM Class III and IV would allow for greater landscape modification, via projects such as vegetation treatments, communications towers, and range developments, than VRM Class I and II. This places approximately half the lands with wilderness characteristics in Parashant and the Arizona Strip FO at greater risk of diminished naturalness or opportunities for solitude and primitive/unconfined recreation because no prescriptive maintenance of these areas would occur. Impacts would be direct, long term and, depending on projects proposed, could range from minor to major, with potential to effectively eliminate wilderness characteristics in some areas.

VRM Class I or II designations would overlap all of the lands with wilderness characteristics in Vermilion (97,380 acres) under Alternative A. VRM Class I and II would be aimed at greater preservation or retention of existing landscape character than VRM Class III and IV. In mitigating or restricting landscape-altering developments or projects, management of VRM Class I and II designations could indirectly contribute to sustaining the wilderness characteristics of naturalness and opportunities for solitude and primitive/unconfined recreation. For those projects that would be allowed in VRM Class I or II designations, the impacts to the lands with wilderness characteristics would be dependent on the type of project, but would be expected to be direct, localized, and range from negligible to minor.

Impacts from Cultural Resources

Under Alternative A, four existing public use sites are located within one-quarter mile of the lands with wilderness characteristics in Parashant. Two existing public use sites in Vermilion and five in the Arizona Strip FO are adjacent to, or fall within the lands with wilderness characteristics. Increased visitor use of cultural public use sites could indirectly impact existing opportunities for solitude in or near the lands with wilderness characteristics. However, given existing location and terrain, impacts of the existing public use sites to the lands with wilderness characteristics would be localized and negligible to minor.

Cultural field inventories proposed in Parashant could have a temporary short-term impact on existing solitude and primitive/unconfined recreation opportunities because no prescriptive maintenance of these areas would occur. There could be a longer-term effect on existing naturalness, depending on the extent of the inventories. Impacts would be direct, localized, and minor.

In the Arizona Strip FO, the existing Lost Spring Mountain, Virgin Slope, and Beaver Dam Slope ACEC designations overlap, in varying amounts, portions of the lands with wilderness characteristics. ACEC designation and its accompanying management prescriptions could indirectly contribute to sustaining the lands with wilderness characteristics.

Impacts from Livestock Grazing

The presence of livestock could affect the lands with wilderness characteristics of both opportunities for solitude and primitive/unconfined recreation as users seeking these types of experiences may choose to avoid areas where cattle are present. In general, grazing impacts to the lands with wilderness characteristics could be direct, localized, seasonal, and range from minor to moderate, depending on the number of livestock present.

Range Developments: Under Alternative A, 129 range developments in Parashant, 37 in Vermilion, and 47 in the Arizona Strip FO would remain within the lands with wilderness characteristics. In addition, there would be approximately 140 miles of livestock fence and 30 miles of pipeline in Parashant, 200 miles of livestock fence and 58 miles of pipeline in Vermilion, and 167 miles of livestock fence and 26 miles of pipeline in the Arizona Strip FO. Motorized access to a majority of these sites for construction and maintenance purposes would be allowed. Such activities and the developments themselves could have minor to moderate impacts on the lands with wilderness characteristics as they could diminish naturalness, solitude, and the opportunity for primitive/unconfined recreation in the vicinity. These impacts would be direct, localized, and depending on the development, could affect the surrounding terrain for up to one-half mile in any direction because no prescriptive maintenance of these areas would occur.

Livestock Grazing Allotments: Under Alternative A, by making all or portions of six allotments in Parashant unavailable for grazing and placing seasonal restrictions on three allotments in the Arizona Strip FO, the reduction or cessation of livestock grazing could indirectly contribute to sustaining the lands with wilderness characteristics on 61,692 acres. No allotments would be unavailable for grazing or have seasonal restrictions in Vermilion, allowing livestock grazing impacts to continue to affect the lands with wilderness characteristics as described above.

Impacts from Recreation

Restoration Projects: Restoration projects using natural processes would generally have minimal localized impacts and short-term effects on the existing lands with wilderness characteristics of naturalness and opportunities for solitude and primitive/unconfined recreation. Using natural restoration processes could have moderate to major long-term impacts on naturalness, as the ability to control invasive species would likely be ineffective. These impacts would be greatest under Alternative A when compared to the other alternatives.

Geocaching: Impacts to the naturalness component of lands with wilderness characteristics from geocaching could range from negligible soil disturbance in the area immediately surrounding a geocache site, to OHV and four-wheel drive impacts from enthusiasts trying to get as close as possible to a site. In general, these impacts would be direct, localized, and minor. Moderate impacts would be possible at more popular sites, although the remoteness of the Planning Area would make this unlikely.

Signing and Facilities: Minor new facilities (e.g., toilets, information kiosks, directional signs) placed at trailheads or higher-use areas could indirectly contribute to sustaining the lands with wilderness characteristics by providing visitor information on “Leave No Trace” ethics and area-specific rules and regulations that would propagate better-informed, less-impacting visitors.

Visitor Limits and Regulations: Establishing visitor limits, supplemental rules, or restrictions when monitoring shows a trend towards unacceptable change could indirectly contribute to sustaining lands with wilderness characteristics. However, such practices would be based on waiting until areas display degraded conditions and would not allow the flexibility to manipulate use levels based on changing social and/or resource conditions.

Impacts from Lands and Realty

Retention and acquisition of surface ownership lands and sub-surface mineral estates could indirectly contribute to sustaining lands with wilderness characteristics. Such actions could prevent surface disturbing activities that may degrade wilderness characteristics.

*Alternative B*Impacts from Travel Management

Under Alternative B, 876 miles of routes in Parashant and 639 miles of routes in Vermilion could potentially be closed or seasonally closed to the public. These miles are the combination of routes potentially closed to motorized and mechanized vehicle use and routes potentially open to administrative use only. Of these closures, 637 miles in Parashant and 160 miles in Vermilion run parallel to lands with wilderness characteristics. In Parashant, 606 miles of routes that would potentially be closed or seasonally closed to the public run parallel to the areas proposed under Alternative B to maintain wilderness characteristics, while all 639 miles of such routes in Vermilion would potentially be closed or seasonally closed.

Only a small number of routes have been potentially designated in the Arizona Strip FO; all other routes would remain open pending route designation. Under Alternative B, 38 miles of routes that run parallel to areas where wilderness characteristics would be maintained would potentially be closed.

Impacts in the Arizona Strip FO would be minor due to the limited number of miles potentially closed. Potential route closures in the Monuments would have a major impact on areas identified for maintaining wilderness characteristics. Potential large-scale route closures would dramatically reduce vehicle traffic, which would indirectly enhance solitude and naturalness. The effects would be direct and long term, becoming noticeable as soon as the routes were closed, and over time as potential closed routes were allowed to rehabilitate and eventually blend in with the surrounding landscape. Because of the number of route closures, any negative impacts from open routes to areas identified for maintaining wilderness characteristics would be negligible, and would be significantly less than under all other alternatives.

Under Alternative B, 411,256 acres in Parashant and 96,796 acres in Vermilion would be identified to maintain wilderness characteristics. This represents 94 percent and 100 percent, respectively, of the lands identified with wilderness characteristics. This would result in a dramatic increase in two of the three wilderness characteristics (solitude and naturalness) and a confusing result in the third characteristic (opportunities for primitive/unconfined recreation).

Proposed route closures under this alternative would create an obvious increase in opportunities for solitude. As the total number of acres restricting motorized vehicle use increases, the sights and sounds of civilization decreases, and a predictable increase in solitude occurs. Naturalness would follow a similar course, but a longer time period would be required for the natural reclamation (in the form of vegetation growth) of closed routes to take place.

Impacts to opportunities for primitive/unconfined recreation under this alternative are confusing at best, with either an increase or a decrease, depending on how those opportunities are defined. While the total acres available for primitive/unconfined recreation would increase dramatically,

the accessibility of a large number of those acres to the general public would decrease. This is because proposed route closures would effectively move many access points further away from the “core” primitive settings that visitors typically find the most interesting and enjoyable. While these areas—mostly cliffs, ridges, and canyons—would still be available for primitive pursuits, a longer hike or ride would be required to access them. And in some cases, the lack of water in the desert climate would effectively render these areas inaccessible.

Impacts from Wilderness Characteristics

Under Alternative B, 411,256 acres in Parashant and 96,796 acres in Vermilion would be identified to maintain wilderness characteristics. This encompasses 94 percent and 100 percent, respectively, of lands identified with wilderness characteristics, which represents the greatest commitment to active management of wilderness characteristics among the alternatives.

In the Arizona Strip FO, 46,135 acres would be identified to maintain wilderness characteristics. However, six ACECs proposed for the protection of cultural and wildlife resources have overlapping acreage with wilderness characteristics. Because ACEC management would include maintenance of wilderness characteristics, no further identification for maintaining wilderness characteristics was necessary. As a result, the commitment to maintain wilderness characteristics within the subject ACECs was not reflected in the total acres of lands identified for the maintenance of wilderness characteristics in this alternative. Even so, Alternative B identifies the largest area to maintain wilderness characteristics among the alternatives for the entire Planning Area.

Impacts from Vegetation Management

Under Alternative B, restoration efforts in all ecological zones would be minimal and vegetation treatments would be limited. Any vegetation treatment in areas identified to maintain wilderness characteristics would have minor, localized impacts only. Recreational users could experience direct, short-term, minor impacts to solitude while the work was being conducted. Naturalness could also experience a similar level of impacts, depending on the type and scope of work.

Impacts from Fish and Wildlife

Impacts from wildlife habitat improvement projects, vegetation treatment projects, and restoration of native wildlife populations would be the same as described under Alternative A for lands with wilderness characteristics. However, for areas identified to maintain wilderness characteristics under Alternative B, the active management of these areas would contribute to greater mitigation of projects that could hinder or prevent the maintenance of wilderness characteristics.

Impacts from Special Status Species

Impacts would be the same as described under Alternative A for lands with wilderness characteristics. However, for areas identified to maintain wilderness characteristics under Alternative B, the active management of these areas would contribute to greater mitigation of projects that could hinder or prevent the maintenance of wilderness characteristics.

Impacts from Visual Resources

The types of impacts would be similar to those described under Alternative A. However, VRM Class I or II designations would overlap nearly all areas in Parashant and Vermilion and the majority of areas in Arizona Strip FO that would be maintained with wilderness characteristics. The effects of the VRM designations, in tandem with the direct, active management of a wilderness characteristics areas versus allowing the indirect contribution of VRM designations to sustain the lands with wilderness characteristics would contribute to a greater likelihood of maintaining wilderness characteristics compared to Alternative A.

Impacts from visual resources to wilderness characteristics would be the same as described under Alternative A for the lands with wilderness characteristics that are not proposed for maintenance under Alternative B.

Impacts from Cultural Resources

Overall impacts from public use site designations would be similar to those described under Alternative A, with the exception that one additional public use site in Parashant would be located one-quarter mile from lands with wilderness characteristics. While impacts from cultural resource surveys would be similar to those described under Alternative A, active management of areas identified to maintain wilderness characteristics under Alternative B would contribute to greater mitigation of projects that could hinder or prevent the maintenance of wilderness characteristics.

Instead of being identified to maintain wilderness characteristics, some lands with wilderness characteristics in the Arizona Strip FO that overlap ACECs would be directly included in the ACECs as components of their relevance and importance. The ensuing proactive management of such ACECs would impact wilderness characteristics to a moderate degree by ensuring the maintenance of their DFCs. Impacts from such ACEC/wilderness characteristics combinations would be greatest under Alternative B compared to the other alternatives.

Impacts from Livestock Grazing

Overall impacts from livestock grazing and range developments would be the same as described under Alternative A for the lands with wilderness characteristics. However, for areas identified for maintaining wilderness characteristics under Alternative B, the active management of these

areas would contribute to greater mitigation of projects that could hinder or prevent the maintenance of wilderness characteristics.

Livestock Grazing Allotments: Under Alternative B in Parashant, making entire allotments unavailable for grazing would eliminate livestock grazing impacts on 77,260 acres and partial/seasonal restrictions would reduce impacts on 13,681 acres where wilderness characteristics would be maintained. The prescriptive maintenance of wilderness characteristics under Alternative B would directly contribute to greater mitigation of the residual effects of grazing practices on wilderness characteristics than would Alternative A, under which no lands with wilderness characteristics would be actively maintained.

For those lands with wilderness characteristics that would not be prescriptively maintained under Alternative B, impacts from livestock grazing in Vermilion would be the same as those described under Alternative A.

In the Arizona Strip FO under Alternative B, seven allotments would be subject to seasonal restrictions, none of which overlaps areas identified to maintain wilderness characteristics. However, the seasonal restrictions would contribute indirectly to sustaining 32,985 acres of lands with wilderness characteristics, which is 7,561 more acres than under Alternative A.

Impacts from Recreation

Impacts from restoration projects and signing and facilities would be the same as described under Alternative A for the lands with wilderness characteristics. However, for areas identified for maintaining wilderness characteristics under Alternative B, the active management of these areas would contribute to greater mitigation of projects that could hinder or prevent the maintenance of wilderness characteristics.

Geocaching: Removing geocache sites if impacts to resources were observed would have a positive impact on areas identified for maintaining wilderness characteristics as it would reduce or eliminate many of the impacts often associated with geocaching as described under Alternative A. The reduction in impacts would be direct and localized, but would require monitoring to ensure that improvements had long-term effects.

Recreation Marketing Actions: The production of maps, brochures, and other information regarding recreation opportunities would have a positive, moderate, and indirect impact on areas where wilderness characteristics would be maintained because such publications would allow the BLM to educate potential users about specific rules, regulations, and guidelines. The dissemination of such information could also increase user safety in these areas. Such promotional efforts, however, could also increase the number of users and thus affect solitude. Impacts would be direct and could range from minor to moderate.

Visitor Limits and Regulations: Establishing mandatory carrying capacity limits in intensive use areas would reduce or maintain the number of users, which would help maintain solitude and naturalness in areas with wilderness characteristics. However, positive impacts would be limited as such practices would be based on waiting until areas displayed degraded conditions and would not allow the flexibility to manipulate use levels based on changing social and/or resource conditions.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative A for the lands with wilderness characteristics. However, for areas identified for maintaining wilderness characteristics under Alternative B, the active management of these areas would contribute to greater mitigation of projects that could hinder or prevent the maintenance of wilderness characteristics.

Alternative C

Impacts from Travel Management

Under Alternative C, 550 miles of routes in Parashant and 218 miles of routes in Vermilion could potentially be closed or seasonally closed to the public (miles are the combination of routes potentially closed to motorized and mechanized vehicle use and routes potentially open to administrative use only.) In Parashant, 121 miles of these routes and 83 miles of such routes in Vermilion would run parallel to or are within lands with wilderness characteristics. The areas proposed under Alternative C to maintain wilderness characteristics. These routes could have a minor impact on the lands with wilderness characteristics, as vehicle traffic could degrade solitude.

Potential route closures would have a minor to moderate impact on areas identified to maintain wilderness characteristics. Such closures would reduce vehicle traffic, enhancing solitude and naturalness. The effects would be direct and long-term, becoming noticeable as soon as the routes were closed, and over time as closed routes were allowed to rehabilitate and eventually blend in with the surrounding landscape. Potential administrative use only and seasonal closures would benefit solitude, but have little impact on naturalness because roads would continue to be visible. Because the number of potential route closures in this alternative is significantly less than under Alternative B, negative impacts to areas identified to maintain wilderness characteristics would be more widespread. This could be exacerbated in Vermilion by the number of routes that are cherry-stemmed within areas identified to maintain wilderness characteristics. However, since the areas affected are quite remote and any routes in proximity receive light traffic only, including the cherry-stemmed routes in Vermilion, impacts to naturalness and solitude would be minor.

Under Alternative C in the Monuments, potentially closing routes to public motorized and mechanized use would increase the total area available for primitive recreational pursuits.

However, unlike Alternative B where potential route closures and rehabilitation of such routes may render many areas impractical to visit using non-motorized means, most access routes, though limited to administrative motorized uses, would be preserved under Alternative C, thus protecting recreational opportunities in the primitive “core” areas.

Pending route designation, impacts in the Arizona Strip FO would be similar to those described under Alternative B.

Impacts from Wilderness Characteristics

Under Alternative C, 226,394 acres in Parashant and 40,345 acres in Vermilion would be identified to maintain wilderness characteristics. This represents 52 percent and 42 percent, respectively, of the lands with wilderness characteristics, which is considerably less than under Alternative B. In the Arizona Strip FO, 77,575 acres would be identified to maintain wilderness characteristics. While this is a greater acreage than proposed under Alternative B, the number and size of proposed cultural and wildlife ACECs that could provide the opportunity for overlapping, co-lateral management would be significantly reduced. As a result, Alternative C actually provides a smaller total acreage committed to maintenance of wilderness characteristics than Alternative B, but more than Alternative D.

Impacts from Vegetation Management

Under this alternative, restoration efforts would have a larger scope and could involve a wider range of restoration tools than under Alternative B. Individual impacts from restoration treatments would be similar to Alternative B, but the number and size of treatments would likely increase. Impacts to solitude, naturalness, and opportunities for primitive/unconfined recreation could range from minor to moderate and be short term, direct, and localized.

Impacts from Fish and Wildlife

Impacts from wildlife habitat improvement projects, vegetation treatment projects, and restoration of native wildlife populations would be the same as described under Alternative B.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B.

Impacts from Visual Resources

Under Alternative C in Parashant, 173,861 acres of areas with wilderness characteristics in the Monument would be designated VRM Class I or II. Because these designations would be aimed at greater preservation or retention of existing landscape character, most developments/disturbances that could affect solitude, naturalness, and primitive/unconfined recreation would be

mitigated or not allowed. The remaining 52,391 acres of lands with wilderness characteristics would lay within lands designated as VRM Class III, which allows for greater landscape modification. This would risk the possible loss of solitude, naturalness, or opportunities for primitive/unconfined recreation in the lands with wilderness characteristics. Impacts would be direct, localized, and range from minor to moderate, depending on the type of project.

Impacts in Vermilion and Arizona Strip FO would be the same as described under Alternative B.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative B.

Impacts from Livestock Grazing

Overall impacts from livestock grazing and impacts from range developments would be the same as described under Alternative B.

Livestock Grazing Allotments: Under Alternative C in Parashant, seven allotments would be made fully, partially, or seasonally unavailable to grazing. On lands identified to maintain wilderness characteristics under Alternative C, making lands unavailable to grazing would eliminate impacts on 36,428 acres (40,833 less acres than under Alternative B), while partial/seasonal restrictions would reduce impacts on 13,476 acres (205 less acres than under Alternative B).

Impacts from livestock grazing in Vermilion and the Arizona Strip FO would be the same or similar to those described under Alternative B. In the Arizona Strip FO impacts from livestock grazing would be similar to Alternative B.

Impacts from Recreation

Impacts from signing and facilities to lands with wilderness characteristics would be the same as described under Alternative A. However, for areas identified to maintain wilderness characteristics under Alternative C, the active management of these areas would contribute to greater mitigation of projects that could hinder or prevent the maintenance of wilderness characteristics. Impacts from geocaching, recreation marketing actions, and visitor use reporting would be the same as described under Alternative B.

Restoration Projects: Active restoration projects would have a localized impact and a generally short-term effect on solitude, naturalness, and primitive/unconfined recreation, depending on the scope of the project. Long-term benefits would be realized by active restoration. Having a full suite of restoration tools would allow an aggressive approach to controlling invasive species in areas identified to maintain wilderness characteristics.

Visitor Limits and Regulations: Using an LAC framework in intensive use areas would have a positive impact on areas identified to maintain wilderness characteristics. The establishment of acceptable resource, social, and managerial settings would provide an optimal balance between the demand for wilderness use and maintenance of wilderness characteristics. These impacts would be indirect and long term.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative B.

Alternative D

Impacts from Travel Management

Under Alternative D, 427 miles of routes in Parashant and 195 miles of routes in Vermilion could potentially be closed or seasonally closed to the public (miles are the combination of routes potentially closed to motorized and mechanized vehicle use and routes potentially open to administrative use only). Of these closures, 105 miles in Parashant and 53 miles in Vermilion run parallel to or are within lands with wilderness characteristics. In Parashant, 36 miles of such closures run parallel to or are within lands that would be identified to maintain wilderness characteristics under Alternative D. No lands in Vermilion would be identified to maintain wilderness characteristics under Alternative D.

These potential closures could have a minor to moderate impact on areas identified to maintain wilderness characteristics. Some impacts would be positive, as potential route closures would enhance solitude and naturalness. The effects would be direct and long term, becoming noticeable as soon as the routes were closed, and over time as closed routes were allowed to rehabilitate and eventually blend in with the surrounding landscape. However, potential administrative use only and seasonal closures would have little impacts on naturalness. Because the number of potential route closures in this alternative is significantly less than under Alternative B and slightly less than under Alternative C, impacts to areas identified to maintain wilderness characteristics would be minor to moderate as potential open routes in close proximity would degrade naturalness and solitude.

Outstanding opportunities for primitive, unconfined recreation would be reduced in Vermilion because no areas would be identified to maintain wilderness characteristics. While the total area available for primitive recreational pursuits would decrease, because of their remoteness, the primitive nature of these areas would likely continue.

Outstanding opportunities for primitive, unconfined recreation would be reduced as compared to Alternative B in Parashant and the Arizona Strip FO. With no routes within areas identified for maintaining wilderness characteristics, the total area available for primitive recreational pursuits would increase. However, unlike Alternative B where potential route closures may render many

areas impractical to visit using primitive means, all access routes under Alternative D would be preserved, maintaining opportunities to experience recreation in the primitive “core” areas.

Pending route designation, impacts in the Arizona Strip FO would be similar to those described under Alternative B.

Impacts from Wilderness Characteristics

Though no prescriptive action to maintain wilderness characteristics would be taken, outstanding opportunities for primitive, unconfined recreation on lands with wilderness character in Vermilion would be increased to a minor degree from Alternative A by the closure of 53 miles of routes in or near these areas. However, with no prescriptive maintenance of wilderness characteristics under Alternative D, opportunities for primitive and unconfined recreation could be reduced to a minor degree over time if new routes were authorized in or along the periphery of these areas.

Outstanding opportunities for primitive, unconfined recreation would be less in Parashant and the Arizona Strip FO, compared to Alternative B. With no routes within areas identified for maintaining wilderness characteristics, the total area available for primitive recreational pursuits would increase. However, unlike Alternative B where potential route closures may render many areas impractical to visit using primitive means, all access routes under Alternative D would be preserved, maintaining opportunities to experience recreation in the primitive “core” areas.

Impacts from Vegetation Management

Impacts would be the same as described under Alternative C.

Impacts from Fish and Wildlife

Impacts from wildlife habitat improvement projects, vegetation treatment projects, and restoration of native wildlife populations would be the same as described under Alternative B.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B.

Impacts from Visual Resources

Impacts in Parashant would be similar to those described under Alternative C based on VRM class designations, although 38,569 more acres would be designated VRM Class III and thus be subject to greater landscape modification, potentially effecting naturalness, as well as opportunities for solitude and primitive/unconfined recreation.

Impacts in Vermilion and the Arizona Strip FO would be similar to those described under Alternative A and B, respectively.

Impacts from Cultural Resources

Impacts from cultural resources would be to those described under Alternative B.

Impacts from Livestock Grazing

Overall impacts from livestock grazing and impacts from range developments would be the same as described under Alternative B.

Livestock Grazing Allotments: Impacts from livestock grazing under Alternative D would be similar to Alternative C due to seven allotments being made fully, partially, or seasonally unavailable to grazing, although grazing impacts would be eliminated or reduced on 6,951 fewer acres. Impacts in Vermilion would be the same as described under Alternative A, while impacts in the Arizona Strip FO would be the same as described under Alternative C.

Impacts from Recreation

Impacts from signing and facilities would be the same as described under Alternative A. Impacts from recreation marketing actions would be the same as described under Alternative B. Impacts from restoration projects would be the same as described under Alternative C.

Geocaching: Working with local geocachers to relocate geocache sites if, through monitoring, it was determined that resources would be at risk would have a generally positive impact on areas identified to maintain wilderness characteristics. This approach would reduce or eliminate many of the impacts often associated with geocaching. The reduction in impacts would be direct and localized, but would require monitoring to ensure that improvements had long-term benefits.

Visitor Limits and Regulations: Establishing visitor limits, supplemental rules, or restrictions on a case-by-case basis when resource and social impacts exceed acceptable limits would reduce or maintain the number of users, having a generally positive and direct impact on areas identified to maintain wilderness characteristics. However, such practices would be based on waiting until areas displayed degraded conditions and would not allow the flexibility to manipulate use levels based on changing social and/or resource conditions.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative B.

Alternative E: Proposed PlanImpacts from Travel Management

Under Alternative E, 495 miles of routes in Parashant and 215 miles of routes in Vermilion could potentially be closed or seasonally closed to the public (miles are the combination of routes potentially closed to motorized and mechanized vehicle use and routes potentially open to administrative use only.) Of these closures, 172 miles in Parashant and 75 miles in Vermilion run parallel to or are within the lands with wilderness characteristics. Thirty-six miles of these closures in Parashant and 32 miles in Vermilion run parallel to the areas identified to maintain wilderness characteristics under Alternative E.

These potential closures could have minor to moderate impacts on areas having wilderness characteristics. The impacts would be positive as route closures would enhance solitude and naturalness. The effects would be direct and long-term, becoming noticeable as soon as the routes were closed, and over time as closed routes were allowed to rehabilitate and eventually blend in with the surrounding landscape. Routes would continue to be noticeable where they would be left open for administrative use and where they would be seasonally closed. Because the number of potential route closures in this alternative would be significantly less than under Alternative B, the potential positive impacts would not be as widespread. However, the areas that would be affected are already remote and any routes in proximity receive only light traffic; consequently, impacts to naturalness and solitude are expected to be minor.

The increase in outstanding opportunities for primitive, unconfined recreation in the Monuments would be similar to Alternative C. Pending route designation, overall impacts in the Arizona Strip FO would be similar to those described in Alternative B.

Impacts from Wilderness Characteristics

Under Alternative E, 140,949 acres in Parashant and 36,018 of Vermilion would be identified to maintain wilderness characteristics. This represents 48 percent and 38 percent, respectively, of the lands with wilderness characteristics, which is less of a commitment to maintain wilderness characteristics than Alternatives B and C, but more than Alternative D. In the Arizona Strip FO, 34,415 acres would be identified to maintain wilderness characteristics. There is one overlapping, co-lateral management ACEC designation under Alternative E in the Grama Canyon area. As a result, Alternative E actually offers slightly more areas identified to maintain wilderness characteristics compared to Alternative D, but significantly less than all other action alternatives.

Impacts from Vegetation Management

Impacts would be the same as described under Alternative C.

Impacts from Fish and Wildlife

Impacts from wildlife habitat improvement projects, vegetation treatment projects, and restoration of native wildlife populations would be the same as described under Alternative B.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B.

Impacts from Visual Resources

Impacts in Parashant would be the same as described under Alternative C, while impacts in Vermilion and the Arizona Strip FO would be the same as described under Alternative B.

Impacts from Cultural Resources

Impacts from public use sites would be the same as described under Alternative B. Impacts from cultural resource surveys would be the same as described under Alternative B. Impacts from ACEC designations would be the same as described under Alternative C.

Impacts from Livestock Grazing

Overall impacts from livestock grazing and impacts from range developments would be the same as described under Alternative B.

Livestock Grazing Allotments: In areas that would be identified to maintain wilderness characteristics under Alternative E, grazing impacts would be eliminated on 36,415 acres that would be made unavailable to grazing (38,845 acres less than under Alternative B, 1,987 more than under Alternative C, and 8,938 more than under Alternative D) and grazing impacts would be reduced due to partial/seasonal restrictions on 38,415 acres (24,734 acres less than under Alternative B).

Impacts from livestock grazing in Vermilion would be the same as those described under Alternative B, while impacts in the Arizona Strip FO would be similar to those described under Alternative C.

Impacts from Recreation

Impacts from recreation marketing actions and signing and facilities would be the same as described under Alternative B. Impacts from restoration projects and visitor limits and regulations would be the same as described under Alternative C. Impacts from geocaching would be the same as described under Alternative D.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative B.

Cumulative Impacts

The geographic area of analysis for cumulative impacts to wilderness characteristics is the Planning Area. Wilderness characteristics are primarily affected by the number and proximity of motorized travel corridors; the volume and type of traffic on those corridors; and the quantity and type of recreational users. To a lesser extent, range and wildlife management projects can affect areas with wilderness characteristics. These impacts normally come from vegetation treatments and the installation, maintenance, and use of range/wildlife catchments and wildlife drinkers.

Population growth and the resulting increase in recreational use are expected to eventually impact lands with wilderness characteristics. An increase in motorized and non-motorized use during the life of this Plan could have major impacts on solitude, naturalness, and opportunities for primitive/unconfined recreation.

Vegetation treatments could be conducted on lands with wilderness characteristics that are designated as VRM Class III in the Proposed Plan, which could result in potential long-term impacts to naturalness, solitude, and opportunities for primitive/unconfined recreation.

The growing need to decrease catastrophic fire potential in the region through the reduction of fuel loads by mechanical means would gradually and visibly alter landscapes where treatments are conducted, with short and long-term reductions in the quality of solitude, naturalness, and opportunities for primitive/unconfined recreation.

IMPACTS TO RESOURCE USES

VEGETATION PRODUCTS

Impacts to Vegetation Products

As discussed in Chapter 3, the sale, collection, or use of vegetative products (e.g., native seed, medicinals, landscape mulch, posts, fuel wood, Christmas trees, lumber, etc.) is limited in the

Planning Area. Under all the alternatives, the sale of vegetative products in the Monuments would generally not be authorized. The only exception is that the sale, collection, or use of vegetative material could be allowed on BLM lands in Parashant, by permit only, if associated with a research or restoration project. In general, the sale, collection, or use of vegetative materials would be authorized in the Arizona Strip FO, but would require a permit. Such items as pinyon pine seeds and dead and downed wood for campfire use (where campfires are allowed and subject to fire restrictions) could be collected throughout the Planning Area and would be excluded from the permit requirement.

Overall, since the use and demand for vegetative products is minimal throughout the Planning Area, impacts to that use/demand due to management actions proposed under all the alternatives (primarily from the vegetation resources program) would be negligible. Refer to Impacts to Cultural Resources and Impacts to Socioeconomics for details on how restrictions on the sale, collection, or use of vegetative products would affect American Indian groups and socioeconomics within and surrounding the Planning Area.

LANDS AND REALTY

This section presents potential impacts of the various planning alternatives on the lands and realty program, specifically on land tenure decisions (disposals, acquisitions, and withdrawals) and land use authorizations (ROWs, permits, and leases). See Chapter 3 for a discussion of the lands and realty program in the Planning Area.

Lands and realty actions are vulnerable to any management action that would limit or deny authorization of an ROW or permit; limit exchange, lease, or sale of a parcel to a governmental entity, qualified individual, or business entity; or limit classification of lands for resource protection or the public good. Any management action that limits or denies these land and realty actions would affect the lands and realty program and the public.

The various kinds and types of authorizations and realty actions conducted by the lands and realty program would differ by planning area. Lands and realty actions in the Monuments would be constrained by the proclamation for each Monument and the purpose, significance, and mission statements. The proclamations provide that lands and interests in lands within the boundaries of the Monuments are withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the Monument (i.e., lands could be exchanged within the Monuments for other lands within the Monuments). The proclamations also provide that lands and interests in lands within the Monuments not owned by the United States would be reserved as a part of the Monument upon acquisition by the United States.

Lands and realty actions in the Arizona Strip FO would allow the full array of potential realty actions the BLM authorizes. The lands and realty program impacts are a direct result of management actions of other resource programs. All land and realty actions are performed using an interdisciplinary approach with input from other resource programs in order to address potential resource conflicts. Site-specific NEPA analysis would be performed on all land actions.

Methods and Assumptions

To analyze the potential effects of the alternatives on the lands and realty program, information was gathered from administrative files for lands and realty actions in and adjacent to the Planning Area and from the various actions proposed by other resource programs. The analysis is also based on the professional expertise of BLM specialists at the Arizona Strip FO and the Arizona State Office, and the realty specialist's knowledge of the area.

Effects are quantified where possible. In absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible: The effect would be barely detectable, and/or the public would not be affected.
- Minor: The effect would be slight, but detectable, and/or the public might be affected.
- Moderate: The effect would be readily apparent and/or the public would be affected.
- Major: The effect would be severely adverse or exceptionally beneficial and/or the public would be affected.

The following assumptions regarding future lands and realty actions were made:

• Disposals

1. Lands or interests in lands identified for disposal in the Arizona Strip FO could be sold or exchanged out of federal ownership.
2. No land disposals would take place within the Monuments except for land exchanges that further the protective purposes of the Monuments.
3. No lands have been identified for disposal within any ACECs.
4. The identification of lands for disposal in the Arizona Strip FO does not ensure that these lands would be sold or otherwise disposed.
5. Before any disposals occur, lands would be examined for the presence of high-value resources. Lands that contain high surface values would not be disposed of or the disposal would provide for those values to be preserved.

6. Disposal of small, isolated parcels of public land would decrease the cost of public land administration in the Arizona Strip FO and enhance efficient management of remaining public lands.
 7. The disposal of small, isolated parcels would decrease conflicts between public land users and private landowners.
- **Acquisitions**
 1. Non-federal land, interests in land (including access and conservation easements), and water rights would be considered for acquisition when they are within congressionally or administratively designated areas or contain important resources (i.e., NLCS units, Monuments, ACECs, DWMAs, critical habitat, lands supporting listed species, and riparian/wetland areas, etc.).
 2. Acquisition, including direct purchase, conservation easement, donation, or exchange would only be considered when there is a willing seller and the goals and objectives of the land use plan would be furthered.
 - **Land Use Authorizations**
 1. The effects of development of utility and transportation systems would be mitigated individually. Generally, this would be accomplished by consolidation of new developments along existing routes or by innovative construction techniques that disturb less land and improve reclamation success.
 2. Visitor centers for Monuments would be located outside the Monuments and in nearby communities.
 3. Requests for renewable energy generating projects would only be considered within the Arizona Strip FO and not within the Monuments.

Impacts to Lands and Realty

Impacts to the lands and realty program in the Arizona Strip FO, Parashant, and Vermilion would result from actions proposed under the following resource management programs:

- Travel Management
- Wilderness Characteristics
- Vegetation Management
- Special Status Species (Arizona Strip FO only)
- Visual Resources
- Special Designations (Vermilion and Arizona Strip FO only)
- Recreation
- Lands and Realty

Alternative A: No ActionImpacts from Travel Management

There would be negligible impacts to lands and realty from travel management under the No Action Alternative. The most motorized and mechanized routes open to the public would occur under this alternative, allowing for continued access to private and state parcels within the Planning Area.

Impacts from Wilderness Characteristics

No lands would be identified for wilderness characteristics under this alternative, which would result in no impacts to lands and realty.

Impacts from Vegetation, including Fire and Fuels Management

Wildland and non wildland fire use, appropriate management response, and prescribed fire suppression activities could potentially adversely impact ROWs (e.g., powerlines and communication sites), facilities, and adjacent non-BLM lands; however, long-term impacts could be positive due to the reduction of catastrophic fires. Post-fire rehabilitation improvements could affect adjacent non-BLM lands (e.g., reduced erosion and less chance of alien plant invasion). Impacts to lands and realty would be minor.

Impacts from Special Status Species (Arizona Strip FO only)

In the Arizona Strip FO, approximately 170 out of 25,119 acres identified for disposal are located within the Beaver Dam Slope ACEC; however, lands in the ACEC could not be sold or exchanged. As a result, the BLM's ability to support community growth and expansion would be limited, resulting in moderate impacts.

The utility corridor would remain one-mile wide, except one-half mile wide in the Ferry Swale area, and the width of the ROW across the Beaver Dam Slope would be only the width occupied by the existing powerline and a second yet un-built line. Impacts to the local and surrounding communities could be moderate because only one additional new ROW proposal within the corridor could be approved regardless of the size and type of proposed powerline.

Lands and realty would be affected in areas where no land disposal of listed species or critical habitat is allowed, especially when special status species habitat is located in an area with high exchange or sale value or with high development value. The presence of special status species may preclude the issuance of some land use authorizations and place restrictions on others. The reintroduction of endemic or non-endemic special status species may potentially impact lands and realty depending upon the species and the use restrictions and/or conservation measures applied. The mitigation requirement to fence new roads in desert tortoise habitat would

potentially be an economic burden to applicants of land use authorizations in areas that border desert tortoise habitat because of the high cost of fence materials and labor. Overall impacts to lands and realty would be moderate.

Impacts from Visual Resources

Impacts to lands and realty due to VRM designations in the Monuments would range from negligible to minor as Monument designation already limits the authorization of new ROWs or ancillary public facilities.

In the Arizona Strip FO, two-thirds of the acreage would be designated as VRM Class III or IV, which would allow for more visual modifications, including authorizations of new ROWs or ancillary public facilities, compared to VRM Class I and II. Impacts to lands and realty would be minor, slightly less than under Alternative B, but more than under Alternatives C, D, and E.

On lands open to lease and the operation of mining laws in the Arizona Strip FO, mineral exploration and development could lead to increased lands and realty actions such as ROWs (powerlines, communication sites, etc.) and facilities. In addition, the sale of mineral materials and establishment of community pits could also lead to increased lands and realty actions. Impacts to lands and realty would be minor.

The regional utility corridor across the northern portion of Arizona Strip FO crosses a variety of VRM designations, including VRM Class II, III, and IV, thus creating conflicts between use, maintenance, and any proposed additional facilities within the corridor. Impacts on lands and realty would be minor to major depending on the VRM class where the action is proposed within the ROW and the type of additional facilities that would be constructed.

Impacts from Recreation

SRMAs would continue in designated wildernesses and Little Black Mountain and Virgin River Corridor ACECs. Management of recreation activities in these SRMAs could complement other community support initiatives and may help to reduce user conflicts. Impacts to lands and realty would be minor as lands and realty actions are already restricted by the wilderness and ACEC designations.

The potential for user conflicts and safety issues with I-15 would continue due to public access issues relating to river use and rock climbing areas in the Virgin River Gorge. Recreational use of the Virgin River Gorge could impact the ability to authorize additional facilities in the same area, which would be a minor impact to lands and realty.

Impacts from Special Designations

Wild and Scenic Rivers. The wild and scenic river suitability determination of the Virgin River could affect community development because the river channel could not be altered. This would restrict the BLM's ability to support community growth and expansion through land tenure adjustments and issuing land use authorizations in the Virgin River communities area. Impacts could be minor.

National Historic Trails. Encouraging visitors to respect the rights of landowners in the NHT area, using adjacent lands to complement the protection and interpretation of the NHT, recognizing grandfathered and valid existing rights on public lands, and not compromising the viability of identified NHT sites and/or segments for future management from new land use authorizations could pose minor to moderate impacts to lands and realty, depending upon specific location.

Areas of Critical Environmental Concern. In ACECs, there would be potential impacts to lands and realty in the form of additional or increased stipulations, restrictions on ROWs, R&PP leases, and other land use authorizations. Impacts would be moderate.

Impacts from Lands and Realty

The regional utility corridor would continue to be one-mile wide, except for narrower widths in the Ferry Swale area and across the Beaver Dam Slope. Future powerlines within this corridor would be limited to one additional line. Land acquisitions and use authorizations would continue within the parameters of the Monument proclamations. Land disposals would generally only occur in the Arizona Strip FO. Impacts on lands and realty would be minor to moderate.

Alternative B

Impacts from Travel Management

Alternative B proposes roughly twice as many roads that would be closed compared to Alternative A, which would limit motorized and mechanized access. Because administrative use could still be allowed, impacts would be minor.

Since access to private and state parcels was considered during route evaluation for the Monuments and the Littlefield sub-region, impacts on motorized and mechanized access to these areas would be negligible.

Impacts from Wilderness Characteristics

The BLM would consider acquisition of private or state inholdings from willing sellers in wilderness and areas having wilderness characteristics in Arizona Strip FO, while acquisition of private or state inholdings from willing sellers would be considered on all lands in the Monuments. Thus, impacts to the lands and realty program would only occur in the Arizona Strip FO and they would be minor because of the limited amount of non-federal acreage involved.

Impacts from Vegetation, including Fire and Fuels Management

Impacts would be the same as discussed under Alternative A. In addition, construction equipment and/or vehicles from outside the Planning Area used to implement authorized projects and uses would be required to be cleaned prior to entering the Planning Area and initiating projects. Impacts to authorized land users would be minor.

Impacts from Special Status Species

Impacts would be the same as discussed under Alternative A, except that less acreage would be available for disposal. In the Arizona Strip FO, the BLM's ability to support community growth and expansion would be more limited under this alternative because of the lower number of acres identified for disposal. No lands would be identified for disposal within the Beaver Dam ACEC, which could limit community growth and expansion of the Virgin River communities near Littlefield. Impacts would be moderate.

Impacts from Visual Resources

The types of impacts would be similar to those discussed under Alternative A, negligible to minor.

The entire length of the existing utility corridor would be designated VRM Class IV, which would lessen conflicts from visual contrasts within the ROW corridor than would be experienced under Alternative A because there would be less restriction on what could be authorized.

Impacts from Special Designations

Wild and Scenic Rivers. Impacts would be the same as under Alternative A.

National Historic Trail. Impacts would be the same as under Alternative A.

Areas of Critical Environmental Concern. Impacts would be the same as under Alternative A, except that they would be more widespread as Alternative B proposes the most ACEC acreage designation than under any other alternative. Impacts would still be moderate.

Impacts from Recreation

Impacts would be the same as under Alternative A.

Impacts from Lands and Realty

In the Arizona Strip FO, the existing utility corridor beginning at Glen Canyon Dam and ending at the Arizona/Nevada border would remain one-mile wide, except in the Ferry Swale area and Beaver Dam Slope ACEC where the corridor would be ½-mile wide. Every proposed ROW within the corridor would be subject to site-specific NEPA, NHPA, and ESA compliance. Because the Beaver Dam Slope ACEC would not be restricted to only one more ROW, impacts would be minor.

Alternative C

Impacts from Travel Management

About three-quarters of the motorized and mechanized routes open to the public under Alternative A would remain open under this alternative, which is considerably more miles compared to Alternative B. Impacts would be minor.

Impacts from Wilderness Characteristics

Approximately half as many acres would be identified for wilderness characteristics in the Monuments compared to Alternative B, except in Arizona Strip FO where there would be a 68 percent increase from Alternative B. Impacts would be minor because of the limited amount of non-federal acreage involved that could potentially be purchased.

Impacts from Vegetation, including Fire and Fuels Management

Impacts would be the same as under Alternative B.

Impacts from Special Status Species

Impacts to lands and realty from the identified resource management programs would be the same as under Alternative A, except slightly less acres would be identified for disposal. The BLM's ability to support community growth and expansion would be improved over Alternative B because of the increased number of acres identified for disposal. While impacts are expected to be less than those under Alternative B, they would remain moderate.

Impacts from Visual Resources

Significant amounts of acreage would be designated VRM Class III, more than under Alternative A but less than under Alternative B. Lands and realty impacts would be minor because Class III is less restrictive.

Impacts from Special Designations

Wild and Scenic Rivers. Impacts would be the same as under Alternative A.

National Historic Trail. Impacts would be the same as under Alternative A.

Areas of Critical Environmental Concern. Impacts would be the same as under Alternative A.

Impacts from Recreation

Impacts would be the same as under Alternative A.

Impacts from Lands and Realty

The existing utility corridor would be the same as under Alternative B. Other impacts would be the same as under Alternative A.

Alternatives D and E (Proposed Plan)Impacts from Travel Management

Less than half as many routes would be closed to motorized and mechanized public use under Alternatives D and E than under Alternative B, but approximately two times more would be closed than under Alternative A. Impacts would be minor because administrative uses could still be authorized.

Impacts from Wilderness Characteristics

Among the action alternatives, Alternatives D and E would identify the least amount of acreage for maintaining wilderness characteristics. Impacts, however, would remain minor under both alternatives due to the limited amount of non-federal acreage involved that could potentially be acquired.

Impacts from Vegetation, including Fire and Fuels Management

Impacts would be the same as under Alternative B.

Impacts from Special Status Species

Impacts would be the same as under Alternative C.

Impacts from Visual Resources

Although more acreage in Parashant would be designated VRM Class I and Class II under Alternatives D and E than under Alternative A, impacts to lands and realty would remain minor because few use authorizations would be expected in Parashant. In Vermilion, approximately the same amount of acreage would be designated VRM Class I, II, and III as under Alternative A. Impacts to lands and realty would be negligible to minor because few, if any, use authorizations would be expected in Vermilion.

In Arizona Strip FO under Alternatives D and E, impacts would be minor because more acres near communities and designated corridors would be in a less restrictive VRM Class.

Impacts from Special Designations

Wild and Scenic Rivers. Impacts would be the same as under Alternative A.

National Historic Trail. Impacts would be the same as under Alternative A.

Areas of Critical Environmental Concern. Impacts would be the same as under Alternative A due to ACECs being avoidance areas for use authorizations. However, impacts would be less widespread under Alternative D as the least amount of acreage would be proposed for ACECs.

Impacts from Recreation

Impacts would be the same as under Alternative A.

Impacts from Lands and Realty

The existing utility corridor beginning at the Glen Canyon Dam and ending at the Arizona/Nevada border would be designated one-mile wide. Impacts would be minor as all proposed ROWs within the corridor would be subject to site-specific NEPA compliance and compliance with cultural and ESA laws. Other impacts would be the same as under Alternative A.

Cumulative Impacts

The area of analysis for cumulative effects was defined as the Planning Area and those communities and cities immediately adjacent to the Planning Area, including Mesquite, Nevada; St. George, Hildale, and Kanab, Utah; and Page, Arizona.

Cumulative impacts to lands and realty could occur through changes in the designation and development of land resources and in changes to access of the land. Under the Proposed Plan, the regional utility corridor would be one-mile wide. Future growth and development of adjacent non-federal lands is expected to result in increased requests for use authorizations and R&PP Act grants for schools, fire stations, wastewater facilities, landfills, and the like. Other ROW proposals would also be evaluated including the Lake Powell Pipeline and Fort Pearce Reservoir.

LIVESTOCK GRAZING

This section presents impacts of the alternatives on livestock grazing as determined through changes in allocations, designations, and/or resource uses. See Chapter 3 for a discussion of livestock grazing in the Planning Area.

Livestock grazing operations may be impacted by management actions that alter types and amounts of grazing permitted and the amount and type of vegetation present in livestock grazing allotments. The latter can be influenced by vegetation treatment efforts, soil stability, and watershed function. Impacts to livestock grazing operations also come from interaction with visitors, access provisions, and other management factors that limit or restrict livestock grazing in certain areas.

Methods and Assumptions

Available information was obtained through relevant literature, best management practices, standards and guidelines assessments, monitoring, existing land use plans, and consultation with the public, livestock grazing permittees, and interdisciplinary teams. Impacts were assessed using best professional judgment from BLM and NPS resource specialists. Effects are quantified where possible. In absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible:** The impact would not be detectable. Grazing operations would not be appreciably affected. Normal day-to-day livestock grazing operations would not be affected.
- Minor:** The impact would be detectable. The effect would be perceptible, and the action would result in a slight change in grazing operations, but the change would be localized. Normal day-to-day livestock grazing operations would not be affected, except in small, localized areas.
- Moderate:** The effects would be apparent, and the action would result in a limited change in grazing operations. Normal day-to-day livestock grazing operations may be restricted.

Major: The impact would be severe. The effects would be readily apparent or widespread, and the action would result in a substantial change in livestock grazing operations. Normal day-to-day livestock operations would be restricted.

The following assumptions regarding the future management of livestock grazing resources are made:

- All laws, regulations, and policies for the management livestock grazing would be followed, to the extent allowed by budget and available personnel.
- Livestock grazing would be managed to meet the BLM Arizona Standards for Rangeland Health and NPS Vital Signs.
- The type and amount of grazing use would be expected to remain approximately the same.
- Range improvements would continue to occur at current rates to reach rangeland improvement goals.
- Improvements would include the following types of projects: spring/seep development and protection; reservoirs and pits; wells; new or modified fencing; vegetation treatments; and pipelines.

Impacts to Livestock Grazing

Impacts to livestock grazing would result from actions proposed under the following resource management programs:

- Travel Management
- Wilderness Characteristics
- Vegetation and Fire and Fuels Management
- Special Status Species
- Fish and Wildlife
- Air, Water, and Soil
- Visual Resources
- Minerals (Arizona Strip FO only)
- Special Designations (ACECs; Arizona Strip FO only)
- Livestock Grazing
- Recreation
- Lands and Realty (Arizona Strip FO only)

*Alternative A: No Action*Impacts from Travel Management

Under Alternative A in the Arizona Strip FO, all authorized public land users that hold a permit, license, or other authorization (including grazing permittees) would be allowed to continue to drive off-road, if necessary, in order to fulfill requirements of their permit or license in areas limited to existing roads and trails. Such travel would require specific requests and approval by the authorized officer.

Both Monument proclamations prohibit vehicle use off road except for emergency or authorized administrative purposes. Cross-country travel is a management tool used by livestock grazing operators. Eliminating the possibility of using such a tool would increase overhead costs by increasing time necessary to conduct support activities and reducing efficiency. Impacts to livestock grazing operations would range from negligible to moderate.

For all three planning areas, the most miles of roads would remain open and the least closed under Alternative A. This would facilitate livestock management by allowing continued access to livestock grazing operations. However, it is expected that visitation to the Monument would continue to grow at high rates during the life of this Plan. Easy access afforded by the most miles of open roads would allow for increased interaction of the public with livestock and livestock developments (e.g., fences, corrals, and water developments). This would increase the occurrences of livestock harassment, gates being inappropriately left open or closed, and range improvements being damaged.

Providing the greatest miles of roads under Alternative A would also facilitate dispersed visitor use, which, in turn, would diffuse impacts to livestock and related facilities instead of concentrating such impacts on particular allotments or areas. Overall, Alternative A would cause the fewest impacts to livestock grazing operations compared to the other Alternatives. Such impacts would be moderate.

Impacts from Wilderness Characteristics

No areas would be identified for wilderness characteristics under Alternative A.

Impacts from Vegetation and Fire and Fuels Management

Within the Planning Area, vegetation treatments and restoration activities, such as mechanical and chemical, including fire and fuels management, would continue to be implemented. These activities would decrease forage available for livestock use in the short term and could result in seasonal restrictions, temporary reductions, or elimination of authorized activities to protect sensitive resources and/or ensure attainment of restoration objectives. Restoration activities in

the long term would improve the watersheds and vegetation, and provide additional forage for livestock. These impacts would be moderate.

Wild fire could decrease forage available for livestock use in the short term, and would require changes in and restrictions to livestock grazing use during emergency fire rehabilitation. In the long term, forage quality and quantity available to livestock could potentially increase. Overall, these impacts would be moderate.

Treatment of noxious weeds would control and/or contain weed species proliferation, thereby maintaining forage production, diversity, and vigor in the treatment areas. Long-term impacts would range from minor to moderate.

Impacts from Air, Water, and Soil

Air, water, and soil management considerations during the implementation of the Arizona Standards for Healthy Rangelands generally insure proper vegetative conditions and that allowable uses/actions are designed to minimize erosion. These considerations could indirectly increase forage levels for livestock.

Specific grazing management practices designed to protect vegetation and soils could be required on some small, localized areas with soil erosion concerns, which could have minor impacts on some livestock operations. Normal day-to-day livestock grazing operations may be restricted on some allotments containing larger areas with soil concerns, resulting in localized moderate to major impacts to the livestock grazing operations involved.

Implementing watershed management activity plans would continue to improve the watershed conditions by increasing vegetation cover, reducing erosion, and indirectly increasing forage conditions. Implementing such plans would cause negligible to moderate short-term impacts on livestock operations as livestock use is adjusted to provide protection until treatment can become established. The long-term effect would be reduced erosion from increased vegetation and ground cover, which could result in better forage conditions for livestock.

Impacts from Fish and Wildlife

Management and restoration of native wildlife populations into their historic ranges could have negligible to minor short- and long-term impacts on livestock operations by creating conflict with space, forage use, and water. However, the two activities have mutual goals. Water developments designed to provide new water sources for wildlife in some situations increase water availability for livestock, promoting improved distribution of both livestock and wildlife.

Limiting fences to specific designs to allow wildlife movement essentially keeps livestock contained. However, wildlife passable fences are designed so larger animals can safely jump over them or smaller ones can safely pass under them, which increases the likelihood that some

livestock could also escape, resulting in increased cost of locating the animals and allows grazing to occur outside permitted areas. The need to modify existing fences to meet standards would also increase costs for livestock operators, resulting in minor impacts.

Animal damage control efforts involving removing animals known to have killed livestock could have minor to moderate impacts by reducing further predation and loss of animals.

Impacts from Special Status Species

Under Alternative A, making areas unavailable for livestock grazing, placing restrictions on season of use, reducing access, or applying other restrictions meant to protect special status species may impact livestock grazing operations through the loss of forage, increased difficulty of access, increased costs, reduced livestock numbers, and increased number of allotments made unavailable for livestock grazing. Impacts would range from minor to moderate.

Impacts from Visual Resources

Depending on the VRM class, new range improvements such as structures or vegetation treatments would be required to meet VRM class objectives. Some VRM class restrictions on range improvement design could affect functionality and cost, or prohibit the construction of improvements such as pipelines and water storage tanks necessary to properly manage or improve livestock grazing management practices. Impacts would range from negligible to moderate.

Impacts from Minerals (Arizona Strip FO only)

Historically, minerals activities have had only minor impacts on the forage available to livestock. However, any major mineral activity has the potential to increase or decrease available forage. Such impacts would be negligible to moderate, depending on the size and duration of the project. In addition to displacing cattle, mining operations also have the potential to injure or kill cattle due to increased use of roads and presence of heavy mining equipment.

Impacts from Special Designations (ACECs)

In the Arizona Strip FO, ACECs would continue to cover 127,192 acres or 6 percent of the Field Office. These designations would continue to have minor to major impacts on those allotments within ACEC boundaries as grazing operators are required to adjust their normal, day-to-day operations, such as changes in season of use, to meet specific ACEC objectives.

Impacts from Livestock Grazing

In Parashant, designating the Parashaunt Allotment as a forage reserve would complement restoration research and assist in stabilizing local livestock operations while accomplishing

resource objectives on a landscape scale. However, the 2,308 AUMs available on the Parashaunt Allotment are essentially removed from the total authorized AUMs on the Monument because using the forage reserve would require moving livestock off an existing allotment and onto the forage reserve. Impacts would be negligible to minor because the allotment would still be available through either forage reserves or reconfiguration, which would help in stabilizing livestock grazing in the area.

Impacts from Recreation

Under Alternative A, recreation activities would continue to directly impact livestock grazing operations through human disturbance, including animal displacement, livestock respiratory problems caused by airborne dust, and the injury or death of animals caused by vehicle collisions. Vandalism to range projects and leaving gates open would also have an impact on livestock grazing operations. These impacts would likely increase over the life of the Plan due to the increasing level of visitation in the Planning Area.

Overall impacts from recreation on livestock grazing would be moderate under Alternative A; less intense compared to the other alternatives that would expand recreational opportunities and place restrictions on types of uses.

In Vermilion, the River Pasture of the Lees Ferry Allotment would be unavailable for livestock grazing in order to eliminate recreationists' complaints concerning evidence and presence of livestock in the canyon. Making this area unavailable for livestock grazing would create a major impact to the livestock grazing operator involved.

Impacts from Lands and Realty (Arizona Strip FO only)

The construction of powerlines, pipelines, and other construction activities would temporarily remove forage and displace or cause injury to livestock, resulting in short-term impacts. Long-term impacts would include loss of forage where roads and facilities occur; reduced forage palatability due to dust on vegetation; increased level of human activity; and livestock control problems related to fence, gate, and cattle guard maintenance.

Permanent loss of forage would also be caused by permanent road construction and land disposals and exchanges. Most land disposals and exchanges would involve isolated tracts; therefore, the loss of forage would be minimal. Exchanges would be used to reach management objectives, such as consolidating public lands to ease management, which could benefit livestock operations in the long term.

Historically, land exchanges and acquisitions have had only minor impacts on the forage available to livestock. However, any acquisition or exchange of lands has the potential to increase or decrease forage available to livestock by making either more or less acres available

for grazing. Overall impacts to livestock grazing would be negligible to minor and normal day-to-day livestock grazing operations would not be affected, except in small, localized areas.

Alternative B

Impacts from Travel Management

Substantially fewer roads would be open under Alternative B than under any other alternative, which could complicate normal day-to-day livestock grazing operations and result in substantial changes to some operations. Impacts to the grazing permittees involved would range from moderate to major.

Alternative B also proposes the greatest miles of roads open to administrative use only. While these roads would facilitate livestock operations and help alleviate some of the impacts mentioned above, administrative routes would generally be managed at the lowest maintenance levels and frequencies and be subject to the terms of an appropriate authorization instrument, which can be complex, difficult to obtain, and is usually of short duration. As a result, some livestock grazing permittee would experience moderate to major impacts on their normal, day-to-day livestock operations.

Under Alternative B, the largest acreage of lands would be managed in the Primitive TMA, encompassing 87 percent of Parashant, 86 percent of Vermilion, and 37 percent of the Arizona Strip FO. This TMA contains range improvement projects that require routine maintenance and roads necessary for livestock grazing management, along with the need for some new projects. Increased acreage for non-motorized, non-mechanized types of recreation and decreased acreage for motorized, mechanized types of recreation would result in fewer visitor-related impacts to grazing facilities and animals.

In short, implementing Alternative B would affect normal day-to-day livestock operations by limiting the use of motorized mechanized equipment necessary for economically viable operations. Such impacts to the livestock grazing permittee could range from moderate to major.

Impacts from Wilderness Characteristics

Alternative B proposes to identify the most acres of lands with wilderness characteristics. Within Parashant, almost every allotment within the Monuments would be affected. Twelve allotments within the Arizona Strip FO would be affected. A number of facilities and access roads associated with these affected allotments are also within the areas that would be identified to maintain wilderness characteristics. Such access roads would be designated as administrative use only under Alternative B, which would generally be managed at the lowest maintenance levels and frequencies and subject to the terms of an appropriate authorization instrument, which can be complex, difficult to obtain, and is usually of short duration. In addition, it may be more

difficult to get approval to build future livestock grazing facilities in areas identified with wilderness characteristics due to added restrictions .

Implementing this alternative would affect normal day-to-day livestock operations that require the use of motorized and mechanized equipment to remain economically viable. Because of the acreage involved and restrictions on access, Alternative B would result in the most restrictive of all alternatives, resulting in potentially major impacts. Major impacts to affected livestock operations would result from the implementation of Alternative B.

Impacts from Vegetation and Fire and Fuels Management

The types of impacts would be similar to those described under Alternative A, with the exception that restoration or vegetation treatment activities would be more restrictive and use fewer tools under Alternative B. This alternative also proposes the least amount of acreage of any alternative for sagebrush and pinyon-juniper treatments within the Planning Area, which would result in the least widespread impacts among the alternatives.

Closing the Cane Springs Pasture of the Mud and Cane Allotment in Parashant would require the permittee to find an alternative holding pasture. If an alternative pasture could be found, moving livestock to it could increase expenses and/or be logistically complicated. The inability of finding an alternative pasture could force the permittee to eliminate or reduce the impacted herd, causing further economic hardships. Impacts to the specific livestock operator would be major.

Impacts from Soil, Water, and Air

Overall impacts would be similar to those described under Alternative A. Implementation of additional grazing management restrictions and practices designed to protect vegetation and soil resources could result in moderate to major impacts to livestock grazing operations.

Impacts from Fish and Wildlife

Impacts would be similar to those discussed under Alternative A, with the exception that greater emphasis would be given to priority wildlife species under Alternative B. Activities adversely affecting priority species could be modified or restricted. Habitat requirements, including the goals identified in the Fish and Wildlife and Vegetation DFCs and the Management Actions to attain these DFCs, could result in greater restrictions on livestock grazing that could affect day-to-day livestock grazing operations. Impacts to livestock grazing would be minor to moderate.

Focusing management to balance predator and prey and limiting animal damage control efforts to the offending animal could have a moderate impact on livestock operations. Overall impacts to livestock grazing from wildlife management would be moderate.

Impacts from Special Status Species

Impacts would be the same as described under Alternative A, with the following exceptions:

Under Alternative B in Parashant, a larger portion of the Mosby-Nay Allotment would be unavailable to grazing, resulting in a reduction of 516 AUMs, with seasonal restrictions placed on the remaining lands available to grazing. Overall all, only 149 AUMs would be authorized. In addition, the entire Pakoon Springs Allotment (1,282 AUMs) and the entire Pakoon Allotment with critical desert tortoise habitat (1,624 AUMs) would be unavailable to livestock grazing. These actions would result in an additional 149,338 acres not available to livestock grazing in Parashant and a reduction of 3,422 AUMs compared to Alternative A. These areas not available for livestock grazing along with additional seasonal restrictions would substantially change the day-to-day livestock operations currently occurring in the allotments involved. The resultant loss of revenue by the grazing permittees involved could reach the point that they could no longer be able to afford to stay in the livestock business. Such impacts would be moderate to major for the livestock grazing permittees involved.

In the Arizona Strip FO, allotments in critical desert tortoise habitat would not be available to livestock grazing. These allotments include most of Mesquite (Littlefield Slope Pasture only; reduced by 1,319 AUMs, Littlefield Community (Littlefield Slope Pasture only; reduced by 1,199 AUMs), all of the Beaver Dam Slope (reduced by 896 AUMs), Highway (reduced by 179 AUMs) and Mormon Well (reduced by 420 AUMs). All grazing preferences associated with these allotments, and portions thereof, would be canceled, which would result in removal of 127,267 acres from livestock grazing and total of 4,013 AUMs in the Arizona Strip FO. Additional seasonal restrictions would also occur under Alternative B on the remainder of Littlefield Community and the Mesquite Allotments, and the Cedar Wash Allotment would not be allowed ephemeral extensions. Season of use restriction without ephemeral extensions would result in the loss of opportunity to utilize forage production above permitted use when climatic conditions result in excess forage being available. Areas not available for livestock grazing and seasonal use restrictions without ephemeral extensions would result in substantial change to day-to-day livestock operations and loss of revenue to the point that the grazing permittees involved could no longer be able to afford to stay in the livestock business. Grazing permittees who are forced to turn to other means to feed their livestock when public lands become unavailable could experience substantial increases to their operations' costs, potentially to the point where remaining in the livestock business may not be practical. Livestock operations depend greatly on the use of public rangelands to sustain base herds. Most of the grazing permittees do not own or control enough private lands to support their base herd for 60 or more days without having to feed hay to their animals. Other options, such as renting private pasture, if available, would be too costly for many permittees. In addition, two consecutive dry years could effectively put some grazing lessees out of the cattle business.

Under Alternative B, Parashant and the Arizona Strip FO would experience a total reduction of 7,435 AUMs (not including State AUMs) due to the management of special status species.

Using \$89.70 as the total economic value per AUM (Fletcher et. al. 2006; see Impacts to Socioeconomics), such AUM reductions would result in a loss of \$666,919.50 in total economic value. Overall impacts under Alternative B to the grazing permittees involved would range from moderate to major.

Also in the Arizona Strip FO, suitable Flycatcher habitat would not be available for livestock grazing during the growing season on the Clearwater portion of the Kanab Creek and Wildland Allotments and the river portion of the Lambing Allotment. This restriction would result in slight changes to the grazing operations involved. Impacts would be localized and minor.

Under Alternative B in the Arizona Strip FO, ACEC designations for the protection of special status species would have the greatest impact to livestock operations compared to the other alternatives due to the increased size and number of ACECs. Grazing restrictions in ACECs could range from season-of-use changes to other modifications in grazing systems and permit adjustments. Most management actions aimed at reducing trampling or crushing of special status plants could affect normal, day-to-day livestock operations, and could result in the loss of opportunity to utilize forage production. Impacts would range from minor to moderate. In addition, Vegetation Habitat Management Areas for special status plants (covering three different geographic areas) that would restrict uses to protect special status plants could result in impacts to livestock that are similar to ACEC restrictions

Water developments in listed species habitats could be modified under Alternative B to minimize adverse effects to the species. This action could result in restrictions to livestock use, including changes in season of use and necessitate the moving of waters, which could change normal, day-to-day operations or result in substantial cost associated with moving waters. Impacts to the livestock grazing operator involved would range from minor to moderate.

Impacts from Visual Resources

Alternative B proposes the most acres designated as VRM Class I and II, covering nearly 100 percent of the allotments within the Monuments and placing the most restrictions on grazing. These VRM class designations would require new range improvements projects to meet certain VRM class objectives, or existing ones to be brought into conformance as need or opportunity arises. Redesigning new and existing range improvements to bring them into conformance could affect functionality and cost as well as grazing operations. This could restrict the permittees by limiting their ability to utilize perennial forage and not allowing better livestock distribution. Impacts to the grazing permittees involved could range from negligible to moderate.

Impacts from Minerals (Arizona Strip FO only)

Impacts would be similar to those described under Alternative A.

Impacts from Special Designations (ACEC)

In the Arizona Strip FO, Alternative B proposes the most acres to be under ACEC designation compared to all other alternatives, resulting in the most widespread impacts. Compared to Alternative A, the increase would affect an additional 27 grazing allotments.

Grazing restrictions from additional ACEC acreage could range from season-of-use changes to other modifications in grazing systems and permit adjustments. Impacts would be both short and long term and range from moderate to major. These changes could affect the normal, day-to-day livestock operation, and could result in a loss of opportunity to utilize forage production, which could increase the cost of grazing operations. Impacts to grazing permittees involved would range from minor to moderate.

Impacts from Livestock Grazing

Impacts would be similar to those described under Alternative A, with the following exceptions:

Under this alternative, 1,439 AUMs would not be available on the Tuweep Allotment (Parashant and the Arizona Strip FO) for livestock grazing, but with no known resource allocation conflicts. There would be 291 AUMs unavailable for grazing in the Paria River Pasture of the Lees Ferry Allotment (Vermilion). However, since this preference was voluntarily relinquished to resolve livestock/recreation conflicts within the river corridor, impacts would be moderate. Using the \$89.70 total economic value per AUM (Fletcher et. al. 2006; see Impacts to Socioeconomics), these 1,730 AUMs lost under Alternative B would result in a loss of \$155,181 in total economic value.

Impacts from Recreation

Overall impacts would be the same as described under Alternative A with the following exceptions:

Impacts to livestock grazing from recreation would also be similar to those concerning areas closed to motorized access discussed under Impacts from Travel Management under this alternative. This is particularly true for SRMAs and Extensive Recreation Management Areas (ERMAs) where the areas are to be managed essentially free from evidence of human-induced restrictions and controls, and motorized use within the area would not be permitted.

Areas defined for non-motorized access contain range improvement projects, which generally require the use of roads for routine maintenance. Roads are also necessary for livestock grazing management and the potential construction of some new projects. Taken together, limiting and/or restricting access (subject to the terms of an appropriate authorization instrument) could limit the ability of livestock grazing permittees to deal with differing situations that arise during daily operations. Impacts would be readily apparent and wide spread, affecting normal day-to-

day livestock operations that require the use of motorized and mechanized equipment to remain economically viable. Impacts to livestock grazing permittees could range from moderate to major.

Over time, grazing allotments and permittees would continue to sustain further impacts from increasing recreational use throughout the Planning Area, which can increase vandalism to range projects and disturbance to livestock, resulting in minor to moderate impacts on livestock operations. More recreational use could create conflicts with livestock or livestock-associated equipment on the roads, at camping or parking locations, at livestock watering sites, and at popular recreation locations.

Impacts from Lands and Realty

Impacts would be similar to those described under Alternative A.

Alternative C

Impacts from Travel Management

Impacts from road closures and restrictions would be similar to those described under Alternative B, although slightly less intense as a few more miles of roads would be left open and fewer miles of road would be closed. Impacts would range from moderate to major, depending on the specific roads involved.

Impacts from TMA designations would also be similar to Alternative B, albeit less intense as there would be fewer acres of Primitive TMA.

Impacts from Wilderness Characteristics

Impacts would be similar to those described under Alternative B, although less widespread in the Monuments as fewer acres are proposed for maintaining wilderness characteristics and fewer allotments would be affected. Impacts in the Monuments would still be moderate. Impacts would be more widespread in the Arizona Strip FO as more acres would be identified with wilderness characteristics and more allotments would be affected. Impacts in the Arizona Strip FO would be moderate.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be similar to those discussed under Alternative B. One exception is that more acres of both sagebrush and pinyon-juniper habitats could be treated and such treatments could occur sooner when compared to Alternative B.

In Parashant, the Cane Springs riparian area would be fenced and not available for grazing, which would be more restrictive than under Alternative A but less restrictive than under Alternative B. While the Cane Springs Pasture would continue to act as a holding pasture, the permittee would be required to operate and maintain a water collection facility, which is more restricted and more costly to accomplish than if the riparian area was available to grazing. Impacts to the particular livestock operator would be moderate.

Impacts from Air, Water, and Soil

Impacts would be similar to those described under Alternative B.

Impacts from Fish and Wildlife

Impacts would be similar to those discussed under Alternative B, with the exception that four additional watchable wildlife areas would be added in Parashant, one would be created in Vermilion, and five would be added in the Arizona Strip FO. These additional watchable wildlife areas would increase visitation and potential conflicts with livestock. Impacts to grazing operations would be negligible.

Impacts from Special Status Species

Impacts would be similar to those described under Alternative A, with the following exceptions:

In Parashant, impacts from the unavailability of areas for grazing and restrictions on the Mosby-Nay Allotment would be similar to Alternative B. Impacts to that portion of the Pakoon Allotment unavailable to grazing within the Pakoon DWMA would be similar to Alternative A; however, shortening the season of use outside the DWMA would increase impacts to grazing permittees, even with possible ephemeral extensions. Expanding the area that is not available for livestock grazing on Pakoon Springs allotment would result in a loss of 840 AUMs. Impacts to the livestock operators involved would be major.

In the Arizona Strip FO, season of use and other management prescriptions consistent with achieving DFCs, as identified through the rangeland health assessment process, would be established (along with a management plan detailing specifics of grazing use) on the remaining portions of Littlefield Community and Mesquite allotments. These restrictions could result in minor to moderate impacts on the normal, day-to-day livestock grazing operations of the grazing permittees involved.

In the Cedar Wash Allotment outside desert tortoise ACECs, ephemeral extensions would be authorized when conditions outlined in Guideline 3-5 (guidelines for when to authorize grazing on designated ephemeral ranges) of the Arizona Standards for Rangeland Health are met. Using the Guidelines would result in negligible to minor, if any, impacts to the day-to-day livestock grazing operations of the permittees involved.

Under Alternative C, Parashant would experience a total reduction of 840 AUMs due to the management of special status species. Using \$89.70 as the total economic value per AUM (Fletcher et. al. 2006; see Impacts to Socioeconomics), such AUM reductions would result in a loss of \$75,348.00 in total economic value. Overall impacts under Alternative C to the grazing permittees involved would range from minor to major.

Impacts from Visual Resources

In Parashant and the Arizona Strip FO, impacts would be similar to those described under Alternative B for Vermilion. Impacts would also be similar to Alternative B in Parashant and the Arizona Strip FO, although impacts would be less intense as fewer acres would be designated under VRM Class I and II.

Impacts from Minerals (Arizona Strip FO only)

Impacts would be similar to those described under Alternative A.

Impacts from Special Designations (ACECs)

The types of impacts would be similar to those discussed under Alternative A, except that they would be more widespread due to additional acres that would fall within expanded or newly designated ACECs, but not as widespread compared to Alternative B.

Impacts from Livestock Grazing

Designating the Pakoon Springs and Parashaunt Allotments (Parashant) and the Tuweep Allotment (Parashant and Arizona Strip FO) as forage reserves would complement restoration research and assist in stabilizing local livestock operations while accomplishing resource objectives on a landscape scale. However, the 608 AUMs in the Pakoon Springs Allotment, 2,308 AUMs Parashaunt Allotment, and 1,439 AUMS available on the Tuweep Allotment are essentially removed from the total authorized AUMs on the Monument, because the permittees that would use the forage reserve is in all practicality moving livestock off of his allotment onto the forage reserve. Impacts would be negligible to minor because allotments would still be available to use through either forage reserves or reconfiguration, which would help in stabilizing the livestock grazing in the area.

In Vermilion, the River Pasture of the Lees Ferry Allotment (291 AUMs) would be managed as a forage reserve for livestock grazing, with a season of use from November 15 through March 1, and would not be used more than two years in five. The AUMs would be retained by the BLM and that portion of the pasture in Glen Canyon NRA would still be utilized as part of the pasture. Impacts would be negligible to minor.

Impacts from Recreation

Impacts would be similar to those discussed under Alternative B, with the exception that the Primitive TMA would be slightly smaller with additional SRMAs and ERMAs may concentrate recreation use in some areas but would also allow more management to resolve conflicts between other uses, including livestock grazing operators.

Impacts from Lands and Realty

Impacts would be similar to those described under Alternative A.

Alternative D

Impacts from Travel Management

Under Alternative D, impacts from Primitive TMAs to livestock grazing would be similar to Alternative B, although less intense due to fewer acres under this TMA. Impacts to livestock grazing from implementing changes to roads open, roads closed, and roads open to administrative use only would be similar to Alternative B, except impacts would be less intense due to more roads open, fewer roads closed, and fewer administrative roads. Impacts would also be less intense than Alternatives C and E, but more intense than under Alternative A.

Impacts from Wilderness Characteristics

Impacts in Parashant would be similar to those described under Alternative B, although less intense as it would involve fewer acres for maintaining wilderness characteristics. Aside from Alternative A, Alternative D would have the least effect on livestock grazing among the alternatives. Impacts would be more localized and in the range of minor to moderate.

Impacts to livestock grazing in Vermilion would be the same as described under Alternative A because no acres would be identified for wilderness characteristics.

In the Arizona Strip FO, the types of impacts would be the same as described under Alternative B, but more localized due to fewer acres proposed to be maintained with wilderness characteristics. Impacts would be the same as under Alternative E due to similar acres having wilderness characteristics, which is considerably fewer acres than proposed under Alternative C, and would range from minor to moderate.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be similar to those described under Alternative B, with the exception that Alternative D would allow for treating more acres of sagebrush and pinyon-juniper sites, the most among the alternative except Alternative A. Allowing more acres to be treated provides

additional opportunities to maintain and improve watersheds and maintain or increase forage quality and quantity available to livestock in the long term. Overall impacts would be minor to moderate.

Under Alternative D, impacts from vegetation management in the Cane Springs Pasture of the Mud and Cane Allotment would be the same as under Alternative A.

Impacts from Air, Water, and Soil

Impacts would be similar to those described under Alternative B.

Impacts from Fish and Wildlife

Impacts would be similar to those described under Alternative C.

Impacts from Special Status Species

In Parashant, impacts from making the Mosby-Nay Allotment unavailable for grazing would be the same as described under Alternative A. Under Alternative D, the Grand Gulch Wash portion of the Pakoon Allotment would be eliminated from the DWMA and available for grazing, which would result in positive, moderate impacts for the grazing permittees. However, the season of use would be reduced, decreasing some benefit from the additional AUMs, even with the possible ephemeral extensions.

Impacts in Vermilion would be similar to those described under Alternative A. Impacts in the Arizona Strip FO would also be similar to those described under Alternative A, except that most of Mesquite (Littlefield Slope Pasture only), and Littlefield Community (Littlefield Slope Pasture only), and all of the Beaver Dam Slope, Highway, and Mormon Well grazing allotments would receive ephemeral extensions to May 15, when conditions outlined in Guideline 3-5 of the Arizona Standards for Rangeland Health are met. In addition, season of use in the Cedar Wash Allotment would increase by one month. These changes from Alternative A would result in a slight to limited change in the normal, day-to-day grazing operation by allowing the use of the additional forage, when available. Impacts to the livestock grazing operations for those permittees involved would be positive and range from minor to moderate.

Impacts from special status species decisions concerning water developments in listed species habitats would be the same as described under Alternative B. With all impacts combined, Alternative D would have the least impacts to livestock grazing among the alternatives, with the exception of Alternative A.

Impacts from Visual Resources

In Parashant, impacts from VRM Classes I and II designations would be the same as described under Alternative B, although less intense due to fewer acres designated. Impacts would also be less intense than all other alternatives except Alternative A for the same reasons.

In Vermilion, VRM Classes I and II designations would be the same as described under Alternative B, except that VRM Class I would decrease and Class II would increase. Intensity of impacts under Alternative D would be the same as under Alternatives A.

In the Arizona Strip FO, impacts from VRM Classes I and II designations would be similar to those under Alternative B, although impacts would be less intense as there would be fewer acres designated. In fact, alternative D proposes the fewest acres in the Arizona Strip FO to be designated as VRM Classes I and II, making it the least impacting of all alternatives.

Impacts from Minerals (Arizona Strip FO only)

Impacts would be similar to those described under Alternative A

Impacts from Special Designations (ACEC)

In the Arizona Strip FO, impacts would be similar to Alternative A; however, impacts would be less widespread compared to all the alternatives due to the fewest acres proposed for ACEC designation. Alternative D would only affect 17 grazing allotments compared to 29 that would be impacted under Alternative A due to revoking the designation of the four existing ACECs and adjusting the size of the remaining ones.

Impacts from Livestock Grazing

Under Alternative D, the Pakoon Springs Allotment outside the DWMA (Parashant) and Tuweep Allotment (Parashant and Arizona Strip FO) would be re-allocated or reconfigured, which would maintain the current AUMs available for livestock grazing. This action would have negligible effects to livestock grazing; in fact, reconfiguring the allotment could be beneficial to the adjacent permittees by making their grazing system more operable.

Designating the Parashaunt Allotment (Parashant) as a forage reserve would be the same impacts as discussed under Alternative A.

In Vermilion, impacts would be similar to those discussed under Alternative C, except that the River Pasture of the Lees Ferry Allotment would be grazed from November 1 to April 15, but could only be used three out of 5 years.

Impacts from Recreation

Impacts would be similar to those described under Alternative B, except that impacts concerning SRMAs/ERMAs would be similar to Alternative C.

Impacts from Lands and Realty

Impacts would be similar to those described under Alternative A

*Alternative E: Proposed Plan*Impacts from Travel Management

Impacts would be similar to those discussed under Alternative C.

Impacts from Wilderness Characteristics

In the Monuments, impacts from lands having wilderness characteristics would be most similar to those described under Alternative C, although less intense due to slightly fewer acres that would be allocated. As under Alternative C, impacts would be moderate.

In the Arizona Strip FO, impacts would be similar to those discussed under Alternative D due to similar number of acres that would be identified as having wilderness characteristics.

Impacts from Vegetation and Fire and Fuels Management:

Due to the acres of sagebrush habitat that could be treated, impacts would be the same as described under Alternative C in Parashant and the same as Alternative D in Vermilion and the Arizona Strip FO.

Under Alternative E, depending on the proposed site management plan for the Cane Springs riparian area, impacts to the livestock grazing operation could range from negligible to minor as riparian, wildlife habitat, historic and prehistoric resources, and future recreation uses are promoted or protected.

Impacts from Soil, Air, and Water

Impacts would be similar to those described under Alternative B.

Impacts from Fish and Wildlife

Impacts would be similar to those described under Alternative C.

Impacts from Special Status Species

In Parashant, impacts from areas being unavailable for grazing and restrictions on the Mosby-Nay Allotment would be the same as described under Alternative D. Impacts from areas being unavailable to grazing and restrictions on the Pakoon Springs Allotment and Pakoon Allotment would be the same as described under Alternative C, with the exception that the DWMA portion of the Pakoon Allotment would only be available seasonally to livestock grazing by fencing and allowing livestock seasonal access to Ed's pond, which would cause additional hardships to the grazing permittee involved. Impacts to the remainder of the Pakoon Allotment would be similar to those described under Alternative C, with the exception that ephemeral extensions would be allowed until June 1.

Impacts from Visual Resources

In the Monuments, impacts would be similar to those described under Alternative D.

In the Arizona Strip FO, impacts would be similar to those described under Alternative B, except less widespread due to fewer acres being designated as VRM Classes I and II. In fact, Alternative E would result in the greatest impacts to livestock grazing from VRM designations among the alternatives except Alternative B.

Impacts from Minerals (Arizona Strip FO only)

Impacts would be similar to those described under Alternative A

Impacts from Special Designations (ACECs)

In the Arizona Strip FO, impacts would be similar to those described under Alternative B due to the same number of allotments that would be affected. However, fewer acres would be impacted than under Alternative B, but more than under the other alternatives.

Impacts from Livestock Grazing

Impacts from operating the Pakoon Springs and Parashaunt Allotments (Parashant) and Tuweep Allotment (Parashant and Arizona Strip FO) as forage reserves would be similar to Alternative C, minus the option to reconfigure. Impacts in Vermilion would be similar to those described under Alternative B.

Impacts from Recreation

Impacts concerning Primitive TMA would be similar to Alternative B, although covering a slightly smaller area. Impacts concerning SRMAs and ERMAs would be similar to those described under Alternative C.

Impacts from Lands and Realty

Impacts would be similar to those described under Alternative A

Cumulative Impacts

The area of analysis for cumulative impacts is defined as the Planning Area and the surrounding communities in southern Utah and southeastern Nevada, within approximately 50 miles.

Recent changes to livestock management due to additional protective measures for threatened and endangered species resulted in major changes to livestock grazing operations. These protective measures were a result of making the entire Tassi Allotment and portions of the Mosby-Nay, Pakoon Springs, and Pakoon allotments unavailable to grazing due to the 1998 Plan amendment. All grazing preferences associated with these allotments, or portions thereof, were canceled, which resulted in the removal of 2,006 AUMS and some 127,500 acres for livestock grazing. In addition, all ephemeral extensions on the Beaver Dam Slope, Highway, and Mormon Well allotments and on the tortoise portion of the Mesquite and Littlefield allotments were canceled, which involved an additional 144,027 acres and a reduction in 2,575 AUMs.

If Alternative B were implemented, several additional livestock grazing allotments in critical desert tortoise habitat would be unavailable for livestock grazing. These allotments include most of Mosby-Nay, Pakoon, and Pakoon Springs, most of Mesquite (Littlefield Slope Pasture only), and Littlefield Community (Littlefield Slope Pasture only), and all of the Beaver Dam Slope, Highway, and Mormon Well. A total of 201,917 acres would be unavailable for livestock grazing, resulting in the removal of an additional 7,489 AUMs beyond the 4,581 AUM reductions due to the 1998 Plan amendment.

Under Alternative B, the Tuweep Allotment (Parashant and Arizona Strip FO) and the River Pasture of the Lees Ferry Grazing Allotment (Vermilion) would not be available for livestock grazing, which would result in an additional loss of 1,730 AUMs. Thus, cumulative impacts with respect to the 1998 Plan amendment and implementation of the most restrictive alternative in this FEIS (Alternative B) could result in livestock grazing operators losing 13,800 AUMs within the Planning Area. A reduction in 13,800 AUMs is equivalent to over 1,150 head of cattle yearlong that would no longer be allowed to graze on public lands in the Arizona Strip District. Using \$89.70 per AUM (Fletcher et. al. 2006), the total economic value of these AUMs lost would be \$1,237,860.

Closing these allotments and portions of other allotments would have a major affect on the economic viability of cattle operations within the Desert Tortoise DWMA and ACECs. These grazing operations depend on the use of public rangelands to sustain their base herds. Similarly, in the long term due to lands and realty actions or heavy recreational use activities, there may be

additional loss of public lands available for grazing as population in and adjacent to the planning area increases.

In addition, other resource protection designations, while varying by alternative, result in major impacts to livestock grazing in the Planning Area. Similar protective designations are in place and being developed in adjacent surrounding areas and throughout the west. These impacts stem from program activities that are restrictive and/or protective by nature, such as those relating to VRM classes (I and II), ACECs, areas identified with Wilderness Characteristics, Primitive TMAs, sensitive species habitats, wilderness, and National Monuments.

In the long term, as this Plan is implemented and the surrounding area population increases, which would increase the use of public lands, additional conflicts between livestock grazing and other uses could arise. Resolving conflicts may require more adjustments and/or restrictions placed on livestock grazing management. These new adjustments and/or restrictions may result in changes to the normal, day-to-day livestock management activities. Eventually, permitted use may need to be modified throughout the Arizona Strip District.

Other factors influence livestock grazing operations, such as climatic and market fluctuations. A six-year drought in the Planning Area occurred between 1998 and 2004 and dramatically affected livestock grazing operations on the Arizona Strip, resulting in virtually all cattle being pulled from the public lands in 2004. Similar fluctuations in livestock numbers would likely occur in the future.

MINERALS

Mineral resources include fluid and solid minerals leased for development under the Mineral Leasing Act of 1920 and amendments, locatable minerals that may be claimed and patented under the 1872 Mining Law, and common variety materials that may be purchased under the Mineral Materials Sales Act of 1947. The public lands within the National Monuments and designated wilderness are closed to mineral exploration and development subject to valid, existing rights. Non-federal mineral estate exists within the Monuments, much of which is under Federal surface in Parashant (split-estate).

Leasable Minerals: Fluid minerals (oil and gas) are the only leasable commodities analyzed (See Appendix 4.B). No reasonable foreseeable development of geothermal resources, coal, sodium, potassium, or other leasable mineral resource is anticipated. If other leasable minerals were found in commercially exploitable deposits, the Arizona Strip FO would provide a program for development of such commodities.

The impact issues for fluid minerals result from management decisions for the protection of other resources. Constraints related to the fluid mineral leasing categories are presented in the form of stipulations as described in Appendix 2.I. The requirements of the stipulations can include, but

are not limited to, restrictions on seasonal access, designation of buffers around sensitive areas, or other activities that would be critical to protecting a particular resource.

Resources potentially impacted by fluid mineral development are often protected by attaching a lease notice to lease contracts. A lease notice indicates what potential resources may be affected in a given lease and notifies the lessee that they must contact the BLM Authorized Officer before ground disturbing activities occur to find out what actions or mitigation may be needed to protect those resources. Noncompliance with the lease notice may result in revocation of the lease.

In general, the alternatives would affect fluid mineral development by varying the amounts of land available for leasing and the lease terms and conditions. Impacts can range from major (loss of minerals and revenues as a result of closure of lands to development) to negligible (activities conducted under standard lease terms and conditions).

Locatable Minerals: Management decisions and actions aimed at protecting other resources could result in the closure of lands available for locatable mineral exploration and development. Other issues include restrictions governing locatable mineral exploration and development.

In general, the alternatives would affect locatable mineral development by varying the amounts of land open to the operation of the mining laws and the areas open with restrictions or open with a plan of operation for each alternative. Impacts can range from major (loss of minerals and revenues as a result of closure of lands to development) to negligible (activities conducted under standard reclamation terms and conditions).

Mineral Materials: Management decisions and actions aimed at protecting other resources could also result in the closure of lands available for the extraction and disposal of mineral materials. Other impacts may result from restrictions governing the extraction and disposal of mineral materials.

In general, the alternatives would affect mineral material disposals by limiting the amount of land available for disposal sites and the areas open with restrictions. Impacts can range from major (loss of minerals and revenues as a result of closure of lands for mineral material disposal) to negligible (activities conducted under standard reclamation terms and conditions).

Methods and Assumptions

The analysis of potential impacts is based on review of existing literature, geologic maps, field trips, site visits, and information provided by non-planning team experts in the BLM, NPS, USGS, and other agencies. Analyses on mineral resources are also based on the expertise of BLM resource specialists at the Arizona Strip FO and the NPS staff at Parashant and Lake Mead NRA.

Effects are quantified where possible. In absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible:** The impact would be inconsequential. There would be no perceptible change in the availability of land for mineral development or to the economics of exploration and extraction.
- Minor:** The impact would be detectable. The beneficial or adverse impact would be measurable or perceptible, but it would only slightly affect the availability of land for mineral development or the economics of exploration and extraction.
- Moderate:** The impact would be readily apparent, either beneficial or adverse. There would be a significant, measurable, or perceptible change in the availability of land for mineral development or the economics of exploration and extraction.
- Major:** The impact would be severe. The adverse impact on mineral resources would be substantial. Actions would result in a dramatic change to the availability of land for mineral development or the economics of exploration and extraction.

The following assumptions have also been made:

Leasable Minerals: A reasonably foreseeable development scenario for oil and gas was developed in conformance with BLM Instruction Memorandum No. 2004-089 (see Appendix 4.B). The reasonable foreseeable development scenarios were developed based on past exploration activities and reasonable estimates for future exploration and development given the following assumptions:

- On average, one Application for Permit to Drill (APD) has been received per year for the Planning Area. It is predicted this level of activity will continue over the next 20 years. No economic development or production of fluid minerals has occurred in the Planning Area.
- Approximately 7 acres would be disturbed per well by oil and gas drilling operations, making the total area of related disturbance during this time period 140 acres. If reclamation were completed immediately following drilling and full re-vegetation takes 10 years, the maximum area disturbed at any one time would be 70 acres.
- Geophysical exploration operations would comply with the terms and conditions for notice of intent to conduct geophysical exploration provided on BLM Form 3150-4a. Notices of intent submitted for the conduct of geophysical surveys would be evaluated on a case-by-case basis.
- Lands in the Planning Area designated closed to fluid mineral leasing (Category 4) are National Monuments and designated wilderness. Split estate lands with federal subsurface mineral estate would be designated in the same oil and gas leasing category as adjacent lands.

Split estate lands with federal subsurface mineral estate in the Community Management Unit would be designated as no surface occupancy (Category 3).

Locatable Minerals:

- There would be no major regulatory changes in federal or state statutes, regulations, policy, or guidance that govern the exploration and development of locatable minerals.
- Commodity prices in the future would provide sufficient economic incentive to support the production of locatable mineral commodities.
- The level of activity during the previous 20 years is anticipated to continue over the life of this Plan. Over the past 20 years, six underground uranium mines and one surface gypsum mine were developed in the Planning Area.
- Typically, uranium mines, from initial development to reclamation, last approximately 10 years. Disturbances at each mine site generally result in approximately 20 acres of surface area impacted. Given the assumption that this level of activity will continue over the next 20 years, the maximum area disturbed at any one time by uranium mining is expected to be approximately 120 acres.
- Economically viable gypsum mining within the Planning Area began in 1990. Over the past 10 years, the area disturbed by gypsum mining has roughly doubled from about 100 acres to 200 acres. Reclamation of the disturbances created by gypsum mines are concurrent with mining, however, the soil type has a low productive potential and may take more than 20 years for the native vegetation to re-establish. It is projected that at any one time, over the next 20 years, gypsum mines would impact about 300 acres including pits, waste rock piles, processing facilities, roads, exploration drill pads and roads, and office facilities along with vehicle repair shops. Given the assumption that this level of activity will continue for the next 20 years, the maximum area disturbed at any one time by gypsum mining is expected to be approximately 600 acres.
- Total surface disturbance from locatable mining development during the planning period is anticipated to be 720 acres.

Mineral Materials:

- There would be no major regulatory changes in federal or state statutes, regulations, policy, or guidance that govern the exploration and development of mineral materials.
- Population growth would continue to increase in the communities within the Planning Area and in southern Utah, northern Arizona, and southeastern Nevada.
- The demand for mineral materials would depend on market conditions and be expected to double during the planning period.
- Most of the mineral material sites in the Planning Area disturb less than 5 acres and would be reclaimed immediately after closing. Complete reclamation, including re-vegetation, may take up to 10 years. Currently, the total area impacted by the disposal of mineral materials is approximately 200 acres. It is anticipated this figure could double over the next 20 years and the total disturbance from mineral material disposal would reach approximately 400 acres.

Impacts to Mineral Resources

There would be no impacts to Monument mineral resources under any of the alternatives because BLM and NPS lands within the Monuments are withdrawn by their proclamations “from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the Monument.”

The establishment of the Monuments was subject to valid existing rights. Within the Monuments, there are currently no federal mineral leases, mining claims, or mineral interests that would constitute valid existing rights. Since no new federal mineral leases or prospecting permits may be issued, nor may new mining claims be located within the Monuments, mineral exploration and development would be excluded from federal land within either Monument. However, non-federal mineral estate exists within both Monuments, most of which is under federal surface in Parashant (split-estate).

Existing material sites on BLM lands in the Monuments and the Arizona Strip FO would continue to be used for BLM, NPS, and county road maintenance. In Vermilion, existing mineral material sites along House Rock Valley/Two Mile Road (1065) would be retained for administrative use for road maintenance.

Impacts to mineral resources in the Arizona Strip FO would result from actions proposed under the following resource management programs:

- Special Status Species
- Soil, Air, and Water
- Visual Resources
- Special Designation
- Wilderness Characteristics
- Lands and Realty

Alternative A: No Action

Impacts from Special Status Species (Arizona Strip FO only)

Fluid Leasable Minerals: Seasonal restrictions placed to protect Peregrine Falcon, bighorn sheep and desert tortoise under Alternative A could have minor to moderate impacts on oil and gas exploration and development. Such restrictions could limit exploration, drilling, and other surface-disturbing activities, which could affect the timing and costs of such activities. Exceptions to this limitation in any year may be specifically authorized in writing by the authorized officer of the federal surface management agency if it is shown to the satisfaction of

the authorized officer that adverse impacts to the species would not occur. Any predictable adverse impacts to special status species from leasable mineral requests could lead to modification of the proposal or denial of a lease. Proposal modifications could affect mineral operations by increasing associated costs and increasing the time needed to permit and conduct operations.

Locatable Minerals: Requiring a plan of operation for mineral development in any lands or waters known to contain federally proposed or listed threatened or endangered species or their proposed or designated critical habitat could increase the cost and time needed to complete some exploration activities. Impacts would range from negligible to minor.

Mineral Materials: Closing areas containing special status species or their habitats to mineral material disposals could have moderate to major impacts to mineral material exploration and development. Under Alternative A, 210,748 acres would be closed to mineral material disposals.

Impacts from Soil, Air, and Water (Arizona Strip FO only)

Locatable Minerals: Under Alternative A, dust control would be required for compliance with the Arizona Department of Environmental Quality (ADEQ) laws, rules, and policies for the surface mining of gypsum. Such dust control would place a significant expense on the mining and processing of gypsum. The impacts to locatable minerals would be moderate.

Impacts from Visual Resources (Arizona Strip FO only)

Fluid Leasable Minerals: Under Alternative A, visual resources are classified as fluid mineral leasing Category 3 (no surface occupancy) in the vicinity of Kanab Creek, Hurricane Cliffs, Diamond Butte, Moccasin Mountains, and the north slopes of Mokiatic and Seegmiller mountains. Overall, these visual resources are correlative with VRM Class II. Exceptions to this limitation may be specifically authorized in writing by the authorized officer of the federal surface management agency if it is shown to the satisfaction of the authorized officer that the proposed disturbance or occupancy will not impair the visual resources of the area. No surface occupancy restrictions significantly increase the cost and time needed to complete exploration and development activities and may cause the costs of exploration and extraction to escalate to the point where the economics of oil and gas development would be marginal. Impacts would range from moderate to major in those areas where no surface occupancy applies. Under Alternative A, 98,375 acres would be designated as fluid mineral leasing Category 3.

Locatable Minerals: Areas designated as having specific visual contract ratings have no effect on the ability to explore and develop lands under the operation of the mining laws. However, mitigations that are more extensive could be developed to protect high resource values in some areas. Therefore, visual resources would have negligible to minor impacts on locatable minerals.

Mineral Materials: The disposal of mineral materials in VRM Class II areas would not be allowed if reasonable alternative sources were available. Impacts on exploration and development of mineral materials would range from negligible to minor. Under Alternative A, 573,243 acres would be designated as VRM Class II.

Impacts from Special Designation (Arizona Strip FO only)

Fluid Leasable Minerals: Under Alternative A, various levels of impacts would occur from Special Designations. Designating ACECs, which are classified as Category 1, or Category 2 for fluid mineral leasing, would result in negligible to moderate impacts, depending on the resources being protected. Category 1 designations would result in negligible to minor impacts as restrictions would be minimal. Category 2 designations would cause minor to moderate impacts as special terms or seasonal restrictions tend to increase the cost and time needed to complete exploration and development activities. The Virgin River Gorge scenic withdrawal would retain its Category 3 classification, which would result in moderate to major impacts due to the no surface occupancy restrictions. Category 4 is closed to fluid mineral leasing and corresponds to designated wilderness, which results in major impacts since no exploration or development could occur. Under Alternative A, ACECs encompass 13,337 acres of lands designated as Category 1 and 141,207 acres of lands designated as Category 2, the Virgin River Gorge scenic withdrawal contains 23,187 of lands designated as Category 3, and designated wilderness encompasses 80,672 acres.

Locatable Minerals: Under Alternative A, 100,896 acres would be withdrawn from the operation of the mining laws, subject to valid existing rights. This would apply to the Grand Canyon Game Preserve, Virgin River Gorge scenic withdrawal, and designated wilderness, which would result in major impacts to locatable minerals since no mineral exploration and development could occur within these areas.

Mineral Materials: Under Alternative A, designated wilderness and all ACECs would be closed to mineral material disposal, with the exception that existing material sites would be evaluated for retention in Johnson Spring, Lost Spring Mountain, and Moonshine Ridge ACECs. Impacts would be moderate to major since these resources in lands designated closed to mineral material disposal would not be available. Under Alternative A, 210,748 acres would be closed to mineral material disposals.

Impacts from Wilderness Characteristics (Arizona Strip FO only)

No acres would be identified for the maintenance of wilderness characteristics under Alternative A.

Impacts from Lands and Realty (Arizona Strip FO only)

The acquisition of state and private lands could have a positive impact on the development of mineral resources that may underlie these lands. Impacts would be moderate to major. However, the lands identified for acquisition are primarily in the Monuments, designated wilderness, or areas with high resource values for threatened and endangered species, which would be closed or severely restrictive to mineral exploration and development.

Conversely, the disposal of public lands could adversely affect prospective mineral development. The majority of the lands that would be disposed of are located in areas identified as having high potential for locatable minerals and moderate potential for oil and gas. Once these lands leave public ownership and become developed, the likelihood of mineral exploration on the tracts would be minimal. Without exploration, any mineral resources that may underlie the tract would probably not be developed throughout the life of this Plan. Under Alternative A, 24,081 acres are identified for disposal.

*Alternative B*Impacts from Special Status Species (Arizona Strip FO only)

Impacts would be the similar to those described under Alternative A, except that the impacts to fluid leasable minerals would not be as widespread as there would be no seasonal restrictions on exploration, drilling, and other surface-disturbing activities to protect Peregrine Falcons and bighorn sheep.

Impacts from Soil, Air, and Water (Arizona Strip FO only)

Impacts would be the same as those described under Alternative A.

Impacts from Visual Resources (Arizona Strip FO only)

Fluid Leasable Minerals: Under Alternative B, no surface occupancy restrictions (fluid mineral leasing Category 3) would be designated to protect specific visual resources, as under Alternatives A and E. The no surface occupancy restrictions (fluid mineral leasing Category 3) would coincide with areas identified as having wilderness characteristics; however, mitigations could be developed to protect visual resources, which would likely increase exploration and development costs. Therefore, impacts on fluid leasable minerals would be minor to moderate.

Locatable Minerals: Impacts would be the same as those described under Alternative A.

Mineral Materials: The types of impacts would be the same as described under Alternative A, although not as widespread as. However, impacts would not be as widespread under Alternative B as slightly more acres would be designated VRM Class II.

Impacts from Special Designation (Arizona Strip FO only)

Fluid Leasable Minerals: Under Alternative B, all ACECs would be designated fluid mineral leasing Category 2, which would result in minor to moderate impacts since additional special terms or seasonal restrictions tends to increase the cost and time needed to complete exploration and development activities. Since substantially more acres would be under ACEC designation under Alternative B, which would result in 377,275 acres in fluid mineral leasing Category 2, impacts would be more widespread than under Alternative A.

Locatable Minerals: Impacts and acres withdrawn from the operation of the mining laws, subject to valid existing rights, would be the same as those described under Alternative A.

Mineral Materials: Under Alternative B, all ACECs would be closed to mineral material disposal, which would result in moderate to major impacts since these resources would not be available. A total of 405,353 acres would be closed to mineral material disposals under Alternative B, which is substantially more acres compared to Alternative A. The impacts would thus be more widespread under Alternative B.

Impacts from Wilderness Characteristics (Arizona Strip FO only)

Fluid Leasable Minerals: Under Alternative B, 46,135 acres in the Arizona Strip FO would be identified to maintain wilderness characteristics. These lands would be open to oil and gas leasing subject to no surface occupancy (Category 3), which would result in moderate to major impacts. Exceptions to this limitation may be specifically authorized in writing by the authorized officer of the federal surface management agency if it is shown to the satisfaction of the authorized officer that the proposed disturbance or occupancy would not substantially impair the wilderness characteristics of the area. Under this alternative, no surface occupancy restrictions would apply to approximately 21,565 acres of land with a moderate potential for oil and gas.

Locatable Minerals: Areas with wilderness characteristics have no affect on the ability to explore and develop lands under the operation of the mining laws. However, mitigations that are more extensive would be required to protect resource values in these areas. Therefore, areas with wilderness characteristics would have minor to moderate impacts on locatable minerals.

Mineral Materials: While lands that would be managed for wilderness characteristics would be closed to mineral material disposals under Alternative B, such areas are remote, without roads, and without demand for mineral material. Impacts would thus be negligible.

Impacts from Lands and Realty (Arizona Strip FO only)

Impacts would be the same as those described for Alternative A, with the exception that more acres of state and private lands are proposed for acquisition, and fewer acres of public lands are proposed for disposal, which could benefit the minerals program.

*Alternative C*Impacts from Special Status Species (Arizona Strip FO only)

Impacts would be the same as those described under Alternative B.

Impacts from Soil, Air, and Water (Arizona Strip FO only)

Impacts would be the same as those described under Alternative A.

Impacts from Visual Resources (Arizona Strip FO only)

Fluid Leasable Minerals: Impacts would be the same as described under Alternative B

Locatable Minerals: Impacts would be the same as those described under Alternative A.

Mineral Materials: The types of impacts would be the same as described under Alternative A; however, impacts would be less widespread than under Alternative C as 202,091 acres would be designated VRM Class II, which is fewer than under Alternatives A or B.

Impacts from Special Designation (Arizona Strip FO only)

Fluid Leasable Minerals: Impacts would be similar as described under Alternative B; however, impacts would be less widespread under Alternative C as there would be fewer (132,101) acres under ACEC designation.

Locatable Minerals: Impacts and acres withdrawn from the operation of the mining laws, subject to valid existing rights, would be the same as those described under Alternative A.

Mineral Materials: Impacts would be similar as described under Alternative B; however, impacts would be less widespread under Alternative C as there would be fewer (132,101) acres under ACEC designation.

Impacts from Wilderness Characteristics (Arizona Strip FO only)

Fluid Leasable Minerals: The types of impacts would be similar to those described under Alternative B; however, since more (77,575) acres would be allocated to maintain wilderness

characteristics, impacts would be more widespread. Under Alternative C, no surface occupancy restrictions would apply to approximately 51,665 acres of land with a moderate potential for oil and gas, which is nearly twice as many acres compared to Alternative B, making impacts more widespread.

Locatable Minerals: Impacts would be the same as those described under Alternative B.

Mineral Materials: Impacts would be the same as those described under Alternative B.

Impacts from Lands and Realty (Arizona Strip FO only)

Impacts would be the same as those described under Alternative A, except less widespread as fewer (9,743) acres are identified for disposal. Impacts would be more widespread than under Alternative B.

Alternative D

Impacts from Special Status Species (Arizona Strip FO only)

Impacts would be the same as those described under Alternative B.

Impacts from Soil, Air, and Water (Arizona Strip FO only)

Impacts would be the same as those described under Alternative A.

Impacts from Visual Resources (Arizona Strip FO only)

Fluid Leasable Minerals: Impacts would be the same as described under Alternative B.

Locatable Minerals: Impacts would be the same as those described under Alternative A.

Mineral Materials: The types of impacts would be the same as described under Alternative A; however, impacts would be less widespread than under all alternatives, including Alternatives A, as 164,932 acres would be designated VRM Class II under Alternative D.

Impacts from Special Designation (Arizona Strip FO only)

Fluid Leasable Minerals: Impacts would be similar as described under Alternative B; however, impacts would be less widespread than under all other alternatives as the fewest acres (106,420 acres) would be under ACEC designation.

Locatable Minerals: Impacts and acres withdrawn from the operation of the mining laws, subject to valid existing rights, would be the same as those described under Alternative A.

Mineral Materials: Impacts would be similar as described under Alternative B; however, impacts would be less widespread than under all other alternatives as the fewest acres (106,420 acres) would be under ACEC designation.

Impacts from Wilderness Characteristics (Arizona Strip FO only)

Fluid Leasable Minerals: The types of impacts would be similar to those described under Alternative B; however, impacts would be less widespread than both Alternatives B and C since less (34,628) acres would be allotted to maintain wilderness characteristics. Under Alternative D, no surface occupancy restrictions would apply to approximately 21,729 acres of land with a moderate potential for oil and gas, which is roughly half as many acres compared to Alternative B, and a quarter as many acres compared to Alternative C. Impacts would thus be less widespread.

Locatable Minerals: Impacts would be similar to those described under Alternative B.

Mineral Materials: Impacts would be the same as those described under Alternative B.

Impacts from Lands and Realty (Arizona Strip FO only)

Impacts would be the same as those described under Alternative C.

Alternative E: Proposed Plan

Impacts from Special Status Species (Arizona Strip FO only)

Impacts would be the same as those described under Alternative A.

Impacts from Soil, Air, and Water (Arizona Strip FO only)

Impacts would be the same as those described under Alternative A.

Impacts from Visual Resources (Arizona Strip FO only)

Fluid Leasable Minerals: Impacts would be similar to those described under Alternative A, except that under Alternative E, 64,325 acres would be designated as fluid mineral leasing Category 3 (no surface occupancy), which is approximately a third less acres than under Alternative A. Impacts would thus be less widespread.

Locatable Minerals: Impacts would be the same as those described under Alternative A.

Mineral Materials: The types of impacts would be the similar to those described under Alternative A; however, impacts would be less widespread than under Alternatives A and B but more widespread than Alternatives C and D due to 368,032 acres that would be designated VRM Class II under Alternative E.

Impacts from Special Designation (Arizona Strip FO only)

Fluid Leasable Minerals: The types of impacts would be similar to those described under Alternative A; however, under Alternative E, ACECs would encompass 150,105 acres of lands designated as Category 1 and 145,566 acres of lands designated as Category 2, the Virgin River Gorge scenic withdrawal would contain 23,187 of lands designated as Category 3, and designated wilderness would encompasses 80,765 acres.

Locatable Minerals: Impacts would be the same as those described under Alternative A.

Mineral Materials: Impacts would be similar to those described under Alternative B; however the impacts would be less widespread than under Alternative B and more widespread than under Alternatives A, C and D due to 150,105 acres be proposed for ACEC designation under Alternative E.

Impacts from Wilderness Characteristics (Arizona Strip FO only)

Fluid Leasable Minerals: Under Alternative E, 34,942 acres would be allotted to maintain wilderness characteristics. These lands would be designated Category 1 (open to lease subject to standard lease terms and conditions and appropriate special stipulations). However, the special stipulations to maintain and protect wilderness characteristics would likely increase exploration and development costs. Therefore, wilderness characteristics would have minor to moderate impacts on fluid leasable minerals.

Locatable Minerals: Impacts would be similar to those described under Alternative B.

Mineral Materials: Impacts would be similar to those described under Alternative B.

Impacts from Lands and Realty (Arizona Strip FO only)

Impacts would be the same as those described under Alternative C.

Cumulative Impacts

The geographic area of analysis for cumulative impacts to minerals is the Planning Area. Population growth and development would continue to increase the demand for land and for minerals. Mineral materials to be used in urban areas, such as St. George, for construction and decoration, are in high demand and are expected to increase pressure to develop these resources

As the communities in Clark and Lincoln counties, Nevada, and in Washington and Kane counties, Utah continue to expand, more emphasis would be on clean air and water, which would increase the pressure on mining industries to use more methods to produce minerals while leaving the surrounding environment cleaner. This could impact gypsum mining south of St. George, Utah. As the price of uranium continues to climb, it could be expected that the uranium mines on the Arizona Strip would be reopened and operated and new ones would be opened. Because they are located primarily in remote locations on the Arizona Strip, they would not be as affected by the growing communities as the gypsum industry.

RECREATION AND VISITOR SERVICES/INTERPRETATION AND ENVIRONMENTAL EDUCATION

This section presents potential impacts of the alternatives on outdoor recreation and visitor services as determined through potential changes to visitor and community resident preferences (activities, experiences, benefits), recreation setting conditions (physical, social, administrative), recreation management (resources, signing, facilities), recreation marketing (visitor services, information, interpretation and environmental education), recreation monitoring (inventory, monitoring), and recreation administration (permits and fees and visitor limits and regulations) as they are described in Chapter 3. These recreation features are interrelated and connected to access. For example, changes in recreation settings would result in corresponding changes in opportunities to achieve desired recreation experiences and associated benefits, influenced by access.

Recreational experiences and the potential attainment of a variety of beneficial outcomes are vulnerable to any management action that would alter the settings and opportunities in a particular area. Recreation settings are based upon a variety of attributes, such as remoteness, the amount of human modification in the natural environment, evidence of other users, restrictions and controls, and the level of motorized vehicle use. Management actions that greatly alter such features within a particular portion of the Planning Area could affect the capacity of that landscape to produce appropriate recreation opportunities and beneficial outcomes.

Methods and Assumptions

The analysis of potential impacts to recreation is based, in part, on visitor use reporting statistics from the Arizona Strip FO and the Recreation Management Information System (RMIS), which provide information on the number and types of recreational use. Spatial/GIS information was also used in this analysis and includes wildlife habitat boundaries, wilderness characteristic boundaries, transportation inventory, transportation designations, ecological zones, vegetation types, recreation sites, historic and recreational trails, and known historical/cultural sites. In the absence of data, analyses were based on the expertise of recreation planners at the Arizona Strip District Office. Combined, these experts possess an extensive knowledge of recreation resources

within the Planning Area. The impact analysis is also based on review of existing literature and information provided by non-planning team experts in the BLM, NPS, and other agencies.

Effects are quantified where possible. In absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible:** The impact would not be detectable. Changes to recreation settings and opportunities would only affect the experiences of a small number of recreational users.
- Minor:** The impact would be detectable. Changes to recreation settings and opportunities would affect the experiences of a larger, but not significant number of recreational users.
- Moderate:** The impact would be readily apparent. Changes to recreation settings and opportunities would affect the experiences of a large number of recreational users.
- Major:** The impact would be severe. Changes to recreation settings and opportunities would affect the experiences of a majority of recreational users.

Impacts to recreation settings and opportunities would result from actions proposed under the following resource management programs:

- Travel Management
- Wilderness Characteristics
- Vegetation and Fire and Fuels Management
- Fish and Wildlife
- Special Status Species
- Visual Resources
- Cultural Resources
- Livestock Grazing
- Recreation and Visitor Services/Interpretation and Environmental Education

Alternative A: No Action

Impacts from Travel Management

TMA Delineation: No TMAs would be identified under Alternative A.

OHV Area Designations: Under Alternative A, the OHV area designations would close 498,196 acres; limit to existing roads and trails on 1,575,140 acres; limit to designated roads and

trails on 1,248,569 acres; and open 803 acres to motorized and mechanized vehicle use. Due to the nature of these OHV area designations in the Planning Area, motorized and mechanized cross-country vehicle travel would continue to be generally prohibited, with exceptions for certain agency and permitted uses. The exception to this is the 803-acre area near Fredonia which would be designated "open," where all types of vehicle use is permitted at all times, anywhere in the area subject to the operating regulations and vehicle standards set forth in various CFR sections. In the Monuments, all vehicles and bicycles would be restricted to designated roads, pending route designation. While this could eventually restrict OHV use to fewer, but specific roads and trails, OHV users would continue to have access to the existing road network until such designations were made. This would maintain the existing recreation opportunities in the Monuments for a significant period of time, which would benefit motorized users and those local businesses that rely on them. However, because of rapid growth in the St. George area, and the corresponding increase in OHV sales, maintaining existing recreation opportunities and social settings could also have minor to moderate impacts on non-motorized users due to potential increases in motorized use.

Similar impacts to both motorized and non-motorized users would occur on the Arizona Strip FO, but because vehicles would have access to all existing roads and trails for up to 5 years, pending long-term route designations, such impacts would last for that 5-year period.

Route Designations: Under Alternative A, 2,161 miles of roads would remain open to motorized travel in the Monuments and no roads would be closed. This would preserve existing available opportunities for motorized recreational use and current recreational settings would remain unchanged. This would result in moderately beneficial impacts on motorized recreational users and those businesses that support them. However, because of rapid growth in the St. George area and the corresponding increase in OHV sales, maintaining existing recreation opportunities and social settings in their current condition could also have minor to moderate impacts on non-motorized users due to potential increases in motorized use.

Similar impacts to both motorized and non-motorized users would occur on the Arizona Strip FO, but because vehicles would have access to all existing roads and trails for up to 5 years, pending long-term route designations, such impacts would last for a longer period.

Trail Construction: No decision would be made under this alternative.

Wheeled Game Carriers: Allowing non-motorized, wheeled game carriers to retrieve game kills in all areas of the Monuments and Arizona Strip FO lands, except in designated and NPS proposed wilderness, would continue to enhance hunting opportunities.

Impacts from Wilderness Characteristics

No areas would be managed for wilderness characteristics under Alternative A.

Impacts from Vegetation and Fire and Fuels Management

Depending on the type, scope, and intensity, vegetation treatments could directly impact recreation settings and associated visitor experiences in the Monuments and the Arizona Strip FO, as well as the possible realization of specific benefits. Impacts in treated areas could range from negligible to moderate. The duration of the impacts would be dependent on the type of treatment being applied. In the long term, having a full range of tools for restoring the landscape to its natural condition would enhance recreation experiences and settings.

Impacts from Fish and Wildlife

Improving wildlife habitat where needed would help maintain viable game populations. This could benefit hunters and those seeking wildlife watching opportunities. Depending on the scope and intensity of habitat improvement efforts, impacts to recreational opportunities could be mixed. Physical recreational settings could have impacts similar to those described in the Impacts to Vegetation section. Those impacts could range from negligible to moderate. Any increases in game populations and other wildlife populations could enhance hunting and wildlife watching opportunities. Those impacts could also range from negligible to moderate.

Impacts from Special Status Species

Under this alternative, existing road closures and camping restrictions related to desert tortoise could have a negligible to minor effect on recreational opportunities in Parashant and the Arizona Strip FO.

Impacts from Visual Resources

Under Alternative A, the VRM designations would involve 267,897 acres of Class I, 1,125,940 acres of Class II, 758,041 acres of Class III, and 1,307,047 acres of Class IV. The entire Vermilion would remain designated VRM Class I or II. Such designations involve stringent design parameters and/or project mitigation on most developments/disturbances that could affect solitude, naturalness, and primitive/unconfined recreation. Some projects could still be allowed that could result in localized impacts, which would range from negligible to minor, depending on the type of project. In contrast, Parashant and the Arizona Strip FO would have significant acreage designated as VRM Class III and IV, which would allow for more landscape modifications than VRM classes I or II. Projects that may be approved under VRM Class III or IV include vegetation treatments, communications towers, and range developments. Impacts would be long-term, and depending on what projects are proposed, could range from minor to major.

Impacts from Cultural Resources

Under Alternative A, current designations of public use sites in the Monuments and the Arizona Strip FO would maintain existing opportunities for visitors to enjoy historic or prehistoric cultural resources.

Impacts from Livestock Grazing

Livestock grazing can impact recreation settings and opportunities. The presence of livestock could cause recreational users to avoid those areas where cattle are present. In general, grazing impacts to recreational settings and opportunities would be localized, seasonal, and range from minor to moderate, depending on the number of livestock present. Under Alternative A, the majority of both Monument and the Arizona Strip FO would remain available to grazing with only 199,350 acres unavailable to grazing.

Impacts from Recreation and Visitor Services/Interpretation and Environmental Education

Special Recreation Management Areas and Extensive Recreation Management Areas:

Under Alternative A, all existing SRMAs would retain their current status. Full implementation of existing SRMA objectives through the development of activity plans would provide visitors higher quality recreation opportunities through the more focused and effective management of the desired settings, activities, and experience opportunities appropriate for each SRMA. Impacts to recreation settings would range from minor to moderate.

Under this alternative, an emphasis would be placed on maintaining existing recreation settings and opportunities. In the long term, moderate impacts could result as visitation increases due to a rapidly expanding population in southern Utah. Potential user conflicts and degradation of the resource settings due to overuse are possible.

Signing and Facilities: Signing and other forms of visitor information could enhance public safety and improve recreational user experiences. Impacts from improvements would be positive and range from minor to moderate.

Recreation Marketing Actions: Under Alternative A, visitors would be provided accurate information regarding recreation opportunities, interpretation of natural and human history, and specific rules and regulations pertaining to their use of the Monuments and the Arizona Strip FO. Impacts from improvements would be positive and range from minor to moderate.

Interpretation and Environmental Education: No decisions would be made under this alternative.

Visitor Limits and Regulations: Under Alternative A, management responses to unacceptable resource and/or social condition would range from the least restrictive methods (e.g., information

and education) to most restrictive (e.g., visitor limits, supplemental rules, or restrictions), with emphasis given to using the least restrictive methods. Such responses would be instituted only when monitoring indicates a trend toward unacceptable change to desired recreation settings brought about by such use. By monitoring and addressing resource/social changes before they become unacceptable, taking preemptive action could result in long-term maintenance of recreational settings. Impacts would be positive and range from minor to moderate.

Camping: Non-motorized, dispersed camping would be allowed, although potential limits could be placed in listed species and other sensitive habitats. Visitors would be allowed to collect dead and down wood for campfires in areas where fires are allowed. Impacts to recreation settings and opportunities would be minor.

Geocaching: On-the-ground placement of geocaches would be prohibited in archeological sites, alcoves, rock shelters, threatened and endangered species habitat, raptor nesting sites, designated and NPS proposed wilderness areas, or where identified Monument objects would be at risk. This would place restrictions on where geocache enthusiasts could locate their caches. Impacts to recreational users would be minor.

Permits and Fees: Under Alternative A, by using monitoring data and involving the public in any decisions to establish new permits, fees, visitor limits, regulations, or other restrictions, management response to unacceptable resource/social condition changes would be measured and appropriate. Impacts to recreational settings and experiences would likely be enhanced and these impacts could range from minor to moderate.

SRP Administration: Given substantial increases in workload due to an expanding population and the increasing attraction of the Monuments, the current case-by-case authorization of commercial, competitive, and vending permits is inefficient. This process may eventually preclude many local and regional recreation providers from making available certain recreation opportunities to serve a growing demand. Impacts to recreational providers could be moderate.

Alternative B

Impacts from Travel Management

TMA Delineation: Under Alternative B, over 85 percent of the Monuments would be delineated as the Primitive TMA, which is the most restrictive of the alternatives. Under this alternative, opportunities for motorized recreation would decrease significantly in the Monuments, having major impacts on recreational OHV use and the businesses in nearby communities that cater to those users. This alternative would also concentrate steadily increasing motorized use into fewer access corridors, creating the potential for conflicts between users and a general degradation of the social aspects of backcountry motorized experiences. Conversely, opportunities for non-motorized recreational use would increase dramatically. These impacts

would be moderate to major for non-motorized users such as hikers, equestrians, and mountain bikers and the businesses that support them.

With a preliminary route network in place on the majority of the Arizona Strip FO lands for up to 5 years, existing conditions change very little by alternative; thus, any impacts to motorized or non-motorized recreation would be negligible.

OHV Area Designations: Under Alternative B, the OHV area designations would close 467,744 acres; limit to existing roads and trails on 0 acres; limit to designated roads and trails on 2,854,955 acres, and open 0 acres to motorized and mechanized vehicle use. Consequently, impacts would be the same as described under Alternative A.

Route Designations: Under Alternative B, 798 miles of roads would remain open to motorized travel in the Monuments, a 63 percent reduction in access compare to Alternative A. As a result, opportunities for motorized recreation would decrease greatly in the Monuments, generating moderate to major impacts on recreational OHV use and related businesses in nearby communities that cater to those users. This alternative would also concentrate steadily increasing motorized use to fewer roads, creating the potential for conflicts between users and a general degradation of the backcountry motorized experience. Conversely, opportunities for non-motorized recreational use would increase dramatically. These impacts would be major for non-motorized users like hikers, equestrians, and mountain bikers and the related businesses that support them.

The same impacts described under Alternative A would affect both motorized and non-motorized users on Arizona Strip FO lands in the short-term. In the long-term, impacts would be the result of future route designations, which are described above under OHV Area Designations.

Trail Construction: Under Alternative B, trail construction (non-motorized) in the Monuments would be considered only when needed to protect sensitive resources. This action would limit non-motorized opportunities. However, considering the number of roads proposed to be limited to administrative motorized uses only under this alternative, the number of potential routes for hiking, equestrian, and biking could increase dramatically, making the impacts from this decision negligible.

Wheeled Game Carriers: Impacts would be the same as described under Alternative A.

Impacts from Wilderness Characteristics

Under Alternative B, approximately 508,052 acres in the Monuments would be managed with the goal of maintaining existing wilderness characteristics. This is the most acreage among all the alternatives. Implementation of this alternative would result in major impacts to recreational settings and opportunities. Due in part to potential route designations, large areas that exist as semi-primitive motorized settings would, in effect, become semi-primitive non-motorized in

terms of remoteness, effectively reducing motorized recreational opportunities. Conversely, non-motorized settings would expand and opportunities for primitive, unconfined recreation would increase dramatically. It should be noted that, although the area available for non-motorized recreation would increase, because of the large number of closed roads, motorized access to many of these areas would become more difficult.

In the Arizona Strip FO, approximately 46,135 acres would be managed with the goal of maintaining wilderness characteristics. The types of impacts to settings and opportunities would be similar to those in the Monuments, but because of the relatively small acreage, impacts would be negligible to minor. This is true for both motorized and non-motorized recreation. It should be noted that many of the lands prescribed for management of wilderness characteristics in the Arizona Strip FO under this alternative are prescribed for management as components of proposed ACEC designations, not as stand-alone areas.

Impacts from Vegetation and Fire and Fuels Management:

Under Alternative B, vegetation treatments on up to 36,600 acres would be greatly restricted in their scope and intensity in both the Monuments and the Arizona Strip FO. Recreation settings and experiences could suffer negligible to minor short-term impacts during any application period.

Impacts from Fish and Wildlife

Impacts would be similar to those described under Alternative A.

Impacts from Special Status Species

Under Alternative B, further limits or restrictions could be applied on certain recreation activities or uses that degrade any special status species habitat or causes injury or mortality to such species. In special status plant habitats, recreational opportunities would be limited to smaller-capacity, designated areas and hiking and biking would be allowed only on designated routes. Such actions would cause a minor reduction in recreational opportunities in Parashant and the Arizona Strip FO.

Impacts from Visual Resources

Under Alternative B, the VRM designations would involve 650,071 acres of Class I, 1,220,704 acres of Class II, 1,379,468 acres of Class III, and 72,827 acres of Class IV. Impacts in the Monuments would be similar to Alternative A as all lands would be designated as VRM Class I or II. The majority of acreage for the Arizona Strip FO would be designated VRM Class III, which would result in impacts similar to those described under Alternative A.

Impacts from Cultural Resources

Impacts would be similar to those described under Alternative A, except more widespread as additional public use sites would be designated.

Impacts from Livestock Grazing:

The types of impacts would be similar to those described under Alternative A. In Vermilion, the Paria Canyon and Coyote Buttes permit areas would be unavailable for grazing, which could affect up to 10,000 visitors annually. Removal of all livestock from these areas would be seen as a positive step by many recreational users of the area. Impacts from this action would be moderate to major. In Parashant and the Arizona Strip FO, several allotments would be unavailable to grazing or have seasonal restrictions, with the resulting improvement to recreational settings associated with reduced grazing. These impacts would be moderate. Overall, with 494,131 acres of allotments unavailable for grazing and restrictions, Alternative B could enhance recreation opportunities and settings to the greatest degree compared to all other alternatives.

Impacts from Recreation

Special Recreation Management Areas and Extensive Recreation Management Areas:

Under Alternative B, the current land-use planning handbook (H-1601-1, Appendix C. II. C.) approach to managing SRMAs would be used. Rather than focus on more intensive management of certain activities in a specific area, SRMA management would involve other recreation providers in the area/region, and each SRMA would target a specific primary recreation-tourism market (Community, Destination, or Undeveloped) based on demonstrated market demand. The general focus would be to produce recreation opportunities, the fulfillment of which generates visitor experiences, which should allow visitors, communities, and the environment to realize beneficial outcomes. Such management would be accomplished by maintaining or enhancing the recreation setting conditions in which recreation activities take place, thereby producing the desired outcomes. The impacts to SRMAs proposed under this alternative could range from minor to major.

Signing and Facilities: Under Alternative B, impacts would be similar to Alternative A, except that major visitor facilities (visitor center or contact stations) would not be constructed within the Planning Area.

Recreation Marketing Actions: Impacts would be similar to Alternative A, although additional resource information (e.g., maps, brochures, safety information, driving tour guides, Internet sites, etc.) would be distributed under Alternative B. This information would further assist visitors in having safe and enjoyable experiences. It could also spark increased visitation by attracting people to the area who would otherwise be unlikely to visit. This is especially true of those individuals who learn of recreation opportunities in the Monument over the Internet.

Interpretation and Environmental Education: Under Alternative B, information, interpretation, and environmental education would be more readily available, enhancing benefits to recreation experiences and serving as a management tool that could be used to mitigate resource and social impacts, reducing the need to use tighter restrictions. These impacts would be positive and moderate.

Visitor Limits and Regulations: Impacts would be similar to those discussed under Alternative A, with the exception that management responses to unacceptable resource and/or social condition would be used only when carrying capacities are exceeded. Compared to Alternative A, this would restrict the use of preemptive management techniques to limit or prevent impacts before they become problems. Long-term impacts to recreation settings under this alternative could range from minor to major, with high-use areas at the upper end of the scale.

Camping: Under Alternative B, no off-road vehicle camping would be allowed, and vehicle camping along designated routes would be allowed in designated sites only. This action could reduce availability of some existing campsites. Collection of dead and down wood for campfires would not be allowed. Such actions could have moderate to major impacts on recreational users.

Geocaching: Under Alternative B, geocache sites would be removed if, through monitoring, it were determined that important resources would be at risk of unacceptable change due to use of the sites. The impact to affected users would be minor.

Permits and Fees: Impacts would be similar to those described under Alternative A.

SRP Administration: Under Alternative B, shifting the SRP administration to an annual schedule would enhance the efficiency of BLM planners and would allow local and regional recreation providers to make more effective long-range plans. Annual training of permitted outfitters would reduce the potential for resource and social impacts. Impacts to recreational settings, users, and outfitters would be positive and moderate.

Alternative C

Impacts from Travel Management

TMA Delineation: Under Alternative C, there would be 1,090,685 acres available for motorized recreation (Specialized TMA), which would be more acres available in the Monuments compared to Alternative B, and less acres compared to Alternative A. This reduction could have minor to moderate impacts on recreational OHV use and the businesses in nearby communities that cater to those users. Consequently, opportunities for non-motorized recreational use would increase slightly. These impacts would be minor for non-motorized users like hikers, equestrian, and mountain bikers and the businesses that support them.

Impacts in the Arizona Strip FO would be similar to those discussed under Alternative B.

OHV Area Designations: Under Alternative C, the OHV area designations would close 467,744 acres, limit to existing roads and trails on 1,204,782 acres, limit to designated roads and trails on 1,648,603 acres and open 1,481 acres to motorized and mechanized vehicle use. Impacts in the Monuments would be the same as described under Alternative A. For the Arizona Strip FO, impacts would fall somewhere between Alternative A and Alternative B. Under this alternative, 35 percent of the Arizona Strip FO would be subject to route designation, while 61 percent would remain limited to existing roads and trails. Approximately 5 percent would be closed and less than 1 percent would be open. In the areas where no route designation takes place, motorized use could be expected to increase, while access to designated areas may decrease due to potential route closures. This could have minor impacts on motorized recreation visitors as the overall availability of routes may decrease slightly over the life of the Plan. It could also have mixed impacts on non-motorized recreation visitors as areas that undergo route designation may offer more opportunities to pursue non-motorized activities, while areas that would be exempt from route designation may have decreased opportunities for quality non-motorized activities. Overall impacts to non-motorized recreation would be minor.

Route Designations: Under Alternative C, 1,694 miles of roads would remain open to motorized travel in the Monuments, a significant increase over Alternative B, but still 467 miles less than what is available under Alternative A. This reduction could have minor to moderate impacts on recreational OHV use and the businesses in nearby communities that cater to those users. Conversely, opportunities for non-motorized recreational use would increase slightly. These impacts would be minor for non-motorized users like hikers, equestrian, and mountain bikers and the businesses that support them.

The same impacts described under Alternative A would affect both motorized and non-motorized users on Arizona Strip FO lands in the short term. In the long term, impacts would be the result of future route designations, which are described under the section on OHV Area Designations.

Trail Construction: Under Alternative C, trail construction (non-motorized) would be the minimum necessary to achieve plan provisions. This allows trail construction to occur when and where it is needed, which could result in an appropriate increase in non-motorized trail use. The impacts from this decision would be minor.

Wheeled Game Carriers: Impacts would be the same as described under Alternative A.

Impacts from Wilderness Characteristics

Under Alternative C, approximately 266,739 acres in the Monuments would be managed with the goal of maintaining wilderness characteristics. This is slightly more than half of what is proposed in Alternative B and more than twice what is proposed in Alternative D. The impacts to settings and opportunities would be the same as those described under Alternative B, but the degree of impact to both motorized and non-motorized recreation would be significantly less. It

should be noted that although the area available for non-motorized recreation would be significantly less under this alternative, access routes to these areas have been preserved, effectively expanding opportunities.

In the Arizona Strip FO, approximately 77,575 acres would be managed with the goal of maintaining wilderness characteristics. The types of impacts to settings and opportunities would be similar to those described in Alternative B. In the long term, having a greater range of tools for restoring the landscape to its natural condition would enhance recreation experiences and settings.

Impacts from Vegetation and Fire and Fuels Management:

Under Alternative C, vegetation treatments would have more latitude and a greater array of tools when compared to Alternative B. Recreation settings and experiences could suffer minor to moderate short-term impacts during and after the application period.

Impacts from Fish and Wildlife

Impacts would be similar to those described under Alternative A, with the exception that additional watchable wildlife areas could boost wildlife viewing opportunities. Impacts would be minor.

Impacts from Special Status Species

Impacts would be similar to those described under Alternative B, with the exception that hiking would be allowed in special status plant habitat. In addition, education programs and law enforcement contact would be used to minimize recreational activities that cause injury or mortality or degrade habitat of special status species. Impacts to recreational settings and opportunities would be negligible to minor.

Impacts from Visual Resources

Under Alternative C, the VRM designations would be 581,698 acres of Class I; 782,866 acres of Class II; 1,885,678 acres of Class III; and 72,827 acres of Class IV. Some sections of Parashant and the majority of the Arizona Strip FO would be designated as VRM Class III, and impacts would be similar to those described in Alternative A. Unlike Alternative A, there is significantly fewer Class IV lands in Parashant (only 12 acres) and only a small portion in the Arizona Strip FO (72,803 acres or 92 percent reduction), allowing less in the way of noticeable landscape change than Alternative A, but more noticeable landscape change than Alternative B. In Vermilion, impacts are similar to those described under Alternative A.

Impacts from Cultural Resources

Impacts would be similar to those described under Alternative B.

Impacts from Livestock Grazing

Impacts would be similar to those described under Alternative B for Parashant and the Arizona Strip FO, with the exception that making lands unavailable for grazing would not occur in Paria Canyon and Coyote Buttes. Instead, seasonal restrictions would be placed under Alternative C, which would allow for the conflict between large numbers of wilderness users and livestock grazing. Such conflicts would occur over a shorter period when compared to Alternative A and could have moderate impacts to recreation opportunities in Vermilion.

Impacts from Recreation

Special Recreation Management Areas: Impacts would be similar to those described under Alternative B.

Signing and Facilities: Impacts would be similar to those described under Alternative B, with the exception that major facilities (e.g., visitor center or contact stations) could be built, but would be located in adjacent communities.

Recreation Marketing Actions: Impacts would be similar to those described under Alternative B.

Interpretation and Environmental Education: Impacts would be similar to those described under Alternative B.

Visitor Use Limits and Regulations: Impacts would be similar to those discussed under Alternative A, with the exception that management responses to unacceptable resource and/or social condition would be based on the LAC. This would allow the use of preemptive management techniques to limit or prevent impacts. Overall impacts to recreation opportunities could range from minor to moderate.

Camping: Impacts would be the same as described under Alternative B, with the exception that camping off designated roads would be allowed in existing sites or disturbed areas, which would provide visitors more camping opportunities. Impacts to recreational users would be minor.

Geocaching: Impacts would be similar to those described under Alternative B.

Recreation Marketing Actions: Impacts would be the same as described under Alternative B.

Permits and Fees: Impacts would be similar to those described under Alternative A.

SRP Administration: Impacts would be similar to those described under Alternative B, although slightly less efficient.

Alternative D

Impacts from Travel Management

TMA Delineation: Under Alternative D, there would be 1,158,781 acres available for motorized recreation. The number of acres in the Monuments available for motorized use would be similar to Alternative C, which is significantly more compared to Alternatives B. This alternative would have negligible impacts on recreational OHV use and the businesses in nearby communities that cater to those users. Consequently, there would be fewer opportunities for non-motorized recreational use compared to all other alternatives. Impacts would range from minor to moderate for non-motorized users (e.g., hikers, equestrian, and mountain bikers) and the businesses that support them.

Impacts in the Arizona Strip FO would be similar to those described under Alternative B.

OHV Area Designations: Under Alternative D, the OHV area designations would close 467,744 acres, limit to existing roads and trails on 1,511,652 acres, limit to designated roads and trails on 1,336,132 acres and open 7,186 acres to motorized and mechanized vehicle use. Impacts in the Monuments would be the same as described under Alternative A. For the Arizona Strip FO, impacts would be the greatest of all the Alternatives. With only 19 percent of Arizona Strip FO lands targeted for route designation in OHV area designations of "limited to designated roads and trails," 76 percent would remain open to motorized use in areas "limited to existing roads and trails." Approximately 5 percent would be closed and less than 1 percent would be open. This could have moderate impacts on motorized recreation visitors as their availability of routes would be protected at a level similar to existing conditions. The opposite would be true for non-motorized recreation visitors, and moderate impacts could result from the loss of areas being subject to route designation.

Route Designations: Impacts in the Monuments would be almost identical to that described under Alternative C.

The same impacts described under Alternative A would affect both motorized and non-motorized users on Arizona Strip FO lands in the short term. In the long term, impacts would be the result of future route designations, which are described in the section on OHV Area Designations.

Trail Construction: Under Alternative D, trail construction (non-motorized) could occur to support enhanced public use. This would provide a tool to support the growing population in the region and would allow trail construction to occur when and where it is needed. This could also

result in a significant increase in non-motorized trail use. The impacts from this decision would be moderate.

Wheeled Game Carriers: Impacts would be the same as described under Alternative A

Impacts from Wilderness Characteristics

Under Alternative D, approximately 140,949 acres in the Monuments would be managed with the goal of maintaining wilderness characteristics. This is significantly less than what is proposed in Alternative B and roughly two-thirds what is proposed in Alternative C. The impacts to settings and opportunities would be similar to those described under Alternatives B and C, but the degree of impact would change. Motorized recreational opportunities would be preserved and overall impacts to motorized recreation visitors would be minor. Non-motorized settings and opportunities would also expand and access to all areas would be preserved, but the total area available for non-motorized pursuits would be similar to Alternative A, which is significantly less than under Alternatives B and C. These impacts would be moderate.

In the Arizona Strip FO, approximately 34,628 acres would be managed with the goal of maintaining wilderness characteristics. The types of impacts to settings and opportunities would be similar to those described in Alternative B, but not as widespread.

Impacts from Vegetation and Fire and Fuels Management

Under Alternative D, vegetation treatments throughout the Planning Area would have more latitude and a fuller array of tools when compared to Alternatives B and C. Recreation settings and experiences could suffer minor to moderate short-term impacts during and after the application period. In the long term, having a full range of tools for restoring the landscape to its natural condition would enhance recreation experiences and settings.

Impacts from Fish and Wildlife

Impacts would be similar to those described under Alternative C.

Impacts from Special Status Species

Impacts would be similar to those described under Alternative C.

Impacts from Visual Resources

Under Alternative D, the VRM designations would be 453,922 acres of Class I, 843,291 acres of Class II, 1,947,036 acres of Class III, and 78,821 acres of Class IV. Impacts would be similar to those described under Alternative C.

Impacts from Cultural Resources

Impacts would be similar to those described under Alternative B.

Impacts from Livestock Grazing

Impacts would be similar to those described under Alternative B for Parashant and the Arizona Strip FO. Impacts would be similar to those described under Alternative C for Vermilion, except that the seasonal restrictions in Coyote Buttes would be removed, which would allow for year-long conflict between large numbers of wilderness users and livestock grazing and exacerbate an already difficult problem. This specific conflict could have major impacts.

Impacts from Recreation

Special Recreation Management Areas: Impacts would be similar to those described under Alternative B.

Signing and Facilities: Impacts would be similar to those described under Alternative C.

Recreation Marketing Actions: Impacts would be similar to those described under Alternative B.

Interpretation and Environmental Education: Impacts would be similar to those described under Alternative B.

Visitor Limits and Regulations: Impacts would be similar to those described under Alternative C.

Camping: Impacts would be similar to those described under Alternative C.

Geocaching: Under Alternative D, geocache sites would be relocated with help from local geocachers if, through monitoring, it were determined that important resources would be at risk of unacceptable change. The impact to recreational users would be negligible.

Recreation Marketing Actions: Impacts would be the same as described under Alternative B.

Permits and Fees: Impacts would be similar to those described under Alternative A.

SRP Administration: Impacts would be similar to those described under Alternative A.

Alternative E: Proposed PlanImpacts from Travel Management

TMA Delineation: Impacts would be similar to those described under Alternative D in the Monuments and similar to those described under Alternatives B in the Arizona Strip FO.

OHV Area Designations: Under Alternative E, the OHV area designations would close 455,925 acres, limit to existing roads and trails on 0 acres, limit to designated roads and trails on 2,865,809 acres, and open 976 acres to motorized and mechanized vehicle use. Impacts would be the same as described under Alternative A.

Route Designations: Under Alternative E, 1,781 miles of roads would remain open to motorized travel in the Monuments, a minor increase over Alternative C, but still 380 miles less than what would be available under Alternative A. This reduction would have negligible impacts on recreational OHV use and the businesses in nearby communities that cater to those users. Conversely, opportunities for non-motorized recreational use could decrease slightly. These impacts would likely be minor to moderate for non-motorized users (e.g., hikers, equestrian, and mountain bikers) and the businesses that support them.

The same impacts described under Alternative A would affect both motorized and non-motorized users on Arizona Strip FO lands in the short-term. In the long-term, impacts would be the result of future route designations, which are described in the section on OHV Area Designations.

Trail Construction: Impacts would be the same as described under Alternative D.

Wheeled Game Carriers: Impacts would be the same as described under Alternative A

Impacts from Wilderness Characteristics

Impacts would be similar to those described under Alternative C.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be similar to those described under Alternative D.

Impacts from Fish and Wildlife

Impacts would be similar to those described under Alternative C.

Impacts from Special Status Species

Impacts would be similar to those described under Alternative C.

Impacts from Visual Resources

Under Alternative E, the VRM designations would be 461,804 acres of Class I, 1,164,582 acres of Class II, 1,623,763 acres of Class III, and 72,920 acres of Class IV. In Parashant, impacts would be similar to those described under Alternative C. In Vermilion, impacts would be similar to those described under Alternative B. Impacts in the Arizona Strip FO would also be similar to those described under Alternative B, albeit slightly more noticeable landscape change would be allowed due to 29 percent more of Class I lands and 5 percent more of Class II lands being designated as Class III under Alternative E.

Impacts from Cultural Resources

Impacts would be similar to those described under Alternative B.

Impacts from Livestock Grazing

Impacts would be similar to those described under Alternative B for Parashant and the Arizona Strip FO. Impacts would be similar to those described under Alternative B for the Paria Canyon portion of Vermilion, and similar to Alternative D for Coyote Buttes.

Impacts from Recreation

Special Recreation Management Areas: Impacts would be similar to those described under Alternative B.

Signing and Facilities: Impacts would be similar to those described under Alternative C.

Recreation Marketing Actions: Impacts would be similar to those described under Alternative B.

Interpretation and Environmental Education: Impacts would be similar to those described under Alternative B.

Visitor Limits and Regulations: In general, impacts would be the same as described under Alternative C, including use of LAC. The only difference is that carrying capacities may be established as wilderness management plans and activity plans are completed. Impacts from using carrying capacities in wilderness areas would be the same as described for the entire Monument under Alternative B.

Camping: Impacts would be similar to those described under Alternative C.

Geocaching: Impacts would be similar to those described under Alternative D.

Permits and Fees: Impacts would be similar to those described under Alternative A

SRP Administration: Impacts would be similar to those described under Alternative C.

Cumulative Impacts

The geographic area for analysis of cumulative impacts to recreation and visitor services/interpretation and environmental education is northern Arizona, southwestern Utah, and southeastern Nevada. Over time, continued population growth of the large and small communities in this area will contribute to greater visitation to the Planning Area. Additionally, the development of large blocks of Arizona State Trust lands for residential, commercial, urban, and other community expansion purposes will shift much of the recreation use that currently takes place on those lands to adjacent public lands. Such a shift will produce an increase in the creation of illegal routes and strong potential for shifting prescribed recreation settings toward more rural/urban character.

The growing need to decrease the potential for catastrophic fire in the region through mechanical treatments aimed at reducing fuel loads will gradually alter landscapes and recreation settings where treatments are conducted. Smoke from prescribed fires used for the same purpose will sporadically affect the quality of viewsheds and interfere with the public's viewing of scenery. The potential for noxious weed invasions in the region to change existing landscape form, texture, and color over large areas in a relatively short time will gradually affect the naturalness attribute of the physical setting component.

Extended drought conditions combined with construction activities (related to urban growth) and increased use of dirt roads in the region (related to the growing numbers of visitors) will contribute to more frequent and prolonged periods of fugitive dust and reduced access, which would affect the availability of recreation opportunities. Conversely, diligent application of Standards for Rangeland Health, the maintenance of Vital Sign resources on NPS lands, reclamation practices, restoration projects, and the progression toward achieving DFCs for vegetation management will noticeably reduce the potential for fine soil particles to become airborne. Such practices will, if successful, improve scenic quality and enhance a variety of recreation settings.

Continued application of visual resource design principles for permitted projects, activities, and uses on public lands will do much to maintain physical recreation settings within the Planning Area. A shift toward renewed uranium exploration and extraction will shift the remoteness attribute of physical recreation settings and the encounters with others attribute of the social recreation settings via the construction and regular use of new routes in non-Monument areas. As some shifting in the region occurs from agricultural-related businesses to recreation and tourism, some landscapes and recreation settings will be enhanced by the removal of unneeded structures. However, such a shift may create other impacts to recreation settings by providing

for more structured recreation, accompanied by increased visitation. Management of areas such as wilderness, proposed wilderness, areas having wilderness characteristics, and various ACECs will contribute to maintaining or enhancing landscapes and recreation setting conditions on scattered, large tracts of public land.

TRAVEL MANAGEMENT

The transportation network consists of several thousand miles of roads and trails, mostly unpaved, that provide access into and across the Planning Area. Various individuals rely on this network to access livestock operations, mining properties, utility and communication facilities, range and wildlife developments, wildfire prevention/management and suppression, special use areas, recreation sites, research areas, monitoring stations, and intermingled private- and state-owned lands. Management decisions that involve changes to miles of roads open for public or administrative use, different TMA objectives, number of acres open to off-road travel, road improvement or maintenance activities, or specific travel restrictions (e.g., speed limits, seasonal restrictions; etc.) would affect access into and across the Planning Area.

Methods and Assumptions

Baseline route inventories were completed for the two Monuments and several areas within the Arizona Strip FO. The Route Evaluation Tree© method (see Appendix 2.T) was then used to determine the status (e.g., open, limited in use, or completely closed) for existing routes under each of the alternatives except Alternative A. The potential impacts to access into and across the Planning Area as determined by the miles of routes open to public use is based on the results of the Route Evaluation Tree© process. BLM resource specialists at the Arizona Strip FO and NPS staff at Lake Mead NRA used their expertise in applying the Route Evaluation Tree© method and analyzing the impacts. Combined, these staff members possess an extensive knowledge of travel management and access issues within the Planning Area.

Specific route evaluations were not done for most of the Arizona Strip FO because route inventories are not yet complete. The Plan presents a preliminary route network of existing routes for analysis, pending completion of the inventory and application of the Route Evaluation Tree© method following the completion of this Plan. In the St. George Basin area, route inventory has been completed, but application of the Route Evaluation Tree© has not. A reasonable and foreseeable designation status for St. George Basin was developed and used for analysis.

Negligible: Impacts on travel and access would not be noticeable as there would be no discernible effect on miles of routes designated as open, limited in use, or completely closed. While a few roads could be improved or upgraded, overall road conditions would essentially remain the same.

- Minor:** Impacts on travel and access would be slightly noticeable in certain areas, although there would no substantive effect on the overall miles of routes designated as open, limited in use, or completely closed throughout the Planning Area. While numerous roads could be improved or upgraded, these would be site specific while the condition of most roads would essentially remain the same.
- Moderate:** Impacts on travel and access would be evident in many portions of Planning Area due to the overall miles of routes designated as open, limited in use, or completely closed. Changes in road conditions would be noticeable in certain portions of the Planning Area due to road improvement or upgrades.
- Major:** Impacts on travel and access would be extensive throughout the Planning Area due to the overall miles of routes designated as open, limited in use, or completely closed. Substantial numbers/miles of roads would be improved or upgraded, resulting in a noticeable change in road condition throughout the Planning Area.

Impacts to Travel Management

Impacts to Travel Management in the Planning Area would result from actions proposed under the following resource management programs:

- Travel Management
- Fish and Wildlife
- Special Status Species
- Cultural Resources (Arizona Strip FO only)
- Special Designations
- Recreation
- Lands and Realty (Arizona Strip FO only)

Alternative A: No Action

Impacts from Travel Management

Under Alternative A in the Monuments, vehicle travel would be allowed only on designated routes, with no areas of the Monument being open to motorized and mechanized cross-country vehicle travel, with the exception of authorized administrative and emergency purposes. Out of 1,825 miles of routes identified in Parashant during the baseline route inventories, 1,715 miles would be designated as open to the public and 25 miles would be designated open to administrative use only. Out of 565 miles of routes identified in Vermilion during the baseline route inventories, 446 miles would be designated as open to the public and 14 miles would be designated open to administrative use only. It should be noted that route designations, under any alternative, are implementation decisions and that the resulting transportation network could change over time with or without a plan amendment.

Travel through the Monuments is expected to increase due to the growing population in the communities and counties surrounding the Planning Area (see Socioeconomic section) and the increased demand for recreation opportunities on public lands (see Recreation section). In the long term, travelers could experience increases in traffic on designated routes due to increased use. Impacts would be minor in the short-term but could become moderate to major in the long term. The management actions of limiting travel to designated roads and allowing no new motorized route construction, which could otherwise address increased use, would exacerbate this impact. In addition, some designated routes could be closed if unacceptable impacts to resources/Monument objects are determined, further increasing demand for the remaining open routes. Finally, designated routes would not be upgraded or enhanced to address potential increases in traffic. This could increase the number of conflicts and traffic accidents on certain, heavily used routes.

Of 1.98 million acres of BLM lands in the Arizona Strip FO, vehicle travel would be limited to designated roads and trails on 282,019 acres and limited to existing roads and trails on 1,575,140 acres. Eight hundred and three acres would be open to motorized and mechanized vehicle use while 123,100 acres would be closed.

Travel through the Arizona Strip FO is expected to increase due to the growing population in the communities and counties surrounding the Planning Area (see Socioeconomic section) and the increased demand for recreation opportunities on public lands (see Recreation section). The greatest demand for access would occur near communities. One of the demands would be for more access to open areas for OHV use. The 803 acres of open area proposed under Alternative A would not be enough to meet such demand.

In the long term, travelers in the Arizona Strip FO could experience increases in traffic on designated routes due to increased use. Permitting public travel on both designated and existing roads and trails would alleviate traffic and conflicts. New motorized route construction (the minimum necessary to achieve Plan provisions) could reduce potential traffic and conflicts even further. However, designated and existing routes would not be upgraded or enhanced to address potential increases in traffic. This could increase the number of conflicts and traffic accidents on certain, heavily used routes.

Impacts from Fish and Wildlife

No management actions within the fish and wildlife program proposed under Alternative A would affect travel and access.

Impacts from Special Status Species

Restrictions placed on protecting desert tortoises could affect travel within desert tortoise habitat in both Parashant and the Arizona Strip FO. Specific transportation and access restrictions

would occur within the Pakoon DWMA and desert tortoise ACECs, including not allowing new paved roads; limitations on temporary upgrading of existing roads; seasonal restrictions on the regular maintenance of existing roads; and speed limits (at or below 40 mph) for BLM-authorized projects traveling on unpaved, high density tortoise areas during the species active season. Outside the Pakoon DWMA and desert tortoise ACECs but within desert tortoise habitat, use of roads constructed for specific non-public purposes, such as access routes to microwave towers, would be limited to administrative use only and temporary access routes would be modified as necessary to prevent further access. These restrictions would have minor, site-specific impacts on travel and access in Parashant and the Arizona Strip FO.

Impacts from Cultural Resources

In cultural ACECs in the Arizona Strip FO, travel would be limited to designated roads and trails or limited to existing roads and trails until route designation is complete. Restrictions would also be placed on OHV travel. Portions of the Old Spanish NHT on BLM lands would be closed to unauthorized vehicles where protected archaeological and historic sites and trail route segments are negatively impacted. Overall impacts to travel and access would be site specific and minor due to the relatively small area impacted and the limited number of roads potentially closed.

Impacts from Special Designation

In all three planning areas, various restrictions on travel would be implemented in wilderness areas and wild and scenic study corridors. In actuality, these two special designations overlap. In wilderness areas, all motorized vehicles, motorized equipment, aircraft landing, and other forms of mechanical transport (including mountain bikes and wheeled game carriers) would continue to be prohibited, except for necessary administrative purposes, emergency situations, or exercise of a private existing right or other special provision. In the Paria River wild and scenic river study area and the "wild" section of the Virgin River, the construction of new roads would be prohibited. Impacts would be minor considering no existing routes would be impacted.

In DWMA/ACECs, specific restrictions would be applied on road construction, maintenance, and travel. The majority of such restrictions would occur in desert tortoise DWMA/ACECs. Impacts would be minor considering the limited number of existing routes impacted.

Impacts from Recreation

Under Alternative A, the BLM would continue to write sign plans addressing present and future needs, including road information and public safety. Such sign plans would be coordinated with the Arizona Strip visitor map. This would benefit visitors traveling in the Planning Area by reducing numbers of lost or stranded travelers and preventable accidents. Impacts would be minor.

Impacts from Lands and Realty

The disposal of up to 25,188 acres in the Arizona Strip FO would reduce the overall amount of BLM lands available to the public to access. Due to the relatively small amount of acres involved, none of which are high use areas, impacts would be minor and site specific. Legal vehicular access would be acquired from willing sellers across private and state lands in locations determined in need of such access. This would improve access to those individuals and agencies requiring such access. Impacts would be minor and site specific.

Alternative B

Impacts from Travel Management

As under Alternative A, vehicle travel would be allowed only on designated routes in the Monuments, with no areas being open to motorized and mechanized cross-country vehicle travel, with the exception of authorized administrative and emergency purposes. However, significantly less than half the miles of routes (37 percent) would be open to public motorized use compared to Alternative A. This would result in a major impact to travel and access within and across the Monuments. The recreating public would be particularly susceptible to experience these impacts. Impacts to ranchers, researchers, federal and state agencies (e.g., BLM, NPS, USFWS, AGFD, etc) would be less intense due to the miles of routes designated open to administrative use only, the most of which would be designated under Alternative B compared to the other alternatives.

The potential for traffic, accidents, and conflicts experienced by travelers on designated routes in the Monuments would be considerably greater than that experienced under Alternative A due to the limited miles of routes open to the public in conjunction with the management action allowing no new motorized route construction. Impacts would be further intensified as, similar to Alternative A, some designated routes could be closed if unacceptable impacts to resources/Monument objects are determined and designated routes would not be upgraded or enhanced to address potential increases in traffic. Overall impacts from such travel management actions would be moderate in the short term, but could become major in the long term as visitation to the Monuments increases.

In the Arizona Strip FO under Alternative B, OHV-area designations would limit motorized and mechanized vehicle travel to designated roads and trails on over six times more acres than under Alternative A, and there would be no areas where travel would be limited to existing routes. Overall impacts would be major in the long term, especially considering the expected continued increases in travel in the Arizona Strip FO, which could increase the number of conflicts and traffic accidents on certain, heavily used routes. The ability to upgrade routes to address public safety issues, however, would partially alleviate problems related to increases in traffic on some routes.

No parts of the Arizona Strip FO would be open to motorized and mechanized vehicle use under Alternative B, while 30,452 (25 percent) fewer acres would be closed to motorized and mechanized vehicle use compared to Alternative A. Off-road users would need to find areas outside the Arizona Strip FO to travel off road. The impact would only be moderately more intense than under Alternative A due to the minimal number of open acres proposed under Alternative A, which would also require off-road enthusiasts to seek areas outside the Arizona Strip FO for off-road travel.

In the Ferry Swale area, there would be 18 fewer miles open to the public for motorized use, or 35 percent the routes open compared to Alternative A, reducing access into those areas. Impacts would be moderate. Impacts would be greatest on motorized recreationists, tourists, and other non-administrative users within the area while impacts to administrative users would be moderate due to the increase of 14 miles of routes being open for administrative use only in Alternative A. A total of 7 miles of roads would be closed and rehabilitated in the Ferry Swale area. All users would be affected. Impacts would be site specific and minor to moderate.

The impacts of a preliminary route network within the remainder of the Arizona Strip FO would be essentially the same as proposed under Alternative A. Administrators, emergency personnel, and individuals with a valid existing right or other valid authorization would be allowed to engage in cross-country motorized or mechanized travel. Additional route designations would occur over the first five years of the plan using the Route Evaluation Tree© process.

Impacts from Fish and Wildlife

In the Monuments under Alternative B, non-motorized access to public lands with fish and wildlife hunting and viewing opportunities would be maintained, though motorized modes would be greatly reduced. Impacts would be site specific and range from negligible to major. In all three planning areas, access to public lands with sensitive wildlife and fisheries resources would be closed or limited. Impacts would be site specific and minor.

Impacts from Special Status Species

Impacts from the protection of desert tortoises in Parashant and the Arizona Strip would be the same as described under Alternative A. In addition, active management programs could be undertaken to maintain or restore listed species and their habitats in all three planning areas, which could include the control of detrimental visitor access. This could affect access in site-specific locations. Impacts would be minor.

Under Alternative B, in addition to closing roads and trails that may cause desert tortoise mortality in the Arizona Strip FO, as proposed under Alternative A, the BLM could also close those roads causing or contributing to the individual mortality of any listed species or degradation of their habitat. Such management actions would increase the possibility of roads being closed; however, impacts would be minor as few roads would be expected to be closed.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative A.

Impacts from Special Designations

The types of impacts due to travel restrictions in wilderness areas, rivers determined suitable for inclusion in the National Wild and Scenic Rivers system, DWMAs, and ACECs would be the same as described under Alternative A. This is true even in Parashant where the Pakoon ACEC/DWMA would lose its ACEC designation but keep its DWMA designation, which poses the same restrictions on travel as the ACEC. However, overall impacts due to travel restrictions in ACECs would be more widespread in the Arizona Strip FO due to the creation of additional ACECs and expansion of existing ones. When added, 308,390 acres would be under ACEC protection under Alternative B, which is over twice as many acres than proposed under Alternative A.

Impacts from Recreation

Impacts would be similar to that described under Alternative A. Additionally, management of new SRMAs could constrain or restrict public access in certain recreation management zones (RMZs) within the SRMAs, or enhance or encourage greater public access in other RMZs. The overall impact would be minor to moderate on a localized basis.

Impacts from Lands and Realty

In the Arizona Strip FO under Alternative B, 1,507 fewer acres would be identified for disposal than under Alternative A, which would result in negligible difference in impacts. Legal vehicle access would be acquired from willing sellers across private and state lands in similar locations as described under Alternative A, resulting in similar impacts.

Alternative C

Impacts from Travel Management

As under Alternative A, vehicle travel would be allowed only on designated routes, with no areas of the Monument being open to motorized and mechanized cross-country vehicle travel, with the exception of authorized administrative and emergency purposes. However, there would be 395 fewer miles of routes open to the public for motorized use in Parashant and 72 fewer miles of routes open to the public for motorized use in Vermilion compared to Alternative A, reducing access into the Monuments. Impacts would be moderate. Impacts would not be as extensive compared to Alternative B as Alternative C proposes nearly twice as many miles of open routes in the Monuments. Impacts to ranchers, researchers, federal and state agencies would be

minimized due to 199 miles of routes in Parashant and 72 miles of routes in Vermilion designated open to administrative use only.

The potential for traffic, accidents, and conflicts experienced by travelers on designated routes would be greater than under Alternative A in the Monuments due to fewer miles of routes open to the public for motorized and mechanized vehicle use. As under Alternative A, some designated routes could be closed if unacceptable impacts to resources/Monument objects are determined. Differing from Alternative A and B, new motorized route construction (the minimum necessary to achieve Plan provisions) could occur on BLM lands. This could allow for some traffic alleviation not possible under Alternative A or B. In addition, designated routes could be upgraded or enhanced on BLM lands to address potential public safety concerns, such as those resulting from increased traffic, thus improving access. Impacts would be minor.

Under Alternative C in the Arizona Strip FO, OHV-area designations would limit motorized and mechanized vehicle use to designated roads and trails on over twice as many acres as under Alternative A, while travel would be limited to existing routes on 370,358 (24 percent) fewer acres than under Alternative A. These actions would slightly reduce the potential number of routes available for public access in the Arizona Strip FO. Closing 30,452 fewer acres to motorized and mechanized vehicle use compared to Alternative A would result in the same impacts as described under Alternative B. Impacts would be moderate. As under Alternative B, the ability to upgrade routes to address public safety issues would partially alleviate problems related to increases in traffic on some routes. In addition, new motorized routes could be constructed, although it would be the minimum necessary to achieve Plan provisions and thus only slightly increases the possibility of reducing congestion along some routes within the Arizona Strip FO.

Under Alternative C, 1,481 acres would be open to motorized and mechanized vehicle use, nearly twice as many acres in the Arizona Strip FO compared to Alternative A. This would increase opportunities for off-road access, although probably not sufficient to meet the increasing demand for off-road access for OHV and other uses. Impacts to off-road travelers would be minor.

Under Alternative C, 4 fewer miles of roads would be open to the public in the Littlefield and Ferry Swale areas compared to Alternative A, although 14 more miles would be open compared to Alternative B. Impacts would be greatest to recreationists, tourists, and other non-administrative users within the areas while opening 5 miles to administrative use only would minimize impacts to administrative users. Two miles of roads would be closed and rehabilitated, affecting all users. This impact would be site specific and minor, less intense when compared to Alternative B. Impacts would be minor to moderate. All users would be affected.

The impacts of a preliminary route network within the remainder of the Arizona Strip FO would be essentially the same as proposed under Alternative A. Administrators, emergency personnel, and individuals with a valid existing right or other valid authorization would be allowed to

engage in cross-country motorized or mechanized travel. Additional route designations would occur over the first five years of the Plan using the Route Evaluation Tree© process.

Impacts from Fish and Wildlife

Impacts would be the same as discussed under Alternative B.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative A.

Impacts from Special Designations

In the Monuments, impacts would be the same as described under Alternative A. In the Arizona Strip FO, impacts would be the same as described under Alternative A, with the exception that impacts from ACECs would be more widespread due to the designation of 4,909 more acres under ACEC protection than under Alternative A. Impacts would not be as widespread compared to Alternative B.

Impacts from Recreation

Impacts would be similar to that described under Alternative B.

Impacts from Lands and Realty

Under Alternative C, 164 fewer acres in the Arizona Strip FO would be identified for disposal than under Alternative A, which would result in negligible difference in impacts. Other impacts would be the same as described under Alternative B.

Alternative D

Impacts from Travel Management

As under Alternative A, vehicle travel in the Monuments would be allowed only on designated routes, with no areas of the Monument being open to motorized and mechanized cross-country vehicle travel, with the exception of authorized administrative and emergency purposes. However, there would be 187 fewer miles of routes open to the public for motorized use in Parashant and 30 fewer miles of routes open to the public for motorized use in Vermilion compared to Alternative A, reducing access into the Monuments. Impacts would be minor to

moderate. Impacts would be less intense compared to Alternative B as Alternative D proposes over twice as many miles of open routes, and slightly less intense as under Alternatives C as Alternative D. The recreating public would be most susceptible to reduced miles of open routes as impacts to ranchers, researchers, and federal and state agencies would be minimized due to routes designated open to administrative use only.

The amount of traffic, accidents, and conflicts experienced by travelers on designated routes within the Monuments would be slightly greater than under Alternative A due to fewer miles of routes open to the public under Alternative D, although impacts would be less than under Alternatives B and C. Differing from Alternative A and B but similar to Alternative C, new motorized route construction could occur on BLM lands. The basis for building such routes would be more lenient than under Alternative C as routes could be built to support enhancing public use if protection and/or enhancement of Monument objects are ensured. More routes could thus be built, allowing for improved traffic conditions and easier access to certain parts of the Monuments. As under Alternative C, designated routes could be upgraded or enhanced on BLM lands to address potential public safety concerns, such as those resulting from increased traffic. Impacts resulting from the possibility of new motorized routes and improvement/enhancement of existing routes would improve overall access into the Monument over the long term.

In the Arizona Strip FO under Alternative D, OHV-area designations would limit motorized and mechanized vehicle use to designated roads and trails on 87,563 more acres than under Alternative A, with travel being limited to existing routes on 63,488 (4 percent) fewer acres than under Alternative A. This would slightly reduce the potential number of routes available for public access in the Arizona Strip FO. Impacts from closing 30,452 fewer acres to motorized and mechanized vehicle use compared to Alternative A would be the same as under Alternative B. Impacts would be moderate. As under Alternative B, the ability to upgrade routes to address public safety issues would partially alleviate problems related to increases in traffic on some routes. In addition, new motorized routes could be constructed for the purposes of enhancing recreation opportunities, which increases the possibility of reducing route congestion in popular areas of the Arizona Strip FO.

Nearly nine times as many acres in the Arizona Strip FO would be open to motorized and mechanized vehicle use compared to Alternative A. This would greatly increase opportunities for off-road access, partly meeting the increasing demand for off-road access for OHV and other uses. Impacts to off-road travelers would be moderate.

One fewer mile of road would be open to the public in the Ferry Swale area compared to Alternative A, although 17 more miles would be open compared to Alternative B and 3 more miles compared to Alternative C, reducing the intensity of impacts. Impacts to administrative users would be minimized by 3 miles of roads open for administrative use only. One mile of road would be closed and rehabilitated. Although such closures would affect all users, it is the

least among the alternatives with the exception of Alternative A. Impacts would be minor to moderate. All users would be affected.

The impacts of a preliminary route network within the remainder of the Arizona Strip FO would be the same as proposed under Alternative A. Administrators, emergency personnel, and individuals with a valid existing right or other valid authorization would be allowed to engage in cross-country motorized or mechanized travel. Additional route designations would occur over the first 5 years of the Plan using the Route Evaluation Tree© process.

Impacts from Fish and Wildlife

Impacts would be the same as discussed under Alternative B.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative A.

Impacts from Special Designations

In the Monuments, impacts would be the same as described under Alternative A. In the Arizona Strip FO, impacts would be the same as described under Alternative A, albeit less widespread due to several ACECs losing their designations. A total of 106,420 acres would be under ACEC designation under Alternative D, which is 20,772 less acres than under Alternative A.

Impacts from Recreation

Impacts would be similar to that described under Alternative B.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative C.

Alternative E: Proposed Plan

Impacts from Travel Management

As under Alternative A, vehicle travel in the Monuments would be allowed only on designated routes, with no areas being open to motorized and mechanized cross-country vehicle travel, with the exception of authorized administrative and emergency purposes. However, there would be

311 fewer miles of routes in Parashant and 69 fewer miles of routes in Vermilion that would be open to the public compared to Alternative A, reducing access into the Monuments. Impacts would be moderate, minimal compared to Alternative B that proposes less than half as many miles of open routes. Impacts from closed roads would fall somewhere between Alternatives C and D. As under all alternatives, the recreating public would be particularly susceptible to experience impacts while impacts to ranchers, researchers, federal and state agencies would be minimized due to routes designated open to administrative use only.

The amount of traffic experienced by travelers in the Monuments would be slightly greater than under Alternative A due to fewer miles of routes open to the public. As under Alternative A, some designated routes could be closed if unacceptable impacts to resources/Monument objects are determined. Differing from Alternative A and B but similar to Alternatives C and D, new motorized route construction could occur on BLM lands. As a result, new routes could be built and allow for improved traffic conditions and easier access to certain parts of the Monument. As under Alternative C and D, designated routes could be upgraded or enhanced on BLM lands to address potential public safety concerns, such as those resulting from increased traffic.

In the Arizona Strip FO under Alternative E, OHV-area designations would limit motorized and mechanized vehicle use to designated roads and trails on almost seven times more acres than under Alternative A, with no travel limited to existing routes. Impacts from these decisions would be similar to those discussed under Alternative B. Impacts from closing 11,819 or 13 percent fewer acres to motorized and mechanized vehicle use would also be similar to those described under Alternative B. Impacts from BLM lands open to motorized and mechanized vehicle use would be seven times less than Alternative D due to 976 open acres, which would greatly increase opportunities for off-road access, partly meeting the increasing demand for off-road access for OHV and other uses. Impacts to off-road travelers would be moderate.

As under Alternative B, the ability to upgrade routes to address public safety issues in the Arizona Strip FO would partially alleviate problems related to increases in traffic on some routes. As under Alternative D, new motorized routes could be constructed for the purposes of enhancing recreation opportunities, which increases the possibility of reducing route congestion in popular areas of the Arizona Strip FO.

Impacts from route designations in the Ferry Swale area would be similar to that described under Alternative C due to similar miles of routes open, closed, and limited to administrative use.

The impacts of a preliminary route network within the remainder of the Arizona Strip FO would be the same as proposed under Alternative A. Administrators, emergency personnel, and individuals with a valid existing right or other valid authorization would be allowed to engage in cross-country motorized or mechanized travel on limited to existing areas only. Additional route designations would occur over the first five years of the plan using the Route Evaluation Tree[©] process.

Impacts from Fish and Wildlife

Impacts would be the same as discussed under Alternative B.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative A.

Impacts from Special Designations

In the Monuments, impacts would be the same as Alternative A. In the Arizona Strip FO, impacts would be similar to Alternative A, albeit more widespread due to the designation of 150,105 acres of ACECs, but less widespread compared to Alternatives B and C.

Impacts from Recreation

Impacts would be similar to that described under Alternative B.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative C.

IMPACTS TO SPECIAL DESIGNATIONS**CONGRESSIONAL DESIGNATIONS: WILDERNESS AREAS**

This section presents potential impacts to designated wilderness (BLM lands only) and proposed wilderness (NPS lands only) from the five alternatives, including the No Action Alternative. There are eight wilderness areas on BLM lands in the Planning Area: four are located in Parashant (Grand Wash Cliffs, Paiute, Mt. Logan, and Mt. Trumbull), a portion of one is located in Vermilion (Paria Canyon-Vermilion Cliffs), and three are located in the Arizona Strip FO (Cottonwood Point, Kanab Creek, and Beaver Dam Mountains). There are seven proposed wilderness areas on NPS lands in Parashant: Azure Ridge, Cockscomb, Balanced Rock, Shivwits, Andrus, Whitmore Point, and Lava. See Chapter 3 for a description of these areas.

This section analyzes management actions that influence those opportunities associated with wilderness character (i.e., solitude, naturalness, and primitive/unconfined recreation). Wilderness character is primarily influenced by the proximity of motorized travel corridors and the volume and density of recreational users. To a lesser extent, range and wildlife management

projects can affect wilderness character. These impacts normally come from vegetation treatments and the installation, maintenance, and use of range/wildlife catchments and wildlife drinkers. These impacts can be negative, such as the loss of naturalness or solitude, or positive, such as the enhancement of wildlife populations within a wilderness area.

Methods and Assumptions

The analysis of potential impacts to BLM-designated and NPS-proposed wildernesses is based on two data sources: visitor use reporting statistics, which in many cases provides detailed information on the number and types of recreational use within a wilderness area; and spatial data from the GIS. The GIS information used in this analysis includes wildlife habitat boundaries, range and wildlife developments, management units, wilderness boundaries, areas with wilderness characteristics, transportation inventories, transportation designations, ecological zones, watersheds, vegetation types, and known historical/cultural sites. In the absence of data, analyses were based on the expertise of recreation/wilderness planners.

Impacts are quantified where possible. In the absence of quantifiable data, professional judgment was used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate. The intensities of impacts are also described, where possible, using the following guidance:

- Negligible: The impact is at the lower level of detection; there would be no measurable change.
- Minor: The impact is slight but detectable; there would be a small change.
- Moderate: The impact is readily apparent; there would be a measurable change that could result in a small but permanent change.
- Major: The impact is severe; there would be a highly noticeable, long-term, or permanent measurable change.

The following assumptions regarding the future management of designated wilderness are made:

- All laws for the management and protection of wilderness would be followed, to the extent allowed by the budget and available personnel.
- Any new surface disturbing activities proposed would be subject to NEPA analysis and to the minimum tool requirement
- Activities proposed that would not initially meet wilderness objectives for the area would be mitigated to the extent needed to meet the objectives. Activities that could not be mitigated would not be authorized.
- Some proactive restoration of areas that do not meet desired wilderness objectives may be completed each year.

Impacts to Wilderness

Impacts to wilderness settings would result from actions proposed by the following resource management programs:

- Travel Management
- Wilderness Characteristics
- Vegetation and Fire and Fuels Management
- Fish and Wildlife
- Special Status Species
- Visual Resources
- Cultural Resources
- Special Designations
- Livestock Grazing
- Recreation
- Interpretation and Environmental Education
- Lands and Realty

Alternative A: No Action

Impacts from Travel Management

The current route system would be maintained and 1,715 miles of routes in Parashant, 446 miles in Vermilion, and 4,934 miles in the Arizona Strip FO would remain open to motorized and mechanized travel by the public. This includes all routes that lead directly to, or run parallel to, designated wilderness areas. Solitude in these wilderness areas would be impacted due to the proximity of open routes, and naturalness in these areas could continue to be impacted by illegal motorized intrusions. These impacts would primarily stem from OHV traffic and would remain minor, localized, and direct in the Monuments due to the remote nature of the area. In the Arizona Strip FO, impacts would become more severe in the long term due to the expanding population in Southern Utah, the corresponding increase in OHV sales, and the proximity of some areas within the Arizona Strip FO to populated areas.

Impacts from Wilderness Characteristics

No decisions regarding wilderness characteristics are proposed under Alternative A.

Impacts from Vegetation and Fire and Fuels Management

Any vegetation treatments proposed within designated or proposed wilderness could have minor to moderate impacts. Any projects would be under the minimum tool requirement, and impacts would likely be localized and short-term. Solitude experienced by recreational users could be

affected by short-term minor to moderate impacts while work was being conducted. Naturalness would be impacted at the minor to moderate level, depending on the type and scope of work. All impacts would be localized.

In Parashant, active restoration projects in wilderness areas would have a localized impact and a generally short-term effect on solitude, naturalness, and primitive/unconfined recreation, depending on the scope of the project. Long-term benefits would be realized by active restoration (within the minimum tool restriction) as having a full suite of restoration tools would allow an aggressive approach to controlling invasive species.

Impacts from Fish and Wildlife

Wildlife transplants could create a temporary loss of solitude during the release of bighorn and other species in wilderness areas. This impact could be offset by having restored native animal populations as a supplemental wilderness value.

Currently, there are 14 developed wildlife drinkers/catchments within designated wilderness in Parashant and 10 in the Arizona Strip FO. There are an additional eight drinkers/catchments in Parashant and two in the Arizona Strip FO within 1,000 feet of a wilderness or proposed wilderness boundary. These water developments would continue to serve wildlife populations throughout the two planning areas. Under Alternative A, motorized access to 16 drinkers/catchments in Parashant and eight in the Arizona Strip FO would continue.

Construction and maintenance of these or other water development projects in Parashant and the Arizona Strip FO would have minor to moderate impacts on wilderness experiences in these locations by diminishing naturalness and the opportunity for primitive/unconfined recreation. Such impacts would be direct and localized, rarely extending more than 100 feet in any direction.

In Vermilion, there is one wildlife drinker within the Paria Canyon-Vermilion Cliffs Wilderness boundary and five Wildlife/Range water development projects within 1,000 feet of the wilderness boundary. These water developments mainly serve bighorn and mule deer populations on the Paria Plateau and the wilderness. Under Alternative A, motorized access to these sites would be maintained. The disturbed area for these projects often extends into the wilderness and is usually the result of livestock concentrations around the water development. These areas are characterized by disturbed soil, sparse vegetation, and large quantities of cow manure. The construction and maintenance of water development projects can have moderate to major impacts on designated wilderness. Naturalness and the opportunity for primitive/unconfined recreation in these locations are diminished considerably. These impacts are direct and long term but are very localized, rarely extending more than one-half mile in any direction.

Impacts from Special Status Species

No special status species decisions proposed under Alternative A for the Monuments would affect designated or proposed wilderness areas. In general, the management of special status

species' habitat in the Arizona Strip FO would involve restrictions that have a positive effect on wilderness character. Restrictions on fire use and vegetation treatment can often enhance the naturalness of wilderness. The Beaver Dam Mountains, Paiute, and Kanab Creek wilderness all contain habitat that falls into this category. The impacts would generally be minor and positive.

Impacts from Visual Resources

Wilderness and visual resources are generally compatible as designated and proposed wilderness is normally associated with a high visual quality. Under Alternative A, all designated wilderness areas within the Monument would be designated VRM Class 1, which prohibits any development that would cause negative impacts to solitude, naturalness, and primitive/unconfined recreation. Conflicts sometimes occur when wilderness is bordered by lower VRM classes. Under this alternative, approximately 40 percent of the Grand Wash Cliffs Wilderness would be bordered by VRM Class IV, while portions of the Paiute and Beaver Dam Mountains wilderness would be bordered by VRM classes III and IV, which would allow development within sight of the wilderness boundary. These impacts would be indirect and minor. The other wilderness areas are bordered by VRM Class 2, which does not present such a problem.

Most of NPS proposed wilderness is bordered by designated wilderness in Grand Canyon National Park and BLM Mt. Logan Wilderness. Other areas adjacent to the BLM lands are managed as VRM Class II, however, the remote nature of these lands and routes would have indirect, minor, localized impacts from VRM.

Impacts from Cultural Resources

No cultural resources decision proposed under Alternative A would affect designated or proposed wilderness areas in Parashant and the Arizona Strip FO. In Vermilion, designating the Honeymoon Trail as a public use site could increase the interest in and the use of this trail. Since the Honeymoon Trail runs along the southern boundary of the Paria Canyon-Vermilion Cliffs Wilderness, an increase in the number of motorized and non-motorized visitors could have both positive and negative impacts on the wilderness. Increased visitation increases the potential for vehicular intrusions and degradation of solitude and naturalness. Impacts are expected to be minor. A larger number of visitors could also have a positive impact, providing an opportunity for appropriate wilderness education.

Impacts from Special Designations (Wilderness and Wild and Scenic Rivers)

Updating wilderness management plans under Alternative A could clarify future management and have the potential to protect and enhance wilderness character. Continuing VRM Class 1 designations to designated wilderness areas would protect wilderness character (see Impacts from Visual Resources).

Wild and scenic river designation generally complements designated wilderness, adding another layer of protection to the scenic nature of the landscape and other outstandingly remarkable values. However, applying wild and scenic river status could increase the amount of recreational traffic in the Paria and Virgin river corridors located in wilderness, affecting naturalness and solitude. Current visitor use limits in the Paria would limit these impacts to negligible. Overall, classifying the Paria and Virgin rivers as suitable for wild and scenic river designation would have long-term, positive impacts on the affected wilderness areas.

Impacts from Livestock Grazing

Livestock grazing in general can have a negative impact on wilderness character. Both solitude and naturalness can be impacted by the presence of livestock in a wilderness setting. Even with a well-managed grazing program, typical recreational wilderness users have a negative attitude towards livestock grazing. In general, grazing impacts to wilderness character are direct, localized, and can range from minor to moderate.

The Pakoon Allotment incorporates about 50 percent of the Grand Wash Cliffs Wilderness. Under Alternative A, the allotment would be available for grazing from November 1 through June 15 in the area not included in the Pakoon DWMA, which is the least restrictive among the alternatives. Wilderness users are generally in the Grand Wash Cliffs Wilderness during the spring, which includes the latter part of the grazing period. Livestock grazing during this period could have a minor impact on solitude and a slightly larger impact on naturalness. Areas frequented by livestock, like those around water developments, often have a distinctly unnatural appearance, and could affect wilderness users and their perception of naturalness.

Under Alternative A, grazing would be authorized year round in the Tuweep Allotment. Livestock grazing impacts to solitude and naturalness in the Mt. Trumbull Wilderness would be minor.

Current seasonal restrictions on the Lees Ferry allotment have direct but minor impacts on solitude and naturalness. Very few hikers are in Paria Canyon during the period when the allotment is grazed. It should be noted that any livestock seen in Paria Canyon generate considerable public criticism. While impacts to the resource may be minor, the perception of greater impacts can be expected.

The Cedar Wash Allotment incorporates a majority of the Beaver Dam Mountains Wilderness. Under the current use cycle, the allotment is available for grazing from Oct. 15 through March 15 in the area outside the desert tortoise ACEC. Ephemeral extensions are authorized through May 15. The Mesquite and Littlefield Community Allotments incorporate a large portion of the Paiute Wilderness. Under the current use cycle, grazing is allowed yearlong in that area outside the desert tortoise ACEC. Wilderness users are generally in these wilderness areas during the winter and spring, when the allotment is grazed. Livestock grazing during this period could have a minor impact on solitude and a slightly larger impact on naturalness. Areas frequented by

livestock, like those around water developments, often have a distinctly unnatural appearance, and could impact wilderness users and their perception of naturalness. Overall, Alternative A is the least restrictive of the alternatives and would result in the greatest or most widespread impacts.

Impacts from Recreation

Geocaching: No geocache decisions are proposed under Alternative A.

Recreation Marketing Actions: The production of maps, brochures, and other information regarding recreation opportunities would have a positive impact because such publications would allow the BLM and NPS to educate potential users about specific rules, regulations, and guidelines. The dissemination of such information would also increase user safety in designated wilderness areas. Minor impacts could occur, however, because any promotional efforts could increase the number of users.

Signing and Facilities: Minor new facilities (toilets, information kiosks, and directional signs) when placed at trailheads would have a positive impact on designated and proposed wilderness. Visitor education on "Leave No Trace" ethics and area-specific rules and regulations would serve to create better-informed wilderness users.

Inventory and Monitoring: No inventory and monitoring decisions are proposed under Alternative A.

Visitor Use Reporting: Continuing visitor use tracking and data compilation would have a positive effect on designated and proposed wilderness.

Visitor Limits and Regulations: Adjusting visitor use limits only when the monitoring of resource and social conditions indicate a downward trend would have a short-term positive effect on designated and proposed wilderness. In the long term, those impacts would be magnified; dealing with each impact as a single, unique problem rather than analyzing them holistically would negate the opportunity to solve problems before they become unmanageable.

Outfitters and Guides: No outfitters and guides decisions are proposed under Alternative A.

Recreational Stock Use: Prohibiting the use of horses in Paria Canyon above Bush Head Canyon would have a positive, direct effect on solitude, naturalness, and primitive/unconfined recreation. Soil disturbance, vegetation degradation, and hiker conflicts would be eliminated in this area.

Impacts from Interpretation and Environmental Education

No interpretation and environmental education decisions are proposed under Alternative A.

Impacts from Lands and Realty

Non-federal land and easement acquisitions would have a positive impact on wilderness areas.

Alternative B

Impacts from Travel Management

Under Alternative B, 445 miles of routes in Parashant and 179 miles of routes in Vermilion would be closed to motorized and mechanized use by the public, and 692 miles in Parashant and 211 miles in Vermilion would be limited to administrative use only. Of these routes, 289 miles in Parashant and 114 miles in Vermilion lead directly to, run parallel to, or are within the boundaries of designated wilderness or NPS proposed wilderness. Because of these closures, the impacts to wilderness from motorized travel would be considerably less when compared to the other alternatives, especially Alternative A. Solitude and naturalness would be enhanced due to route closures in proximity to wilderness. These route closures would be effective in the long term but would likely be ineffective and difficult to implement in the short term. The closed routes would be allowed to rehabilitate naturally, leaving them visible to the public for some time. Because so many routes would be closed under this alternative, providing adequate barriers to restrict access would be difficult. As a result, unauthorized use of many of these routes would likely continue impacting wilderness experiences.

The current route system would be maintained until routes on Arizona Strip FO lands are officially designated. Currently, there are 4,934 miles of routes within the Arizona Strip FO that are open to motorized use. Until such designation occurs, impacts would be the same as under Alternative A. It is expected that when route evaluation and designation occurs for the Arizona Strip FO lands, the public process will consider a range of alternatives, each having its own emphasis. One alternative could be similar to that of Alternative B in this Plan, which is an emphasis on minimal human use/influence, and the fewest miles of open roads and trails. It also focuses on natural processes and other unobtrusive methods for ecosystem restoration, resource management, and scientific research; more protection and enhancement of remoteness and dispersed recreation; unstructured recreation opportunities; and the least amount of motorized recreation opportunities.

Impacts from Wilderness Characteristics

Under this alternative, areas identified for maintaining wilderness characteristics could have a moderate impact on designated or proposed wilderness areas. Many of the areas where wilderness characteristics would be maintained are adjacent to BLM designated and NPS proposed wilderness areas under Alternative B. Maintaining wilderness characteristics near these wilderness areas would not be done as a means to “buffer” them from non-wilderness resource uses and practices. However, managing areas for maintenance of wilderness

characteristics as a “stand-alone” effort, not tied in any way to wilderness management, would retain existing resource and social conditions that indirectly reduce the potential for non-wilderness resource use activities to produce noticeable sights and sounds of human activity as experienced from within the wilderness areas. These impacts would be long term, indirect, and greater in this alternative compared to all other alternatives as Alternative B proposes the most acres (554,187) for maintaining wilderness characteristics.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be the same as described under Alternative A, with the exception that long-term benefits using natural restoration processes in Parashant would be greatly reduced as the ability to control invasive species would be mostly ineffective.

Impacts from Fish and Wildlife

Impacts from wildlife transplants and wildlife drinkers/developments would be the same as described under Alternative A.

Vegetation treatment projects for wildlife could result in a temporary loss of solitude due to an increase in the dust, noise, and general activity associated with vegetation treatments. These impacts would be direct, localized, and short-term.

Impacts from Special Status Species

Minimizing surface disturbance in special status species habitat during fire suppression activities could have a positive impact on designated wilderness by enhancing naturalness. Reintroduction of special status species could result in minor, direct, and localized impacts to solitude, depending upon the species and its use of vegetation and other habitat features.

Impacts from Visual Resources

Under Alternative B, all wilderness areas within Parashant would be designated VRM Class 1, while the remainder of the Monument would be designated VRM Class 2. This would protect wilderness character by eliminating the conflict of Grand Wash Cliffs Wilderness being bordered by VRM Class 4 that was discussed under Alternative A. In the Arizona Strip FO, only a small portion adjacent to the Paiute Wilderness would be designated VRM Class III, making this alternative the most protective of wilderness character.

Impacts from Cultural Resources

Cultural field inventories proposed under Alternative B could have a temporary short-term impact on solitude and primitive/unconfined recreation opportunities. There could be a longer-term effect on naturalness, depending on the extent of the inventories.

Impacts from Honeymoon Trail designation are the same as under Alternative A. The same can be said for the Notch cultural site, which is located inside the Paria Canyon-Vermilion Cliffs Wilderness boundary, except that the impacts are expected to be direct, localized, and moderate in scale. A larger number of visitors mean a greater number of potential wilderness intrusions and a greater potential for degradation in solitude and naturalness. A larger number of visitors could also have a positive impact as more visitors mean greater potential for appropriate wilderness and cultural education.

Designating the Old Spanish NHT could have minor impacts to the Beaver Dam Mountain and/or Paiute wildernesses. The trail generally follows the Interstate 15 corridor between the two wilderness areas. Minor impacts to naturalness could occur if the trail is marked and it is found that it crosses either wilderness boundary.

Impacts from Special Designations (Wilderness and Wild and Scenic Rivers)

Impacts would be the same as described under Alternative A, with the exception that expanding the fee demonstration area to include the “Teepees” (in the Paria Canyon-Vermilion Cliffs Wilderness) would further protect solitude and naturalness by placing restrictions upon the number of people moving through the fee demonstration area.

Impacts from Livestock Grazing

Overall impacts from livestock grazing would be the same as described under Alternative A, although impacts would be reduced or eliminated in those allotments assigned with seasonal restrictions or made unavailable to grazing. Impacts from livestock grazing in the Mt. Trumbull Wilderness would be eliminated under Alternative B by making the Tuweep Allotment unavailable to grazing. Grazing in the Pakoon Allotment would be authorized from October 15 through March 15 within the Pakoon WHA, which is the most restrictive among the alternatives. Not only does this limit impacts by reducing the overall grazing period by three and a half months, it also excludes grazing during the main user season, which generally begins in the spring. As a result, livestock grazing during the time period proposed under Alternative B would only have a negligible impact on solitude and may have a minor impact on naturalness that extends into the spring. Wilderness users’ perception of naturalness would continue to be impacted by areas frequented by livestock, such as around water development, even after the livestock have been removed from the area.

In Vermilion, making the river pasture of the Lees Ferry Allotment unavailable to grazing would have a positive, long-term impact on solitude and naturalness in the Paria Canyon-Vermilion Cliffs Wilderness, as well as preserve the public’s perception of wilderness character.

Under the proposed use cycle in the Cedar Wash and Littlefield Community allotments in the Arizona Strip FO, grazing would be allowed from Oct. 15 through March 15 in that area outside

the desert tortoise ACEC. Ephemeral extensions would not be authorized. Wilderness users are generally in the Beaver Dam Mountains and Paiute wildernesses during the winter and spring, which includes the authorized grazing period. Livestock grazing during this period could have a minor impact on solitude and a slightly larger impact on naturalness. Areas frequented by livestock, like those around water developments, often have a distinctly unnatural appearance, and could impact wilderness users and their perception of naturalness. This is the most restrictive alternative and would cause the least impact on wilderness character.

Impacts from Recreation

Impacts from recreation marketing actions and signing and facilities would be the same as described under Alternative A.

Geocaching: Immediate removal of geocache sites if impacts to Monument objects or designated wilderness were apparent would have a generally positive impact. This action could also alienate a very active and normally compliant geocaching community.

Inventory and Monitoring: The information developed thorough inventory and monitoring would have a positive impact on designated or proposed wilderness. It could be used to assess management strategies, later decisions, change implementation, or maintain current management direction.

Visitor Use Reporting: Any visitor use tracking and data compilation would have a positive effect on designated or proposed wilderness.

Visitor Use, Carrying Capacity, and LAC: Establishing mandatory carrying capacity limits in intensive use areas would reduce or maintain the number of users, having a positive effect on designated or proposed wilderness. These impacts would be indirect.

Outfitters and Guides: Providing outfitters and guides with annual training on wilderness ethics would have a positive effect on designated or proposed wilderness.

Recreation Stock Use: Prohibiting the use of horses in Paria Canyon would have a positive effect on solitude, naturalness, and primitive/unconfined recreation. Soil disturbance, vegetation degradation, and hiker conflicts would be eliminated.

Impacts from Interpretation and Environmental Education

Supporting education and outreach programs like “Tread Lightly” and “Leave No Trace” would have a positive impact on designated and proposed wilderness.

Impacts from Lands and Realty

Acquisition of surface ownership lands and sub-surface mineral estate would have positive long-term impacts on wilderness areas and adjacent lands.

Alternative C

Impacts from Travel Management

Under Alternative C, 224 miles of routes in Parashant and 110 in Vermilion would be closed to motorized and mechanized vehicle use by the public and an additional 199 miles in Parashant and 72 miles in Vermilion would be limited to administrative use. Of these routes, 286 miles in Parashant and 42 miles in Vermilion lead directly to, run parallel to, or are within designated wilderness or proposed wilderness. Solitude and naturalness would be enhanced due to the closures in proximity to wilderness compared to Alternative A, although to a considerably lesser degree compared to Alternative B. However, in comparison to Alternative B, route closures under Alternative C would be more effective in the short term because routes would be rehabilitated through the use of both natural and mechanical methods.

The current route system would be maintained until routes on Arizona Strip FO lands are officially designated. Currently, there are 4,934 miles of routes within the Arizona Strip FO that are open to motorized use. Until such designation occurs, impacts would be the same as those described under Alternative A. It is expected that when route evaluation and designation occurs for Arizona Strip FO lands, the public process will consider a range of alternatives, each having its own emphasis. One alternative could be similar to that of Alternative C in this Plan, which represents an attempt to balance resource protection and human use/influence. It proposes a moderate amount of open roads and trails; mix of natural processes and "hands-on" techniques for ecosystem restoration, resource management, and scientific research; and a mix of motorized, non-motorized, dispersed, and structured recreation opportunities.

Impacts from Wilderness Characteristics

Although 226,394 acres of Parashant areas proposed for maintenance of wilderness characteristics in Alternative C is approximately 44 percent less than under Alternative B, the acres that are adjacent to existing wilderness areas would be almost identical. With the exception of two open routes directly east of the Grand Wash Cliffs Wilderness, one open route at the north end of the Mt. Logan Wilderness, and three open routes leading to NPS proposed wilderness, the impacts would be the same as described under Alternative B.

In Vermilion under Alternative C, areas where wilderness characteristics would be maintained could have a moderate to major impact on the Paria Canyon-Vermilion Cliffs Wilderness. These impacts would be only slightly less than under Alternative B, and be both long term and indirect. On the Paria Plateau, areas with wilderness characteristics lie adjacent to much of the Paria

Canyon-Vermilion Cliffs Wilderness. Along 52 miles of the wilderness boundary on the plateau, the “wilderness core” would remain more distant from the nearest designated roads, as no new permanent roads would be authorized in areas where wilderness characteristics would be maintained. In the Ferry Swale area, six miles of wilderness boundary would be affected in the manner described.

Impacts would be the same as described under Alternative B for the Arizona Strip FO. While the overall acreage of areas with wilderness characteristics would increase/decrease by alternative, the areas adjacent to Kanab Creek Wilderness and Paiute Wilderness would remain unchanged.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be the same as described under Alternative A.

Impacts from Fish and Wildlife

Impacts from wildlife transplants and wildlife drinkers/developments would be the same as described under Alternative A. Impacts from vegetation treatment projects would be the same as under Alternative B.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B.

Impacts from Visual Resources

Impacts in Parashant would be similar to that described under Alternative A, with the exception that the VRM Class IV areas around the Grand Wash Cliffs Wilderness would be designated as VRM Class III. This would reduce the impacts discussed under Alternative A.

Impacts in Vermilion would be the same as described under Alternative A, while impacts in the Arizona Strip FO would be similar to that described under Alternative B, with a slight increase (4,045 acres) in VRM Class III areas adjacent to the Paiute Wilderness.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative B.

Impacts from Special Designations (Wilderness and Wild and Scenic Rivers)

Impacts would be the same as described under Alternatives B.

Impacts from Livestock Grazing

Overall impacts from livestock grazing would be the same as under Alternative A. Impacts from grazing in the Pakoon Allotment in Parashant would be similar to that described under Alternative B, with the exception that the season of use would extend one month longer, to April 15, which includes the beginning of the visitor season. Ephemeral extensions could extend use to May 15, further extending grazing into the visitor season, and thus increasing impacts on solitude compared to Alternative B. Impacts would be minor and remain less intense when compared to Alternative A.

The creation of a forage reserve on the Tuweep and Parashant allotments in Parashant would have a negligible impact on solitude and naturalness if it were put to use. The impacts would be greater than in Alternative B, but less than all other alternatives, including Alternative A.

The creation of a forage reserve on the Lees Ferry Allotment in Vermilion would have a negligible impact on solitude and naturalness if it were put to use. Very few hikers are in Paria Canyon from November 15 to March 1, during the period when the allotment would be available for grazing. The impacts would be minor and positive.

In the Arizona Strip FO, impacts would be the same as described under Alternative A in the Cedar Wash Allotment, while impacts would be the same as described under Alternative B for grazing in the Highway and Littlefield Community allotments.

Impacts from Recreation

Impacts from decisions relating to geocaching, inventory and monitoring, visitor use reporting, and outfitters and guides would be the same as described under Alternative B. Impacts from decisions relating to recreation marketing actions and signing and facilities would be the same as described under Alternative A.

Visitor Use, Carrying Capacity, and LAC: Using an LAC framework in intensive use areas would have a positive impact on designated wilderness. The establishment of acceptable resource, social, and managerial settings would provide an optimal balance between the demand for wilderness use and protection of wilderness values. These impacts would be indirect and long term.

Recreation Stock Use: Impacts would be the same as described under Alternative A.

Impacts from Interpretation and Environmental Education

Impacts would be the same as described under Alternative B.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative B.

*Alternative D*Impacts from Travel Management

Under Alternative D, 148 miles of routes in Parashant and 93 miles in Vermilion would be closed to motorized and mechanized use by the public. A total of 86 miles of routes in Parashant and 51 miles in Vermilion would be limited to administrative use within the Monuments. Of these routes, 222 miles in Parashant and 16 in Vermilion lead directly to, run parallel to, or are within designated wilderness or NPS proposed wilderness. Solitude and naturalness would be slightly enhanced due to the closures in proximity to wilderness compared to Alternative A, although to a considerably lesser degree than under Alternative B, and slightly less than under Alternative C. As under Alternative C, these route closures would be effective in the both short- and long-term because routes would be rehabilitated using both natural and mechanical methods.

In the Arizona Strip FO, the current route system would be maintained until routes on Arizona Strip FO lands are officially designated. Currently, there are 4,934 miles of routes within the Arizona Strip FO that are open to motorized use. Until such designation occurs, impacts would be the same as described under Alternative A. It is expected that when route evaluation and designation occurs for the Arizona Strip FO lands, the public process will consider a range of alternatives, each having its own emphasis. One alternative could be similar to that of Alternative D in this Plan, which places an emphasis on maximum appropriate human use/influence and the widest array of visitor experiences and opportunities. It includes the most miles of open roads and trails (with the exception of Alternative A), and focuses on “hands-on” techniques for ecosystem restoration, resource management, and scientific research. As such, it offers fewer remote settings and the most motorized and structured recreation opportunities compared to the other alternatives.

Impacts from Wilderness Characteristics

Alternative D would maintain 140,949 acres of wilderness characteristics. In Parashant, the overall acreage where wilderness characteristics would be maintained would be approximately 65 percent less than Alternative B and 37 percent less than Alternative C. The areas adjacent existing wilderness areas would be less, but would still produce minor to moderate effects as described in Alternative B.

As under Alternative A, no areas in Vermilion would be managed to maintain wilderness characteristics. In the Arizona Strip FO, impacts would be the same as described under Alternative B. While the overall acreage of areas identified with wilderness characteristics

would increase/decrease by alternative, the areas adjacent to Kanab Creek Wilderness and Paiute Wilderness would remain unchanged.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be the same as described under Alternative A.

Impacts from Fish and Wildlife

Impacts from wildlife transplants and wildlife drinkers/developments would be the same as described under Alternative A. Impacts from vegetation treatment projects would be the same as described under Alternative B.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B.

Impacts from Visual Resources

Impacts would be the same as described under Alternative A for Vermilion, and the same as described under Alternative C for Parashant and the Arizona Strip FO.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative B.

Impacts from Special Designations (Wilderness and Wild and Scenic Rivers)

Impacts would be the same as described under Alternative B.

Impacts from Livestock Grazing

Overall impacts from livestock grazing would be the same as under Alternative A. Impacts relating to the Tuweep and Pakoon allotments in Parashant would be similar to that described under Alternative C, except that the season of use in the Pakoon Allotment would increase by one month, to May 15, which is well into the visitor use season. Ephemeral extensions could further extend the growing season into June 1, resulting in impacts similar to those described under Alternative A when such extensions are applied. Impacts would be minor.

In Vermilion the creation of a forage reserve on the Lees Ferry Allotment could have a minor impact on solitude and naturalness if it were put to use. The River Pasture would be available for grazing November 1 to April 15 no more than three out of five years. A significant number of hikers are in Paria Canyon from mid-March through mid-November. Public perception of

wilderness character would be affected by the presence of livestock. The impacts under this alternative would be greater than all other alternatives.

In the Arizona Strip FO, the season of use proposed for grazing under Alternative D (October 15 to May 15) in the Cedar Wash, Highway, and Littlefield Community allotments would be the longest period of use among the alternatives. As a result, impact on wilderness character in the wilderness areas associated with those allotments would be the greatest under Alternative D compared to the other allotments.

Impacts from Recreation

Impacts from recreation marketing actions, signing and facilities, and SRP administration would be the same as described under Alternative A. Impacts from inventory and monitoring and visitor use reporting would be the same as described under Alternative B.

Geocaching: Working with local geocachers to relocate geocache sites if impacts to Monument objects or designated and proposed wilderness were apparent would have a positive impact. This action could also benefit the BLM and NPS by developing a solid working relationship with an active geocaching community.

Visitor Use, Carrying Capacity, and LAC: Mitigation of resource and social impacts on a case-by-case basis would have limited negative impacts to designated wilderness in the short term. In the long term, those impacts would be magnified; dealing with each impact as a single, unique problem rather than analyzing them holistically would negate the opportunity to solve problems before they become unmanageable.

Outfitters and Guides: Providing Outfitters and Guides with ethics publications and materials may have a positive effect on designated wilderness.

Recreational Stock Use: Prohibiting the use of horses in Paria Canyon above Bush Head Canyon and below Big Spring could have a positive effect on solitude, naturalness, and primitive/unconfined recreation in the area of the canyon that remained undisturbed. Soil disturbance, vegetation degradation, and hiker conflicts would be eliminated in this area. In those areas of the canyon where horses and pack stock were allowed, soil disturbance, vegetation degradation, and hiker conflicts would be a constant concern.

Impacts from Interpretation and Environmental Education

Impacts would be the same as described under Alternative B.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative B.

Alternative E: Proposed Plan

Impacts from Travel Management

Under Alternative E, 188 miles of routes in Parashant and 113 miles in Vermilion would be closed to motorized and mechanized travel by the public. A total of 167 miles in Parashant and 67 miles in Vermilion would be limited to administrative use within the Monument. Of these routes, 279 miles in Parashant and 35 miles in Vermilion lead directly to, run parallel to, or are within designated or proposed wilderness. Solitude and naturalness would be enhanced due to the closures in proximity to wilderness, resulting in impacts almost identical to Alternative C due to similar miles of closures. As under Alternatives C and D, these route closures would be effective in the both the short- and long-term because routes would be rehabilitated using both natural and mechanical methods.

The current route system would be maintained until routes on Arizona Strip FO lands are officially designated. Currently, there are 4,934 miles of routes within the Arizona Strip FO that are open to motorized use. Until such designation occurs, impacts would be the same as Alternative A. It is expected that when route evaluation and designation occurs for the Arizona Strip FO lands, the public process will consider a range of alternatives, each having its own emphasis. One alternative could be similar to that of Alternative E in this Plan, which emphasizes minimal human influence and use in the more remote sections of the Planning Area and more human use/influence in the areas adjacent to local communities or in areas presently receiving such use/influence. It attempts to balance human use/influence with resource protection. Where appropriate, it proposes a combination of management actions including allowing natural processes to continue, applying more hands-on treatment methods, and protecting the remote settings that currently exist in the Planning Area.

Impacts from Wilderness Characteristics

Alternative E would maintain 215,345 acres of wilderness characteristics. In Parashant, impacts would be the same as described under Alternative C due to the similar number of acres where wilderness characteristics would be maintained.

Under this alternative in Vermilion, areas managed to maintain wilderness characteristics would have a minor positive impact on the Paria Canyon-Vermilion Cliffs Wilderness. These impacts would be much less than Alternatives B or C and would be long-term and indirect. On the Paria Plateau, areas where wilderness characteristics would be maintained are adjacent to several portions of the Paria Canyon-Vermilion Cliffs Wilderness. Along 9 miles of the wilderness boundary on the plateau, the "wilderness core" would remain more distant from the nearest designated roads, as no new permanent roads would be authorized in areas where wilderness characteristics would be maintained. In the Ferry Swale area, one mile of wilderness boundary would be affected in the manner described.

In the Arizona Strip FO, impacts would be the same as Alternative B. While the overall acreage of areas managed to maintain wilderness characteristics would increase/decrease by alternative, the areas adjacent to Kanab Creek Wilderness and Paiute Wilderness remain unchanged.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be the same as described under Alternative A

Impacts from Fish and Wildlife

Impacts from wildlife transplants and wildlife drinkers/developments would be the same as Alternative A. Impacts from vegetation treatment projects would be the same as Alternative B.

Impacts from Special Status Species

Impacts would be the same as described under Alternative B.

Impacts from Visual Resources

Impacts would be the same as described under Alternative C for Parashant. Impacts would be the same as described under Alternative A for Vermilion. Impacts would be the same as described under Alternative B for the Arizona Strip FO.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative B.

Impacts from Special Designations (Wilderness and Wild and Scenic Rivers)

Impacts would be the same as described under Alternative B.

Impacts from Livestock Grazing

Overall impacts from livestock grazing would be the same as under Alternative A. Impacts relating to the season of use within Pakoon Springs and Tuweep Allotments in Parashant would be the same as described under Alternative C, with the exception that ephemeral extensions authorized in the Pakoon Springs Allotment would be the same as under Alternative D.

Impacts from grazing within the Lees Ferry Allotment in Vermilion would be the same as described under Alternative B, as would grazing in the Highway and Littlefield Community allotments in the Arizona Strip FO. Impacts from grazing in the Cedar Wash Allotment would be the same as described under Alternative D.

Impacts from Recreation

Impacts from recreation marketing actions, signing and facilities, and recreation stock use (Vermilion only) would be the same as described under Alternative A. Impacts from inventory and monitoring, visitor use reporting, and outfitters and guides would be the same as described under Alternative B. Impacts from using an LAC framework and decisions relating to SRP administration would be the same as described under Alternative C. Impacts from decisions relating to geocaching would be the same as described under Alternative D.

Impacts from Interpretation and Environmental Education

Impacts would be the same as described under Alternative B.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative B.

Cumulative Impacts

The geographic area of analysis for cumulative impacts to designated wilderness is the Planning Area, as well as the Utah portions of the Beaver Dam Mountains Wilderness and the Paria Canyon-Vermilion Cliffs Wilderness. Wilderness is primarily affected by the number and proximity of adjacent motorized travel corridors, the volume and type of traffic on those corridors, and the quantity and type of recreational users. To a lesser extent, range and wildlife management projects can impact wilderness. These impacts normally come from vegetation treatments and the installation, maintenance, and use of range/wildlife catchments and wildlife drinkers. Population growth and the resulting increase in recreational use are expected to have a significant impact to all wilderness areas on the Arizona Strip over the life of the plan. An increase in motorized and non-motorized use during the life of this Plan could have major impacts on the three components of wilderness character: solitude, naturalness, and opportunities for primitive/unconfined recreation.

CONGRESSIONAL DESIGNATIONS: WILD AND SCENIC RIVERS

Specific portions of the Paria River in Vermilion and the Virgin River in the Arizona Strip FO were identified in the Arizona Strip District RMP (BLM 1991) as eligible for further study in the wild and scenic river evaluation process. No rivers were identified as eligible in Parashant. The Arizona Statewide Wild and Scenic Rivers Legislative EIS (BLM 1994) later found these river segments suitable for inclusion in the National Wild and Scenic Rivers System. This section identifies potential impacts to those suitable river segments resulting from the proposed management actions.

Methods and Assumptions

The Arizona Statewide Wild and Scenic Rivers Legislative EIS (BLM 1994) identified certain interim management prescriptions that include management objectives, management actions, and appropriate allocations of land and resource uses to maintain or enhance the outstandingly remarkable values and tentative classification of the suitable segments of the Paria and Virgin rivers that flow through the Planning Area. Pursuant to the Wild and Scenic Rivers Act of 1968, no uses would be authorized reducing or destroying their potential eligibility classification or suitability for consideration for inclusion in the National Wild and Scenic Rivers System until Congress makes final decisions. Impacts on wild and scenic river values would come from management actions that either diminish or enhance the outstandingly remarkable or free flowing values that make the river eligible.

- Negligible:** A change enhancing or diminishing outstandingly remarkable or free flowing values could occur, but the change would be so small that it would not be of any measurable or perceptible consequence.
- Minor:** A change enhancing or diminishing outstandingly remarkable or free flowing values would occur, but the change would be small and, if measurable, would be localized and not affect eligibility or suitability determinations.
- Moderate:** A change enhancing or diminishing outstandingly remarkable or free flowing values would occur. The change would be measurable, but localized, with adverse impacts readily mitigated so not to threaten eligibility or suitability determinations.
- Major:** A change enhancing or diminishing outstandingly remarkable or free flowing values would occur. The change would be measurable and widespread, with adverse impacts potentially threatening eligibility or suitability determinations.

Impacts to Wild and Scenic Rivers

Impacts to the suitable segments of the Paria and Virgin rivers would result from actions proposed under the following resource management programs:

- Cultural Resources (Vermilion and only)
- Special Status Species (Arizona Strip FO only)
- Recreation (Arizona Strip FO only)
- Special Management Areas (Wild and Scenic Rivers: Vermilion and Arizona Strip FO)
- Livestock Grazing (Vermilion only)
- Lands and Realty (Arizona Strip FO only)

*Alternative A: No Action*Impacts from Special Status Species

The Virgin River ACEC would be maintained at its current acreage under Alternative A. The entire wild and scenic river study area (a roughly ½ mile-wide corridor along the suitable river segment, extending ¼ mile from each side of the normal high water line) is located within the Virgin River ACEC. This ACEC designation partially functions to protect fish and wildlife habitat, aquatic and riparian resources, and other outstandingly remarkable values that contribute to the river's eligibility/suitability. Construction of a non-native fish barrier dam could reduce or degrade wild and scenic river eligibility/suitability on the Virgin River. Direct impacts would include introduction of a physical structure that would impede flows, increase siltation, and likely change vegetative characteristics. Impacts would be moderate and long term.

Impacts from Cultural Resources

Cultural resources are considered outstandingly remarkable values that make the Paria River eligible for wild and scenic river consideration. Under Alternative A, the Paria River would be a priority geographic and historic area for new field inventory, which would lead to identification of significant cultural sites. Following identification, the policy to conserve, protect, stabilize or restore, and maintain such resources in good or better condition would aid in the preservation of such resources and maintain the Paria River's eligibility and suitability classification.

Impacts from Special Management Areas (Wild and Scenic Rivers)

All of the wild and scenic rivers management actions proposed are based on interim management decisions outlined the Arizona Statewide Wild and Scenic Rivers Legislative EIS (BLM 1994). These decisions would maintain or enhance the outstandingly remarkable values and tentative classification of the suitable segments of the Paria and Virgin rivers.

Impacts from Recreation

Recreation experiences, including the feeling of solitude and remoteness within a pristine wilderness environment, were identified as an outstandingly remarkable value of the Paria River. Continuing current group size restrictions, visitor use limits, special area permits, and use fees in Paria Canyon would maintain such recreational experiences within the proposed wild and scenic river corridor.

Impacts from Livestock Grazing

Visitors in the Paria River corridor have complained about the presence of livestock, livestock droppings, flies, odors, and overgrazed vegetation in the lower portion of the corridor (BLM 1994). Grazing would continue to be authorized in the Lees Ferry Allotment under the current rest-rotation cycle under Alternative A. As a result, the visitor complaints would continue. Impacts to the outstandingly remarkable recreational values would be negligible since such values were identified under the current grazing system.

Impacts from Lands and Realty

The Virgin River Gorge 23,186 acre recreation (scenic) withdrawal would continue under Alternative A, which would help ensure maintenance of the scenic quality of the Virgin River corridor, an outstandingly remarkable value.

Acquisition of non-federal lands in Virgin River riparian areas would be negotiated as opportunities arise. Acquiring such lands would further ensure protection of outstandingly remarkable and free flowing values of the currently suitable segments that flow through BLM lands.

Alternative B

Impacts from Special Status Species

The Virgin River ACEC would be modified to include only the 100-year floodplain (approximately 2,063 acres). Boundary adjustments would exclude areas outside of the 100-year floodplain previously included in the ACEC. Some of these areas are still within the wild and scenic river study corridor. Areas outside the 100-year floodplain and not within the Paiute and Beaver Dam Mountains Wildernesses could experience some adverse impact due to mining activities (the wildernesses have been withdrawn from mining). Mining outside the wildernesses but within the Virgin River ACEC would require an approved plan of operation for locatable mineral activity. Such a plan would contain mitigation to minimize impacts to fish and wildlife, aquatic and riparian, geologic, and scenic values. The smaller ACEC would continue to protect fish and wildlife and aquatic and riparian values of the Virgin River. However, geologic and scenic values outside the smaller ACEC and the Paiute and Beaver Dam Mountains Wildernesses but within the wild and scenic river study corridor could be impacted by mining activities. Impacts would be minor.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative A.

Impacts from Special Designations (Wild and Scenic Rivers)

Impacts would be the same as described under Alternative A.

Impacts from Recreation

Impacts would be the same as described under Alternative A.

Impacts from Livestock Grazing

The River Pasture of the Lees Ferry Allotment would be unavailable for grazing under Alternative B. This would improve visitor experiences along the Paria River, especially within lower portions. As a result, the outstandingly remarkable recreational values would be enhanced. Impacts would be minor.

Impacts from Lands and Realty

Revoking part of the Virgin River Gorge Recreation Lands Withdrawal that overlaps statutory wilderness would not affect protection of outstandingly remarkable values. Only the portions of the river tentatively classified as wild would be involved (i.e., those portions that flow through wilderness areas), which are sufficiently protected by wilderness management stipulations, including a VRM Class 1 designation. Impacts from land acquisitions would be the same as described under Alternative A.

*Alternative C*Impacts from Special Status Species

Impacts would be the same as described under Alternative B.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative A.

Impacts from Special Management Areas (Wild and Scenic Rivers)

Impacts would be the same as described under Alternative A.

Impacts from Recreation

Impacts would be the same as described under Alternative A.

Impacts from Livestock Grazing

Grazing would continue in the Lees Ferry Allotment under a more restrictive rest-rotation cycle compared to Alternative A, which includes a slightly shorter season of use. As a result, the visitor complaints would continue, with the potential to decrease slightly. Impacts to the outstandingly remarkable recreational values would be negligible.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative B.

Alternative DImpacts from Special Status Species

Impacts would be the same as described under Alternative B.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative A.

Impacts from Wild and Scenic Rivers

Impacts would be the same as described under Alternative A.

Impacts from Recreation

Impacts would be the same as described under Alternative A.

Impacts from Livestock Grazing

Grazing would continue in the Lees Ferry Allotment under a more lenient rest-rotation cycle compared to Alternative A, which includes a slightly longer season of use. As a result, the visitor complaints would continue, with the potential to increase slightly. Impacts to the outstandingly remarkable recreational values would be negligible,

Impacts from Lands and Realty

Impacts would be the same as described under Alternative B.

Alternative E: Proposed Plan**Impacts from Special Status Species**

Impacts would be the same as described under Alternative B.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative A.

Impacts from Special Management Areas (Wild and Scenic Rivers)

Impacts would be the same as described under Alternative A.

Impacts from Recreation

Impacts would be the same as described under Alternative A.

Impacts from Livestock Grazing

Impacts would be the same as described under Alternative B.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative B.

Cumulative Impacts

The geographic area of analysis for cumulative impacts to the suitable segments of the Paria and Virgin rivers includes the segments themselves and lands in the immediate vicinity of the segments. River segments recommended as suitable for Wild and Scenic River designation are currently under interim management until Congress acts to designate or release interim management. During this interim period, potential impacts to river segments emanate primarily from actions that could either diminish or enhance the outstandingly remarkable or free flowing values that make the river eligible. Proposed allocation and management of ACECs and management of existing designated wilderness generally would complement interim management of the river segments. However, potential construction of non-native fish barrier dams in the Virgin River and, to a lesser extent, livestock grazing in the river corridors could impact free flowing nature and certain outstandingly remarkable values respectively. Population growth and the resulting increase in recreational use in the vicinity of the Virgin River are expected to have greater potential for impacts to outstandingly remarkable values over the life of the Plan.

CONGRESSIONAL DESIGNATIONS: NATIONAL HISTORIC TRAILS

In 2002, Congress designated the Old Spanish Trail as a NHT. The trail qualifies for listing on the NRHP. Impacts to the Old Spanish NHT would result from destruction or alteration of the trail corridor or associated resources and from alterations of the trail's historic setting. Impacts could include unauthorized collection and excavation, vandalism, erosion, OHV use off-road, and mechanized surface disturbance.

Methods and Assumptions

The trail primarily crosses the Arizona Strip FO, particularly in the northwestern corner of the Planning Area near Littlefield, Arizona. A portion of the southern branch may cross through Vermilion. The trail does not cross through Parashant.

In evaluating the impacts associated with meeting the goals of the National Trails System and the potential NRHP listing, best professional judgment was used. Impacts would be considered major if they resulted in an intact trail segment or associated resource losing the integrity it now possesses for inclusion in the NRHP.

Impacts to the NHT in the Planning Area would result from actions proposed under the following resource management programs:

- Visual Resources
- Cultural Resources
- Recreation
- Special Designations (Arizona Strip FO only)
- Lands and Realty (Arizona Strip FO only)

Alternative A: No Action

Impacts from Visual Resources

Under the No Action Alternative, the major portions of the Old Spanish NHT that cross the northwestern corner of the Arizona Strip FO would be designated VRM Class III (the trail segment crossing the extreme corner of the state) and VRM Class II (the branch of the trail that leads to Beaver Dam and follows the Virgin River). Some protection of the visual setting of the trail would be preserved in the VRM Class II area while some visual intrusions may be allowed in the VRM Class III area, which could alter the historic setting of the trail. Impacts could be minor, with some site-specific moderate impacts.

In Vermilion, all NHT trail segments would be designated VRM Class II, providing protection from visual alteration of the historic setting.

Impacts from Cultural Resources

There would be no impacts from the cultural resources program under Alternative A.

Impacts from Recreation

Impacts to the Old Spanish NHT could occur wherever OHV routes cross any remaining, intact trail segments, associated resources, and the historic setting in which they occur. These OHV routes could lead to subsequent erosion that could alter the resource or its setting. Though intact, Old Spanish NHT segments in the Planning Area are difficult to find and, consequently, have not been precisely recorded and documented. Impacts could range from minor to moderate.

Impacts from Special Designations (Arizona Strip FO only)

Portions of the Old Spanish NHT cross through the Beaver Dam Slope and Virgin River ACECs, which would benefit from the protection offered to special status species and cultural resources. Impacts would be minor.

Impacts from Lands and Realty (Arizona Strip FO only)

The regional utility corridor parallels a major segment of the Old Spanish NHT in the northwestern corner of the Arizona Strip FO and crosses it in several places. Use of the existing utility corridor and subsequent powerline additions would continue to impact the NHT through destruction of the trail segments and associated resources, as well as compromising the historic setting. Impacts would be moderate.

Alternative B

Impacts from Visual Resources

Under Alternative B, most of the Old Spanish NHT within the Planning Area would be protected under VRM Class II, except for the main trail segment in the northwest corner of the Arizona Strip FO that follows the regional utility corridor, which would be designated VRM IV. Impacts along the VRM IV sections would range from moderate to major. Impacts along the remaining sections of the NHT in the Planning Area would be minor.

Impacts from Cultural Resources

Under Alternative B, the Old Spanish NHT would be designated a Public Use Site. This could result in increased visitation, which could impact the trail, associated resources, and historic setting from additional vehicle traffic, increased erosion and vandalism, and loss of site integrity. Overall impacts would be minor, although some site-specific impacts could be moderate.

Interpretation and public education about the NHT would help the public appreciate and protect this resource.

Impacts from Recreation

Impacts would be the same as described under Alternative A.

Impacts from Special Designations (Arizona Strip FO only)

Impacts would be the same as described under Alternative A.

Impacts from Lands and Realty (Arizona Strip FO only)

Impacts would be the same as described under Alternative A.

Alternative C

Impacts from Visual Resources

Under Alternative C, more of Old Spanish NHT in the northwestern corner of the Arizona Strip FO would be assigned to Class III and IV, which would allow for more modification of the natural landscape and potential loss of the integrity of the NHT, resulting in moderate to major impacts. Impacts would be minor along the remaining sections of the NHT.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative B.

Impacts from Recreation

Impacts would be the same as described under Alternative A.

Impacts from Special Designations (Arizona Strip FO only)

Impacts would be the same as described under Alternative A.

Impacts from Lands and Realty (Arizona Strip FO only)

Impacts would be the same as described under Alternative A.

Alternative D

Impacts from Visual Resources

Impacts would be the same as described under Alternative C.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative B.

Impacts from Recreation

Impacts would be the same as described under Alternative A.

Impacts from Special Designations (Arizona Strip FO only)

Impacts would be the same as described under Alternative A.

Impacts from Lands and Realty (Arizona Strip FO only)

Impacts would be the same as described under Alternative A.

Alternative E, Proposed Plan

Impacts from Visual Resources

Impacts would be the same as described under Alternative B.

Impacts from Cultural Resources

Impacts would be the same as described under Alternative B.

Impacts from Recreation

Impacts would be the same as described under Alternative A.

Impacts from Special Designations (Arizona Strip FO only)

Impacts would be the same as described under Alternative A.

Impacts from Lands and Realty (Arizona Strip FO only)

Impacts would be the same as described under Alternative A.

Cumulative Impacts

The geographic area of analysis for cumulative impacts to the Old Spanish NHT is the Planning Area and surrounding communities. The NHT is primarily affected by the OHV use and the existing ROW corridor. To a lesser extent, visitation and vandalism of the NHT would also affect its integrity. Population growth and the resulting increase in recreational use are expected to have a significant impact on the NHT and its historic setting. Additional population, particularly in the Mesquite and Lincoln County area in Nevada, would result in more recreational use of the NHT, which would increase OHV traffic along the trail corridor, the potential for vandalism, and demands for use of the ROW corridor over the life of the Plan.

ADMINISTRATIVE DESIGNATIONS: AREAS OF CRITICAL ENVIRONMENTAL CONCERN

The primary issue associated with ACECs involves the number and size of ACECs proposed under each of the Alternatives.

Methods and Assumptions

This section identified changes in number and size of ACECs within the Planning Area. Specific impacts to various resources from the designation of ACECs are discussed under the specific resource management programs. Only impacts to ACECs in Parashant and Arizona Strip FO are addressed since no ACECs currently exist in Vermilion and none are proposed under any of the alternatives.

Impacts to ACECs

Impacts to ACECs would result from actions proposed under the following resource management programs:

- Special Status Species
- Cultural Resources

Alternative A: No Action

Impacts from Special Status Species

Impacts from implementing Alternative A would vary depending upon the management action and the specific ACEC. Impacts from management actions proposed under Alternative A to special status species in ACECs designated for protecting special status species are described under Alternative A in the Impacts to Special Status Species section.

In Parashant under Alternative A, designation of the Pakoon ACEC would continue at 76,014 acres for protection of the threatened desert tortoise and Mojave Desert Ecological Zone values.

In the Arizona Strip FO under Alternative A, the eight ACECs designated to protect special status species would continue at their current acreage. These include the Beaver Dam Slope (51,196 acres), Fort Pearce (916 acres), Johnson Springs (2,464 acres), Lost Spring Mountain (8,262 acres), Marble Canyon (11,012 acres), Moonshine Ridge (5,095), Virgin River Corridor (8,075 acres), and Virgin Slope (39,931 acres) ACECs for a total of 126,951 acres.

Impacts from Cultural Resources

Impacts from implementing Alternative A would vary depending upon the management action and the specific ACEC. Impacts from management actions proposed under Alternative A to cultural resources in ACECs designated for protecting cultural values are described under Alternative A in the Impacts to Cultural Resources section.

In Parashant, the two ACECs designated to protect cultural resources would continue at their current acreage. These include the Witch Pool ACEC at 279 acres and the Nampaweap ACEC at 535 acres, for a total of 814 acres.

In the Arizona Strip FO, the four ACECs designated to protect cultural resources would continue at their current acreage. These include Little Black Mountain (241 acres), Johnson Springs (2,464 acres), Lost Spring Mountain (8,262 acres), and Moonshine Ridge (5,095 acres) ACECs, for a total of 16,062 acres.

Alternative B

Impacts from Special Status Species

Impacts from implementing Alternative B would vary depending upon the management action and the specific ACEC. Impacts from management actions proposed under Alternative B to special status species in ACECs designated for protecting special status species are described under Alternative B in the Impacts to Special Status Species section.

In Parashant, the Pakoon ACEC designation would not continue under Alternatives B because the Monument designation provides protection to threatened desert tortoises for which the ACEC was established.

In the Arizona Strip FO under Alternative B, six of the existing ACECs would increase in size, with Marble Canyon ACEC experiencing the greatest increase (over nine times its current size); Johnson Spring ACEC would decrease by 406 acres; and Virgin River Corridor ACEC would be roughly a quarter in size. When combined, the eight existing special status species ACECs

would equal 221,944 acres, a gain of 111,729 acres compared to Alternative A. Impacts to ACECs would be major.

Also under Alternative B in the Arizona Strip FO, eleven new ACECs would be designated, including Black Knolls, Buckskin, Clayhole, Coyote Valley, Gray Points, Hurricane Cliffs, Kanab Creek, Lime Kiln/Hatchet Canyon, Lone Butte, Shinarump, and Twist Hills ACECs, for a total of 76,374 acres. When combined, the number of acres falling within ACEC designation under Alternative B would be more than double that proposed under Alternative A (308,390 acres compared to 127,192 acres). Impacts to ACECs would be major.

Impacts from Cultural Resources

Impacts from implementing Alternative B would vary depending upon the management action and the specific ACEC. Impacts from management actions proposed under Alternative B to cultural resources in ACECs designated for protecting cultural values are described under Alternative B in the Impacts to Cultural Resources section.

In Parashant, the Witch Pool and Nampaweap ACEC designations would not continue under Alternative B because the Monument designation provides protection of cultural resources for which the ACECs were established.

In the Arizona Strip FO under Alternative B, Lost Spring Mountain and Moonshine Ridge ACECs would increase in size, Little Black Mountain ACEC would remain the same, and Johnson Spring ACEC would decrease by 406 acres. When combined, the four existing cultural ACECs would equal 29,274 acres, an increase of 13,212 acres compared to Alternative A.

Also under Alternative B in the Arizona Strip FO, four new ACECs would be designated for the protection of cultural resources; these include Marble Canyon, Kanab Creek, Shinarump, and Lone Butte ACECs. While Marble Canyon ACEC is an existing ACEC designated to protect an endangered cactus that would be continued under Alternative A, it would be expanded in both scope (to include cultural resources) and size (over nine times the current number of acres) under Alternative B. When combined, the number of acres designated as ACECs for the protection of cultural resources under Alternative B would be more than five times that proposed under Alternative A (150,080 acres compared to 27,074 acres). Impacts to ACECs would be major.

Alternative C

Impacts from Special Status Species

Impacts from implementing Alternative C would vary depending upon the management action and the specific ACEC. Impacts from management actions proposed under Alternative C to special status species in ACECs designated for protecting special status species are described under Alternative C in the Impacts to Special Status Species section.

In Parashant, impacts would be the same as described under Alternative B. Under Alternative C in the Arizona Strip FO, four of the existing ACECs would increase in size while four would decrease in size. When combined, the eight existing special status species ACECs would equal 120,669 acres, a loss of 6,282 acres compared to Alternative A. Impacts to ACECs would be moderate. Three additional ACECs, Kanab Creek, Lone Butte, and Black Knolls, would be created, adding 11,191 acres for a total of 131,860 special status species acres under Alternative C, 4,908 more acres than under Alternative A. Impacts would be moderate.

Impacts from Cultural Resources

Impacts from implementing Alternative C would vary depending upon the management action and the specific ACEC. Impacts from management actions proposed under Alternative C to cultural resources in ACECs designated for protecting cultural values are described under Alternative C in the Impacts to Cultural Resources section.

In Parashant, impacts would be the same as described under Alternative B. Under Alternative C in the Arizona Strip FO, Johnson Springs, Lost Spring Mountain, and Moonshine Ridge ACECs would decrease in size, while Little Black Mountain ACEC would remain the same size. When combined, the four existing cultural ACECs would equal 9,233 acres, a decrease of 6,828 acres compared to Alternative A.

Also under Alternative C in the Arizona Strip FO, Marble Canyon, Kanab Creek, and Lone Butte ACECs would be designated for the protection of cultural resources for a total of 23,037 acres. The total the number of acres designated as ACECs for the protection of cultural resources under Alternative C would be over two times of that proposed under Alternative A (32,270 acres compared to 16,062 acres). Impacts would be major, but not as intense as under Alternative B.

Alternative D

Impacts from Special Status Species

Impacts from implementing Alternative D would vary depending upon the management action and the specific ACEC. Impacts from management actions proposed under Alternative D to special status species in ACECs designated for protecting special status species are described under Alternative D in the Impacts to Special Status Species section.

In Parashant, impacts would be the same as described under Alternative B. Under Alternative D in the Arizona Strip FO, only four of the existing ACECs (Beaver Dam Slope, Marble Canyon, Virgin River Corridor, and Virgin Slope) would retain their designation. When combined, these would equal 106,179 acres, 20,772 less acres than under Alternative A. No new ACECs would be designated. Impacts would be moderate.

Impacts from Cultural Resources

Impacts from implementing Alternative D would vary depending upon the management action and the specific ACEC. Impacts from management actions proposed under Alternative D to cultural resources in ACECs designated for protecting cultural values are described under Alternative D in the Impacts to Cultural Resources section.

In Parashant, impacts would be the same as described under Alternative B. Under Alternative D in the Arizona Strip FO, Little Black Mountain is the only preexisting ACEC designated to protect cultural resources that would be continued. Marble Canyon ACEC would be expanded to include protection of cultural resource values. Marble Canyon and Little Black Mountain ACEC, when combined, would comprise 12,166 acres, which is the fewest ACEC acres designated to protect cultural resources among the alternatives and 3,896 less acres compared to Alternative A. Impacts would be moderate.

Alternative E: Proposed Plan

Impacts from Special Status Species

Impacts from implementing Alternative E would vary depending upon the management action and the specific ACEC. Impacts from management actions proposed under Alternative E to special status species in ACECs designated for protecting special status species are described under Alternative E in the Impacts to Special Status Species section.

In Parashant, impacts would be the same as described under Alternative B. Under Alternative E in the Arizona Strip FO, six of the existing ACECs would increase in size, while two would decrease. When combined, the eight existing special status species ACECs would equal 138,636 acres, a gain of 11,684 acres compared to Alternative A.

Also under Alternative E in the Arizona Strip FO, four new ACECs would be designated, including Black Knolls, Kanab Creek, Lone Butte, and Shinarump, for a total of 18,575 acres. When combined with the existing ACECs, there would be 30,260 more acres designated as ACECs under Alternative E compared to Alternative A.

Impacts from Cultural Resources

Impacts from implementing Alternative E would vary depending upon the management action and the specific ACEC. Impacts from management actions proposed under Alternative E to cultural resources in ACECs designated for protecting cultural values are described under Alternative E in the Impacts to Cultural Resources section.

In Parashant, impacts would be the same as described under Alternative B. Under Alternative E in the Arizona Strip FO, Little Black Mountain and Kanab Creek ACECs would remain the

same. When combined, the two existing cultural ACECs would equal 13,389 acres, an increase of 2,673 acres compared to Alternative A, which is the same as under Alternative B.

There are four new ACEC designations proposed under Alternative B in the Arizona Strip FO that would also occur under Alternative E these include Johnson Spring, Lost Spring Mountain, Marble Canyon and Moonshine Ridge. Acreages would all increase in size with the exception of Marble Canyon ACEC, which would be 11,797 acres (90,617 less acres than under Alternative B). When combined, the number of acres designated as ACECs for the protection of cultural resources under Alternative E would be 57,188 acres over three and a half times that proposed under Alternative A.

ADMINISTRATIVE DESIGNATIONS: RESOURCE CONSERVATION AREAS

The primary issue associated with RCAs involves the number and size of RCAs proposed under each of the Alternatives.

Methods and Assumptions

This section identifies changes in number and size of RCAs within the Planning Area. There are currently three RCAs within the Planning Area, two in Parashant and one in Vermilion. These RCAs would continue under Alternative A while they would be eliminated under all other Alternatives.

Impacts to RCAs

Impacts to RCAs would result from actions proposed under the following resource management programs:

Special Designations (RCAs)

Alternative A: No Action

Special Designations

In Parashant under Alternative A, recognition of the Parashant Area RCA would continue at 39,854 acres and recognition of the Mt. Trumbull Area RCA would continue at 102,305 acres. In Vermilion, recognition of the Canyons and Plateaus of the Paria RCA would continue at 317,172 acres.

*Alternatives B, C, D, and E (Proposed Plan)*Special Designations

In Parashant, recognition of the Parashant Area and Mt. Trumbull Area RCAs would not continue under Alternatives B, C, D, or E because the Monument designation provides protection of the unique resources for which the RCAs were established. In Vermilion, recognition of the Canyons and Plateaus of the Paria RCA would not continue under Alternatives B, C, D, or E because the Monument designation provides protection of the unique resources for which the RCA was established.

IMPACT TO SOCIAL AND ECONOMIC CONDITIONS**SOCIOECONOMICS**

As described in Chapter 3 and detailed in Appendix 3.I, the socioeconomic study area expands over portions of three states and five counties that are sparsely populated but with exceptional growth rates. Management actions that influence employment, demands for goods and services, business growth, and visitation within this broad study area would affect socioeconomics. Impacts would most greatly be felt in small rural communities that economically and socially rely, at least partially, on resources uses within the Planning Area, including harvesting vegetation products, grazing livestock, extracting minerals, recreating, and traveling.

Decisions made in regards to the transportation system in the Planning Area could affect the study area's economy by expanding or limiting access to recreation, ranching, mining, or vegetative product-related activities. Designating certain areas as either open, limited to designated roads and trails or to existing roads and trails, or closed, would place new restrictions on OHV enthusiasts, which could impact revenues created directly or indirectly by this form of recreation (e.g., OHV and associated equipment and fuel sales, OHV repairs, dining, lodging, etc.). Increased or decreased non-motorized backcountry opportunities could also impact revenues created directly or indirectly for individuals seeking those types of recreation opportunities (e.g., backpacking supplies, horse boarding and supplies, dining, lodging, etc.).

Allowing or preventing the sale or free use of vegetative products (e.g., native seed, medicinals, propagation materials, florals/greens/craft markets, mosses, mushrooms, lichens, landscape mulch, poles, fuel wood, Christmas trees, lumber, pinyon nuts, etc.) would impact local businesses or individuals who rely on such use.

Hunting management and the number and types of habitat improvement projects aimed at improving health and vitality of game animals, specifically big game such as trophy mule deer, would affect local economies in terms of influencing the number and types of hunters coming to the Planning Area and the number and success of professional outfitters.

Actions that increase mining activities would tend to stimulate the local and regional economies, both through increased employment and demand for goods and services for the mining operation itself. Duration of this effect would depend upon the magnitude of mineral deposits and market demand for the products. Conversely, actions eliminating current mining activities or discouraging or precluding new mining activities would tend to decrease or at least limit local and regional economic benefits.

Any action that enhances the quality of recreation experience or creates additional facilities or improved access would potentially increase visitation demand. Increased visitation would stimulate increased expenditures for goods and services in the local and regional economies. This in turn would tend to encourage additional business activity and population growth.

Land disposals that ultimately lead to development for residential use or commercial and light industrial development, would have an economic impact in terms of employment and earnings, as well as increased tax base for the area.

Changes in allowable grazing could influence ranchers within the Planning Area and directly influence the economic viability and scale of existing ranching operations. Such actions, in turn, could affect local communities dependent upon ranching operations in terms of tax revenue from livestock sales, jobs, purchase of equipment and feed, etc.

Methods and Assumptions

The analysis of potential impacts to socioeconomics is based on the expertise of BLM resource specialists at the Arizona Strip FO, the NPS staff at Lake Mead NRA, and BLM staff in the BLM Washington Office. Combined, these staff members possess an extensive knowledge of socioeconomic-related issues within the Planning Area. In addition, concerns were gathered from communities through town-hall type meetings that are used in the analysis. The impact analysis is also based on review of existing literature and information provided by non-planning team experts in the BLM, NPS, and other agencies.

- Negligible:** Overall impacts on employment, demand for goods and services, and business growth within the study area would not be detectable. In general, businesses (including ranching operations) would not experience much growth or decline.
- Minor:** Overall impacts on employment, demand for goods and services, and business growth within the study area would not be detectable. Some small businesses (including ranching operations) would experience slight growth or decline, with a few jobs being lost or gained.
- Moderate:** Overall impacts on employment, demand for goods and services, and business growth within the study area would be slight. Impacts at the local level would be more apparent as several small to medium-sized businesses (including ranching

operations) would experience some growth or decline, with a several jobs being lost or gained, although not detectable in the communities employment rate.

Major: Overall impacts on employment, demand for goods and services, and business growth within the study area would be apparent. Impacts at the local level would be extensive, as numerous businesses (including ranching operations) would experience extended growth or decline, with some businesses closing new businesses being formed. The number of jobs being lost or gained would reflect in the particular communities' employment rate.

Economic impacts due to changes in livestock grazing patterns is evaluated by comparing the total number of active AUMs by alternative, which can be used to determine changes in direct impacts, economic activity, earned income, number of jobs, and indirect business taxes (see Table 4.3). The model used to determine these economic indicators comes from Fletcher et. al. (2006) and is based on a mid-range direct dollar per AUM of \$38.90 (see Chapter 3, Table 3.38).

Impacts to Socioeconomics

Impacts to socioeconomics would result from actions proposed under the following resource management programs:

- Travel Management
- Vegetation
- Fish and Wildlife
- Minerals (Arizona Strip FO only)
- Livestock Grazing
- Recreation
- Lands and Realty

Alternative A: No Action

Impacts from Travel Management

Under Alternative A, no parts of the Monuments would be open to motorized and mechanized cross-country vehicle travel as motor vehicles would be limited to designated roads. Lands within BLM wilderness areas and NPS proposed wilderness areas would be closed to motorized and mechanized vehicle use. While this would restrict OHV use off designated roads and trails, OHV and other motorized vehicle users would have access to 1,715 miles of roads in Parashant and 446 miles of roads in Vermilion for purposes of exploring and recreating.

This recreation opportunity compounded by the projected increased population growth in the socioeconomic study area encompassing the Monuments would result in increased visitation,

Table 4.3: Economic Impacts due to AUM Change by Alternative

Types of Impacts	Alt. A		Alternative B		Alternative C		Alternative D		Alternative E	
	Active AUMs	AUM Reduced	% Change	Active AUMs	AUM Reduced	% Change	Active AUMs	AUM Reduced	% Change	Active AUMs
AUM Numbers	183,000	9,165		173,835	840		182,160	382		181,869
Direct Impacts	\$7,118,900	\$356,518		\$6,762,382	\$32,676		\$7,086,224	\$14,860		\$7,074,904
Total Economic Activity	\$16,415,000	\$822,100		\$15,592,900	\$75,348		\$16,339,652	\$34,265		\$16,313,549
Total Earned Income	\$2,917,020	\$146,090	5.0%	\$2,770,930	\$13,389	0.5%	\$2,903,631	\$6,089	0.2%	\$2,905,448
Total # of Jobs	271.7	13.6		258.1	1.2		270.5	0.6		270.0
Indirect Business Taxes	\$490,440	\$24,562		\$465,878	\$2,251		\$488,189	\$1,024		\$487,409
Parashant NM										
AUM Numbers	38,000	4,861		33,139	840		37,160	382		37,160
Direct Impacts	\$1,478,200	\$189,093		\$1,289,107	\$32,676		\$1,445,524	\$14,860		\$1,445,524
Total Economic Activity	\$3,408,600	\$436,032		\$2,972,568	\$75,348		\$3,333,252	\$34,265		\$3,333,252
Total Earned Income	\$605,720	\$77,484	12.8%	\$528,236	\$13,389	2.2%	\$592,331	\$6,089	1.0%	\$592,331
Total Number of Jobs	56.4	7.2		49.2	1.2		55.2	0.6		55.2
Indirect Business Taxes	\$101,840	\$13,027		\$88,812	\$2,251		\$99,589	\$1,024		\$99,589
Vermilion Cliffs NM										
AUM Numbers	31,000	291	0.9%	30,719	0	0%	31,000	0	0%	30,719
Direct Impacts	\$1,205,900	\$11,320		\$1,194,580	No Change		\$1,205,900	No Change		\$1,194,580
Total Economic Activity	\$2,780,700	\$26,103		\$2,754,597	\$26,103		\$2,780,700	\$26,103		\$2,754,597
Total Earned	\$494,140	\$4,639		\$489,661	\$494,140		\$494,140	\$4,639		\$489,661

Table 4.3: Economic Impacts due to AUM Change by Alternative

Types of Impacts	Alt. A			Alternative B			Alternative C			Alternative D			Alternative E		
	Active AUMs	AUM Reduced	% Change	Active AUMs	AUM Reduced	% Change	Active AUMs	AUM Reduced	% Change	Active AUMs	AUM Reduced	% Change	Active AUMs	AUM Reduced	% Change
Income															
Total # of Jobs	46.0	0.4		45.6			46.0			46.0	0.4		45.6		
Indirect Business Taxes	\$83,080	\$780		\$82,300			\$83,080			\$83,080	\$780		\$82,300		
Arizona Strip Field Office															
AUM Numbers	114,000	4,013		109,987			114,000			114,000			114,000		
Direct Impacts	\$4,434,600	\$156,106		\$4,278,494			\$4,434,600			\$4,434,600			\$4,434,600		
Total Economic Activity	\$10,225,800	\$359,966		\$9,865,834			\$10,225,800			\$10,225,800	0		\$10,225,800	0	
Total Earned Income	\$1,817,160	\$63,967		\$1,731,193	3.5%		\$1,817,160		0%	\$1,817,160	No Change		\$1,817,160	No Change	0%
Total # of Jobs	169.2	6.0		163.2			169.2			169.2			169.2		
Indirect Business Taxes	\$305,520	\$10,755		\$294,765			\$305,520			\$305,520			\$305,520		

Source: Fletcher et al 2006

which in turn, would have a minor to moderate impact on local economies. Those desiring non-motorized forms of recreation would also utilize the transportation system under Alternative A as a means to access more remote portions of the Monuments. Ranchers needing to access their operations could also use the open roads as well as administrative use roads, thus allowing for the continued economic contribution ranching has on the study area's economy.

In the Arizona Strip FO under Alternative A, 803 acres would be open to motorized and mechanized cross-country vehicle travel, which would provide a limited amount of recreational opportunities for OHV users and other off-road enthusiasts. Having an Motorized Speed Event area designated on 179,551 acres would also serve the needs of OHV enthusiasts. In addition, the public would have access to 52 miles of open roads in the Ferry Swale Sub-region, and 4,934 miles in the undesignated sub-regions of the Arizona Strip for purposes of exploring and recreation. This recreation opportunity compounded by the projected increased population growth in the socioeconomic study area encompassing the Arizona Strip FO would result in increased visitation, which, in turn, would have a minor to moderate impact on local economies. Impacts would be greatest felt in the small communities the within the Arizona Strip FO boundaries, including Fredonia, Colorado City, and the Marble Canyon area. Those desiring non-motorized forms of recreation would also utilize the transportation system under Alternative A as a means to access more remote portions of the Arizona Strip FO. The open roads could also be used by ranchers needing to access their operations, thus allowing for the continued economic contribution ranching has on the study area's economy. Permittees would also have access via administrative use only roads.

Impacts from Vegetation and Fire and Fuels Management

On BLM lands throughout the Planning Area, commercial use of vegetation would be allowed in specified areas and managed under the multiple use/sustained yield concept. Parashant would be closed to the sale of vegetative products; however, the sale, collection, or use of vegetative material (e.g., native seed, medicinals, landscape mulch, posts, fuel wood, etc.) could be allowed in the Monument, by permit only, if associated with research or restoration project. Since the amount harvested would be minimal, economic impacts would be negligible. Vermilion would also be closed to the sale of vegetative products. Since the area contains limited vegetative resources of any economic value, impacts would be negligible. In the Arizona Strip FO, personal Christmas tree and post cutting would be allowed, providing a service to those communities within and adjacent to the Arizona Strip FO. Since overall use would be minimal, economic impacts would be negligible.

Impacts from Fish and Wildlife

Improving mule deer habitat where needed would help maintain trophy deer numbers. This, in turn, would continue to attract hunters to the BLM portion of the Monument and economically benefit businesses. Protecting and/or enhancing habitats of other forms of wildlife (e.g., bighorn sheep, pronghorn antelope, migratory birds, and Merriam's Turkey) would also provide wildlife-

viewing opportunities that would benefit local businesses catering to such users. In Parashant, continuing to manage the Mt. Trumbull Watchable Wildlife Area would also continue to attract visitors into the area.

Impacts from Minerals (Arizona Strip FO only)

Closing or withdrawing areas from mineral operations (i.e., fluid mineral leasing, mining, and mineral material disposals) would directly limit the amount of economic development based on mineral operations and sales, while designating areas open would support economic development. The primary current mineral operation in the Arizona Strip FO is gypsum mining near Black Rock Gulch, which contributes to the local economies, specifically adding jobs in the St. George area. Management actions related to locatable minerals under Alternative A (e.g., acres open to operation of the mining laws with or without restrictions or a mining plan and acres withdrawn to mining location) would allow continued mining of the rich gypsum deposits south of St. George and allow for expansion of such projects.

Impacts from Livestock Grazing

The greatest number of active AUMs would occur under Alternative A, which would result in the greatest economic contribution to the study area compared to the other alternatives. Under Alternative A, 183,000 active AUMs covering the three planning areas would result in nearly \$16.5 million in total economic activity (direct exponders plus secondary economic contributions), generate nearly \$3 million in personal income, support 272 jobs, and contribute over \$490 thousand dollars to indirect business taxes (see Table 4.3).

In Vermilion under Alternative A, there would be 31,000 active AUMs contributing \$2,780,700 in total economic activity, \$494,140 in personal income, 46 jobs, and \$83,080 in indirect business taxes. In Parashant, there would be 38,000 active AUMs contributing \$3,408,600 in total economic activity, \$605,720 in personal income, 56 jobs, and \$101,840 in indirect business taxes. In the Arizona Strip FO, there would be 114,000 active AUMs contributing \$10,225,800 in total economic activity, \$1,817,160 in personal income, 169 jobs, and \$305,520 in indirect business taxes (see Table 4.3).

Impacts from Recreation

Regardless of alternative, visitor use is expected to increase throughout the Planning Area, especially in the Monuments. This would partially be the result of the rapidly growing communities and counties in the study area, as well as new interest created for visiting the Planning Area since the Monuments were designated (i.e., as a result of a “designation effect”). One study showed that 87 percent of those surveyed who visited Parashant came from one of the three states in the study area (Northern Arizona University 2003), all of which showed phenomenal growth over the past few decades. Based solely on projected growth of the counties within the study area (with the exception of Lincoln County, Nevada, which would contribute

little in terms of overall visitation numbers), total visitation would increase by 31 percent between 2000 and 2010. This increased visitation would have economic impacts to communities in the study area that serve as stopping points for services near the Monuments. The small communities within and near the Planning Area's boundaries would feel the greatest impacts, including Mesquite and Bunkerville in Nevada and Fredonia; Colorado City, Page, the Virgin River Communities and the Marble Canyon Area in Arizona; and Kanab and Big Water, Utah.

Placing visitor limits and applying regulations or restrictions could limit visitation at some sites and reduce the economic benefit of visitation in the area. However, such practices would only occur when monitoring of resource and social conditions indicates a trend toward unacceptable change brought about by visitation. Impacts would thus be negligible. Visitation restrictions placed in listed species and other sensitive habitat and restrictions on recreational stock use could discourage some recreationists. Retaining restrictions and fees placed on recreation use in Paria Canyon, Buckskin Gulch, Wire Pass and Coyote Buttes (Vermilion) and continuing the current recreation use permits and use fees program required for use in the Virgin Gorge Recreation Area (Arizona Strip FO) would maintain the current amount of use, thus limiting the amount of economic contribution from recreation within these areas. Maintaining existing SRMA designations to ensure greater recreation emphasis and investment and providing some managing visitor facilities (e.g., interpretive, safety, and informative signs; kiosks; interpretive sites; etc.) would help improve visitor experiences and potentially encourage return trips. Allowing the Rhino Rally motorcycle race in the Arizona Strip FO would continue to provide economic benefits from rally participants and observers who patronize local businesses. Overall impacts from recreation management actions would be negligible compared to the expected trend of visitor growth with or without such actions.

Impacts from Lands and Realty

As mandated by the Monument proclamations, appropriating and withdrawing all federal lands and interests in lands from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws would allow no economic development or community growth within the Monuments. Processing no new ROWs and ancillary public facilities, with a few exceptions, would limit growth within the Monuments. While such impacts could affect communities adjacent to Vermilion in the Marble Canyon area as the area grows in the future, overall impacts would be negligible.

In the Arizona Strip FO, management actions aimed at reaching the goal of supporting community growth and expansion needs by making public lands available for recreation, public purposes, and other infrastructure needs would be beneficial for the study area's economy. This includes making up to 7,335 acres available for exchange, sale, or R&PP sale and an additional 17,853.47 acres available for exchanges only. These land disposals could lead to development for residential use or commercial and light industrial development, would have an economic impact in terms of employment and earnings, as well as increased tax base for the area. Impacts could range from minor to moderate in the communities directly affected.

Alternative B

Impacts from Travel Management

Impacts would be similar to that described under Alternative A due to no roads being open to motorized and mechanized cross-country vehicle travel. However, the public would have access to less than half the miles of roads for purposes of exploring and recreating by motorized and mechanized means compared to Alternative A, and special mitigating measures would be applied to most of these roads. This could limit the number of visitors seeking motorized forms of recreation and/or result in negative experiences due to traffic levels on roads that would remain open. It would also affect those individuals seeking areas to engage in non-motorized activities. While Alternative B would increase the miles of roads and trails for non-motorized forms of recreation, it would also make many areas inaccessible by limiting motorized access necessary to reach such areas. The impact to local businesses in communities near the Monuments that are compatible with motorized, and to a less extent non-motorized activities would range from minor to moderate, with the greatest effects being felt in the smaller communities more dependent upon recreation within the Monuments. While ranchers would also be impacted, they would be allowed access to their ranching operations by way of roads open to administrative use only, resulting in a negligible economic impact.

Under Alternative B, no part of the Arizona Strip FO would be open to motorized and mechanized cross-country vehicle travel, which would prohibit cross-country recreational opportunities for OHV users and other off-road, motorized enthusiasts. This would reduce the number of individuals coming into the area for such activities and thus directly reduce the amount of economic contribution such recreationists would make to the local economies. However, economic impacts would be negligible considering the relatively few acres open in Alternative A, which could only support a minimum number of OHV users. Within the Ferry Swale Sub-region, the public would have access to slightly more than half the miles of roads for recreating and exploring purposes compared to Alternative A, and special mitigating measures would be applied to virtually all miles of open routes. This would decrease the economic benefit stemming travel-related recreation within the Ferry Swale area. Similar impacts would occur in the Littlefield and St. George Basin sub-regions, while impacts in the undesignated Arizona Strip FO sub-regions would be the same as under Alternative A. Overall impacts would be minor. Ranchers and other permittees would be allowed access by means of roads open to administrative use only, reducing the intensity of impacts on such users.

The majority of the Monuments (86-87 percent) would be delineated under the Primitive TMA under Alternative B. This TMA emphasizes semi-primitive and non-motorized/primitive experiences, which entails more restrictions on motorized forms of travel, especially for recreation purposes. This would reduce opportunities for motorized forms of recreation, affecting those businesses surrounding the Monuments that are dependent upon such forms of recreation. In comparison, there would be greater opportunity for visitors to engage in non-

motorized activities (e.g., hiking, back packing, horseback riding) that would benefit businesses dependent upon non-motorized forms of recreation. Overall impacts would range from minor to moderate, being strongest felt by the smaller, more tourist-oriented communities (e.g., Fredonia, Virgin River Communities, Bunkerville, Marble Canyon Area, Page, and Big Water) surrounding the Monuments.

In the Arizona Strip FO, the most concentrated and widest variety of motorized, non-motorized, and mechanical use would occur within the Rural TMA, which would comprise nine percent of the Arizona Strip FO under Alternative B. Travel in this TMA would primarily affect those users living within and adjacent to the Monuments. Although most travel within the Rural TMA would involve locals and not bring in outside dollars, travel opportunities serving recreational, casual, traditional, commercial, education, and private access needs would motivate individuals and businesses to move into the area. Such opportunities would also improve the style of living within the communities involved, potentially increasing property values. Alternative B, however, would concentrate more on non-motorized forms of recreation activities, specifically within the Primitive TMA, which would make up 37 percent of the Arizona Strip FO. Delineating 40 percent of the planning area under Specialized TMA would allow for access into the Primitive TMA for recreational purposes. This would allow opportunities for visitors to engage in non-motorized activities (e.g., hiking, back packing, horseback riding) that would benefit businesses dependent upon non-motorized forms of travel, although it would limit some opportunities for motorized forms of travel. Overall impacts would range from minor to moderate, being strongest felt by the smaller, more tourist-oriented communities nestled within the Arizona Strip FO (e.g., Marble Canyon Area, Colorado City, and Littlefield).

Impacts from Vegetation and Fire and Fuels Management

Under Alternative B, no areas within the entire Planning Area would be allocated to sustained yield timber harvest. Since lands in the Planning Area do not support large, sustainable commercial quantities of woodland resources, impacts would be negligible. In the Monuments, impacts would be the same as described under Alternative A. In the Arizona Strip FO, the sale, collection, or use of vegetative materials (e.g., native seed, medicinals, landscape mulch, posts, fuel wood, Christmas trees, lumber, etc.) would be allowed in the Arizona Strip FO by permit only. This would benefit individuals living within or adjacent to the planning areas. Overall use would be minimal, resulting in negligible impacts area-wide. Some businesses relying on vegetative materials (e.g., nurseries, individual who sale firewood, ranchers needing on poles for fences, etc.) could experience minor economic impacts

Impacts from Fish and Wildlife

Additional emphasis on habitat management for healthy self-sustaining mule deer populations and providing quality buck hunting opportunities would improve trophy deer numbers and potentially increase hunter interest in Parashant. Additional emphasis on maintaining healthy, self-sustaining populations of bighorn sheep, pronghorn antelope, Kaibab squirrels, cottontail

rabbits, waterfowl, game birds, carnivores, and furbearers would also support hunting and/or wildlife viewing throughout the Planning Area. Maintaining access to public lands with fish and wildlife hunting and viewing opportunities as determined in the route evaluation/designation process would also benefit hunters. Such actions would increase the benefit to businesses supporting hunting and wildlife viewing in the surrounding communities. As under Alternative A, continuing to manage the Mt. Trumbull Watchable Wildlife Area would also continue to attract visitors into the area. Since overall hunter/viewer numbers would remain small, overall economic impacts would be negligible; however, some guide services/outfitters may experience minor impacts.

Impacts from Minerals (Arizona Strip FO only)

Impacts to gypsum mining operations south of St. George would be similar to those described under Alternative A. Alternative B would close 405,353 acres, nearly twice as many acres to mineral material disposals compared to Alternative A. This would limit the areas where sand and gravel needed for community development could be collected, impacting both the companies providing the mineral material and communities in need of such material. Impacts would be minor.

Impacts from Livestock Grazing

Alternative B proposes the greatest reduction in active AUMs and would thus have the greatest reduction in economic contributions to the study area among the five alternatives. Under Alternative B, AUMs would be reduced by 9,165 over the three planning areas, which is a 5 percent reduction compared to Alternative A. Such a reduction in AUMs would result in a loss of over \$822 thousand in total economic activity, nearly \$146 thousand in personal income, 14 jobs, and nearly \$25 thousand in indirect business taxes (see Table 4.3). Since the agricultural and farming sector, which includes livestock operations, is a relatively small contributor to the study area's economy, overall impacts due to the 5 percent decrease in livestock grazing contributions to the study area's socioeconomic resources would be negligible. However, impacts to specific ranch operations and those directly involved in such operations (employees, suppliers, etc.) may be minor to moderate.

In Parashant under Alternative B, AUMs would be reduced by 4,861, which is a nearly a 13 percent reduction compared to Alternative A. Such a reduction in AUMs would result in a loss of \$436,032 in total economic activity, \$77,484 in personal income, 7 jobs, and \$13,027 in indirect business taxes (see Table 4.3). Overall impacts due to the 13 percent decrease in livestock grazing contributions to the study area's socioeconomic resources would be negligible, although impacts to specific ranch operations and those directly involved in such operations may be minor to moderate.

In Vermillion, AUMs would be reduced by 291, which is a just under a 1 percent reduction compared to Alternative A. Such a reduction in AUMs would result in a loss of \$26,103 in total economic activity, \$4,639 in personal income, the equivalent to 0.4 job, and \$780 in indirect business taxes (see Table 4.3). Overall impacts due to the less than 1 percent decrease in livestock grazing contributions to the study area's socioeconomic resources would be negligible, although impacts to specific ranch operations may be minor.

In the Arizona Strip FO, AUMs would be reduced by 4,013, which is a 3.5 percent reduction compared to Alternative A. Such a reduction in AUMs would result in a loss of \$359,966 in total economic activity, \$63,967 in personal income, 6 jobs, and \$10,755 in indirect business taxes (see Table 4.3). Overall impacts due to 3.6 percent decrease in livestock grazing contributions to the study area's socioeconomic resources would be negligible, although impacts to specific ranch operations may be minor.

Impacts from Recreation

Overall impacts from increased visitor use would be similar as described under Alternative A. Additional restrictions placed on camping, firewood collecting, sensitive species habitats, concessions, SRPs, geocaching, and recreational stock use could discourage some visitors. The potential to place visitor limits, supplemental rules, or restrictions when carrying capacities are exceeded could put a cap on visitation and thus limit recreation-driven economic growth. Not allowing any motorized speed events in the Arizona Strip FO, especially the Rhino Rally, would hurt local businesses that benefited from such large-scale events in the past. Overall impacts would be negligible in the short term, but could range from minor to moderate in the long term.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative A for the Monuments. Impacts would also be similar to Alternative A for the Arizona Strip FO, with the exception that 1,508 less acres would be available for sale, R&PP sale, and/or exchange, reducing the amount of economic development resulting from such actions. However, none of the lands made available under Alternative B would be restricted to exchanges only, making it easier to purchase such lands and used for residential, commercial, or light industrial development. Overall impacts could range from minor to moderate in the communities directly affected.

Alternative C

Impacts from Travel Management

Impacts in the Monuments would be similar as described under Alternative A due to no roads being open to motorized and mechanized cross-country vehicle travel. However, most of the roads open to the public would have special mitigating measures assigned to them, which could lead to some reduced recreation opportunities. Such impacts would be minimal compared to

Alternative B. As a result, the impact to local businesses in communities near the Monuments that are compatible with motorized, and to a less extent, non-motorized activities would be negligible to minor. Ranchers and other permittees would be allowed access to their operations by means of administrative use only roads, limiting impacts to such operations.

In the Arizona Strip FO under Alternative C, 678 more acres of BLM lands would be open to motorized and mechanized cross-country vehicle travel compared to Alternative A. This would provide additional recreational opportunities for OHV users and other off-road enthusiasts, although the opportunities for such activities would remain limited. Economic impacts would thus remain negligible. Impacts due to the preliminary route designation for the Arizona Strip FO would be the same as under Alternative A. Within the Ferry Swale Sub-region, the public would have access to 4 fewer miles of roads for recreating and exploring purposes compared to Alternative A, and special mitigating measures would be applied to most of these miles. This would decrease the economic benefit stemming travel-related recreation within the Ferry Swale area, although not as much as under Alternative B. Similar impacts would occur in the Littlefield and St. George Basin sub-regions. Overall impacts would be minor. Ranchers and other permittees would be allowed access by means of roads open to administrative use only, reducing the intensity of impacts on such users.

In the Monuments, there would be fewer restrictions on motorized forms of recreation and less emphasis on non-motorized form of recreation when compared to Alternative B, with the Primitive TMA comprising 70 percent in each Monument, 17 percent less for Parashant and 21 percent less for Vermilion than under Alternative B. This would slightly increase opportunities for motorized forms of travel, especially recreation-related travel, and positively affect those businesses dependent upon such forms of travel surrounding the Monument. However, there would be less opportunity for visitors to engage in non-motorized activities (e.g., hiking, back packing, horseback riding) than under Alternative B that would slightly affect businesses dependent upon non-motorized forms of travel. Overall impacts would be minor, being strongest felt by the smaller, more tourist-oriented communities surrounding the Monuments.

In the Arizona Strip FO, most concentrated travel would occur within the Rural TMA, which would comprise 11 percent of the Arizona Strip FO under Alternative C, which is 34 percent more than under Alternative B. As a result, Alternative C would have a slightly more positive impact on local communities in terms of providing access to BLM lands. Alternative C would concentrate slightly less on non-motorized forms of recreation activities, as the Primitive TMA would comprise less than 1 percent of the Arizona Strip FO when compared to Alternative B. There would thus be a slightly greater impact to local economies in terms of providing a wider opportunity of travel opportunities, especially motorized forms of recreation that tend to generate more economic benefits to local communities.

Impacts from Vegetation and Fire and Fuels Management

Impacts would be the same as described under Alternative A for the Monuments and the same as Alternative B for the Arizona Strip FO.

Impacts from Fish and Wildlife

Impacts would be similar to that described under Alternative A with the exception that four additional watchable wildlife areas would be managed in Parashant, one in Vermilion, and five in the Arizona Strip FO. Such additional watchable wildlife areas would potentially attract additional visitors to the area, who would bring in a few more visitor dollars to the local economies. Impacts would be negligible in the short term, but potentially minor in the long term.

Impacts from Minerals (Arizona Strip FO only)

Impacts to gypsum mining operations south of St. George would be similar to those described under Alternative A. An additional 9,181 acres would be closed to mineral material disposals compared to Alternative A, which is minimal compared to Alternative B and thus would result in negligible economic impacts.

Impacts from Livestock Grazing

Under Alternative C, AUMs throughout the Planning Area would be reduced by 840, which is a 0.5 percent reduction compared to Alternative A. Such a reduction in AUMs would result in a loss of over \$75 thousand in total economic activity, over \$13 thousand in personal income, 1 job, and \$2,251 in indirect business taxes (see Table 4.3). Overall impacts due to the 0.5 percent decrease in livestock grazing contributions to the study area's socioeconomic resources would be negligible. Impacts to specific ranch operations would be negligible to minor.

In Parashant under Alternative C, AUMs would be reduced by 840, which is a 2.2 percent reduction compared to Alternative A. Such a reduction in AUMs would result in a loss of \$75,348 in total economic activity, \$13,389 in personal income, 1 job, and \$2,251 in indirect business taxes (see Table 4.3). Overall impacts due to the 1.8 percent decrease in livestock grazing contributions to the study area's socioeconomic resources would be negligible. Impacts to specific ranch operations would be negligible to minor.

For Vermilion and the Arizona Strip FO, impacts under Alternative C would be the same as under Alternative A due to no differences in active AUMs proposed.

Impacts from Recreation

Overall impacts from increased visitor use would be similar as described under Alternative A.

Fewer restrictions placed on camping in the Monuments compared to Alternative B by allowing camping in existing or disturbed areas could provide more opportunities for individuals to camp in the Monument, extending their stay and potentially spending more money in the area. Identifying four new SRMAs in each of the Monuments and four new ones in the Arizona Strip FO could help increase visitor use in the area and provide some minor economic benefit. Fewer restrictions on concessions, SRPs, geocaching, and recreational stock use compared to Alternative B could allow for increased visitor use, although increases would be slight and result in a negligible economic impact. Allowing motorized speed events in the Arizona Strip FO, such as the Rhino Rally, albeit spatially limited in a motorized speed event area, would continue to provide local businesses to receive economic benefits from such large-scale events. The potential to place visitor limits, supplemental rules, or restrictions based on LAC models could put a cap on visitation and thus limit recreation-driven economic growth. Impacts would be negligible in the short term, but could range from minor to moderate in the long term.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative A in the Monuments. Impacts would also be similar to Alternative A for the Arizona Strip FO, with the exception that an additional 130 more acres would be available for sale, R&PP lease/sale, and/or exchange, reducing the amount of potential economic development resulting from such actions. Due to the small amount of land, impacts would be negligible. Similar to Alternative B, which proposed 1,638 less acres for disposal, none of the lands made available under Alternative C would be restricted to exchanges only, making it easier to purchase such lands and used for residential, commercial, or light industrial development when compared to Alternative A. Overall impacts could range from minor to moderate in the communities directly affected.

Alternative D

Impacts from Travel Management

Impacts in the Monuments would be similar to that described under Alternative A due to no roads being open to motorized and mechanized cross-country vehicle travel. However, as under Alternatives B and C, most of the roads open to the public would have special mitigating measures assigned to them, which could lead to some reduced recreation opportunities. Such impacts would be less intense compared to Alternatives B and C as Alternative D proposes more open roads without restrictions. As a result, the impact to local businesses in communities near the Monuments that are compatible with motorized, and to a less extent, non-motorized activities would be negligible to minor. Ranchers and other permittees would be allowed access to their operations by means of administrative use only roads, limiting impacts to such operations

Under Alternative D in the Arizona Strip FO, 7,186 acres of BLM lands would be open to motorized and mechanized cross-country vehicle travel; only 6,383 more acres than Alternative A, and 5,705 fewer acres than Alternative C. This would provide more recreational

opportunities for OHV users and other off-road enthusiasts than under Alternative A or C. Economic impacts would be negligible. Within the Ferry Swale Sub-region, the public would have access to 1 fewer mile of road for recreating and exploring purposes compared to Alternative A, and special mitigating measures would be applied to most of these miles. This would decrease the economic benefit stemming travel-related recreation within the Ferry Swale area, although not as much as under Alternatives B and C. Overall impacts would be minor. Ranchers and other permittees would be allowed access by means of roads open to administrative use only, reducing the intensity of impacts on such users.

In Parashant, there would be fewer restrictions on motorized forms of recreation and less emphasis on non-motorized form of recreation when compared to Alternative B and C, with Primitive TMA comprising 66 percent of the Monument (23 percent less than under Alternative B). This would increase opportunities for motorized forms of travel, especially recreation-related travel, and positively affect those businesses dependent upon such forms of travel surrounding the Monument. However, there would be less opportunity for visitors to engage in non-motorized activities (e.g., hiking, back packing, and horseback riding) than under Alternative B or C that would slightly affect businesses dependent upon such forms of travel. Overall impacts would be minor, being strongest felt by the smaller, more tourist-oriented communities surrounding Parashant.

In Vermilion and the Arizona Strip FO, impacts would be similar to those described under Alternative C due to the all four TMA sizes (within a 1 percent difference).

Impacts from Vegetation and Fire and Fuels Management

Impacts would be the same as described under Alternative A for the Monuments and the same as Alternative B for the Arizona Strip FO.

Fish and Wildlife

Impacts would be the same as described under Alternative C.

Impacts from Minerals (Arizona Strip FO only)

Impacts to gypsum mining operations south of St. George would be similar to those described under Alternative A. There would be more opportunities for mineral material disposal operations as 12,358 fewer acres would be closed to such activities compared to Alternative A. Impacts would be negligible.

Impacts from Livestock Grazing

Overall impacts from reduced AUMs would be the least under Alternative D compared to all the other Alternatives, with the exception of Alternative A. Compared to Alternative A, AUMs for the entire Planning Area would be reduced by 382, or 0.2 percent. This would result in a loss of over \$34 thousand in total economic activity, slightly over \$6 thousand in personal income, the equivalent of 0.6 jobs, and slightly over \$1,000 in indirect business taxes (see Table 4.3). Overall impacts due to the 0.2 percent decrease in livestock grazing contributions to the study area's socioeconomic resources would be negligible, as would impacts to specific ranch operations.

In Parashant under Alternative D, AUMs would be reduced by 382, which is a 1 percent reduction compared to Alternative A. Such a reduction in AUMs would result in a loss of \$34,265 in total economic activity, \$10,871 in personal income, 0.6 jobs, and \$1,024 in indirect business taxes (see Table 4.3). Overall impacts due to the 1 percent decrease in livestock grazing contributions to the study area's socioeconomic resources would be negligible, as would impacts to specific ranch operations.

For Vermilion and the Arizona Strip FO, impacts under Alternative D would be the same as under Alternative A due to no differences in active AUMs proposed.

Impacts from Recreation

Overall impacts from increased visitor use would be similar as described under Alternative A. Impacts from allowing dispersed camping in existing or disturbed sites in the Monuments would have the same impacts as described under Alternative C. Impacts from SRMA allocations would be the same as described under Alternative C, with the exception that the three additional SRMAs in the Arizona Strip FO would potentially attract more visitors to the area and benefit local economies, although such impacts would be minor. The potential to place visitor limits, supplemental rules, or restrictions based on case-by-case studies could put a cap on visitation and thus limit recreation-driven economic growth. Impacts would be negligible in the short term, but could range from minor to moderate in the long term.

Actively seeking concession and vending lease proposals in the Arizona Strip FO would potentially create more opportunities to service the growing visitor populations. Allowing motorized speed events in the Arizona Strip FO on a case-by-case basis would be less restrictive than under Alternative C and thus create the conditions for potentially more such events, which would benefit the local economy.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative A for the Monuments, but the same as described under Alternative C for the Arizona Strip FO.

Alternative E: Proposed Plan

Impacts from Travel Management

Impacts in the Monuments would be similar to that described under Alternative A due to no roads being open to motorized and mechanized cross-country vehicle travel. However, the public would have access to 311 fewer miles of roads in Parashant and 69 fewer miles of roads in Vermilion for purposes of exploring and recreating compared to Alternative A and, as under Alternatives B, C, and D, most of the roads open to the public would have special mitigating measures assigned to them, which could lead to some reduced recreation opportunities. The impacts from limiting the number of visitors seeking motorized forms of recreation and access to particular destinations in the Monument for either motorized or non-motorized forms of recreation would be greater than under Alternatives A and D, but less when compared to Alternatives B and C. Overall impact to local businesses in communities near Parashant that are compatible with motorized, and to a less extent, non-motorized activities would be minor. Impacts to ranchers and other permittees would be negligible to minor.

In the Arizona Strip FO, impacts from areas open to motorized and mechanized vehicle use would be the same as those described under Alternative D. Under Alternative E, 2 fewer miles would be open to motorized travel by the public within the Ferry Swale Sub-region compared to Alternative D and 3 less compared to Alternative A, decreasing the economic benefit stemming from such activities within the Ferry Swale area. Impacts would be negligible. The same number of miles of roads would be open to motorized travel throughout the remainder of the Arizona Strip FO as under Alternative A, resulting in the similar socioeconomic impacts.

Impacts from TMA delineations in the entire Planning Area would be similar to those described under Alternative D due to similar acres delineated (within a 1 percent difference).

Impacts from Vegetation and Fire and Fuels Management

Impacts would be the same as described under Alternative A for the Monuments and the same as Alternative B for the Arizona Strip FO.

Impacts from Fish and Wildlife

Impacts would be the same as described under Alternative C.

Impacts from Minerals (Arizona Strip FO only)

In the Arizona Strip FO, impacts to gypsum mining operations south of St. George would be similar to Alternative A. An additional 71,967 acres would be closed to mineral material

disposals compared to Alternative A. This is more acres proposed closed than Alternatives C and D, but less than under Alternative B. Impacts would be from negligible to minor.

Impacts from Livestock Grazing

Under Alternative E, AUMs for the entire Planning Area would be reduced by 1,113, or 0.6 percent compared to Alternative A. Under Alternative E, there would be a loss of over \$101 thousand in total economic activity, \$18,028 thousand in personal income, the equivalent of nearly 2 jobs, and over \$3,000 in indirect business taxes (see Table 4.3). Overall impacts due to the 0.6 percent decrease in livestock grazing contributions to the study area's socioeconomic resources would be negligible, as would impacts to specific ranch operations.

In Parashant impacts would be similar to those described under Alternative C due to the same number of AUMs that would be reduced (840).

For Vermilion, impacts would be similar to those described under Alternative B due to the same number of AUMs that would be reduced (291). For the Arizona Strip FO, impacts under Alternative E would be the same as under Alternative A due to no differences in active AUMs proposed.

Impacts from Recreation

Overall impacts from increased visitor use would be similar as described under Alternative A. Impacts from allowing dispersed camping in existing or disturbed sites in the Monuments would have the same impacts as described under Alternative B. Impacts from SRMA designations would be the same as described under Alternative D. The potential to place visitor limits, supplemental rules, or restrictions based on carrying capacities supplemented by LAC models could put a cap on visitation and thus limit recreation-driven economic growth. Impacts would be negligible in the short term, but could range from minor to moderate in the long term.

In the Arizona Strip FO, impacts from dispersed camping would be the same as under Alternative A, while impacts from concession lease proposals, SRP administration, and motorized speed events would be the same as under Alternative C.

Impacts from Lands and Realty

Impacts would be the same as described under Alternative A for the Monuments, but the same as Alternative C for the Arizona Strip FO.

ENVIRONMENTAL JUSTICE

Impacts to Environmental Justice

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority and Low-Income Populations,” requires each agency to identify and address disproportionately high and adverse effects on human health or environmental effects of its activities on minority and low-income populations.

Chapter 3 established the socioeconomic study area is predominately white. The exceptions include Coconino County, Arizona; Clark County, Nevada; the community of Page, Arizona; and the Kaibab Paiute Tribe. No disproportionate adverse impacts to these areas of higher density minority populations would occur from implementation of any of the management actions, resource programs, or objectives proposed under any of the alternatives. Impacts would thus be negligible.

American Indians within the Study area have subsistence use (e.g., pinyon nut harvesting) and cultural ties to BLM and NPS lands in the Planning Area. Refer to the discussions on impacts to resources of importance to American Indians within the Cultural Resources section of this chapter for a discussion of impacts to such subsistence uses.

Chapter 3 also established that roughly half of the communities within the study area fell beneath the national poverty level for families. No disproportionate adverse impacts to low-income populations would occur from implementation of any of the management actions, resource programs, or objectives proposed under any of the alternatives. Impacts would thus be negligible.

HEALTH AND SAFETY

Impacts to Health and Safety

While 16 abandoned mines throughout the Planning Area are considered public safety hazards and/or suspected environmental concerns due to potentially containing hazardous materials, access to these mines would be controlled with warning signs and barriers, with some being reclaimed or closed subject to funding. None of the management actions would increase public exposure to the risks associated with these abandoned mines. As a result, impacts would be negligible.

Remediation of contaminated and hazardous sites is necessary for compliance with applicable federal and state rules and regulations. No hazardous or solid waste sites are known to occur on public lands within the Planning Area. Incidental dumping of hazardous materials occurs, but is rare and concentrated mostly in close proximity to towns and highways primarily within the Arizona Strip FO. Public health and safety management actions have been proposed under all

alternatives for all three planning areas that address prevention and cleanup of such sites, as well as other health and safety concerns. None of the management actions proposed by the alternatives would require the handling, storage, or release of hazardous, toxic, or unapproved solid wastes that would cause health and safety concerns. Small amounts of fuels, chemicals, or other vegetation treatment products would be used throughout the Planning Area, but amounts would be relatively small and mostly applied away from populated areas. As a result, health and safety impacts would be negligible and not analyzed any further.

CUMULATIVE IMPACTS

Cumulative impacts are those effects on the environment that result from incremental impacts of management direction contained in this Proposed Plan/FEIS when added to the effects of other past, present, and reasonably foreseeable future actions, regardless of what agency (federal, tribal, state, or local) or private entity undertakes such actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time (40 CFR 1508). Analysis focuses on the cumulative impacts of the Proposed Plan for this FEIS and other actions both within and outside of the Planning Area.

Potential cumulative impacts, projects, and actions in the Planning Area were determined by examining other plans in the region, by talking with local governments and state and federal land managers, and from information provided by the BLM and NPS staff. The area of primary concern for cumulative impacts related to this Plan is northern Mohave and Coconino counties north of the Grand Canyon in Arizona, southern Washington and Kane counties in Utah, and eastern Clark County and southeastern Lincoln counties in Nevada. Projects outside these areas were also considered if they have the potential to affect resources in the region. Cumulative impact analyses are also presented at the end of each impact topic discussion in this chapter

TIMEFRAME FOR ANALYSIS

The timeframe for this cumulative impact analysis encompasses past activities for the past one hundred years in the Planning Area. It also includes present activities and anticipated future activities that may extend 20 years into the future, which is the assumed life of the management plans.

Past Actions

Federal designations and administration: Much of the land in the region is contained within national parks, national forests, NRAs, National Monuments, wilderness areas, and tribal reservations. These national parks, Monuments, and wilderness areas are withdrawn from mineral entry. All are retained under federal or tribal administration and not available for sale or exchange. This preserves open space, and natural and cultural landscapes in the region, but it also puts developmental pressure on the private and state lands available for development, most of which would likely be developed for housing, infrastructure needs, and commercial uses.

Population/Community Growth, Homesteading: Homesteading and community development began on the Arizona Strip and in the region in the 1850s. Mt. Trumbull, Little Tank, and other homesteading areas were founded from 1916-1930s. Over much of the region, population gradually increased until the 1980s when population growth accelerated. With the last census in 2000, St. George, Utah became an urban area with more than 50,000 residents.

Tourism: With the creation of the national parks, Monuments, and NRAs in the region, the increase in tourism has steadily risen over the past 100 years, with a dramatic increase in visitation since the 1970s. Local economies have gradually shifted from a reliance on extracting resources to economies based on the services industries and tourism

Transportation/Access: Wagon roads across the Arizona Strip began to be used in the 1850s. Some followed earlier American Indian trails. Regional roads, such as the Honeymoon Trail, connected the early communities of southern Utah and northern Arizona with communities in central and southern Arizona, northern Utah, southern California, and Mexico. Construction of the Marble Canyon Bridge in 1928 provided more automobile access across the Arizona Strip. Construction of Interstate 15 through the Virgin River Gorge in the mid 1970s brought increasing traffic and visitors to this region.

Livestock Grazing: Grazing of sheep and cattle and the building of associated facilities and operations began on the Arizona Strip in the 1850s and increased dramatically during the 1880s and 1890s. Current stocking rates, however, are much lower.

Drought: Occasional periods of drought occurred and affected pastures, crops, water tables levels, presence of water sources, and vegetation. Drought also raised the potential for wildfires. Between 1998 and 2004, most of the western U.S. experienced drought, with the Arizona Strip experiencing extreme drought.

Wildland Fire: Fire management and fire history within the Planning Area have been affected by past actions that altered vegetation including logging, grazing, fire suppression efforts, and the spread of invasive vegetation. Euro-Americans began logging ponderosa pine during the 1870s at Mt. Trumbull. Logging accelerated with the creation of the Dixie National Forest in 1903 when Forest Service employees and contractors were hired to log areas and fight any fires that started at Mt. Trumbull, Mt. Logan, Mt. Dellenbaugh, and in the Parashant area. In the early 1930s, forest administration for the Mt. Trumbull/Mt. Logan unit was transferred to the Kaibab National Forest. The other Forest Service units in the Planning Area were taken out of Forest Service administration. In 1973, the Mt. Trumbull/Mt. Logan unit was transferred to BLM administration. Past fire-suppression activities have resulted in dense or over-mature stands of pinyon-juniper, interior chaparral, sagebrush, and ponderosa pine. Dense, closed stands of ponderosa pine are at high risk of stand-replacing wildland fire. Fire suppression and past livestock grazing practices have altered grasslands through increased shrub densities and loss of perennial grasses. Exotic annual grasses have increased the number and size of fires, killing

native vegetation and increasing the proliferation of exotic annual grasses. Thousands of acres of Mojave Desert shrub have been converted to steppe or grassland. The spread of tamarisk in riparian areas has dramatically increased flammable fuel loads. Between 1980 and 2003, a total of 178,804 acres were burned by wildfires in the Planning Area, which equals to an average of 85 wildland fire starts or 7,450 acres burned per year during that period.

Uranium Mining: Uranium exploration began in the 1950s on the Arizona Strip, but development and production did not occur until the opening of six uranium mines in the early 1980s. When the price of uranium fell in the late 1980s, production also fell and three of the mines were closed and reclaimed. Three mines remain on stand-by basis waiting for the price of uranium to rise.

Gypsum Mining: Commercial production of gypsum began in 1990 near Black Rock Gulch, south of St. George, Utah. Annual production in 2001 was approximately 700,000 tons. An additional gypsum mine in Cedar Pockets has also operated periodically during the past few years.

Grand Canyon Overflight Rules: Since the passage of the Overflights Act in 1987, which limited below-the-rim flights in the Grand Canyon, more private sightseeing flights north of the Grand Canyon occur over the southern portion of the Planning Area.

Present Actions

Federal Designations and Administration: The addition of two Monuments on the Arizona Strip (Parashant, and Vermilion) add to the acreage of regional land which protects open space and cultural and natural landscapes, is withdrawn from mineral entry, and remains under federal administration.

Regional Population/Community Growth: Explosive population growth in Washington County, Utah, and Clark County, Nevada is rapidly changing the socioeconomic character of the region from a rural to an urban area.

Transportation/Access: See below for discussion on reasonably foreseeable future actions.

Livestock Grazing: Approximately 3,007,560 acres are available for grazing in the Planning Area, with approximately 181,462 AUMs permitted. AMP implementation, watershed plans, and the Standards and Guides process allow for the examination of each allotment and implementation of measures to heal historical impacts to water, soil, and vegetative resources.

Drought: In 2003/2004, all permitted livestock grazing animals were removed from the Planning Area because of drought. In addition, six years of drought from 1998 to 2004 affected vegetation. Widespread mortality of pinyon-juniper and ponderosa trees is also occurring throughout the Planning Area due to this drought.

Wildland Fire: See below for discussion on reasonably foreseeable future actions.

Vegetation Treatments: See below for discussion on reasonably foreseeable future actions.

Noxious Weeds (including invasive non-native grasses): See below for discussion on reasonably foreseeable future actions.

Gypsum Mining: Gypsum mining is presently occurring at the Domtar Ridge mine near Black Rock Gulch.

Grand Canyon Overflight Rules: See below for discussion on reasonably foreseeable future actions.

Increasing demand for Non-motorized Recreation: See below for discussion on reasonably foreseeable future actions

Reasonably Foreseeable Future Actions

Federal Designations and Administration: Completion of the Parashant, Vermilion, and Arizona Strip FO Management Plans, the Kanab RMP, Grand Canyon National Park Back Country Management Plan, and associated implementation plans would involve some further road closures in the region, which would protect open space and natural and cultural resources while restricting motorized access. Withdrawals from mineral entry in National Monuments, national parks, NRAs, and wilderness areas would continue.

Regional Population/Community Growth: The explosive population growth in the region is one of the factors that could most influence the Planning Area in the long term. Washington and Clark counties, both directly adjacent to the western portion of the Planning Area, are poised to become major urban areas. St. George recently became an urban area during the last census and Mesquite is one of the fastest growing communities in the country. The Lincoln County Land Act will provide more acreage for development and more population growth in Mesquite.

Developments include the new construction of the Southern Corridor four-lane highway from Milepost 2 on Interstate 15 to the new St. George Airport, which is projected to be completed by 2011. The Southern Corridor will eventually be connected to Hurricane, Utah, and will provide access that is more direct to Zion National Park, Grand Canyon National Park, and Glen Canyon NRA. Development of the South Block Utah State Trust Lands would lead to development pressure on Arizona State Trust Lands directly south of St. George. It is reasonably foreseeable that Arizona State Trust Lands in this area of the St. George Basin could be developed during the life of this Plan. The South Block Development just north of these lands in Utah is projected to eventually have a population of 25,000. It is not inconceivable that a similar community may develop due south in Arizona once water becomes available for development. This dramatic

increase in population would affect the nature and use of public lands in the vicinity of St. George as well as increased use in the Monuments, particularly Parashant.

Similar population increases may also be expected in nearly all of the communities near the Planning Area such as the Mesquite/Beaver Dam/Littlefield area, the Kanab/Fredonia area, and in the Apple Valley/Colorado City/Hildale areas. Population in Washington County, Utah is projected to increase from 90,354 in 2000 to 251,896 by 2020. Kane County is expected to grow from 6,046 in 2000 to 8,359 in 2020. The twin cities of Colorado City, Arizona and Hildale, Utah are expected to grow from 5,229 in 2000 to 11,149 in 2020. (See Table 4.4 below and the socioeconomic section in Chapter 3 of this Plan.)

Location	1990	2000	2010	2020	2030
Coconino County, AZ	96,591	116,320	147,352	169,343	189,868
Fredonia	1,207	1,036	1,507	1,671	1,811
Page	6,598	6,809	11,128	13,057	14,841
Mohave County, AZ	93,497	155,032	194,403	236,396	270,785
Colorado City	2,426	3,334	5,500	6,626	7,598
Kane County, UT	5,169	6,046	6,618	8,359	9,783
Kanab	3,289	3,564	3,825	4,831	5,654
Washington County, UT	48,560	90,354	162,544	251,896	353,922
St. George	28,502	49,663	85,144	132,497	185,809
Clark County, NV	741,459	1,375,765	1,827,770	--	--
Mesquite	1,871	9,389	21,000 ¹	--	--

Source: All 1990 and 2000 numbers, US Census Bureau; all Arizona projections, Arizona Dept. of Economic Security, Research Administration; all UT projections, Five County Association of Governments, St. George, UT; Nevada County Projections, Department of Cultural; Mesquite projections, City of Mesquite (¹2008 estimate)

Transportation/Access: Utah regional transportation projects, including the construction of a new interchange at Milepost 2 of Interstate 15 just north of the Arizona/Utah border, would add to the cumulative impact to the Planning Area. The Southern Corridor would then be constructed east from this interchange. This would allow direct access off the River Road interchange and on to the Arizona Strip, increasing visitation and impacts to Parashant and the St. George Basin area of the Arizona Strip FO. Resulting development from this increased transportation network would result in an increase in population in the area, thus increasing impacts to resources in this area.

Livestock Grazing: Continuation of the Standards and Guides process would allow implementation of measures to continue to improve water, soil, and vegetation.

Drought: Future droughts are reasonably foreseeable in this region.

Wildland Fire: It is anticipated that over the next 20 years wildland fire would burn approximately 110,000 acres on the Planning Area, which is comparable to the acreage burned

over the last 20 years (1984-2003). The number of acres burned would continue to vary greatly from year to year. Appropriate Management Response would be used for managing wildland fires based on firefighter and public safety, fire management allocations, criteria in the Fire Management Plan, and resource objectives.

Noxious Weeds (including invasive non-native grasses): The BLM and NPS would continue to eradicate noxious weeds, implement actions to decrease their spread, and educate the public about noxious weed threats and prevention methods. Actions would be implemented to hinder the spread of invasive non-native grasses and foster healthy native and endemic species.

Uranium Mining/Exploration: The price of uranium is rising and is currently about \$20/ton. If the price continues to increase and reaches or exceeds \$25/ton, it is reasonably foreseeable that uranium mines may be re-opened in the near future, with the potential for further uranium exploration and development.

Gypsum Mining: The potential exists for additional open pit gypsum mines to be operating in the Cedar Pocket and Black Rock Gulch areas.

Land Tenure Adjustments: Future land exchanges may occur between the BLM, NPS, and the State of Arizona when the State is given authority to remove isolated parcels of state trust lands in the Monuments and wilderness areas and consolidate them for better future management. Depending on the location of state trust lands, there may be the potential to develop these lands into communities or extensions of existing communities. This could foster more development of now remote and undeveloped areas and place more pressure for use of these lands.

Lincoln County Land Act: The Lincoln County Land Act of 2000 transferred ownership of 13,500 acres of public land north and west of Mesquite, Nevada to private ownership. Development of this land would result in a considerable expansion of Mesquite. Assuming that development of all the acres would be at medium density of 7 housing units/acre and that a minimum of 2 individuals would occupy each housing unit, then an increased regional population of 189,000 people could occur in the coming years. Because it is directly adjacent to the Planning Area on the western edge of the Arizona Strip, this increased population would probably result in a dramatic increase in visitation and use of the Arizona Strip along with other public lands in the region.

Airport Expansions (St. George, Mesquite, Colorado City): Construction of the new St. George Airport in 2011 would increase air traffic, allow for larger jets and planes, and provide for more commercial and economic development. It would eventually lead to more growth and urbanization, which would translate into more use and pressure on federal lands in and surrounding the St. George Basin. The undeveloped open and scenic landscapes would become more valuable for recreation and property values. More and louder planes may affect soundscapes for approach areas near the airport. Within 40 miles of this proposed airport are the Beaver Dam, Paiute, and Cottonwood Points wildernesses, the northern one-third of Parashant,

Little Black Mountain ACEC/Public Use Site, and a portion of the Old Spanish NHT. These areas could also be impacted.

Similar to the expansion of the St. George Airport, construction of the Mesquite Airport approximately 15 miles northwest of Parashant would affect that Monument and the western portion of the Arizona Strip FO by allowing for more commercial and economic development in the area, increasing population growth, and adding more use and pressures on the federal lands. The proposed airport is within 25 miles of Beaver Dam Mountain Wilderness, 17 miles of Paiute Wilderness, 30 miles of Grand Wash Cliff Wilderness, 10 miles of a portion of the Old Spanish NHT, and 43 miles of Little Black Mountain ACEC/Public Use Site, all of which could be impacted.

Expansion of the Colorado City Airport would also allow more commercial and economic development and population growth in the area, but the use would probably be restricted to local traffic rather than the commercial traffic expected at the St. George and Mesquite airports. This proposed airport is within 3 miles of Cottonwood Points Wilderness, 40 miles of Beaver Dam Wilderness, 37 miles of Mt. Trumbull Wilderness, 30 miles of Kanab Creek Wildernesses and 29 miles of Little Black Mountain ACEC/Public Use Site, all of which could be impacted.

The cumulative effect of the construction and/or expansion of all three airports in the region would have a dramatic effect on the growth of the communities and the increased use and values of the surrounding public lands.

Lake Powell Water Pipeline ROW: A 120-125 mile pipeline to bring water from Lake Powell water to Sand Hollow Reservoir in the St. George Basin may be constructed around 2020 or near the end of the life of this Plan. The pipeline may have a capacity to deliver 80,000-acre feet per year. Current plans are for the pipeline ROW to follow existing highways and/or ROW corridors through Utah and Arizona. Construction of the pipeline and subsequent use of the water would allow further development in Utah, and thus more use of the federal lands in the area.

Retirement: As the baby boom generation reaches retirement age, OHV use, day use, recreational driving, and other forms of outdoor recreation in the Planning Area may increase. The retirement communities of Mesquite, St. George, and Kanab may experience accelerated population growth due to obtaining a higher ratio of the retirement population, which could also result in an increase in recreational use of public lands. With the increase in OHV registration over the past seven years, OHV use may be expected to increase in the entire region. Table 4.5 displays information on OHV registration growth in Utah over a six-year period.

Location	1998	2004	% Change
Kane County	306	1,167	113%
Washington County	1,654	7,876	316%

Source: Utah BLM

All of these projects, uses, and actions, when combined with each of the management alternatives, would result in cumulative impacts to various resources and resource uses in the Planning Area. Some cumulative impacts to the communities and the environment are directly related to local and regional growth. None of the alternatives would have a significant effect on regional growth and the effects of any alternative on local population growth are negligible. A summary of the probable cumulative impacts, by alternative, is presented below.

Alternative A: No Action

Under the No Action Alternative, population growth north and west of the Planning Area would continue to contribute to cumulative impacts. Effects from regional transportation projects could increase visitor use and community development, particularly in the St. George Basin and near Mesquite. Increased mining of gypsum and/or uranium could affect resources in Arizona Strip FO.

Land tenure adjustments with the Arizona State Land Department could benefit management for both federal and state land but could also encourage increasing population growth and community development, depending on where the consolidated state lands remain. The Lincoln County Land Act would result in an expansion of the community of Mesquite and increasing population and contribute to additional use of public lands. Development of the South Block near St. George would result in a new community of approximately 25,000 individuals directly north of the Arizona Strip FO. It would also result in increasing demand for and value of resources in the Arizona Strip FO and Parashant. Potential development of the block of Arizona state land south of St. George would have the same effects, as would airport expansions in the region, both of which would allow for increased population growth in the region.

Construction of the Lake Powell Pipeline would also allow for further community growth and development in the region.

Alternative B

Impacts from increased community developments and population growth mentioned under Alternative A would also apply to Alternative B. However, closing more roads to motorized traffic under Alternative B would provide more protection of open space and natural and cultural resources from increasing visitation and use of BLM and NPS lands that would result from increased population growth in the region. Effects from regional transportation projects would also be similar to Alternative A with the exception that concentration of use may occur in some areas due to the number of road closures and restrictions proposed under Alternative B.

Cumulative Impacts from land tenure adjustments and construction of the Lake Powell Pipeline would be the same as discussed under Alternative A.

Alternatives C, D, and E (Proposed Plan)

Cumulative impacts under Alternatives C, D, and E would be similar to those discussed under Alternative A.

Alternatives C, D, and E are designed to keep most of the landscape in its present condition or to return it to its natural range of variability, particularly in the Monuments and present roadless areas. Little development is expected on BLM or NPS lands within the Planning Area. Overall impacts of these alternatives are minor. Impacts to local government revenues and expenditures are also relatively minor.

MITIGATION MEASURES

Mitigation of potential impacts not already built into the alternatives is discussed below and in various sections of this document. Mitigation measures that have been developed are in the form of standard operating procedures, which apply to all alternatives and have already been assessed in discussion of impacts in this chapter. Mitigation measures can be found in Appendix 2.E (Conservation Measures for Special Status Species) and Appendix 2.N (Reclamation Stipulations). Additionally, the Standards for Rangeland Health would continue to require monitoring and application of remedies in allotments across the Planning Area to meet Land Health Standards (see Appendices 2.E and 2.H).

Monitoring would be an integral part of restoration plan development, recreation management, and adaptive management.

Most of the management direction presented in this Proposed Plan/FEIS is at the programmatic level, making it difficult to develop specific mitigation measures. NEPA analysis documents would be prepared for specific projects and mitigation would be part of the NEPA compliance process.

NPS IMPAIRMENT ANALYSIS

Archaeological and Historic Resources

Impairment of archaeological and historic resources in the NPS portion of Parashant could be expected in any case where the impacts of specific management actions are classed as *major*, pursuant to the definitions offered in the Impacts to Cultural Resources section. In these cases, the NRHP eligibility of archaeological or historic resources would be lost due to changes to one or more character-defining features coupled with diminished integrity of the resources.

Under some of the actions in Alternatives B, D, and E, major impacts on archaeological and historic resources could result from vegetation management in the Riparian, Great Basin, and Ponderosa Pine ecological zones and/or from proposed recreation, minerals, and lands and realty

decisions. In all cases where major impacts to archaeological and historic resources would be caused by particular management programs, impairment of these resources could be avoided through either avoidance or other acceptable mitigation means (e.g. data recovery) defined under Section 106 of the NHPA. In fact, the cultural resource management process specified in 36 CFR 800 would be required in cases where any Federal undertaking would have adverse effects on NRHP-eligible resources.

Resources of Importance to American Indians

Much like archaeological and historic resources, impairment of resources of importance to American Indians in the NPS portion of Parashant could be expected in any case where the impacts of specific management actions are classed as *major*, pursuant to the definitions offered in the Impacts to Cultural Resources section. In these cases, the NRHP eligibility of these sites would be lost due to changes to one or more character-defining features of the ethnographic resource or traditional use area. The action would also diminish the integrity of the resource to the extent that it no longer would be able to sustain traditional or sacred uses. Further, the action under a particular resource management plan might close off access to sacred or traditional use areas. In any case, a major impact would result in an adverse effect on the resource under 36 CFR 800.

Vegetation management practices could produce major impacts on resources of importance to American Indians under Alternatives B, C, D, and E. Under Alternative D, larger acreages proposed for vegetation treatment would create greater ground disturbance and would result in potentially major impacts on TCPs considered important to American Indians. Such impacts would be limited to the Great Basin and Ponderosa Pine ecological zones. Major impacts on resources important to American Indians resulting from the recreation management program proposed under Alternative D would be limited to specific areas within the NPS portion of Parashant.

Avoidance of American Indian sacred sites and traditional use areas is the only real means of preventing impairment of these resources. Meaningful tribal consultation may result in sufficient identification of these resources so that they could be avoided during vegetation management efforts under the Proposed Plan. Indeed, the key to avoiding impairment of resources of importance to American Indians under any of the proposed alternatives is successful and ongoing consultation with the federally recognized Tribes traditionally affiliated with the NPS portion of Parashant.

Natural Resources

Impacts to natural resources were reviewed for their potential to lead to impairment. Following the *Interim* Technical Guidance on Assessing Impacts and Impairment to Natural Resources (NPS Natural Resource Program Center, July 2003), the five alternatives were assessed at three levels: magnitude of the action, probability of a wrong decision, and consequences of the action.

Based on the information provided in the Proposed Plan/FEIS, both Alternatives C and E do not contain actions that would have major impacts on the identified resources of the NPS portion of Parashant; they would not, therefore, lead to impairment. Unavoidable adverse impacts are limited in scope and duration and would not permanently alter the character of the NPS portion of Parashant. Alternatives A, B, and D have identified actions that may lead to major impacts. If major impacts can be avoided or mitigated so that the resources would neither require an excessively long recovery (e.g., multiple generations) nor be unrecoverable altogether, then these management actions would not lead to resource impairment.

UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts are impacts that remain following the implementation of mitigation measures, or impacts for which there are no mitigation measures. Some unavoidable adverse impacts occur as a result of proposed management under one or more of the alternatives, while others are a result of public use of the BLM and NPS lands in the Planning Area. For example, restoration would be the primary cause of unavoidable adverse impacts from management actions, while public uses such as livestock grazing, mineral development, and OHV use would be the primary causes of unavoidable adverse impacts by the public. Potential unavoidable adverse impacts are difficult to quantify and could extend beyond the planning period. The following sections discuss those unavoidable adverse impacts that have been identified for the proposed management direction in the Planning Area. If an impact topic is not mentioned, no important unavoidable adverse impacts to that resource or resource use were determined.

Air Quality: Smoke generated from wildfires, managed natural fires, and prescribed burns would be unavoidable, but impacts would be short term.

Water Resources: Vegetation treatments could increase sedimentation to surface waters. This impact is expected to be short term until new vegetation stabilizes the treated areas.

Soils: Vegetation treatments could increase soil erosion. This impact is expected to be short term until new vegetation stabilizes treated areas. Authorized and unauthorized OHV use would continue to be a concern as it relates to rutting, compaction, and soil erosion.

Fish and Wildlife: Vegetation treatment, particularly managed/prescribed fire and mechanical tools and techniques, could increase sedimentation in surface waters and reduce certain types of wildlife habitat. These impacts are expected to be short term until new vegetation stabilizes treated areas, and restored areas would provide better habitat for fish and wildlife in the long term. OHV use could also disturb sensitive wildlife.

Cultural Resources: OHV use and vandalism of sites would continue to adversely impact cultural resources. Natural erosion and weathering would continue to degrade cultural resources.

Visual Resources: Wildlife and vegetation treatments, particularly managed/prescribed fire and mechanical tools and techniques, would change the visual character of those areas affected. Pinyon-juniper and ponderosa pine woodlands would experience the most noticeable changes. Treated areas may display reduced or unnoticeable visual contrast once vegetation has become reestablished, or they may show signs of human intervention for decades following treatment. Mineral exploration and development in Arizona Strip FO would cause adverse but localized impacts to visual resources. Unauthorized, cross-country, OHV travel could create linear scarring of the landscape.

Recreation: Vegetation treatments and mineral exploration and development activities would displace recreation during their active periods. Once restoration is established and development areas are reclaimed, visitors could return to these areas. Changes in the amount and patterns of OHV use could result in increased conflicts between users and unanticipated changes in recreation resource conditions.

Livestock Grazing: Vegetation treatments would modify range conditions, temporarily reducing forage, and would require restricting livestock from treated areas until vegetation becomes sufficiently established to withstand grazing. In the long term, restored areas would provide improved forage for livestock.

American Indian Traditional Uses: Native plants important to American Indians would be disturbed by vegetation treatments until restoration is completed. In the long term, vegetation restoration would provide greater sustainability and populations of native plants, such as native tobacco, or more viable and productive natural vegetation.

RELATIONSHIP BETWEEN SHORT-TERM USE AND LONG-TERM PRODUCTIVITY

Under all alternatives, the short-term disturbances of soil, vegetation, and wildlife habitats from restoration efforts throughout the Planning Area and in specific locations such as Pakoon Spring would be more than offset by the long-term productivity of restored riparian, grassland, sagebrush, pinyon/juniper, and ponderosa pine habitats. This would be particularly true under Alternative E due to its greater emphasis on long-term restoration of habitats, including the Pakoon and Cane springs areas.

Also under all alternatives, grazing across the Planning Area and mineral extraction in the Arizona Strip FO would constitute short-term uses of the environment in various locations. Short-term grazing uses would be balanced by the long-term productivity of livestock industries. The disturbance of soils, vegetation, and wildlife habitats from minerals exploration and extraction and livestock grazing, as well as from recreation use, would reduce the long-term productivity of the environment in local areas where revegetation or restoration of the natural environment could not be fully realized over time.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

The implementation of actions in accordance with the Proposed Plan (Alternative E) may result in impacts that might be considered irreversible and/or irretrievable. Irreversible commitment of resources refers to the loss of future options and applies primarily to the effects of the use of nonrenewable resources, such as minerals, cultural resources, and soils. An irretrievable commitment of resources involves the loss of production, harvest, or use of natural resources over a period of time. For example, livestock forage production may be lost in an area that is undergoing restoration or was subject to a wildfire. The production lost is irretrievable, but the action is not irreversible. Once the area is restored, forage production would increase and livestock grazing could resume.

Implementing the alternatives would result in some, small-scale disruption to resources, some of which may become long term or permanent. Potential irreversible or irretrievable losses are described below.

Loss of soils from erosion during restoration treatments or following wildfires would be irretrievable. Changes in vegetation communities from wildfire, cheatgrass invasion, or restoration treatments may not be reversible, or may be reversible after many decades. Vegetation production lost to drought, wildfire, restoration treatments, and invasive plants would be irretrievable. Changes in vegetation communities that would result from restoring or not restoring areas may be irreversible or may be reversible only after many decades. Invasion by cheatgrass and other noxious or invasive weeds may be irreversible. The resources committed to manage weeds would be irretrievable.

The effects of a high intensity wildfire or one covering large acreage would be reversible only after several decades. Resources committed for fire suppression and rehabilitation would be irretrievable.

Changes in wildlife habitat from wildfire, invasive plants, or restoration treatments may be irreversible or may be reversible only after many decades. Effects to special status animals from authorized and unauthorized activities, wildfire, invasive plants, or restoration treatments may be irreversible. Effects to special status plants from authorized and unauthorized activities, wildfire, invasive plants, or restoration treatments may be irreversible.

Authorized mitigation of cultural sites prior to disturbance and unauthorized collecting and vandalism would result in an irreversible commitment of the resource. Authorized and unauthorized collection of fossils would result in an irreversible commitment of the resource.

Opportunities to view undisturbed settings lost during restoration treatments or mineral activities would be irretrievable. Scarring of the landscape resulting from authorized and unauthorized OHV use can be irreversible.

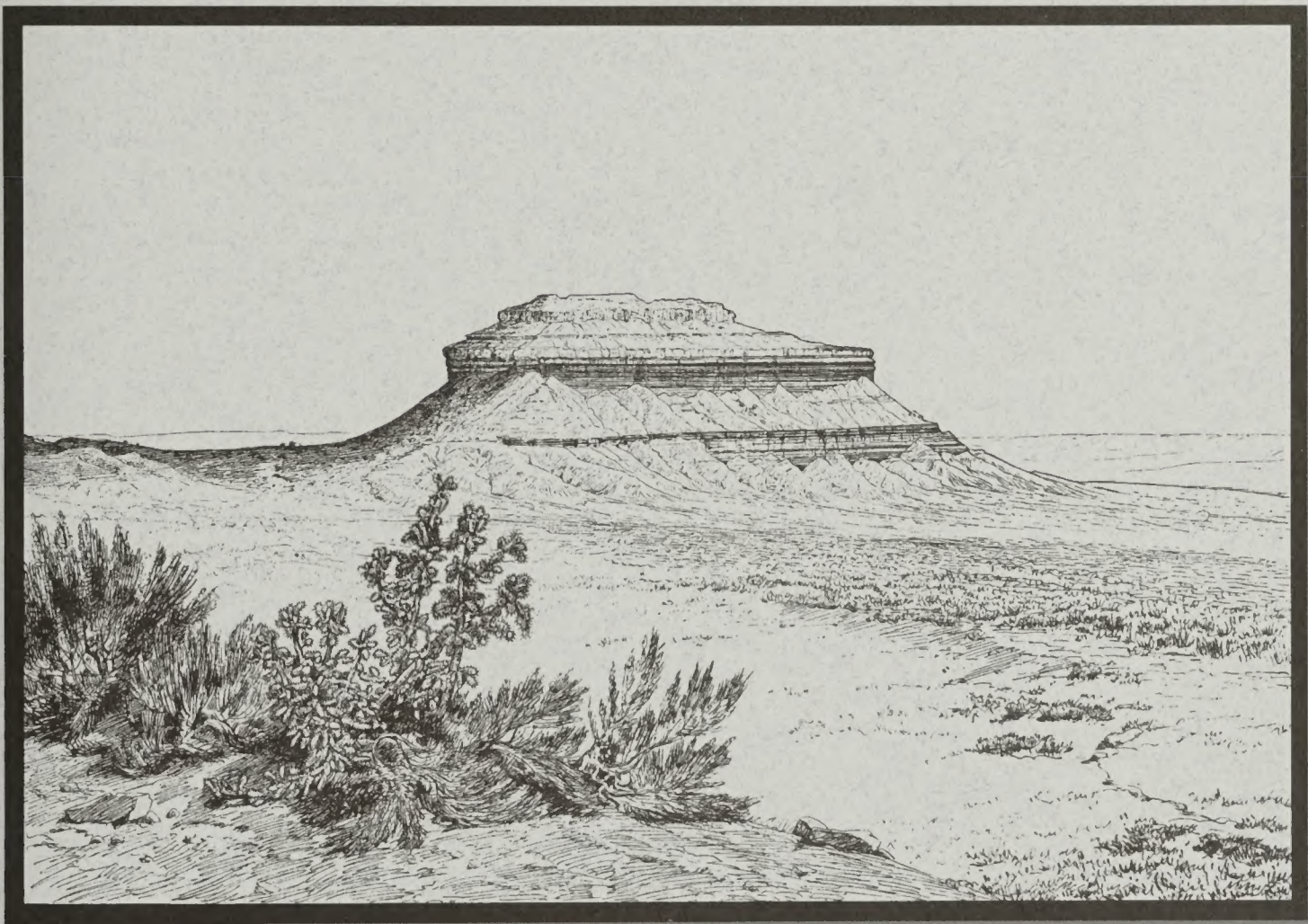
Disposal of public land to facilitate economic development of the communities and counties within the Arizona Strip FO would be irreversible. Authorized activities that make lands unsuitable for disposal would be minimal.

Invasion of rangelands by cheatgrass or other invasive plants may be irreversible. Loss of forage production during watershed restoration would be irretrievable.

Production of oil and gas would be an irreversible use of the resource. Closing an area to leasing would constitute an irretrievable commitment of potential resources. Mining of locatable minerals would be an irreversible use of the resource. Mining of salable minerals (e.g., sand and gravel) would be an irreversible use of the resource. Denial of the sale of mineral materials would constitute an irretrievable commitment of the resources.

Chapter 5

Consultation and Coordination



“The land will be here a lot longer than us.”

Evening on the Arizona Strip 2003
Lyman Hafen

CHAPTER 5: CONSULTATION AND COORDINATION

COMMUNICATION METHODS

The Planning Area is a special place to many people. In order to ensure that agencies, communities, organizations, tribes, groups, and interested individuals affected by the planning decisions were informed and had the opportunity to be involved, the planning process remained open and inclusive, as much as possible. One of the internal goals of the planning effort was to have “no surprises.” Verbal and written comments received during public scoping, alternative development, and review of the Draft Plan/Draft Environmental Impact Statement (DEIS) improved the quality of this Proposed Plan/Final Environment Impact Statement (FEIS).

The following internal guidelines were followed during the planning process:

- 1) Public comments were accepted throughout the planning effort.
- 2) All requests for information were granted, unless the information was unavailable or prohibited by policy or law.
- 3) Staff and managers met with any group or individual requesting such a meeting.
- 4) Internal processes, such as the Route Evaluation Tree (RET) ©, were open to review and assistance by the cooperating agencies; comments were invited.
- 5) Staff and managers took planning information to all meetings, such as Grazing Advisory Board, federal managers, Resource Advisory Council, and city, county, and Tribal council meetings.

The following communication methods were used to keep everyone informed on planning progress:

- Community Based Partnership and Stewardship workshops
- Formal presentations to American Indian tribal, band, and chapter councils
- EIS public scoping process
- Planning bulletins
- Bureau of Land Management (BLM) and National Park Service (NPS) web pages
- Informal presentations to interested communities, groups, agencies, and organizations
- Cooperating Agencies

COMMUNITY BASED WORKSHOPS AND COLLABORATIVE PLANNING

Before the Notice of Intent (NOI) was published in the Federal Register, community based workshops were held in and near the Planning Area with the assistance of the Partnership Series and James Kent Associates (JKA). Members of communities in and near the Planning Area were invited to participate, with over one hundred people attending. Table 5.1 provides the dates and locations of the workshops. The goals of these workshops were to:

- 1) Gather information regarding the future of the Planning Area from the local communities, agencies, groups, and individuals.
- 2) Inform about the upcoming planning effort.
- 3) Encourage the initiation of community based planning groups on the Arizona Strip.
- 4) Encourage active participation and involvement in future planning on the Arizona Strip.

Event	Dates	Location
Community-Based Partnership*	May 19-21, 2001	St. George, Utah
Community-Based Partnership*	January 31-February 1, 2002	Kaibab Village, Arizona
Community-Based Partnership*	March 2002	St. George, Utah
Community-Based Stewardship**	November 30-December 1, 2002	St. George, Utah
Community-Based Stewardship**	February 22-23, 2002	Page, Arizona
* Offered by the Partnership Series, Community-Based Partnerships and Ecosystems: Ensuring A Healthy Environment, a 3-day workshop.		
** Offered by JKA, a 12-hour workshop,		

JKA also worked with BLM and NPS staff on the Community Discovery process out of St. George, Utah, in October 2001 for the western half of the Planning Area and out of Kanab, Utah, in December 2001 for the eastern half of the Planning Area. Informal interviews were conducted with people living in communities in and adjacent to the Planning Area. The purpose of these interviews was to gather the concerns of those living in or near the Planning Area relating to public lands and its future management.

Some of the main lessons learned from these workshops are as follows:

- 1) People were concerned about public lands but did not attend public meetings unless they were already negatively impacted by land management decision(s).
- 2) The Planning Area is too large of a geographic area for a single interested community: communities focused on the western side (Parashant or Littlefield/Beaver Dam areas), the central portion (Colorado City/Fredonia/Kanab), or eastern side of the Arizona Strip District (Vermilion or Marble Canyon communities and Page/Greenehaven/Big Water).
- 3) The public perception that “the government is going to do what it wants to do anyway” kept many people away from workshops.

FORMAL PRESENTATIONS TO AMERICAN INDIAN TRIBAL, BAND, AND CHAPTER COUNCILS

Before and after the NOI was published, when the Draft Plan/DEIS was released for review and comment and in accordance with the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), and Executive Order 13007, meetings were held with American Indian tribal, band, and chapter councils and members. The goal of these meetings was to inform and solicit input for the planning process from all American Indians living on or near the Arizona Strip, or having cultural or ancestral ties to those who are presently living or once lived in the Planning Area. Table 5.2 lists those meetings.

Table 5.2: Meetings with American Indian Tribes, Bands, and Councils

Date	Tribe, Band, or Council	Meeting Location
2001		
August	Paiute Tribe of Utah General Council	Cedar City, Utah
August 30	Hopi Cultural Resources Advisory Task Team	Second Mesa, Arizona
2002		
January 9	Shivwits Band Council	Shivwits, Utah
February 20	Hopi Cultural Preservation Office	Kykotsmovi, Arizona
February 21	Kaibab Band of Southern Paiutes	Pipe Springs, Arizona
March 12	Moapa Paiute Tribe	Moapa, Nevada
April 12	Hualapai Tribal Council	Peach Springs, Arizona
May 14	Kanosh Band	Kanosh, Utah
May 15	Cedar Band	Cedar City, Utah
May 28	Koosharem Band	Cedar City, Utah
July 22	Hualapai Public Scoping	Peach Springs, Arizona.
October 17	Kaibab Band of Southern Paiutes	Pipe Springs, Arizona
December 3	Hopi Tribe	Kykotsmovi, Arizona
2003		
February 5	Las Vegas Paiute Tribe	Las Vegas, Nevada
February 5	Las Vegas Indian Center	Las Vegas, Nevada
March 19	Kaibab Band of Southern Paiutes	Pipe Springs, Arizona
September 17	Southern Paiute Tribal Chairpersons Association	Pipe Springs, Arizona
September 18	Kaibab Band of Southern Paiutes	Pipe Springs, Arizona
October 14	Moapa Paiute Tribe	Moapa, Nevada
October 14	Navajo Nation-Cameron Chapter	Cameron, Arizona
October 22	Navajo Nation-Tuba City Chapter	St. George, Utah
October 23	Kaibab Band of Southern Paiutes	Pipe Springs, Arizona
2004		
January 22	Kanosh Band of the PITU	Cedar City, Utah
February 6	Kaibab Paiute Cultural Resources	Fredonia, Arizona
February 13	PITU Cultural Resources	St. George, Utah
March 30	San Juan Southern Paiute	Hidden Springs, Arizona
September 16	Las Vegas Paiute Tribe	Las Vegas, Nevada
October 2	Kaibab Paiute Tribe Annual Meeting	Kaibab Village, Arizona
October 26	Southern Paiute Tribal Chairpersons Association	St. George, Utah
2005		
May 19	Kaibab Band of Southern Paiutes	Pipe Springs, Arizona
November 3	Shivwits Band Council	Shivwits, Utah
December 15	Hopi Cultural Resource Advisory Task Team	Kykotsmovi, Arizona
December 20	Hualapai Vice Chair and staff	Peach Springs, Arizona
2006		
January 3	Kaibab Band of Southern Paiutes	Pipe Springs, Arizona
January 4	Paiute Tribe of Utah	Cedar City, Utah
August 2	Kaibab Band of Southern Paiute	Pipe Springs, Arizona

In addition to these meetings, planning updates were regularly sent to the tribes and chapters. Calls were made to tribal contacts and chapter coordinators after the updates were mailed to see if additional information or meetings were necessary.

PLANNING BULLETINS

Planning bulletins were sent to interested individuals and groups, affected state and federal agencies, communities, and tribes to inform about planning issues and progress and to invite comment. Individuals and groups with email addresses received notice that the planning bulletin was available on the web sites. Table 5.3 lists the planning bulletins that were placed on the BLM and NPS websites and sent to those who requested copies.

Table 5.3: Arizona Strip Planning Bulletins

Date Released	Contents
May 2002	Scoping meetings locations and dates, planning worksheet
December 2002	Planning issues, results of scoping, draft of purpose, significance, mission statements and planning criteria
April 2003	RET, wilderness, ecological zones, preliminary alternative meetings locations and dates
May 2003	Preliminary alternatives, meeting locations and dates
October 2003	Results of preliminary alternative meetings, wilderness changes
August 2004	Draft Plan/DEIS availability
September 2005	Notice of Availability, Draft Plan/DEIS public meeting locations and dates
February 2007	Notice of Availability, Proposed Plan/FEIS, Protest period and process

PUBLIC SCOPING MEETINGS

The NOI initiating planning was published in the Federal Register on April 24, 2002 (See Appendix 1.F for the NOI and Appendix 1.C for more information on the public meetings and the results of public scoping).

The NPS and BLM held 11 open houses in 2002 to encourage public input and to define the planning issues for this Proposed Plan/FEIS. Based on the resultant public input, the BLM and NPS, with assistance from the cooperating agencies, developed five conceptual alternatives that were presented to the public via planning bulletins and five open houses in 2003. Information from these meetings, the cooperating agencies, interested state and federal agencies, and the public was then used to develop this Proposed Plan/FEIS.

BLM AND NPS WEB PAGES

Planning information, including schedule, meeting locations and dates, planning bulletins, scoping report, associated maps, and copies of the Draft Plan/EIS and this Proposed Plan/FEIS were posted on the BLM website (http://www.az.blm.gov/LUP/strip/strip_plan.htm) and on the NPS website (<http://www.nps.gov/para> and <http://www.nps.gov/lame/parkmgmt/docs.htm>).

COOPERATING AGENCIES

Ten cooperating agencies worked with the BLM and NPS and provided verbal and/or written comments during planning which helped to develop this Proposed Plan/FEIS. The cooperating agencies also provided planning information on various planning topics, including Geographic Information System (GIS) data layers and information. The following counties, communities, tribe, and state agencies signed Memoranda of Understanding (MOUs) to be cooperating agencies with the BLM and NPS for this planning effort:

- Coconino County, Arizona
- Mohave County, Arizona
- Kane County, Utah
- Washington County, Utah
- Fredonia, Arizona
- Colorado City, Arizona
- Kaibab Paiute Tribe
- Arizona Game and Fish Department (AGFD)
- U.S. Federal Highway Administration
- Arizona Department of Transportation (ADOT)

In addition, representatives from other interested federal and state agencies and one tribe were provided planning information and given the opportunity to comment on preliminary drafts of the Proposed Plan/FEIS. Some attended the cooperating agency meetings and provided verbal and/or written comments. These entities were as follows:

- Arizona State Land Department
- NPS: Grand Canyon National Park, Glen Canyon National Recreation Area (GCNRA), Pipe Spring National Monument
- BLM: Kanab Field Office, Grand Staircase-Escalante National Monument, St. George Field Office, Las Vegas Field Office
- Department of Defense, Air Force Regional Environmental Office, San Francisco, California
- U.S. Fish and Wildlife Service (USFWS), Arizona Ecological Services Field Office, Flagstaff and Phoenix, Arizona
- U.S. Forest Service (USFS); North Kaibab Ranger District, Kaibab National Forest

Partnership with Lake Mead National Recreation Area (NRA)

As directed by the Proclamation 7265, Lake Mead NRA co-manages Parashant with the BLM. Throughout the planning effort, NPS Parashant and Lake Mead staff provided information and worked with BLM on this Proposed Plan/FEIS.

Other Groups

Various other groups also played a vital role in the planning process. Their participation was informal and infrequent. One of these groups, the Arizona Strip Alliance, was formed in the late 1990s in response to the early discussions regarding the establishment of Monuments on the Arizona Strip. Local communities, counties, and agency representatives from southern Utah and northern Arizona united in order to plan on a regional scale. BLM and NPS employees from the Arizona Strip planning Team attended Alliance meetings and kept members up-to-date on current planning efforts.

The Arizona Wilderness Coalition, Grand Canyon Chapter of the Sierra Club, Wilderness Society, Grand Canyon Wildlands Council, and Grand Canyon Trust are other groups that played an important role in the planning process. Their major contributions included public scoping comments recommending a transportation plan, additional wilderness study areas (WSAs), and additional areas of critical environmental concern (ACECs); information on the effects of transportation systems on wildlife and cultural resources; and other planning information.

In order to address the specific needs of wildlife, fish, and special status plants and animals, a group of biologists and botanists met to develop specific guidance and direction to meet those needs for this Plan. Team participants included staff from the AGFD, USFWS, Lake Mead NRA, North Kaibab Ranger District of the USFS, and Arizona Strip BLM. On occasion, representatives from the Nature Conservancy and the Grand Canyon Wildlands Council also participated. Major contributions from this team included the development of a comprehensive resource assessment for wildlife and special status species, background information on the biology of a variety of species affected by the Plan, and a set of proactive decisions appropriate to each of the alternatives. The team also provided comments and recommendations on the transportation plan, route designations, ACECs, vegetation management, and other sections of the Plan.

Public involvement in planning for the Arizona Strip is ongoing. Hopefully, the many individuals, agencies, and organizations who helped draft this Proposed Plan/FEIS will continue to assist in protecting and using the special places in the Planning Area. There will continue to be many opportunities for public involvement. Planning is merely the beginning of fruitful collaboration and communication that translates into healthy landscapes and continuing opportunities to use and appreciate the resources in a wide variety of ways.

PUBLIC COMMENTS

This section of Chapter 5 addresses the public comments received on the Draft Plan/DEIS and the BLM and NPS' response to those comments. All written comments were reviewed and considered. Comments that presented new data or addressed the adequacy of the document, the alternatives, or the analysis are responded to in this Proposed Plan/FEIS pursuant to BLM and NPS policy. There were also many comments received which requested further clarification in the document. Although not required to be addressed, these comments requesting clarification may have resulted in additional language throughout the Proposed Plan/FEIS or have detailed

responses in this chapter. Comments expressing personal opinions or with no specific relevance to the adequacy or accuracy of the Draft Plan/DEIS were considered but not responded to directly. Similarly, comments received after data analysis was completed on May 12, 2006 were considered, but are not addressed in this document.

A total of 10,521 comment letters on the Draft Plan/DEIS were received. Nine form letters were identified from various groups and accounted for 92% of the total letter count. Analysis of these letters followed the USFS Content Analysis Process (See http://www.fs.fed.us/emc/cat/includes/CA-technical_guidance.htm). Each comment letter was assigned an identification number. Specific comments were organized into categories for specific responses by BLM and NPS specialists. Ten issues and 20 broad categories of Public Concern statements were developed, and specific comments raised under each category were given a corresponding code (i.e., GL #1). The broad categories and associated codes are listed below in order of the issues identified by the public for this Proposed Plan plus internal concerns (Restoration, NEPA).

Issue #1.	Access: Travel Management	TM 1-17	(Pages 5-63 to103)
Issue #2.	Special Designation (Designated Wilderness, Wild and Scenic Rivers)	SD 1-3,WR 1	(Pages 5-103 to109)
Issue #3.	Protection of Resources		
	ACECs	SD 4-6	(Pages 5-110 to119)
	Air, Water, Soil	WS 1-9	(Pages 5-119 to 127)
	Geology and Paleontology	GL 1	(Pages 5-127 to 128)
	Vegetation including Fire and Fuels	VM 1-8	(Pages 5-128 to 137)
	Fish and Wildlife, Special Status Species	WF 1-10 and TE 1-5	(Pages 5-138 to 166) (Pages 5-166 to 180)
	Cultural Resources	CL 1-5	(Pages 5-180 to 186)
	Visual	VR 1-3	(Pages 5-187 to 193)
	Wilderness Characteristics	WC 1-3	(Pages 5-193 to 205)
Issue #4.	Livestock Grazing	GM 1-5	(Pages 5-205 to 223)
Issue #5.	Recreation and Visitor Services	RR 1-28	(Pages 5-223 to 259)
Issue #6.	Minerals	MI 1-2	(Pages 5-259 to 262)
Issue #7.	Lands and Realty	LR 1-7	(Pages 5-262 to 270)
Issue #8.	Socioeconomic	SO 1-4	(Pages 5-270 to 274)
Issue #9.	Alternatives	AL 1-6	(Pages 5-274 to 280)
Issue #10.	General	GEN 1-19	(Pages 5-281 to 310)

All of the names (including those of agencies, organizations, or groups) and the corresponding response numbers were then entered into the Content Analysis database. The following lists display the names of the agencies, organizations, or groups and individuals who commented on the Draft Plan/DEIS and the corresponding comment codes (shown following the names). Some letters do not have a comment code because the comments did not require a response. In addition, there were 118 individuals whose names were not given or were illegible. See the CD in the back of this document for copies of all individual letters and one example of each of the nine form letters received.

AGENCIES, ORGANIZATIONS, AND GROUPS WHO COMMENTED

The following agencies, organizations, and groups commented on the Draft Plan/DEIS.

Aircraft Owners & Pilots Association TM-10
 AZ Antelope Foundation AL-5, TM-14, VR-1, WC-3, WF-5 & 10
 AZ Association Of Four-Wheel Drive Clubs TM-13, WC-3
 AZ Deer Association GEN-2, 3 & 15, RR-4, SD-4, TM-13, VR-1, WC-1, WF-10
 AZ Department Of Mines & Mineral Resources AL-5
 AZ Dept. of Transportation GEN-1, LR-3, SD-6, TE-2 & 5, TM-7, 13 & 16, VM-6, WC-1, WF-9, WR-1, WS-2
 AZ Dept. of Transportation Aeronautics RR-4, TM-10
 AZ Desert Bighorn Sheep Society AL-1, GEN-1, 2 & 5, RR-2 & 6, SD-5, TM-3, VR-2, WC-3, WF-1 & 7-8
 AZ Game And Fish Department AL-5, GEN-1-3 & 15, RR-3-4 & 6, 13, & 24-25, SD-1 & 4, TE-1 & 3, TM-1, 3-4, 6, & 13, VM-1, VR-1-2, WC-1, WF-1, 4, & 9
 AZ Pilots Association TM-10
 AZ State Land Department AL-1, MI-1, TM-3
 AZ Strip Grazing Advisory Committee GEN-13, GM-1, SO-1
 AZ Wilderness Coalition WC-3
 AZ Wildlife Outfitters GEN-2, 6 & 11, RR-3, 7 & 25, TM-3, 13 & 17, VR-1, WF-2, 4, & 8
 Bar Ten Ranch GM-5, SD-4, TM-13, VR-2
 BLM AZ Resource Advisory Council AL-5, GM-2 & 4, RR-10, TM-4, WC-2
 Blue Ribbon Coalition AL-1 & 6, GEN-1-3 & 12, RR-6, SD-4, SO-3, TM-5-7 & 13, WC-3
 Bryce Canyon National Park VR-3
 Bullhead 4 Wheelers, Inc AL-1, RR-20-22, TM-3, 7, 10, 12, 13, 14 & 15, WC-2
 Canyon Country 4X4 Club TM-3
 Capital Trail Vehicle Association GEN-3, 15 & 16, RR-2, 5 & 22, SO-3, TM-3, 7, 8, 11, & 15,
 Center For Biological Diversity AL-2 & 6, GEN-5-6 & 8, GM-2-4, RR-11, SD-4 & 6, SO-2, TE-1, TM-1-2, VM-5, WC-2, WS-3, 5 & 9
 Coconino County Board Of Supervisors GEN-3 & 10, LR-1, MI-1, RR-6 & 7, SD-4-6, TM-1 & 6, VR-2 & 3, WC-2
 Ecological Restoration Institute GEN-13 & 15, VM-2 & 5
 Five County Association Of Governments GEN-1 & 9, GM-1 & 3, RR-6 & 24, SD-1, SO-1, TM-14-15, VM-1, WC-3, WS-2
 Grand Canyon National Park AL-5, CL-1 & 3, GEN-1-3, 5, 9-10, 11, & 15, GM-1-2, MI-1, RR-4, SD-1, 4 & 6, SO-1, TE-1,4, 5, TM-1, 4, 7, 10, 13, VM-1, 3, 5-8, WF-1, 2, 7-8, & 10, WS-1
 Grand Canyon Trust CL-1, 3 & 4, GEN-3, 6, 7 & 9, GL-1, GM-1-4, LR-2, 4-5, RR-3, 6-8, 11, 20, 24 & 28, SD-6, TM-1, VM-3, 6 & 8, VR-1, WC-1-2, WF-2 & 9, WS-5 & 7
 Hopi Cultural Preservation Office AL-2, CL-2, GEN-13
 Kaibab Band Of Paiute Indians AL-2 & 6, GEN-8, GM-1, MI-1, RR-1, SD-4
 Kaibab National Forest GM-1 & 4, TM-8, VM-3, WR-1
 Kane County Commission GEN-7 & 16, GM-3, RR-2, 6 & 14, SD-4, TE-2, TM-3 & 7, WC-3
 Kane County Commissioner TE-2
 Littlefield-HurricaneValley Natural Resource Cons AL-5
 Maricopa Audubon Society AL-6, GEN-8 & 11, GM-3, MI-1, RR-1, TM-1, 2 & 7, VM-2 & 5, WC-2
 Mohave County Board Of Supervisors GEN-2, 3 & 15, RR-3, TM-3, 6 & 10, VM-1, VR-1, WC-1
 Mohave Sportsman Club GEN-2-3 & 15, RR-20 & 27, TM-3, 6, 10 & 13, VM-1, VR-1, WC-1
 Glen Canyon NRA CL-2, GEN-1, 3 & 12, GM-1 & 4, LR-7, MI-2, RR-11, TM-7 & 13, VM-1, WF-1 & 8
 National Public Lands Grazing Campaign GM-4
 National Trust For Historic Preservation AL-6, CL-3, GEN-7, 12 & 17, TM-4-5
 Northern AZ Chapter Safari Club Intl AL-5, GEN-1, 3 & 13, RR-23 & 25, SD-1, TM-8 & 13, VM-5, VR-2, WF-4, 5 & 8-10
 Partners In Conservation CL-5, RR-10 & 17, SD-3, 4 & 6, TM-3, 5 & 8
 Phoenix Zoo GEN-8, TM-2
 Pipe Spring National Monument CL-5, GEN-15, RR-26
 Public Lands Foundation AL-5, TM-2, TM-3
 Quadstate County Government Coalition GEN-1 & 8, GM-2 & 4, MI-2, SD-5, TE-1, TM-7, WF-9
 Red Rock Audubon Society AL-2, GEN-4 & 18, MI-1, TM-14, VM-8
 Sierra Club AL-6, GEN-8 & 11, RR-1, TM-1 & 2, WC-2
 Southern Nevada Water Authority WF-4
 Town Of Fredonia GM-3, SO-2, TM-3, WS-6
 US Environmental Protection Agency GEN-1 & 10, LR-1, SD-5 & 6, TM-1 & 15, WC-2
 US Fish And Wildlife Service AL-2, GM-1 & 3, LR-2-4 & 6, MI-1, RR-3, 5 & 11, SD-4-6, TE-1-3, 4 & 5, TM-1, VM-1, 4, 5, 7 & 8, WF-1, 4, 8-10, WS-2-6

USDA State Director GEN-13, WF-1 & 8
 Utah Back Country Pilots Association RR-3 & 5, TM-10
 UT State Public Lands Policy Coordination WC-3
 UT State University Extension GEN-2, GM-2 & 5, RR-2, SD-5, SO-2, TM-15, VM-4
 Walapai 4 Wheelers, Inc AL-1, GEN-2, TM-3, 10 & 13, WC-3
 Washington County GEN-1 & 9, GM-1 & 3, RR-6 & 24, SD-1, SO-1, TM-1, 7 & 15, WC-3, WS-2
 Washington County Water Conservancy District LR-5, WR-1
 Wilderness Society AL-2 & 6, CL-3, GEN-3-4, 6-8, 10, 14 & 19, GM-3, LR-1, 3 & 6, MI-1 & 2, RR-5, SD-4-6, TE-1 & 4, TM-1, 4, 6, 7 & 15, VM-1, 4 & 5, VR-1, WC-1 & 3, WF-1, 3-7, 10, WR-1, WS-5 & 9
 Yuma Valley Rod & Gun Club, Inc GEN-15, TM-3, WC-1 & 2

INDIVIDUALS WHO COMMENTED

The following individuals commented on the Draft Plan/DEIS. Those individuals requesting privacy or whose names were not legible are not listed below but their letters were also reviewed and considered during the comment analysis process.

Aaron, Frank AL6, GEN8, TM2, WC2
 Abashian, Tamara AL6, GEN8, TM2, WC2
 Abate, Alessandro AL6, GEN8, TM2, WC2
 Abbott, Barbara AL6, GEN8, TM2, WC2
 Abbott, Heather AL6, GEN8, TM2, WC2
 Abbott, Marie AL6, GEN8, TM2, WC2
 Abel, Judith AL6, GEN8, TM2, WC2
 Abell, Elaine AL2 & 6, GEN8, TM1-2, WC2
 Abrahamson, Carl AL6, GEN8, TM2, WC2
 Abrams, Christopher AL6, GEN8, TM2, WC2
 Abrams, Robert AL6, GEN8, TM2, WC2
 Acevedo, Nk AL2 & 6, GEN8, TM1-2, WC2
 Acharbeneau, Abigail AL6, GEN8, TM2, WC2
 Ackerman, Beverly AL6, GEN8, TM2, WC2
 Ackerman, D AL2, TM1
 Ackerman, Frank AL6, GEN8, TM2, WC2
 Ackerman, J AL6, GEN8, TM2, WC2
 Acor, John AL6, GEN8, TM2, WC2
 Acosta, Yvan AL6, GEN8, TM2, WC2
 Acuff, Carolyn AL6, GEN8, TM2, WC2
 Adame, Leonard AL6, GEN8, TM2, WC2
 Adams, Ann AL6, GEN8, TM2, WC2
 Adams, Betsy AL6, GEN8, TM2, WC2
 Adams, Bg AL6, GEN8, TM2, WC2
 Adams, Colby TM3
 Adams, Cynthia AL6, GEN8, TM2, WC2
 Adams, Dave RR20, RR27, TM3
 Adams, David W AL1, GEN5&18, SO1, TM7
 Adams, Dolores AL6, GEN8, TM2, WC2
 Adams, Eileen AL6, GEN8, TM2, WC2
 Adams, Elizabeth GM4
 Adams, Evelyn AL6, GEN8, TM2, WC2
 Adams, Isabel AL6, GEN8, TM2, WC2
 Adams, J Stephen AL6, GEN8, TM2, WC2
 Adams, Karrie AL1, GEN5 & 18, SO1, TM7
 Adams, Kirk AL6, GEN8, TM2, WC2
 Adams, Margaret AL6, GEN8, TM2, WC2
 Adams, Noreen AL6, GEN8, TM2, WC2
 Adams, Roger AL6, GEN8, TM2, WC2
 Adams, Vicki AL6, GEN8, TM2, WC2
 Adams, Wayne AL6, GEN8, TM2, WC2
 Adamski, Connie AL6, GEN8, TM2, WC2
 Adamski, Thomas AL6, GEN8, TM2, WC2
 Adelman, Charlotte AL2, TM1
 Adelman, Christine AL6, GEN8, TM2, WC2
 Aderhold, Steven AL6, GEN8, TM2, WC2
 Adjan-Vallen, Terry AL6, GEN8, TM2, WC2
 Adkins, David AL6, GEN8, TM2, WC2
 Adkins, Elizabeth AL6, GEN8, TM2, WC2
 Adkisson, Tom AL6, GEN8, TM2, WC2
 Adler, Ellen AL6, GEN8, TM2, WC2
 Adrian, Lee AL6, GEN8, TM2, WC2
 Aegerter, Bob AL6, GEN8, TM2, WC2
 Affleck, Carrie AL6, GEN8, TM2, WC2
 Affolter, Angie AL6, GEN8, TM2, WC2
 Aguado, Barbara AL6, GEN8, TM2, WC2
 Aguilar, Jared TM3
 Aguilar, Michelle AL2, TM1
 Aguilera, Maathew AL6, GEN8, TM2, WC2
 Aguilera, Rik AL6, GEN8, TM2, WC2
 Aguirre, Gloria AL6, GEN8, TM2, WC2
 Ahumada, Leo AL6, GEN8, TM2, WC2
 Aiken, Robert AL1, GEN13&16, RR27, TM3
 Ainge, Arron AL1, GEN5 & 18, SO1, TM7
 Ainsley, Brian AL6, GEN8, TM2, WC2
 Ainsworth, Jeremy TM10
 Airhart, Derrick TM10
 Akamine, Francis AL6, GEN8, TM2, WC2
 Akel, Mary Jane AL2, TM1
 Alber, Chad AL6, GEN8, TM2, WC2
 Albers, Carla AL6, GEN8, TM2, WC2
 Albert, Shan AL6, GEN8, TM2, WC2
 Alberti, Ken AL6, GEN8, TM2, WC2
 Albertson, Russell N AL6, GEN8, TM2, WC2
 Albrecht, Mike TM3
 Albrecht, Paul AL6, GEN8, TM2, WC2
 Alcantar, A AL6, GEN8, TM2, WC2
 Alcorn, Margaret AL6, GEN8, TM2, WC2
 Alda, Michael AL6, GEN8, TM2, WC2
 Aldea, June AL6, GEN8, TM2, WC2
 Alderman, Benjamin AL1, GEN13&16, RR27, TM3
 Alderman, Luann AL1, GEN13&16, RR27, TM3
 Alderson, George AL6, GEN11, RR1, TM1-2, WC2
 Aldridge, Doug AL1, GEN13 & 16, RR27, TM3
 Aldridge, Heather AL1, GEN13&16, RR27, TM3
 Aldridge, Lorene AL1, GEN13&16, RR27, TM3
 Aleman, Debbie AL6, GEN8, TM2, WC2
 Alex, Deann AL6, GEN8, TM2, WC2
 Alex, Sheela AL6, GEN8, TM2, WC2
 Alexander, Gregg AL6, GEN8, TM2, WC2
 Alexander, Jennifer AL6, GEN8, TM2, WC2
 Alexander, Jonathon AL2&6, GEN8, TM1-2, WC2
 Alexander, Robert GM2, RR1
 Algerio, Joe & Martha AL6, GEN8, TM2, WC2
 Alguacil, Oscar R. AL6, GEN8, TM2, WC2
 Alink, AL6, GEN8, TM2, WC2
 Allard, B AL6, GEN8, TM2, WC2
 Allard, Stephen AL2, TM1
 Alldredge, Verl AL1, GEN5&18, SO1, TM7
 Allen, Arden AL1, GEN13 & 16, RR27, TM3
 Allen, Barbara AL6, GEN8, TM2, WC2
 Allen, Carol AL6, GEN8, TM2, WC2
 Allen, Chuck AL1, GEN13&16, RR27, TM3
 Allen, Cynthia AL6, GEN8, TM2, WC2
 Allen, Dave AL1, GEN13&16, RR27, TM3
 Allen, Jill AL2, TM1
 Allen, Joseph AL6, GEN8, TM2, WC2
 Allen, Lynette AL6, GEN8, TM2, WC2
 Allen, Melody AL6, GEN8, TM2, WC2
 Allen, Michael AL2&6, GEN8, TM1&2, WC2
 Allen, Robert AL6, GEN8, TM2, WC2
 Allenson, Sandy AL6, GEN8, TM2, WC2
 Alley, John AL6, GEN8, TM2, WC2
 Allison, Ken AL6, GEN8, TM2, WC2
 Allred, Frances AL6, GEN8, TM2, WC2
 Almand, Sandra AL6, GEN8, TM2, WC2
 Alsaeed, Aesha L. AL6, GEN8, TM2, WC2
 Altenau, Edward AL6, GEN8, TM2, WC2
 Alteneder, Ben TM3
 Althiser, Kenneth AL6, GEN8, TM2, WC2
 Althoff, Eric AL2 & 6, GEN8, TM1-2, WC2
 Altman, Barbara AL6, GEN8, TM2, WC2
 Alvarado, Greta AL6, GEN8, TM2, WC2

Alvarez, Ashley AL6, GEN8, TM2, WC2
 Alvarez, Charles AL6, GEN8, TM2, WC2
 Alvarez, Vivian AL6, GEN8, TM2, WC2
 Ambrose, Kenneth AL6, GEN8, TM2, WC2
 Amell, June Ann AL6, GEN8, TM2, WC2
 Ames, Kay AL2, TM1
 Amiotte, Lowell AL6, GEN8, TM2, WC2
 Amir, Berj AL6, GEN8, TM2, WC2
 Ammons, Virginia AL6, GEN8, TM2, WC2
 Amodeo, Jim AL6, GEN8, TM2, WC2
 Amos, Barbara AL6, GEN8, TM2, WC2
 Andelin, Clark AL6, GEN8, TM1-2, WC2
 Anders, Birte AL2, TM1
 Anders, Carolyn AL6, GEN8, TM2, WC2
 Anders, Cindy AL6, GEN8, TM2, WC2
 Andersen, James AL6, GEN8, TM2, WC2
 Anderson, Aaron AL1, GEN5,18, SO1, TM7
 Anderson, Alteacha AL1, GEN13&16, RR27, TM3
 Anderson, Audrey J. AL6, GEN8, TM2, WC2
 Anderson, Bradley AL6, GEN8, TM2, WC2
 Anderson, Casey AL1, GEN5&18, SO1, TM7
 Anderson, Chris AL6, GEN8, TM2, WC2
 Anderson, Connie AL2, TM1
 Anderson, Corina AL2&6, GEN8&11, RR1, TM1-2, WC2
 Anderson, David AL6, GEN8, TM2, WC2
 Anderson, Debra AL6, GEN8, TM2, WC2
 Anderson, Dee AL6, GEN8, TM2, WC2
 Anderson, Duran TM3
 Anderson, Eileen AL6, GEN8, TM2, WC2
 Anderson, Elaine AL6, GEN8, TM2, WC2
 Anderson, Gary AL1, GEN13&16, RR27, TM3
 Anderson, Jalatha AL1, GEN13&16, RR27, TM3
 Anderson, Jason AL6, GEN8, TM2, WC2
 Anderson, Jim AL6, GEN8, TM2, WC2
 Anderson, John AL6, GEN8, TM2, WC2
 Anderson, Julie AL6, GEN8, TM2, WC2
 Anderson, Kathie AL6, GEN8, TM2, WC2
 Anderson, Laura AL6, GEN8, TM2, WC2
 Anderson, Lori AL6, GEN8, TM2, WC2
 Anderson, Marey AL1, GEN5&18, SO1, TM7
 Anderson, Marketa AL6, GEN8, TM2, WC2
 Anderson, Martha AL6, GEN8, TM2, WC2
 Anderson, Mary AL6, GEN8, TM2, WC2
 Anderson, Meta Joan AL6, GEN8, TM2, WC2
 Anderson, Michele AL6, GEN8, TM2, WC2
 Anderson, Nolyne AL1, GEN13&16, RR27, TM3
 Anderson, Peter AL6, GEN8, TM2, WC2
 Anderson, Robert AL6, GEN8, TM2, WC2
 Anderson, Ryan AL6, GEN8, TM2, WC2
 Anderson, Samuel AL6, GEN8, TM2, WC2
 Anderson, Stephanie AL6, GEN8, TM2, WC2
 Anderson, Victor AL6, GEN8, TM2, WC2
 Anderson, William AL2, TM1
 Andersson, Laura AL6, GEN8, TM2, WC2
 Andes, John AL6, GEN8, TM2, WC2
 Andes, Rob AL2, TM1, TM10
 Andrade, Paul AL6, GEN8, TM2, WC2
 Andre, Brian AL1, GEN13 & 16, RR27, TM3
 Andre, Elizabeth AL6, GEN8, TM2, WC2
 Andre, Jay AL1, GEN13 & 16, RR27, TM3
 Andre, Marcy AL1, GEN13&16, RR27, TM3
 Andrews, Ernest AL6, GEN8, TM2, WC2
 Andrews, Greig AL6, GEN8, TM2, WC2
 Andrews, Leda AL6, GEN8, TM2, WC2
 Andrews, Michael AL6, GEN8, TM2, WC2
 Andrews, Tom AL2 & 6, GEN8, TM1-2, WC2
 Andromidas, Jorge AL6, GEN8, TM2, WC2
 Anello, Sheila AL6, GEN8, TM2, WC2
 Anfinson, Antoinette AL6, GEN8, TM2, WC2
 Angel, Florelle AL6, GEN8, TM2, WC2
 Angell, Donald AL6, GEN8, TM2, WC2
 Anger, Robert AL2, TM1
 Anglin, Nancy AL6, GEN8, TM2, WC2
 Angus, Teddy TM11
 Annecone, John AL6, GEN8, TM2, WC2
 Annon, Nika AL6, GEN8, TM2, WC2
 Ansley, Celia AL6, GEN8, TM2, WC2
 Ap, Ernie TM10
 Apfelbaum, Ronald AL1, GEN13&16, RR27, TM3&10
 Apkarian, Jennifer AL6, GEN8, TM2, WC2
 Appich, Thomas AL6, GEN8, TM2, WC2
 Apple, Ronald AL6, GEN8, TM2, WC2
 Appleman, John W AL6, GEN8, TM2, WC2
 Aquino, Hilary AL6, GEN8, TM2, WC2
 Aran, Devaraj AL6, GEN8, TM2, WC2
 Arana, Barb AL6, GEN8, TM1&2, WC2
 Arbar, Eric AL6, GEN8, TM2, WC2
 Arbuckle, Jamie AL6, GEN8, TM2, WC2
 Arehambault, Jesse AL6, GEN8, TM2, WC2
 Archambault, Nicholas AL6, GEN8, TM2, WC2
 Archdeacon, Joanne AL6, GEN8, TM2, WC2
 Archey, Sheri AL6, GEN8, TM2, WC2
 Arehibald, Mary E AL6, GEN8, TM2, WC2
 Archuleta, Patricia AL6, GEN8, TM2, WC2
 Arday, Susan L AL6, GEN8, TM2, WC2
 Arden, Jo AL6, GEN8, TM2, WC2
 Ardinger, Nick AL6, GEN8, TM2, WC2
 Arduser, Dustin AL6, GEN8, TM2, WC2
 Arena, Eileen AL6, GEN8, TM2, WC2
 Arikat, Amin AL2, TM1
 Arlen, Barbara AL6, GEN8, TM2, WC2
 Armitage, Kevin AL6, GEN8, TM2, WC2
 Armm, Edward AL6, GEN8, TM2, WC2
 Armour, Peggy AL6, GEN8, TM2, WC2
 Armstong, John AL6, GEN8, TM2, WC2
 Armstrong, Aliee AL6, GEN8, TM2, WC2
 Armstrong, Marilee AL6, GEN8, TM2, WC2
 Arnold, Alan TM10
 Arnold, Helen AL6, GEN8, TM2, WC2
 Arnold, Jean M AL6, GEN8, TM2, WC2
 Arnold, John AL6, GEN8, TM2, WC2
 Arnold, Kathleen AL6, GEN8, TM2, WC2
 Arnold, Mark AL6, GEN8, TM2, WC2
 Arnold, Sherry AL6, GEN8, TM2, WC2
 Arnold, Tony AL6, GEN8, TM2, WC2
 Aronson, Sylvia AL6, GEN8, TM2, WC2
 Arp-Adams, Heidi AL6, GEN8, TM2, WC2
 Arrigo, James AL6, GEN8, TM2, WC2
 Arrington, Ardith AL6, GEN8, TM2, WC2
 Arscott, Stacey AL6, GEN8, TM2, WC2
 Arsenaault, Paula AL6, GEN8, TM2, WC2
 Arteago, Ms AL1, GEN13 & 16, RR27, TM3
 Artin, Thomas AL6, GEN8, TM2, WC2
 Artley, Richard AL2, AL6
 Asakawa, Linda AL6, GEN8, TM2, WC2
 Asbury, Craig Lee AL6, GEN8, TM2, WC2
 Ashment, Shawna AL6, GEN8, TM2, WC2
 Ashpole, Kristine AL6, GEN8, TM2, WC2
 Ashton, Ann AL2, TM1
 Ashton, Patrieia AL6, GEN8, TM2, WC2
 Ashton, Susan AL6, GEN8, TM2, WC2
 Ashurst, Kevin TM10
 Aslam, Nayeem AL2 & 6, GEN8, TM1-2, WC2
 Asseff, Sam AL6, GEN8, TM2, WC2
 Asselt, Karl Van AL6, GEN8, TM2, WC2
 Aston, Nicole AL1, GEN13&16, RR27, TM3
 Athan, Heather AL6, GEN8, TM2, WC2
 Athlerley, Norm AL1, GEN13&16, RR27, TM3
 Athey, Roger AL6, GEN8, TM2, WC2
 Atkin, D AL1, SO1
 Atkin, Doyle AL1, GEN5&18, TM7
 Atkin, Joy CL1, GEN1-2&5, GM1, SD4&6, TM6-7, VM5, 6&8, WC3, WF1-2&8
 Atkins, William W AL6, GEN8, TM2, WC2
 Atkinson, Cheryl AL6, GEN8, TM2, WC2
 Atkinson, Martha AL6, GEN8, TM2, WC2
 Ator, Silvia AL2, AL6, GEN8, TM1-2, WC2
 Atrasz, Raehelle AL6, GEN8, TM2, WC2
 Attanasio, Mary AL6, GEN8, TM2, WC2
 Atwood, April AL6, GEN8, TM2, WC2
 Atwood, Beverly AL6, GEN8, TM2, WC2
 Aubuchon, Patrick AL6, GEN8, TM2, WC2
 Auchterlonie, Michelle AL6, GEN8, TM2, WC2
 Audet, Rebecca AL6, GEN8, TM2, WC2
 Auerett, Keith AL1, GEN5 & 18, SO1, TM7
 Aune, Elisse AL6, GEN8, TM2, WC2
 Aurelio, Ann I AL6, GEN8, TM2, WC2
 Austin, Carole AL6, GEN8, TM2, WC2
 Austin, Emily AL6, GEN8, TM2, WC2
 Austin, Peter AL2, TM1
 Autrey-Schell, Yvonne AL6, GEN8, TM2, WC2
 Avarese, Katharine AL6, GEN8, TM2, WC2
 Aversa, Amy AL6, GEN8, TM2, WC2
 Avery, Thomas AL6, GEN8, TM2, WC2
 Avila, Elizabeth AL6, GEN8, TM2, WC2
 Avila, Jane AL6, GEN8, TM2, WC2
 Awbrey, John AL6, GEN8, TM2, WC2
 Awsiekiewicz, Eileen AL2, TM1
 Axtell, Marilyn Joy AL6, GEN8, TM2, WC2
 Ayala, Gabrielle AL2, TM1
 Aydelott, Steve AL6, GEN8, TM2, WC2
 Ayer, Jude AL6, GEN8, TM2, WC2

Ayers, Joseph AL6, GEN8, TM2, WC2
 Ayliffe, Ina AL6, GEN8, TM2, WC2
 Aylor, Anne AL6, GEN8, TM2, WC2
 Ayres, Janet AL2, TM1
 Azar, John AL1, GEN13,&16, RR27, TM3
 Azzarello, Joe AL6, GEN8, TM2, WC2
 B, Anne AL6, GEN8, TM2, WC2
 B, Melissa AL6, GEN8, TM2, WC2
 B, Robert AL1, GEN13 & 16, RR27, TM3
 Babbs, Nancy AL6, GEN8, TM2, WC2
 Babiak, Katherine AL6, GEN8, TM2, WC2
 Babor, Barbara AL6, GEN8, TM2, WC2
 Babst, Christina AL2 & 6, GEN8, TM1-2, WC2
 Baea, Ernie AL1, GEN13&16, RR27, TM3
 Baea, Frank AL1, GEN13&16, RR27, TM3
 Baea, Jeffrey AL6, GEN8, TM2, WC2
 Bacallado, Elisabeth AL6, GEN8, TM2, WC2
 Baeh, Linda AL6, GEN8, TM2, WC2
 Bachman, Fritz AL6, GEN8, TM2, WC2
 Bachrach, Miryam AL6, GEN8, TM2, WC2
 Bacidore, Tracey AL6, GEN8, TM2, WC2
 Baeker, Shirley AL6, GEN8, TM2, WC2
 Backner, Amy AL6, GEN8, TM2, WC2
 Backos, Steven AL1, GEN5&18, SO1, TM7
 Backstrom, Philip AL6, GEN8, TM2, WC2
 Bacom, Barbara AL6, GEN8, TM2, WC2
 Bade, Daniel AL6, GEN8, TM2, WC2
 Badelt, Angela AL6, GEN8, TM2, WC2
 Bader, Ronald S AL6, GEN8, TM2, WC2
 Badham, Naney AL6, GEN8, TM2, WC2
 Baechle, Mary AL6, GEN8, TM2, WC2
 Baele, Frank AL6, GEN8, TM2, WC2
 Baetz, Jacquelyn AL6, GEN8, TM2, WC2
 Bafik-Vehslage, Michelle AL2, TM1
 Bagatta, Joanna AL6, GEN8, TM2, WC2
 Bagley, L AL6, GEN8, TM2, WC2
 Bagley-Murray, Janne AL6, GEN8, TM2, WC2
 Bahleda, Melissa AL6, GEN8, TM2, WC2
 Bahm, Matt AL6, GEN8, TM2, WC2
 Bail, Christopher AL6, GEN8, TM2, WC2
 Bail, Joseph AL6, GEN8, TM2, WC2
 Bailey, Bonnie AL6, GEN8, TM2, WC2
 Bailey, Charmaine AL6, GEN8, TM2, WC2
 Bailey, Dorothy AL6, GEN8, TM2, WC2
 Bailey, Helen AL6, GEN8, TM2, WC2
 Bailey, Kim AL6, GEN8, TM2, WC2
 Bailey, Marcia AL6, GEN8, TM2, WC2
 Bailey, Tina AL6, GEN8, TM2, WC2
 Bailey, William AL6, GEN8, TM2, WC2
 Bailey-Prue, Susan AL6, GEN8, TM2, WC2
 Bain, Kat AL6, GEN8, TM2, WC2
 Bair, Gerald AL6, GEN8, TM2, WC2
 Bair, Patriek Esq AL6, GEN8, TM2, WC2
 Baird, Amy AL6, GEN8, TM2, WC2
 Baird, Tyler AL1, GEN13&16, RR27, TM3
 Baird, Valerie AL6, GEN8, TM2, WC2
 Baird, Zachary AL6, GEN8, TM2, WC2
 Baker, Beryl WC2
 Baker, Deborah AL6, GEN8, TM2, WC2
 Baker, Dorothy AL6, GEN8, TM2, WC2
 Baker, Elaine AL6, GEN8, TM2, WC2
 Baker, Henrietta AL6, GEN8, TM2, WC2
 Baker, Marilyn AL6, GEN8, TM2, WC2
 Baker, Patti AL6, GEN8, TM2, WC2
 Baker, Phyllis J AL6, GEN8, TM2, WC2
 Baker, Rallph TM10
 Baker, Robert AL2, TM1
 Baker, Seott AL6, GEN8, TM2, WC2
 Baker, Steve AL6, GEN8, TM2, WC2
 Bakken, Howard AL6, GEN8, TM2, WC2
 Bakunas, Michael AL6, GEN8, TM2, WC2
 Balach, Lisa AL6, GEN8, TM2, WC2
 Balah, Nikolai AL6, GEN8, TM2, WC2
 Balatsos, Anna AL6, GEN8, TM2, WC2
 Balboa, Alex AL6, GEN8, TM2, WC2
 Baldwin, Darrell AL6, GEN8, TM2, WC2
 Baldwin, Laura AL6, GEN8, TM2, WC2
 Baldwin, Patricia AL6, GEN8, TM2, WC2
 Baldy, CL4, RR4
 Baldyga, Helena AL6, GEN8, TM2, WC2
 Balestrieri, Doreen AL6, GEN8, TM2, WC2
 Ball, Elizabeth AL6, GEN8, TM2, WC2
 Ball, Jane AL6, GEN8, TM2, WC2
 Ball, Jeff AL6, GEN8, TM2, WC2
 Ball, Michael AL6, GEN8, TM2, WC2
 Ballard, Kade GM2, SD5
 Ballard, Keith AL1, GEN13&16, RR27, TM3
 Ballenger, Robert AL6, GEN8, TM2, WC2
 Ballentine, Wanda AL6, GEN8, TM2, WC2
 Ballot, Nancy AL6, GEN6&8, TM2, WC2
 Ballou, Carol AL6, GEN8, TM2, WC2
 Balmes, Virginia AL6, GEN8, TM2, WC2
 Balsai, Michael AL6, GEN8, TM2, WC2
 Baltz, Donald AL6, GEN8, TM2, WC2
 Bambara, V AL6, GEN8, TM2, WC2
 Band, David AL6, GEN8, TM2, WC2
 Bandita, Gypsy AL6, GEN8, TM2, WC2
 Bandy, Paula AL6, GEN8, TM2, WC2
 Bang, Devoree TM10, TM10
 Banks, Bonnie AL6, GEN8, TM2, WC2
 Banks, Jerry AL6, GEN8, TM2, WC2
 Banks, Mark TM10, TM10
 Banks, Shona AL6, GEN8, TM2, WC2
 Bankston, Thomas AL6, GEN8, TM2, WC2
 Banoezy, Jennifer AL6, GEN8, TM2, WC2
 Barbary, Sherrill AL6, GEN8, TM2, WC2
 Barbec, Seott AL6, GEN8, TM2, WC2
 Barber, Dawn AL6, GEN8, TM2, WC2
 Barber, Frances AL6, GEN8, TM2, WC2
 Barbour, Sharon AL6, GEN8, TM2, WC2
 Barbutti, Patrieia AL6, GEN8, TM2, WC2
 Barea, Sylvia AL6, GEN8, TM2, WC2
 Barcay, S John AL6, GEN8, TM2, WC2
 Bardon, Chris TM10
 Bardsley, Alta AL6, GEN8, TM2, WC2
 Bare, Eric AL6, GEN8, TM2, WC2
 Barfield, John AL6, GEN8, TM2, WC2
 Bargans, Richard AL6, GEN8, TM2, WC2
 Barge, Shirley AL2, TM1
 Barger, John AL6, GEN8, TM2, WC2
 Baringer, Debra AL6, GEN8, TM2, WC2
 Barker, Kenton AL3
 Barker, Weldon AL6, GEN8, TM2, WC2
 Barkley, Dan AL6, GEN8, TM2, WC2
 Barkume, Tom TM3
 Barletta, Don AL6, GEN8, TM2, WC2
 Barley, Anthony AL6, GEN8, TM2, WC2
 Barley, Michael AL6, GEN8, TM2, WC2
 Barlow, Nathan AL1, GEN5&18, SO1, TM7
 Barmichael, Debra AL6, GEN8, TM2, WC2
 Barnard, Chris AL1, GEN13&16, RR27, TM3
 Barnard, David J AL1, GEN13&16, RR27, TM3
 Barndard, Michele AL6, GEN8, TM2, WC2
 Barnes, Aegina AL6, GEN8, TM2, WC2
 Barnes, David AL6, GEN8, TM2, WC2
 Barnes, Deborah AL6, GEN8, TM2, WC2
 Barnes, Jim AL1, GEN13&16, RR27, TM3
 Barnes, Lynn AL6, GEN8, TM2, WC2
 Barnes, Suzanne AL6, GEN8, TM2, WC2
 Barnes, Z AL6, GEN8, TM2, WC2
 Barnett, Adam AL6, GEN8, TM2, WC2
 Barnett, Daniel AL6, GEN8, TM2, WC2
 Barnett, Dewitt AL6, GEN8, TM2, WC2
 Barnoski, Joseph AL6, GEN8, TM2, WC2
 Barnum, Daniel AL6, GEN8, TM2, WC2
 Baron, Marsha L AL6, GEN8, TM2, WC2
 Baron, Stewart AL2, TM1
 Barr, Ellen AL6, GEN8, TM2, WC2
 Barreras, Terri AL6, GEN8, TM2, WC2
 Barrett, Allison AL6, GEN8, TM2, WC2
 Barrett, Dan AL6, GEN8, TM2, WC2
 Barrett, Gordon AL6, GEN8, TM2, WC2
 Barrett, James M AL6, GEN8, TM2, WC2
 Barrington, Tim AL6, GEN8, TM2, WC2
 Barron, Lisa AL6, GEN8, TM2, WC2
 Barrows, Roy AL6, GEN8, TM2, WC2
 Barry, Barbara AL6, GEN8, TM2, WC2
 Barry, Sharon AL6, GEN8, TM2, WC2
 Barshney, Kenneth AL6, GEN8, TM2, WC2
 Bart, Mary AL6, GEN8, TM2, WC2
 Barta, Deborah AL6, GEN8, TM2, WC2
 Bartel, Barbara AL6, GEN8, TM2, WC2
 Bartel, Julie AL6, GEN8, TM2, WC2
 Bartell, Penelope AL6, GEN8, TM2, WC2
 Barth, Don AL6, GEN8, TM2, WC2
 Bartholomew, Raymond AL6, GEN8, TM2, WC2
 Bartleman, Mark AL6, GEN8, TM2, WC2
 Bartlett, Angela AL6, GEN8, TM2, WC2
 Bartlettpalmer, Gwen AL6, GEN8, TM2, WC2
 Barton, Debra AL6, GEN8, TM2, WC2
 Bartter, Martha AL2, TM1
 Bash, Roberta AL2, TM1
 Bashen, Melinda AL2&6, GEN8, TM1-2, WC2
 Basil, Joyce AL6, GEN8, TM2, WC2
 Baskin, Gregory AL6, GEN8, TM2, WC2
 Baskin, Martin AL6, GEN8, TM2, WC2
 Basnar, Lee AL6, GEN8, TM2, WC2
 Basnett, Shannon AL6, GEN8, TM2, WC2
 Batchelder, Sarah AL6, GEN8, TM2, WC2
 Batchelor, Sue AL6, GEN8, TM2, WC2
 Bateman, Tansi AL1, GEN13&16, RR27, TM3
 Bates, Corrie AL6, GEN8, TM2, WC2
 Bates, Seott AL6, GEN8, TM2, WC2
 Bathgate, Elisabeth AL6, GEN8, TM2, WC2
 Batson, Virginia AL6, GEN8, TM2, WC2

Batt, Kay AL6, GEN8, TM2, WC2
 Battaglia, Alisa AL6, GEN8, TM2, WC2
 Battaglia, Gail AL6, GEN8, TM2, WC2
 Battaglia, Karen AL6, GEN8, TM2, WC2
 Battee, William AL6, GEN8, TM2, WC2
 Battig, Ke AL6, GEN8, TM2, WC2
 Batto, Sarah AL6, GEN8, TM2, WC2
 Batty, Vernon AL6, GEN8, TM2, WC2
 Bauer, Ernst AL6, GEN8, TM2, WC2
 Bauer, Kim AL6, GEN8, TM2, WC2
 Bauer, Ruth AL6, GEN8, TM2, WC2
 Bauer, Trena AL1, GEN5&18, SO1, TM7
 Bauer, Wendy AL6, GEN8, TM2, WC2
 Bauguess, Mary AL6, GEN8, TM2, WC2
 Baum, Demonte A TM11
 Baum, Nancy TM11
 Bauman, Denise AL2, TM1
 Baumann, Bonnie AL6, GEN8, TM2, WC2
 Baumstark, Ed GEN6
 Bauschlicher, Shalyn AL6, GEN11, RR1, TM1-2, WC2
 Bavry, Tony AL6, GEN8, TM2, WC2
 Baxter, Joslyn AL6, GEN8, TM2, WC2
 Bayley, Joseph AL6, GEN8, TM2, WC2
 Baylin, Frank AL6, GEN8, TM2, WC2
 Bayouth, Micheal AL6, GEN8, TM2, WC2
 Bazemore, Pauline C AL6, GEN8, TM2, WC2
 Beaham, Thomas AL6, GEN8, TM2, WC2
 Beal, Jabe AL1, GEN13 & 16, RR27, TM1, 3 & 5
 Beal, Richard AL6, GEN8, TM2, WC2
 Beale, Alberta AL6, GEN8, TM2, WC2
 Beale, Edwin AL6, GEN8, TM2, WC2
 Beams, Kay AL6, GEN8, TM2, WC2
 Bear, Charlotte AL6, GEN8, TM2, WC2
 Bear, White AL6, GEN8, TM2, WC2
 Beard, William K AL1, GEN13&16, RR27, TM3
 Bearsley, Clyde AL6, GEN8, TM2, WC2
 Bearn, Mel AL6, GEN8, TM2, WC2
 Beattie, Jane H AL6, GEN8, TM2, WC2
 Beattie, Susan AL6, GEN8, TM2, WC2
 Beatty, Lorne AL6, GEN8, TM2, WC2
 Beauchaine, Lauren AL6, GEN8, TM2, WC2
 Beaudette, Janis AL6, GEN8, TM2, WC2
 Beaven, Nancie AL6, GEN8, TM2, WC2
 Beaver, Marie TM10
 Beavers, Nancy AL2 & 6, GEN8, TM1-2, WC2
 Bechtholt, Susan AL2&6, GEN8, TM1-2, WC2
 Bechtol, Vanessa AL6, GEN8, TM2, WC2
 Beck, Barton AL6, GEN8, TM2, WC2
 Beck, Diane AL6, GEN8, TM2, WC2
 Beck, Gary R AL6, GEN8, TM2, WC2
 Beckel, Elva K. AL6, GEN8, TM2, WC2
 Becker, Anna AL6, GEN8, TM2, WC2
 Becker, Jon AL6, GEN8, TM2, WC2
 Becker, Joyce AL6, GEN8, TM2, WC2
 Becker, Karen AL2 & 6, GEN8, TM1-2, WC2
 Becker, Tara AL6, GEN8, TM2, WC2
 Bedard, Peter AL6, GEN8, TM2, WC2
 Bedient, Gwen AL6, GEN8, TM2, WC2
 Bednaz, Noel AL6, GEN8, TM2, WC2
 Beebe, Joel AL6, GEN8, TM2, WC2
 Beeken, Keven AL6, GEN8, TM2, WC2
 Beekman, Carolyn AL6, GEN8, TM2, WC2
 Beeler, Clara AL6, GEN8, TM2, WC2
 Beenen, Paul AL6, GEN8, TM2, WC2
 Beerheide, Erna AL6, GEN8, TM2, WC2
 Beeton, Alfred AL6, GEN8, TM2, WC2
 Begalke, Donald G AL2, GEN6, GM2, RR3&24, TM1
 Behrens, Joanna AL2 & 6, GEN8, TM1-2, WC2
 Behrens, Vicki AL6, GEN8, TM2, WC2
 Beinlich, Brian AL6, GEN8, TM2, WC2
 Beinlich, Tamara AL6, GEN8, TM2, WC2
 Bekheet, Ahmed AL6, GEN8, TM2, WC2
 Belcastro, Frank AL6, GEN8, TM2, WC2
 Belden, Susan AL6, GEN8, TM2, WC2
 Beldin, Joan AL6, GEN8, TM2, WC2
 Belew, Karen AL6, GEN8, TM2, WC2
 Bell, Ann AL2, TM1
 Bell, Carolyn AL6, GEN8, TM2, WC2
 Bell, Colleen AL6, GEN8, TM2, WC2
 Bell, Joseph AL6, GEN8, TM2, WC2
 Bell, Norton AL6, GEN8, TM2, WC2
 Bell, Ray AL2, AL6, GEN8, TM1-2, WC2
 Bell, Tony AL6, GEN8, TM2, WC2
 Bell, Victoria AL6, GEN8, TM2, WC2
 Bell, William AL2 & 6, GEN8, TM1-2, WC2
 Bellamy, Emily AL6, GEN8, TM2, WC2
 Bellemare, Renee AL6, GEN8, TM2, WC2
 Beller, James RR17, TM3
 Belles, Mark W TM1, TM13, TM7
 Beloin, Alice AL6, GEN8, TM2, WC2
 Beltz, Jennifer AL6, GEN11, RR1, TM1, TM2, WC2
 Bemis, Leslie AL6, GEN8, TM2, WC2
 Bemis, Robert AL6, GEN8, TM2, WC2
 Benabe, Pat AL2, TM1
 Benda, Pegalee AL6, GEN8, TM2, WC2
 Bender, Carol AL6, GEN8, TM2, WC2
 Bender, Glenn N AL6, GEN8, TM2, WC2
 Bendush, Cindy AL6, GEN8, TM2, WC2
 Benedek, Melinda AL6, GEN8, TM2, WC2
 Benedetti, Muriel AL6, GEN8, TM2, WC2
 Benenati, Scott AL2, TM1
 Benestante, Bina AL6, GEN8, TM2, WC2
 Benge, Regina K AL2&6, GEN8, TM1-2, WC2
 Bengtson, Rachel AL2, TM1
 Beninson, Ilene AL6, GEN8, TM2, WC2
 Benjamin, Zoya AL6, GEN8, TM2, WC2
 Benner, Ed AL6, GEN8, TM2, WC2
 Bennet, Robert AL1, GEN13&16, RR27, TM3
 Bennett, Ann AL6, GEN8, TM2, WC2
 Bennett, Bruce AL6, GEN8, TM2, WC2
 Bennett, Forrest AL6, GEN8, TM2, WC2
 Bennett, Glenn TM1
 Bennett, Henry AL6, GEN8, TM2, WC2
 Bennett, Janet AL6, GEN8, TM2, WC2
 Bennett, Jean AL6, GEN8, TM2, WC2
 Bennett, Jennifer AL6, GEN8, TM2, WC2
 Bennett, Joan CL1
 Bennett, Kristi AL1, GEN13&16, RR27, TM3
 Bennett, Mary AL6, GEN8, TM2, WC2
 Bennett, Matthew AL6, GEN8, TM2, WC2
 Bennett, Michal AL6, GEN8, TM2, WC2
 Bennett, Mitchell AL6, GEN8, TM2, WC2
 Bennett, Ricki AL6, GEN8, TM2, WC2
 Bennigson, Barbara AL6, GEN8, TM2, WC2
 Benning-Castellanos, Sheryl AL2, TM1
 Benningfield, Phillip AL6, GEN8, TM2, WC2
 Bensinger, Lesley AL6, GEN8, TM2, WC2
 Benson, Eric AL6, GEN8, TM2, WC2
 Benson, Sheila AL6, GEN8, TM2, WC2
 Benston, Zoe AL6, GEN8, TM2, WC2
 Bensulock, Marie AL6, GEN8, TM2, WC2
 Bentley, Don AL6, GEN8, TM2, WC2
 Bentley, James & Evelyn AL6, GEN8, TM2, WC2
 Bentley, Kathy AL6, GEN8, TM2, WC2
 Benton, Clayton AL6, GEN8, TM2, WC2
 Benz, Evelyn AL6, GEN8, TM2, WC2
 Bepko, Cindy Day AL6, GEN8, TM2, WC2
 Berebitsky, Amber AL6, GEN8, TM2, WC2
 Berenson, Sara Betty AL6, GEN8, TM2, WC2
 Berg, Elaine AL6, GEN8, TM2, WC2
 Berg, Howard AL6, GEN8, TM2, WC2
 Berg, Ricardo U AL6, GEN8, TM2, WC2
 Berger, Carrie AL2, TM1
 Berger, Ken AL6, GEN8, TM2, WC2
 Berger, Leah AL6, GEN8, TM2, WC2
 Berger, Nancy AL6, GEN8, TM2, WC2
 Berger, Ralph AL6, GEN8, TM2, WC2
 Berggren, Richard AL6, GEN8, TM2, WC2
 Bergholm, Yvonne AL6, GEN8, TM2, WC2
 Bergman, Bruce AL6, GEN8, TM2, WC2
 Bergman, Julie AL6, GEN8, TM2, WC2
 Bergman, Kristina AL6, GEN8, TM2, WC2
 Bergman, Wendy AL6, GEN8, TM2, WC2
 Bergmann, Rich AL6, GEN8, TM2, WC2
 Bergt, Steven AL6, GEN8, TM2, WC2
 Beringer, Laurie AL6, GEN8, TM2, WC2
 Berke, Jon AL6, GEN8, TM2, WC2
 Berkheimer, Nicole AL6, GEN8, TM2, WC2
 Berkley, Steve TM10
 Berklich, Diana AL6, GEN8, TM2, WC2
 Berkowitz, Harry AL6, GEN8, TM2, WC2
 Berkowitz, Henry AL2&6, GEN8, TM1-2, WC2
 Berliant, Larry AL6, GEN8, TM2, WC2
 Berlin, Irv AL6, GEN8, TM2, WC2
 Berliner, Diane AL2&6, GEN8, TM1-2, WC2
 Berlinski, Steve AL6, GEN8, TM2, WC2
 Berman, Barbara AL6, GEN8, TM2, WC2
 Berman, Nancy AL6, GEN8, TM2, WC2
 Berman, Nanda AL6, GEN8, TM2, WC2
 Bernath, Tina AL6, GEN8, TM2, WC2
 Bernet, Maurita AL6, GEN8, TM2, WC2
 Bernhardt, Karen AL2, TM1
 Bernstein, Bob AL6, GEN8, TM2, WC2
 Bernstein, David AL6, GEN8, TM2, WC2

Bernstein, Laura AL6, GEN8, TM2, WC2
 Bernyk, Gladys & Alex AL6, GEN8, TM2, WC2
 Berreth, Mark AL6, GEN8, TM2, WC2
 Berrier, Mona AL2, TM1
 Berrigan, Mary AL6, GEN8, TM2, WC2
 Berringer-Wood, Denise AL6, GEN11, RR1, TM1-2, WC2
 Berroll, Philip AL6, GEN8, TM2, WC2
 Berroteran, Jeannine AL6, GEN8, TM2, WC2
 Berry, Pat AL6, GEN8, TM2, WC2
 Bertetta, Thomas AL2, TM1
 Berti, Chris AL6, GEN8, TM2, WC2
 Berti, Ron AL6, GEN8, TM2, WC2
 Bertolino, Terry AL6, GEN8, TM2, WC2
 Bertram, Sharla AL6, GEN8, TM2, WC2
 Berube, Robert AL6, GEN8, TM2, WC2
 Bescript, Linda AL6, GEN8, TM2, WC2
 Bescript, Ruth AL6, GEN8, TM2, WC2
 Bessolo, Eric AL6, GEN8, TM2, WC2
 Best, Brenda AL6, GEN8, TM2, WC2
 Best, Sat S AL2, AL6, GEN8, GM2, TM1
 Best, Tom AL6, GEN8, TM2, WC2
 Bethel, James AL6, GEN8, TM2, WC2
 Bethon, Susan AL6, GEN8, TM2, WC2
 Betters, Kathleen AL6, GEN8, TM2, WC2
 Bettmann, Joanna AL2, TM1
 Betts, Carol AL6, GEN8, TM2, WC2
 Betz, Mark AL6, GEN8, TM2, WC2
 Betz, Robert AL6, GEN8, TM2, WC2
 Beutler, Jamie AL6, GEN8, TM2, WC2
 Beves, Peter AL6, GEN8, TM2, WC2
 Bevilacqua, Elaine J AL6, GEN8, TM2, WC2
 Beving, Dirk AL6, GEN8, TM2, WC2
 Bew, Linda AL6, GEN8, TM2, WC2
 Beyer, Lynne AL6, GEN8, TM2, WC2
 Bezette, Russell AL2&6, GEN8, TM1&2, WC2
 Bialeck, Darlene AL6, GEN8, TM2, WC2
 Bialocki, Jen AL6, GEN8, TM2, WC2
 Bias, Elizabeth AL6, GEN8, TM2, WC2
 Bicho, Janice AL6, GEN8, TM2, WC2
 Bickel, Bettina AL2&6, GEN8&11, RR1, TM1-2, WC2
 Bidwell, John AL6, GEN8, TM2, WC2
 Biers, Rick TM10
 Biesemeyer, Dean AL6, GEN8, TM2, WC2
 Bigelow, Victoria AL6, GEN8, TM2, WC2
 Bigger, Carolyn AL6, GEN8, TM2, WC2
 Biggs, Alison AL6, GEN8, TM2, WC2
 Biggs, Susannah AL6, GEN8, TM2, WC2
 Bilbrey, Patrick AL6, GEN8, TM2, WC2
 Bilecki, Michael AL6, GEN8, TM2, WC2
 Bilello, Daniel AL6, GEN8, TM2, WC2
 Bilieska, Joe AL6, GEN8, TM2, WC2
 Billing, Thomas W AL6, GEN8, TM2, WC2
 Billington, Danielle AL6, GEN8, TM2, WC2
 Billowitz, Rachel AL6, GEN11, RR1, TM1-2, WC2
 Bilowus, Helen AL6, GEN8, TM2, WC2
 Binder, AL6, GEN8, TM2, WC2
 Binder, Randy AL2, TM1
 Bindrim, Erica AL6, GEN8, TM2, WC2
 Binnie, Alan AL6, GEN8, TM2, WC2
 Bird, Christa AL6, GEN8, TM2, WC2
 Bird, Judith AL6, GEN8, TM2, WC2
 Bird, Kenneth AL2 & 6, GEN8, TM1-2, WC2
 Birdsey, Barbara AL6, GEN8, TM2, WC2
 Birmingham, Kay AL1, GEN13 & 16, RR27, TM3
 Biro, Robert AL6, GEN8, TM2, WC2
 Bischoff, Mary AL6, GEN8, TM2, WC2
 Biscotti, Shirley AL2, TM1
 Biser, David AL2, TM1
 Biser, James AL2&6, GEN8, TM1-2, WC2
 Bishandeski, Joann AL6, GEN8, TM2, WC2
 Bishop, Andrew AL6, GEN8, TM2, WC2
 Bishop, Fred AL6, GEN8, TM2, WC2
 Bishop, Russ AL6, GEN8, TM2, WC2
 Bistlin, Karl AL1, GEN13&16, RR27, TM3
 Bitner, Patricia AL6, GEN8, TM2, WC2
 Bittorf, Mary Ellen GEN6
 Bixen, Anita AL6, GEN8, TM2, WC2
 Bixler, Simona AL2, TM1
 Black, Carrie AL6, GEN8, TM2, WC2
 Black, Cinda AL6, GEN8, TM2, WC2
 Black, Donald K AL1, SO1, TM10
 Black, Jennifer AL1, GEN13&16, RR27, TM3
 Black, Katherine AL6, GEN8, TM2, WC2
 Black, Kerry AL1, GEN13 & 16, RR27, TM3
 Black, Laurie AL6, GEN8, TM2, WC2
 Black, Michael AL6, GEN8, TM2, WC2
 Black, Robert J AL1, GEN13&16, RR27, TM3
 Black, Stephen AL6, GEN8, TM2, WC2
 Blackburn, Melanie AL6, GEN8, TM2, WC2
 Blackburn, Patsy AL1, GEN13&16, RR27, TM3
 Blacknight, Bruce AL6, GEN8, TM2, WC2
 Blackstone, Debi AL6, GEN8, TM2, WC2
 Blackstone, Jonathan AL2, TM1
 Blackwell, Margo AL6, GEN8, TM2, WC2
 Blackwell, Sama AL6, GEN8, TM2, WC2
 Blaesing, William AL6, GEN8, TM2, WC2
 Blair, Pat AL6, GEN8, TM2, WC2
 Blair, Shawn AL6, GEN8, TM2, WC2
 Blair, Theresa AL6, GEN8, TM2, WC2
 Blair-Stahn, Chai GEN6, TM1
 Blaisdell, Jill AL6, GEN8, TM2, WC2
 Blaisdell, Robert AL6, GEN8, TM2, WC2
 Blaise, Sharlane AL6, GEN8, TM2, WC2
 Blake, Cary AL1, GEN5&18, SO1, TM7
 Blake, Darrell GM2, TM13, TM3
 Blake, Ila May AL1, GEN5&18, SO1, TM7
 Blake, Julia AL6, GEN8, TM2, WC2
 Blake, Kelly AL1, GEN5&18, SO1, TM7
 Blake, Norman GM2, 4&5, SD5, VM5, WF1&8
 Blake, Seana AL2&6, GEN8, TM1-2, WC2
 Blakely, Carmen AL2&6, GEN8, TM1-2, WC2
 Blakely, Charity AL6, GEN8, TM2, WC2
 Blanchard, Annette AL6, GEN8, TM2, WC2
 Blanchford, Phoebe AL2&6, GEN8, TM1 & 2, WC2
 Blandin, Anne AL6, GEN8, TM2, WC2
 Blane, Dianne AL6, GEN8, TM2, WC2
 Blaney, Melody AL6, GEN8, TM2, WC2
 Blaney, Thomas AL6, GEN8, TM2, WC2
 Blaney, Weston AL6, GEN8, TM2, WC2
 Blank, Lorraine AL6, GEN8, TM2, WC2
 Blankenship, Emmett AL6, GEN8, TM2, WC2
 Blatchford, Lynd AL6, GEN8, TM2, WC2
 Blau, Madaline AL6, GEN8, TM2, WC2
 Blauwet, Lori AL6, GEN8, TM2, WC2
 Blavin, Eli AL6, GEN8, TM2, WC2
 Bleau, Tonya AL2, TM1
 Bleazard, Dennis TM10
 Blecker, Catherine AL6, GEN8, TM2, WC2
 Bleu, Roland AL6, GEN8, TM2, WC2
 Bleyle, Derek AL6, GEN8, TM2, WC2
 Blickens, Donald AL6, GEN8, TM2, WC2
 Blidar, Ron AL6, GEN8, TM2, WC2
 Bliss, Judith AL6, GEN8, TM2, WC2
 Bliton, Patricia AL6, GEN8, TM2, WC2
 Bloch, Julie Hagan AL6, GEN8, TM2, WC2
 Blochowiak, Patricia AL6, GEN8, TM2, WC2
 Block, Stephen RR1
 Blohm, Michael AL6, GEN8, TM2, WC2
 Blomquist, Kevin AL1, GEN13&16, RR27, TM3
 Bloom, Cheryl AL6, GEN8, TM2, WC2
 Bloom, Stuart AL6, GEN8, TM2, WC2
 Bloomer, Jerry AL6, GEN8, TM2, WC2
 Blossy, Christine AL6, GEN8, TM2, WC2
 Blount, William AL6, GEN8, TM2, WC2
 Bloustein, Elise AL6, GEN8, TM2, WC2
 Blue, James AL6, GEN8, TM2, WC2
 Blum, J Joseph AL2, TM1
 Blume, Kathryn AL6, GEN8, TM2, WC2
 Blumeneau, Audrey AL6, GEN8, TM2, WC2
 Blumm, Michael AL6, GEN8, TM2, WC2
 Blunt, Keith AL6, GEN8, TM2, WC2
 Boarman, William I GEN4, 7&13, GM3, LR3, MI1, TE1, TM1&7, VM1&6
 Bobrick, Heather AL6, GEN8, TM2, WC2
 Bocchetti, Ralph AL6, GEN8, TM2, WC2
 Bock, Ethel Schwartz AL2, TM1
 Bock, Walter AL6, GEN8, TM2, WC2
 Bodah, Brian AL2, TM1
 Bode, Arthur TM10
 Boden, Gay AL6, GEN8, TM2, WC2
 Bodnar, Zachary AL6, GEN8, TM2, WC2
 Bodnaruk, Dan AL6, GEN8, TM2, WC2
 Bodry, Theolet AL2, TM1
 Boe, Dennis AL6, GEN8, TM2, WC2
 Boehlke, Angela AL6, GEN8, TM2, WC2
 Boeschen, John AL6, GEN8, TM2, WC2
 Boesiger, Jamie TM10
 Bogdan, Stephanie AL2, TM1
 Bogear, Lee A AL6, GEN8, TM2, WC2
 Bogin, Sanra L AL6, GEN8, TM2, WC2
 Bohac, Stephen AL6, GEN8, TM2, WC2
 Bohn, David AL6, GEN8, TM2, WC2
 Bohrer, Mark AL6, GEN8, TM2, WC2
 Boirum, Mark TM3, WF8

- Boitano, Connie AL2 & 6, GEN8, TM1-2, WC2
- Boka, Erika AL6, GEN8, TM2, WC2
- Bokovitz, John AL6, GEN8, TM2, WC2
- Bolbol, Deniz AL6, GEN8, TM2, WC2
- Boldenow, Bruce AL6, GEN8, TM2, WC2
- Bolesta, Murray AL6, GEN8, TM2, WC2
- Bolman, Diane AL6, GEN8, TM2, WC2
- Bolotin, Richard AL6, GEN8, TM2, WC2
- Bolsta, Hyla AL2, TM1
- Bolt, Mitchell AL6, GEN8, TM2, WC2
- Boltz, David AL6, GEN8, TM2, WC2
- Boman, Gay GL1, RR20, RR3, TM13
- Bond, Alyssa AL2 & 6, GEN8, TM1-2, WC2
- Bond, Julie AL6, GEN8, TM2, WC2
- Bond, Kevin AL6, GEN8, TM2, WC2
- Bond, Melanie AL6, GEN8, TM2, WC2
- Bonilla-Jones, Carmen AL6, GEN8, TM2, WC2
- Bonk, Marliese AL6, GEN8, TM2, WC2
- Bonney, Patty AL2 & 6, GEN8, TM1-2, WC2
- Bonometti, Robert & Ginny AL6, GEN8, TM2, WC2
- Bonsignore, Julia L AL2, TM1
- Bonsignore, Victoria AL6, GEN8, TM2, WC2
- Book, Joan AL6, GEN8, TM2, WC2
- Boraby, Ali AL2&6, GEN8, TM1-2, WC2
- Boranian, Anna AL6, GEN8, TM2, WC2
- Borchardt, Betsy AL6, GEN8, TM2, WC2
- Borcherding, Paul AL6, GEN8, TM2, WC2
- Bordenave, Michael AL6, GEN8, TM2, WC2
- Boren, Gary AL6, GEN8, TM2, WC2
- Bork, Annette AL6, GEN8, TM2, WC2
- Borowski, Robert AL6, GEN8, TM2, WC2
- Bosch, Henry AL6, GEN8, TM2, WC2
- Bostick, Carol S AL6, GEN8, TM2, WC2
- Bostock, V AL6, GEN8, TM2, WC2
- Boswell, Harold AL2 & 6, GEN8, TM1-2, WC2
- Botkin, Martin R AL6, GEN8, TM2, WC2
- Bottesch, Marla AL6, GEN8, TM2, WC2
- Boulan, Cassidy AL6, GEN8, TM2, WC2
- Boulter, Wyndham AL6, GEN8, TM2, WC2
- Bourgeois, Eric AL6, GEN8, TM2, WC2
- Bourscheidt, Hank AL6, GEN8, TM2, WC2
- Bousseau, Marlys AL2&6, GEN8, TM1-2, WC2
- Bouwkamp, Joshua AL6, GEN8, TM2, WC2
- Bovaconti, Joseph TM10
- Bove, Clifford AL6, GEN8, TM2, WC2
- Bowden, Lawry & Cindy AL1, GEN13, GEN16, RR27, TM3
- Bowen, Daniel TM10
- Bower, Ben AL6, GEN8, TM2, WC2
- Bowhers, Jane AL6, GEN8, TM2, WC2
- Bowler, Trent AL1, SO1
- Bowles, Robert P AL6, GEN8, TM2, WC2
- Bowman, Judith AL6, GEN8, TM2, WC2
- Bowman, Kenneth AL2&6, GEN8, TM1-2, WC2
- Bowman, Wendy AL6, GEN8, TM2, WC2
- Bowser, Bonnie AL6, GEN8, TM2, WC2
- Boyce, Paul TM10
- Boyce, Richard AL6, GEN8, TM2, WC2
- Boyd, Allison AL6, TM1
- Boyd, Christopher AL6, GEN8, TM2, WC2
- Boyd, Jeff AL6, TM1, WC2
- Boyd, Karla AL6, GEN8, TM2, WC2
- Boyd, Keith AL6, GEN8, TM2, WC2
- Boyd, Peggy AL6, GEN8, TM2, WC2
- Boyd, Timothy AL6, GEN8, TM2, WC2
- Boyer, Kayla TM10
- Boyle, Elizabeth AL6, GEN8, TM2, WC2
- Boyle, Richard AL6, GEN8, TM2, WC2
- Boylston, Elizabeth AL6, GEN8, TM2, WC2
- Boyne, Jonathan AL2 & 6, GEN8, TM1-2, WC2
- Boytos, Patty AL6, GEN8, TM2, WC2
- Bozek, Kenneth AL6, GEN8, TM2, WC2
- Braaten, Laurie J AL6, GEN8, TM2, WC2
- Brackenbury, Debbie AL1, GEN5&18, SO1, TM7
- Brackin, Bill AL6, GEN8, TM2, WC2
- Brackney, Elisabeth AL6, GEN8, TM2, WC2
- Braden, Greg AL6, GEN8, TM2, WC2
- Bradford, Andrew AL6, GEN8, TM2, WC2
- Bradford, Debby AL6, GEN8, TM2, WC2
- Bradford, Deborah AL6, GEN8, TM2, WC2
- Bradford, Jennifer AL6, GEN8, TM2, WC2
- Bradford, Kenneth AL6, GEN8, TM2, WC2
- Bradford, Mary AL6, GEN8, TM2, WC2
- Bradley, Charlotte AL6, GEN8, TM2, WC2
- Bradley, Jennifer AL6, GEN8, TM2, WC2
- Bradley, Joann AL6, GEN8, TM2, WC2
- Brady, Sarah AL6, GEN8, TM2, WC2
- Brady, Thomas AL6, GEN8, TM2, WC2
- Bragonier, Emily AL6, GEN8, TM2, WC2
- Braithwaite, Georgia AL6, GEN8, TM2, WC2
- Brakopp, Evelyn AL6, GEN8, TM2, WC2
- Bramlet, John AL6, GEN8, TM2, WC2
- Bramlett,Carolynn AL6, GEN8, TM2, WC2
- Branch, Bill AL2
- Branch, Krista AL6, AL6, GEN11, GEN8, RR1, TM1&2, TM2, WC2, WC2
- Brandariz, Anita AL6, GEN8, TM2, WC2
- Brandon, Jan AL6, GEN8, TM2, WC2
- Brandstetter, Diane AL6, GEN8, TM2, WC2
- Brandt, Ben AL6, GEN8, TM2, WC2
- Brandt, Bob TM10
- Brandt, Margaret AL6, GEN8, TM2, WC2
- Branson, Korina AL2, TM1
- Brant, Cynthia AL6, GEN8, TM2, WC2
- Brant, Pat AL6, GEN8, TM2, WC2
- Brantingham, Jeanne AL6, GEN8, TM2, WC2
- Branyan, Jane AL2 & 6, GEN8, TM1-2, WC2
- Braudy, Michael AL6, GEN8, TM2, WC2
- Brauer, Jim AL6, GEN8, TM2, WC2
- Braun, Beth AL6, GEN8, TM2, WC2
- Braun, Kevin AL2, TM1
- Brauner, Kalman AL6 GEN6 & 8, TM2, WC2
- Bray, Peter AL6, GEN8, TM2, WC2
- Bray, Sue AL1, GEN13&16, RR27, TM3
- Brayshaw, Julia AL6, GEN8, TM2, WC2
- Breakfield, Sandra AL6, GEN8, TM2, WC2
- Breault, Barbara J AL6, GEN8, TM2, WC2
- Bredenber, Patricia AL6, GEN8, TM2, WC2
- Breeding, Becky AL6, GEN8, TM2, WC2
- Breen, Bob AL6, GEN8, TM2, WC2
- Breiding, Joan AL2&6, GEN8, TM1-2, WC2
- Breitenbach, Edward D TM1, TM7
- Bremner, Fiona AL6, GEN8, TM2, WC2
- Brendle, Cori AL2, TM1
- Brendle, Ron AL6, GEN8, TM2, WC2
- Brennan, Anne AL6, GEN8, TM2, WC2
- Brennan, John AL6, GEN8, TM2, WC2
- Brennan, Mary Margaret AL2, TM1
- Brennan, Patrick AL6, GEN8, TM2, WC2
- Brenner, Jared AL2, TM1
- Brenner, Natasha AL2, TM1
- Brensinger, Elizabeth AL2&6, GEN8, TM1-2, WC2
- Bressack, Celia AL6, GEN8, TM2, WC2
- Bressler, David AL6, GEN8, TM2, WC2
- Brett, Derek AL6, GEN8, TM2, WC2
- Brewer, John F III AL6, GEN8, TM2, WC2
- Briccetti, Eleanor AL6, GEN8, TM2, WC2
- Brice, Margarita AL6, GEN8, TM2, WC2
- Brick, Gabrielle AL6, GEN8, TM2, WC2
- Brickell, Arthur AL6, GEN8, TM2, WC2
- Bridge, Sue AL6, GEN8, TM2, WC2
- Bridgeland, Bill AL6, GEN11, RR1, TM1-2, WC2
- Bridges, Christy AL6, GEN8, TM2, WC2
- Bridwell, Jeff AL2&6, GEN8, TM1&2, WC2
- Brief, Allan AL6, GEN8, TM2, WC2
- Briggs, Linda AL6, GEN8, TM2, WC2
- Briggs, Russ TM10
- Brimblecombe, Caroline AL6, GEN8, TM2, WC2
- Brimm, Martha AL6, GEN8, TM2, WC2
- Brincka, Frank A AL6, GEN8, TM2, WC2
- Bringhurst, Rose AL1, GEN18, GEN5, TM7
- Brinker, Mary Jo AL2, TM1
- Brinkerhoff, Kerry AL2&6, GEN8, TM1-2, WC2
- Brinkerhoff, William B AL1, GEN2,11&13, GM2&5, SD5, SO2, TM12-13, VM2, WC3, WS6
- Brinkman, John AL6, GEN8, TM2, WC2
- Brinkmeyer, Tom AL6, GEN8, TM2, WC2
- Brinks, Ellen AL6, GEN8, TM2, WC2
- Briseid, Kenneth AL6, GEN8, TM2, WC2
- Brister, Bob RR1, TM1&2, WC2
- Bristol, Dan AL6, GEN8, TM2, WC2
- Brittain, Susan AL6, GEN8, TM2, WC2
- Brittingham, Jack WF6, WF8
- Britton, Barbara AL6, GEN8, TM2, WC2
- Britton, Marilyn AL6, GEN8, TM2, WC2
- Broadbudd, Nathan AL6, GEN8, TM2, WC2
- Broadfoot, Jay AL6, GEN8, TM2, WC2
- Brochman, Mark AL6, GEN8, TM2, WC2
- Brocius, Allyson AL2, TM1
- Brock, Tory TM3

- Brodie, Kevin AL6, GEN8, TM2, WC2
 Brody, Alice AL6, GEN8, TM2, WC2
 Brody, Gwendolyn AL6, GEN8, TM2, WC2
 Brofka-Berends, Marsha AL6, GEN8, TM2, WC2
 Brogan, Loretta AL2, TM1
 Bromer, Peter AL6, GEN8, TM2, WC2
 Bronner, Eric AL6, GEN8, TM2, WC2
 Bronson, Jonette AL6, GEN8, TM2, WC2
 Brooke, Barbara AL6, GEN8, TM2, WC2
 Brooker, Eric AL6, GEN8, TM2, WC2
 Brookman, Gerald AL6, GEN8, TM2, WC2
 Brooks, Barry M TM10
 Brooks, Bennett L AL1, GEN13&16, RR27, TM3
 Brooks, Bonnie AL2, TM1
 Brooks, Haley AL1, GEN13&16, RR27, TM3
 Brooks, Pamela AL6, GEN8, TM2, WC2
 Brooks, Ray AL1, GEN5&18, SO1, TM7
 Brooks, Robert AL6, GEN8, TM2, WC2
 Brooks, Wayne AL2, TM1
 Brooks, Wendy AL6, GEN8, TM2, WC2
 Broomell, Amanda AL6, GEN8, TM2, WC2
 Brophy, Tim AL6, GEN8, TM2, WC2
 Broskie, Nancy Elaine AL6, GEN8, TM2, WC2
 Broughton, Tera AL2, TM1
 Brown, Alexa AL6, GEN8, TM2, WC2
 Brown, Alice AL6, GEN8, TM2, WC2
 Brown, Bob RR2 & 19, TM3, 11 & 15
 Brown, Bonnie AL6, GEN8, TM2, WC2
 Brown, Bonnie Jean AL6, GEN8, TM2, WC2
 Brown, Brad AL1, GEN13&16, RR27, TM3
 Brown, Carol AL6, GEN8, TM2, WC2
 Brown, Clarence AL6, GEN8, TM2, WC2
 Brown, Clayton AL1, GEN13&16, RR27, TM3
 Brown, D AL6, GEN8, TM2, WC2
 Brown, Diane AL6, GEN8, TM2, WC2
 Brown, Ellen AL2, TM1
 Brown, Georgine AL6, GEN8, TM2, WC2
 Brown, Gwen AL6, GEN8, TM2, WC2
 Brown, Jack AL6, GEN8, TM2, WC2
 Brown, James AL6, GEN8, TM2, WC2
 Brown, Jamie AL6, GEN8, TM2, WC2
 Brown, Jarred R AL1, GEN5&18, SO1, TM7
 Brown, Jeannine AL6, GEN8, TM2, WC2
 Brown, Jeb P AL6, GEN8, TM2, WC2
 Brown, Jeff AL6, GEN8, TM2, WC2
 Brown, Jerry TM10
 Brown, Jessie R AL1, GEN13&16, RR27, TM3
 Brown, Ken AL6, GEN8, TM2, WC2
 Brown, Kendall AL6, GEN8, TM2, WC2
 Brown, Kevin AL6, GEN8, TM2, WC2
 Brown, L AL6, GEN8, TM2, WC2
 Brown, Marilyn AL6, GEN8, TM2, WC2
 Brown, Marjorie L AL6, GEN8, TM2, WC2
 Brown, Marygrace AL6, GEN8, TM2, WC2
 Brown, Matt AL1, GEN13 & 16, RR27, TM3
 Brown, Melissa AL6, GEN8, TM2, WC2
 Brown, Michael AL2&6, GEN8, TM1-2, WC2
 Brown, Molly AL6, GEN8, TM2, WC2
 Brown, Nancy AL6, GEN8, TM2, WC2
 Brown, Norris AL1, GEN13&16, RR27, TM3
 Brown, Patricia TM3
 Brown, Patrick AL6, GEN8, TM2, WC2
 Brown, R Stanley RR2
 Brown, Rich AL6, GEN8, TM2, WC2
 Brown, Rick AL6, GEN8, TM2, WC2
 Brown, Russell AL6, GEN8, TM2, WC2
 Brown, Sandra AL6, GEN8, TM2, WC2
 Brown, Sharon AL6, GEN8, TM2, WC2
 Brown, Sheryl AL6, GEN8, TM2, WC2
 Brown, Steve AL6, GEN8, TM2, WC2
 Brown, Vera AL6, GEN8, TM2, WC2
 Brownell, Christopher AL6, GEN8, TM2, WC2
 Browning, Adam AL6, GEN8, TM2, WC2
 Browning, Brenda AL6, GEN8, TM2, WC2
 Brownstein, Judy AL6, GEN8, TM2, WC2
 Bruce, Doug AL6, GEN8, TM2, WC2
 Bruch, Carl AL6, GEN8, TM2, WC2
 Bruch, Kathleen AL6, GEN8, TM2, WC2
 Bruestle, Donald AL6, GEN8, TM2, WC2
 Brumley, Monte AL6, GEN8, TM2, WC2
 Brunson, April AL6, GEN8, TM2, WC2
 Brun, Leland AL6, GEN8, TM2, WC2
 Bruncati, Christine AL6, GEN8, TM2, WC2
 Bruner, Ralph D AL1, GEN13&16, RR27, TM3
 Brunner, David AL6, GEN8, TM2, WC2
 Bruno, Amy AL6, GEN8, TM2, WC2
 Brush, Debbie AL6, GEN8, TM2, WC2
 Brustman, Thomas AL6, GEN8, TM2, WC2
 Bruton, Harry AL6, GEN8, TM2, WC2
 Bryan, Carolyn AL6, GEN8&17, RR1, TM2, WC2
 Bryan, Christy AL6, GEN8, TM2, WC2
 Bryan, D AL2, AL6, GEN8, TM1-2, WC2
 Bryan, Karol AL6, GEN8, TM2, WC2
 Bryan, Mary Nell AL6, GEN8, TM2, WC2
 Bryan, Michael T TM3
 Bryant, Lori AL6, GEN8, TM2, WC2
 Bryant, Ned AL6, GEN8, TM2, WC2
 Bryant, Tamera AL6, GEN8, TM2, WC2
 Bryce, Ed TM10
 Bryce, Ronald AL1, SO1
 Bryk, Terry AL6, GEN8, TM2, WC2
 Buazard, Sharon AL2&6, GEN8, TM1-2, WC2
 Bucci, Doreen AL6, GEN8, TM2, WC2
 Buce, Chase T AL1, GEN18, GEN5, TM7
 Buck, David AL6, GEN8, TM2, WC2
 Buck, Peter AL6, GEN8, TM2, WC2
 Buck, Sue AL6, GEN8, TM2, WC2
 Buckalew, Carmen AL6, GEN8, TM2, WC2
 Buckingham, David AL6, GEN8, TM2, WC2
 Buckley, Donna AL6, GEN8, TM2, WC2
 Buckley, Maura AL6, GEN8, TM2, WC2
 Buckman, Leslie AL6, GEN8, TM2, WC2
 Buckner, Janice AL2, TM1
 Buckner, Randall AL6, GEN8, TM2, WC2
 Budreau, Caleb AL1, GEN5&18, SO1, TM7
 Buehl, Barbara AL6, GEN8, TM2, WC2
 Buelow, Chris AL6, GEN8, TM2, WC2
 Buer, Cierra AL6, GEN8, TM2, WC2
 Bugliarelli, Diane AL6, GEN8, TM2, WC2
 Buhl, Bob TM10
 Buhl, Shelley AL6, GEN8, TM2, WC2
 Buisman, V Wayne AL2&6, GEN8, TM1-2, WC2
 Bullard, Ross AL6, GEN8, TM2, WC2
 Bullard, Sarah AL6, GEN8, TM2, WC2
 Bulling, Larry AL6, GEN8, TM2, WC2
 Bulloch, Robert H AL1, GEN5&18, SO1, TM7
 Bumgarner, Tom AL6, GEN8, TM2, WC2
 Bump, Karen M AL6, GEN8, TM2, WC2
 Bunch, Joanne AL6, GEN8, TM2, WC2
 Bundy, Barry AL1, GEN2,5&18, GM1, SO1, TM3&7
 Bundy, Braidy TM3
 Bundy, Brec TM3
 Bundy, Clay TM13
 Bundy, Dan AL1, GEN5&18, SO1, TM7
 Bundy, Kay AL1, GEN5&18, SO1, TM7
 Bundy, Kenneth D AL1, GEN5&18, SO1, TM7
 Bundy, Larry TM13, TM3
 Bundy, Marjorie TM3
 Bundy, Mattie TM3
 Bundy, Orvel TM13, TM3
 Bundy, Owen L AL1, GEN5&18, SO1, TM7
 Bundy, Sara H TM3
 Bundy, Wendy AL1, GEN5&18, SO1, TM7
 Bundy, William H TM13
 Bungart, Peter CL1-3, GEN6&14, TM1&14
 Bunij, Ed TM3
 Bunn, Herbert K AL1, GEN18, GEN5, TM7
 Bunsick, Roberta AL6, GEN8, TM2, WC2
 Bunting, Bruce AL1, GEN13&16, RR27, TM3
 Bunting, Gavin AL1, GEN13&16, RR27, TM3
 Bunting, Lacea AL1, GEN13&16, RR27, TM3
 Bunting, Mary AL6, GEN8, TM2, WC2
 Bunton, Joy AL6, GEN8, TM2, WC2
 Bunyard, Matthew J AL6, GEN8, TM2, WC2
 Burack, Debbie AL2&6, GEN8, TM1-2, WC2
 Burch, David AL2&6, GEN8, TM1-2, WC2
 Burch, Kristin AL2&6, GEN8, TM1-2, WC2
 Burchard, Denise AL6, GEN8, TM2, WC2
 Burchinal, Nedra AL1, GEN13&16, RR27, TM3
 Burchinal, Terry AL1, GEN13&16, RR27, TM3
 Burde, James AL6, GEN8, TM2, WC2
 Burdin, Jared AL2&6, GEN8, TM1-2, WC2
 Burdon, Pam AL6, GEN8, TM2, WC2
 Buresh Jr, Robert AL6, GEN8, TM2, WC2
 Burgdorf, Jeri AL6, GEN8, TM2, WC2
 Burgi, Janice AL6, GEN8, TM2, WC2
 Burianek, Linda AL6, GEN8, TM2, WC2

Burian-Mohr, Eleanor AL6, GEN8, TM2, WC2
 Burk, Joyce AL6, GEN8, TM2, WC2
 Burke, Colleen AL2, TM1
 Burke, Joanne AL2, TM1
 Burke, Kelli AL2, TM1
 Burke, Kristin AL6, GEN8, TM2, WC2
 Burke, Mary AL6, GEN8, TM2, WC2
 Burke, Patricia AL6, GEN8, TM2, WC2
 Burkett, Newton J AL6, GEN8, TM2, WC2
 Burkhardt, Kerry AL2, TM1
 Burkhart, David AL6, GEN8, TM2, WC2
 Burkick, Carol AL6, GEN8, TM2, WC2
 Burks, Paul AL6, GEN8, TM2, WC2
 Burmeister, Gwen AL2, TM1
 Burnett, Sheri AL6, GEN8, TM2, WC2
 Burnham, James AL6, GEN8, TM2, WC2
 Burns, Anthony AL6, GEN11, RR1, TM1-2, WC2
 Burns, Bob AL6, GEN8, TM2, WC2
 Burns, Cecilia AL6, GEN8, TM2, WC2
 Burns, Deborah AL2&6, GEN8, TM1-2, WC2
 Burns, Donna AL6, GEN8, TM2, WC2
 Burns, Lois AL6, GEN8, TM2, WC2
 Burns, Mary Lou AL6, GEN8, TM2, WC2
 Burns, P AL6, GEN8, TM2, WC2
 Burns, Robert AL6, GEN8, TM2, WC2
 Burns, Sean AL6, GEN8, TM2, WC2
 Burpee, Kathy AL6, GEN8, TM2, WC2
 Burrows, Carrie AL2, TM1
 Burrows, Dustin AL6, GEN8, TM2, WC2
 Burrows, Robert AL6, GEN8, TM2, WC2
 Bursell, Benjamin AL6, GEN8, TM2, WC2
 Burson, Grace AL6, GEN8, TM2, WC2
 Burt, Becky AL6, GEN8, TM2, WC2
 Burt, Paul AL6, GEN8, TM2, WC2
 Burton, C AL6, GEN8, TM2, WC2
 Burton, David AL6, GEN8, TM2, WC2
 Burton, Douglas AL6, GEN8, TM2, WC2
 Burton, Eve AL6, GEN8, TM2, WC2
 Burton, Gabrielle AL6, GEN8, TM2, WC2
 Burton, Lori AL6, GEN8, TM2, WC2
 Burton, Stephen AL6, GEN8, TM2, WC2
 Burton, Ursula AL6, GEN8, TM2, WC2
 Burton, Wanda AL6, GEN8, TM2, WC2
 Burwinkel, Mark AL6, GEN8, TM2, WC2
 Buscio, Kevin AL6, GEN8, TM2, WC2
 Busemeyer, Dan AL6, GEN8, TM2, WC2
 Busemeyer, James AL6, GEN8, TM2, WC2
 Bush, Joan C AL6, GEN8, TM2, WC2
 Bush, Noel AL6, GEN8, TM2, WC2
 Busher, Sharmayne L AL6, GEN8, TM2, WC2
 Bushman, Joanne AL6, GEN8, TM2, WC2
 Bushnell, Martha AL6, GEN8, TM2, WC2
 Buss, William AL6, GEN8, TM2, WC2
 Busse, Barbara AL2&6, GEN8, TM1-2, WC2
 Busse, George AL6, GEN8, TM2, WC2
 Buster, Katey AL6, GEN8, TM2, WC2
 Butera, Joseph AL6, GEN8, TM2, WC2
 Butler, Alison AL6, GEN8, TM2, WC2
 Butler, Andrew TM1
 Butler, Carolina C SD2, SO1-2, TM1, VM5
 Butler, Deborah AL6, GEN8, TM2, WC2
 Butler, Kirk AL6, GEN8, TM2, WC2
 Butler, Linda AL6, GEN8, TM2, WC2
 Butler, Lisa AL6, GEN8, TM2, WC2
 Butler, Newton AL6, GEN8, TM2, WC2
 Butler, Robin AL6, GEN8, TM2, WC2
 Butler, William A AL2, TM1
 Butlien, Carey AL6, GEN8, TM2, WC2
 Button, Danny AL1, GEN13&16, RR27, TM3
 Button, Merriell Robin AL1, GEN13&16, RR27, TM3
 Button, Sheila AL1, GEN13&16, RR27, TM3
 Buzinski, Julie AL6, GEN8, TM2, WC2
 Buzzell, Sherra AL6, GEN8, TM2, WC2
 Byars, Susan AL6, GEN8, TM2, WC2
 Bylos, Elaine AL6, GEN8, TM2, WC2
 Byman, David AL6, GEN8, TM2, WC2
 Byrne, Denis AL6, GEN8, TM2, WC2
 C, Julie AL6, GEN8, TM2, WC2
 C, Shaz AL6, GEN8, TM2, WC2
 Ca, Tony AL1, GEN18, GEN5, TM7
 Caccia, David AL6, GEN8, TM2, WC2
 Cadie, Kevin AL1, GEN5&185, SO1, TM7
 Cadora, Eric AL6, GEN8, TM2, WC2
 Cady, James W TM10
 Cady, Joan AL6, GEN8, TM2, WC2
 Caffrey, Frank AL6, GEN8, TM2, WC2
 Cagle, Heather AL6, GEN8, TM2, WC2
 Cahoon, Lauren AL6, GEN8, TM2, WC2
 Cahoon, Stephanie AL1, GEN5&18, SO1, TM7
 Cain, Barbara AL6, GEN8, TM2, WC2
 Cain, David AL6, GEN8, TM2, WC2
 Cain, Maxine AL2, TM1
 Cairns, Karen AL6, GEN8, TM2, WC2
 Caisser, Cecilia AL6, GEN8, TM2, WC2
 Caito, Jamie AL6, GEN8, TM2, WC2
 Calabrese, Greta AL6, GEN8, TM2, WC2
 Calamoneri, David AL6, GEN8, TM2, WC2
 Calchera, John AL6, GEN8, TM2&10, WC2
 Caldwell, Donald G TM10
 Caldwell, Rhiannon AL6, GEN8, TM2, WC2
 Calebrese, Patricia AL6, GEN8, TM2, WC2
 Calhoun, Charles AL6, GEN8, TM2, WC2
 Calhoun, Ramon AL6, GEN8, TM2, WC2
 Calkins, Mike AL6, GEN8, TM2, WC2
 Call, Beth AL6, GEN8, TM2, WC2
 Callahan, Dennis TM10
 Callahan, Susie AL6, GEN8, TM2, WC2
 Callicott, Burton AL6, GEN8, TM2, WC2
 Calp, Shawnya AL2, TM1
 Calton, Valorie AL6, GEN8, TM2, WC2
 Calvert, Dee AL6, GEN8, TM2, WC2
 Calvillo, Max AL6, GEN8, TM2, WC2
 Camacho, Carlotta AL6, GEN8, TM2, WC2
 Camara, Tom AL2, TM1
 Camarena, Megan AL6, GEN8, TM2, WC2
 Cambria, Marguerite AL6, GEN8, TM2, WC2
 Camden-Lee, Sue Ellen AL6, GEN8, TM2, WC2
 Cameron, Barbara AL6, GEN8, TM2, WC2
 Cameron, James TM10
 Cameron, Janet AL6, GEN8, TM2, WC2
 Campana, Sam Kathryn AL6, GEN8, TM2, WC2
 Campbell, Amy AL6, GEN8, TM2, WC2
 Campbell, Ashley AL6, GEN8, TM2, WC2
 Campbell, Barbara AL6, GEN8, TM2, WC2
 Campbell, Bob AL6, GEN8, TM2, WC2
 Campbell, Chad AL6, GEN8, TM2, WC2
 Campbell, Heather AL6, GEN8, TM2, WC2
 Campbell, Karen AL6, GEN8, TM2, WC2
 Campbell, Larry AL6, GEN8, TM2, WC2
 Campbell, Laura AL6, GEN8, TM2, WC2
 Campbell, Richard AL6, GEN8, TM2, WC2
 Campbell, Rob AL6, GEN8, TM2, WC2
 Campbell, Ron AL6, GEN8, TM2, WC2
 Campbell, Therese AL6, GEN8, TM2, WC2
 Campbell, William GEN6, TM1
 Campos, Damien AL6, GEN8, TM2, WC2
 Campos, Isaac AL6, GEN8, TM2, WC2
 Canisz, Eleni AL6, GEN8, TM2, WC2
 Cannata, Amy AL6, GEN8, TM2, WC2
 Canning, Stephen AL6, GEN8, TM2, WC2
 Cannon, John AL2, TM1
 Cannon, Lloyd AL1, GEN5&18, SO1, TM7
 Cannon, Maureen AL6, GEN11, RR1, TM1-2, WC2
 Cannon, Mike AL6, GEN11, RR1, TM1-2, WC2
 Cantelmo, Concetta AL6, GEN8, TM2, WC2
 Canton, Sheryl AL2, TM1
 Cantrell, Diane AL6, GEN8, TM2, WC2
 Capaul, Cecelia AL6, GEN8, TM2, WC2
 Cape, Christa AL6, GEN8, TM2, WC2
 Caplinger, Eugene AL6, GEN8, TM2, WC2
 Capotorto, Jeanette AL2, TM1
 Carafa, Missy AL6, GEN8, TM2, WC2
 Carasco, Annette AL6, GEN8, TM2, WC2
 Card, Doug AL6, GEN8, TM2, WC2
 Cardella, Sylvia AL6, GEN8, TM2, WC2
 Carey, Jackie AL6, GEN8, TM2, WC2
 Carlino, Thomas AL6, GEN8, TM2, WC2
 Carlough, Bob AL6, GEN8, TM2, WC2
 Carls, Bill AL6, GEN8, TM2, WC2
 Carlson, Amanda AL6, GEN8, TM2, WC2
 Carlson, Andy AL6, GEN8, TM2, WC2
 Carlson, Audrey AL6, GEN8, TM2, WC2
 Carlson, Cathleen AL6, GEN8, TM2, WC2
 Carlson, Gwen AL6, GEN8, TM2, WC2
 Carlson, James AL6, GEN8, TM2, WC2
 Carlson, Jonathan D AL6, GEN8, TM2, WC2
 Carlson, Nancy AL6, GEN8, TM2, WC2
 Carlson, Raymon AL6, GEN8, TM2, WC2
 Carlson, Tom TM3
 Carlson, Virginia AL6, GEN8, TM2, WC2
 Carlstroem, Matthew AL6, GEN8, TM2, WC2
 Carman, Andy AL1, GEN13&16, RR27, TM3
 Carman, Ann R AL6, GEN8, TM2, WC2
 Carman, Leanna AL1, GEN13&16, RR27, TM3
 Carmichael, Janet AL2&6, GEN8, TM1-2, WC2

Carpenter, Catherine AL6, GEN8, TM2, WC2
 Carpenter, Cookson AL1, GEN13&16, RR27, TM3
 Carpenter, Frank AL1, GEN13&16, RR27, TM3
 Carpenter, Jeremy AL6, GEN8, TM2, WC2
 Carpenter, Regina AL6, GEN8, TM2, WC2
 Carpenter, Samuel K AL5
 Carpenter, Stefan AL6, GEN8, TM2, WC2
 Carper, Cindy AL6, GEN8, TM2, WC2
 Carr, Daniel AL6, GEN8, TM2, WC2
 Carr, Donna AL6, GEN8, TM2, WC2
 Carr, Gaile AL6, GEN8, TM2, WC2
 Carr, Kris AL2, TM1
 Carr, Laurie AL6, GEN8, TM2, WC2
 Carrell, Mark AL6, GEN8, TM2, WC2
 Carrera, David AL6, GEN8, TM2, WC2
 Carringer, Nancy AL6, GEN8, TM2, WC2
 Carroll, Cameron AL6, GEN8, TM2, WC2
 Carroll, Jane AL6, GEN8, TM2, WC2
 Carroll, Kathryn AL6, GEN8, TM2, WC2
 Carroll, Mark AL6, GEN8, TM2, WC2
 Carroll, Pat TM10
 Carsen, Dan AL6, GEN8, TM2, WC2
 Carson, Cynthia AL2, TM1
 Carson, Debbie AL6, GEN8, TM2, WC2
 Carson, Walton AL2, TM1
 Carson, Winfield AL6, GEN8, TM2, WC2
 Carter, Amanda AL6, GEN8, TM2, WC2
 Carter, Bob TM10, TM10
 Carter, Brenda AL2 & 6, GEN8, TM1-2, WC2
 Carter, Charlene AL6, GEN8, TM2, WC2
 Carter, Gary AL6, GEN8, TM2, WC2
 Carter, Jeff AL6, GEN8, TM2, WC2
 Carter, Jeffrey R TM10
 Carter, L AL6, GEN8, TM2, WC2
 Carter, Larry AL6, GEN8, TM2, WC2
 Carter, Lisbeth AL6, GEN8, TM2, WC2
 Carter, Lori AL6, GEN8, TM2, WC2
 Carter, Marian AL6, GEN8, TM2, WC2
 Carter, Neal D AL1, GEN5&, SO1, TM7
 Carter, Rebecca H SO1
 Carter, Steven GEN6, GM2, RR21, TM3
 Carter, Tom TM1
 Cartledge, D M AL6, GEN8, TM2, WC2
 Carty, Claudia AL6, GEN8, TM2, WC2
 Caruso, Dorian AL6, GEN8, TM2, WC2
 Carver, Barbara AL6, GEN8, TM2, WC2
 Carver, Calvin AL6, GEN8, TM2, WC2
 Case, Chris AL6, GEN8, TM2, WC2
 Case, Dawn AL6, GEN8, TM2, WC2
 Casey, Susan AL6, GEN8, TM2, WC2
 Casper, Chris AL6, GEN8, TM2, WC2
 Cass, Brian TM1
 Cassidy, Doris AL6, GEN8, TM2, WC2
 Cassidy, Joy S AL6, GEN8, TM2, WC2
 Cassidy, Virginia AL6, GEN8, TM2, WC2
 Castellon, Leigh AL2&6, GEN8, TM1-2, WC2
 Castiano, Judith AL6, GEN8, TM2, WC2
 Castillo, Jose AL1, GEN13&16, RR27, TM3
 Castillo, Larry AL6, GEN8, TM2, WC2
 Castleberry, Robbi AL6, GEN8, TM2, WC2
 Castner, Lillian AL6, GEN8, TM2, WC2
 Castronova, Pat AL6, GEN8, TM2, WC2
 Caswell, Timi AL6, GEN8, TM2, WC2
 Cates, Maureen R & Robert B TM1
 Cathell, Charlotte AL6, GEN8, TM2, WC2
 Caulkins, John AL6, GEN8, TM2, WC2
 Cavallo, Sharon AL6, GEN8, TM2, WC2
 Cave, Brendan AL6, GEN8, TM2, WC2
 Cecil, George AL6, GEN8, TM2, WC2
 Cecil, Jon AL2, TM1
 Cecile, Scott AL6, GEN8, TM2, WC2
 Celico, James AL6, GEN8, TM2, WC2
 Celine, Sherry AL6, GEN8, TM2, WC2
 Cellarius, Doris AL6, GEN8, MI1, TM2, WC2
 Cepek, Jeffrey AL6, GEN8, TM2, WC2
 Cerda, Ellen AL6, GEN8, TM2, WC2
 Cerkoney, J AL6, GEN8, TM2, WC2
 Cero Wood, Ericka AL6, GEN8, TM2, WC2
 Cerullo, Nancy AL6, GEN8, TM2, WC2
 Cervantes, Susan AL6, GEN8, TM2, WC2
 Cesare, Ann AL6, GEN8, TM2, WC2
 Cespedes, Melinda AL6, GEN8, TM2, WC2
 Cessna, Karen AL6, GEN8, TM2, WC2
 Chabot, Thomas F AL6, GEN8, TM2, WC2
 Chadburn, Jeremy J AL1, GEN5&18, SO1, TM7
 Chaddick, Judith AL6, GEN8, TM2, WC2
 Chaffee, Charlama AL6, GEN8, TM2, WC2
 Chalker, Mikki AL6, GEN8, TM2, WC2
 Chalkley, Calena AL2, TM1
 Chambers, Anthony AL6, GEN8, TM2, WC2
 Chambers, Bernice AL6, GEN8, TM2, WC2
 Chambers, John AL6, GEN8, TM2, WC2
 Chamblin, Kary AL6, GEN8, TM2, WC2
 Chancey, La AL6, GEN8, TM2, WC2
 Chandler, Dianne AL6, GEN8, TM2, WC2
 Chandler, Susan AL6, GEN8, TM2, WC2
 Chaney, Kathryn AL6, GEN8, TM2, WC2
 Chaney, Kevin AL6, GEN8, TM2, WC2
 Chaney, Sky AL6, GEN11, RRI, TM1-2, WC2
 Chaney, Trish AL2 & 6, GEN8, TM1-2, WC2
 Chang, Patricia AL6, GEN8, TM2, WC2
 Chaplin, Ron AL6, GEN8, TM2, WC2
 Chapman, Mary AL2, TM1
 Chapman, Stacey AL6, GEN8, TM2, WC2
 Chard, Philip AL6, GEN8, TM2, WC2
 Charlton, Josh AL6, GEN8, TM2, WC2
 Charter, Donna AL6, GEN8, TM2, WC2
 Chartier, Michele AL6, GEN8, TM2, WC2
 Chase, Alvin AL6, GEN8, TM2, WC2
 Chase, Martha AL2, TM1
 Chattopadhyay, Rita AL6, GEN8, TM2, WC2
 Chavez, Jock AL1, GEN13 & 6, RR27, TM3
 Cheap, Vince AL6, GEN8, TM2, WC2
 Chelmecki, Patricia AL6, GEN8, TM2, WC2
 Cheney, David AL6, GEN8, TM2, WC2
 Cheraskin, Jeri AL6, GEN8, TM2, WC2
 Cherington, Rick RR21, TM3
 Chess, Katie AL6, GEN8, TM2, WC2
 Chestnutt, Judy AL2&6, GEN8, TM1-2, WC2
 Chew, Scott TM10
 Chiakulas, Thomas AL6, GEN8, TM2, WC2
 Chiapella, Lynn AL6, GEN8, TM2, WC2
 Chiarelli, Marc AL6, GEN8, TM2, WC2
 Chieco, Eileen AL6, GEN8, TM2, WC2
 Chilcutt, Megan AL6, GEN8, TM2, WC2
 Childers, Gary AL6, GEN8, TM2, WC2
 Childress, Carrol TM10
 Childs, Pat AL6, GEN8, TM2, WC2
 Chinitz, Joan AL2, TM1
 Chinn, Evangeline AL2, TM1
 Chinni, Adrienne AL6, GEN8, TM2, WC2
 Chiodo, Tony AL6, GEN8, TM2, WC2
 Chiong, Lauren AL6, GEN8, TM1-2, WC2
 Chipchakova, Stoyka AL6, GEN8, TM2, WC2
 Chirgwin, Deb AL6, GEN8, TM2, WC2
 Chisari, Andrea AL6, GEN8, TM2, WC2
 Chisholm, H AL2, TM1
 Chisolm, Holly AL2, TM1
 Chittenden, David AL6, GEN8, TM2, WC2
 Chizever, Jodee AL6, GEN8, TM2, WC2
 Choate, Charmian AL6, GEN8, TM2, WC2
 Choi, Sabrina AL6, GEN8, TM2, WC2
 Chokrevski, Meri AL6, GEN8, TM2, WC2
 Cholewa, Mitch AL6, GEN8, TM2, WC2
 Choquet, Herta AL6, GEN8, TM2, WC2
 Chorique, Steve AL1, GEN5&18, SO1, TM7
 Chorlton, David TM1
 Chorostecki, Gene AL6, GEN8, TM2, WC2
 Christenson, Veronica AL6, GEN8, TM2, WC2
 Christian, B Jane AL6, GEN8, TM2, WC2
 Christian, David AL1, GEN13&16, RR27, TM3
 Christiansen, Dave AL1, GEN5&18, SO1, TM7
 Christiansen, Sue AL6, GEN8, TM2, WC2
 Christianson, Mathew AL6, GEN8, TM2, WC2
 Christianson, Matt AL6, GEN8, TM2, WC2
 Christina, Raymond RR19, TM3
 Christman, Glenn AL6, GEN8, TM2, WC2
 Christopher, G Stephen L6, GEN8, TM2, WC2
 Christopherson, M Kent TM10
 Christopherson, Shawn TM10
 Christy, Charles AL6, GEN8, TM2, WC2
 Christy, Michael AL6, GEN8, TM2, WC2
 Chung, Gay AL6, GEN8, TM2, WC2
 Church, Shirley AL6, GEN8, TM2, WC2
 Ciamarella, Susan AL6, GEN8, TM2, WC2
 Ciccarone, Joan AL6, GEN8, TM2, WC2
 Cichy, Merilee AL6, GEN8, TM2, WC2
 Ciesla, Christina AL6, GEN8, TM2, WC2
 Cihylik, Valerie AL6, GEN8, TM2, WC2
 Cinquemani, D K AL6, GEN8, TM2, WC2
 Cisney, Craig AL6, GEN8, TM2, WC2
 Ciucki, Marcella AL6, GEN8, TM2, WC2
 Civalier, Thelma AL6, GEN8, TM2, WC2
 Clapp, Debra AL6, GEN8, TM2, WC2
 Clapper, Taryn AL6, GEN8, TM2, WC2
 Clare, Anne AL6, GEN8, TM2, WC2

Clark, Anita AL6, GEN8, TM2, WC2
 Clark, Daniel AL6, GEN8, TM2, WC2
 Clark, Edward AL6, GEN8, TM2, WC2
 Clark, Elaine AL6, GEN8, TM2, WC2
 Clark, Elizabeth A AL6, GEN8, TM2, WC2
 Clark, Glenn O AL6, GEN11, RR1, TM1-2, WC2
 Clark, James A Jr AL6, GEN8, TM2, WC2
 Clark, Jim TM10
 Clark, Jon AL6, GEN8, TM2, WC2
 Clark, Loretta AL6, GEN8, TM2, WC2
 Clark, Louise AL6, GEN8, TM2, WC2
 Clark, Martina AL6, GEN8, TM2, WC2
 Clark, Montgomery AL6, GEN8, TM2, WC2
 Clark, Morgan AL6, GEN8, TM2, WC2
 Clark, Nancy C AL6, GEN8, TM2, WC2
 Clark, Ruth H AL6, GEN8, TM2, WC2
 Clark, Sandi AL6, GEN8, TM2, WC2
 Clark, Sherry AL2, TM1
 Clark, Susan & Bruce AL6, GEN8, TM2, WC2
 Clark, Timothy AL6, GEN8, TM2, WC2
 Clarke, Pauline AL6, GEN8, TM2, WC2
 Clarke, Rosalie AL6, GEN8, TM2, WC2
 Clarke, Tim AL6, GEN8, TM2, WC2
 Clarkson, Wright AL6, GEN8, TM2, WC2
 Clavin, Tom AL6, GEN8, TM2, WC2
 Clay, Jeana AL1, GEN13&16, RR27, TM3
 Clay, Jim AL1, GEN13&16, RR27, TM3
 Clay, Joe AL6, GEN8, TM2, WC2
 Clay, Paul AL6, GEN8, TM2, WC2
 Claypool, David AL6, GEN8, TM2, WC2
 Claypool, Roberta AL6, GEN8, TM2, WC2
 Clayton, Christina AL2, TM1
 Clayton, Kirk AL6, GEN8, TM2, WC2
 Cleaveland, Lynn AL2, TM1
 Clebsch, Edward AL6, GEN8, TM2, WC2
 Clemens, Kimberly AL2&6, GEN8, TM1-2, WC2
 Clement, Lewis AL6, GEN8, TM2, WC2
 Clements, Ed AL1, GEN13 & 16, RR27, TM3
 Clements, Patricia AL6, GEN8, TM2, WC2
 Clements, Reina G AL1, GEN13&16, RR27, TM3
 Clements, Richard AL6, GEN8, TM2, WC2
 Clements, Thomas W TM10
 Clendinning, Cami AL6, GEN8, TM2, WC2
 Clevenger, Kristine L6, GEN8, TM2, WC2
 Click, Cifford AL6, GEN8, TM2, WC2
 Click, Jane AL6, GEN8, TM2, WC2
 Click, Linda RR21
 Click, Ruth AL6, GEN8, TM2, WC2
 Clifford, Karl TM10
 Clift, Philip AL2, AL6, GEN8, TM1-2, WC2
 Clifton, Penny AL6, GEN8, TM2, WC2
 Clinard, Sallie RR19, RR2, TM1, TM3
 Cline, Bonnie AL6, GEN8, TM2, WC2
 Cline, Celena AL6, GEN8, TM2, WC2
 Clingman, Leon AL6, GEN8, TM2, WC2
 Clinton, Jennifer AL6, GEN8, TM2, WC2
 Clinton, Robert AL6, GEN8, TM2, WC2
 Clipka, Mike AL2&6, GEN8, TM1-2, WC2
 Cloner, Matthew AL2&6, GEN8, TM1-2, WC2
 Clotworthy, Shawn AL6, GEN8, TM2, WC2
 Cloud, Don AL6, GEN8, TM2, WC2
 Clower, Kenneth AL6, GEN8, TM2, WC2
 Clucas, Kenneth AL6, GEN8, TM2, WC2
 Cluff, Aimee AL1, GEN13&16, RR27, TM3
 Cluff, Jack AL1, GEN13&16, RR27, TM3
 Clyde, Ella AL1, GEN18, GEN5, TM7
 Clyde, Susan AL6, GEN8, TM2, WC2
 Coakley, John Paul AL6, GEN8, TM2, WC2
 Coates, Patricia AL2&6, GEN8, TM1-2, WC2
 Coates, Sandra AL6, GEN8, TM2, WC2
 Coats, Dave TM10
 Coatsworth, Josephine AL6, GEN8, TM2, WC2
 Cobb, Dean AL2, AL6, GEN8, TM1-2, WC2
 Cobb-Hughes, Betsy AL2, TM1
 Cobler, Jennifer AL6, GEN8, TM2, WC2
 Cochran, Amalia AL6, GEN8, TM2, WC2
 Cochran, Michael AL6, GEN8, TM2, WC2
 Cochran, Barbara AL6, GEN8, TM2, WC2
 Cockerill, Erin AL6, GEN8, TM2, WC2
 Coco, Joseph AL6, GEN8, TM2, WC2
 Cody, Kathy AL6, GEN8, TM2, WC2
 Coe, Joyce AL6, GEN8, TM2, WC2
 Coen, Clara AL6, GEN8, TM2, WC2
 Coffey, Brian AL6, GEN8, TM2, WC2
 Coffey, Patricia AL6, GEN8, TM2, WC2
 Coffey-Edelman, Lynn AL6, GEN8, TM2, WC2
 Coha, Alfred TM10
 Cohen Phd, Deborah AL6, GEN8, TM2, WC2
 Cohen, Benita AL6, GEN8, TM2, WC2
 Cohen, Brian AL6, GEN8, TM2, WC2
 Cohen, Bruce AL2&6, GEN8, TM1-2, WC2
 Cohen, Daniel AL6, GEN8, TM2, WC2
 Cohen, Judy Ann AL2&6, GEN8, TM1-2, WC2
 Cohen, Liana AL6, GEN8, TM2, WC2
 Cohen, Lisa AL6, GEN8, TM2, WC2
 Cohen, Louisa AL6, GEN8, TM2, WC2
 Cohen, Marcia AL6, GEN8, TM2, WC2
 Cohen, Sam AL6, GEN8, TM2, WC2
 Cohen, Sylvia AL6, GEN8, TM2, WC2
 Cohn, Sharilyn AL6, GEN8, TM2, WC2
 Colangelo, Dorothea AL6, GEN8, TM2, WC2
 Colby, Martha AL6, GEN8, TM2, WC2
 Cole Phd, Merrill AL6, GEN8, TM2, WC2
 Cole, Barbara AL6, GEN8, TM2, WC2
 Cole, Dean J TM10
 Cole, Jan W AL1, GEN5&18, SO1, TM7
 Cole, Kathleen AL2, TM1
 Cole, Zandra AL6, GEN8, TM2, WC2
 Coleman Shirley, Linda AL6, GEN8, TM2, WC2
 Coleman, Nancy GEN6, TM3
 Coley, Phyllis AL6, GEN8, TM2, WC2
 Colgin, Jill AL6, GEN8, TM2, WC2
 Collar, Michelle AL6, GEN8, TM2, WC2
 Collard, Chris AL6, GEN8, TM2, WC2
 Collier, Mark AL6, GEN8, TM2, WC2
 Collier, Carol AL6, GEN8, TM2, WC2
 Collings, Andrew AL6, GEN8, TM2, WC2
 Collins, Denise AL6, GEN8, TM2, WC2
 Collins, Jeff AL6, GEN8, TM2, WC2
 Collins, Joseph AL6, GEN8, TM2, WC2
 Collins, Mary AL6, GEN8, TM2, WC2
 Collins, Penn AL6, GEN8, TM2, WC2
 Collins, Stefanie AL6, GEN8, TM2, WC2
 Collis, John AL6, GEN8, TM2, WC2
 Colman, Steve TM10
 Colon, Jannice AL2&6, GEN8, TM1-2, WC2
 Colt, Summer AL6, GEN8, TM2, WC2
 Columbia, Jim AL6, GEN8, TM2, WC2
 Columbia, Richard AL6, GEN8, TM2, WC2
 Colvin, Kurt TM10
 Colwell, David G AL6, GEN8, TM2, WC2
 Colwill, Winifred AL6, GEN8, TM2, WC2
 Comba, Betty AL6, GEN8, TM2, WC2
 Combs, Byron AL6, GEN8, TM2, WC2
 Combs, Debra AL6, GEN8, TM2, WC2
 Comegys, Eleanor AL6, GEN8, TM2, WC2
 Comstock, Carolyn AL6, GEN8, TM2, WC2
 Comstock, Peter AL6, GEN8, TM2, WC2
 Concelman, Cheryl AL6, GEN8, TM2, WC2
 Conder, Barbara AL6, GEN8, TM2, WC2
 Condon, James AL6, GEN8, TM2, WC2
 Cone, Frances AL6, GEN8, TM2, WC2
 Confectioner, Vira AL6, GEN8, TM2, WC2
 Congo, Lauren AL6, GEN8, TM2, WC2
 Conkey, James AL6, GEN8, TM2, WC2
 Conlan, Mike AL6, GEN8, TM2, WC2
 Conley, Johnathan AL6, GEN8, TM2, WC2
 Conn, Craig C AL2&6, GEN8, TM1-2, WC2
 Conner, Eileen AL6, GEN8, TM2, WC2
 Conner, Joel M AL1, GEN13&16, RR27, TM3
 Connolly, Nora AL6, GEN8, TM2, WC2
 Conover, Ben AL6, GEN8, TM2, WC2
 Conrad, David L AL6, GEN8, TM2, WC2
 Conrad, Norman AL6, GEN8, TM2, WC2
 Conrath, Chris AL6, GEN8, TM2, WC2
 Conroy, Kathleen AL6, GEN8, TM2, WC2
 Conroy, Peggy AL6, GEN8, TM2, WC2
 Conroy, Thomas AL6, GEN8, TM2, WC2
 Constance, Bianca AL6, GEN8, TM2, WC2
 Constantinides, Marion AL6, GEN8, TM2, WC2
 Conway, Beverly AL6, GEN8, TM2, WC2
 Conyac, Jeremy AL6, GEN8, TM2, WC2
 Coogan, Josie AL6, GEN8, TM2, WC2
 Coogan, Joyce AL6, GEN8, TM2, WC2
 Cook, David Jr AL6, GEN8, TM2, WC2
 Cook, Judy AL6, GEN8, TM2, WC2
 Cooke, James AL6, GEN8, TM2, WC2
 Cooke, Susan AL6, GEN8, TM2, WC2
 Cool, Jan AL6, GEN8, TM2, WC2
 Cooley, Marian AL6, GEN8, TM2, WC2
 Cooley, Peggy AL6, GEN8, TM2, WC2
 Coombs, Joan AL6, GEN8, TM2, WC2
 Coombs, Stephen AL6, GEN8, TM2, WC2
 Cooney, Jennifer AL6, GEN8, TM2, WC2
 Cooney, Margaret AL6, GEN8, TM2, WC2
 Cooper, Alison AL2, TM1
 Cooper, Cynthia AL6, GEN8, TM2, WC2

Cooper, Dayton AL6, GEN8, TM2, WC2
 Cooper, Jacqueline AL6, GEN8, TM2, WC2
 Cooper, John AL1, GEN5&18, SO1, TM7
 Cooper, Katherine AL6, GEN8, TM2, WC2
 Cooper, Michael AL6, GEN8, TM2, WC2
 Cooper, Mont AL6, GEN8, TM2, WC2
 Cooper, Pat AL6, GEN8, TM2, WC2
 Cooper, Timothy AL6, GEN8, TM2, WC2
 Cooper, Vi AL6, GEN8, TM2, WC2
 Cooperman, Marcia L6, GEN8, TM2, WC2
 Copeland, Lisa AL6, GEN8, TM2, WC2
 Copeland, Melvin AL6, GEN8, TM2, WC2
 Corbet, Abigail AL6, GEN8, TM2, WC2
 Corbo, Nicole J AL6, GEN8, TM2, WC2
 Corcoran, James AL6, GEN8, TM2, WC2
 Cordero, Carmen AL6, GEN8, TM2, WC2
 Cordero, Gene AL1, GEN13&16, RR27, TM3
 Cording, Carl AL6, GEN8, TM2, WC2
 Corey, Brenda AL6, GEN8, TM2, WC2
 Corkrum, Conor AL6, GEN8, TM2, WC2
 Cornell, Sandra AL6, GEN8, TM2, WC2
 Cornett, Libby A AL2, TM1
 Cornett, Margaret AL6, GEN8, TM2, WC2
 Cornish, Rachel AL6, GEN8, TM2, WC2
 Cornum, Kurt TM10
 Cornwell, Charlotte AL2, TM1
 Corogin, Paul AL6, GEN8, TM2, WC2
 Corona, Stephanie AL6, GEN8, TM2, WC2
 Corr, Fitzhugh AL6, GEN8, TM2, WC2
 Correia, Eileen AL2, TM1
 Corrigan, James AL6, GEN8, TM2, WC2
 Corroone, E Michael AL6, GEN8, TM2, WC2
 Corry, Boyd AL1, GEN13&16, RR27, TM3
 Cortez, Chelle AL6, GEN8, TM2, WC2
 Cortijo, Monica AL2, TM1
 Cortinas, Jenni AL6, GEN8, TM2, WC2
 Corwin, Craig AL6, GEN8, TM2, WC2
 Cosgriff, Mark AL2&6, GEN8, TM1-2, WC2
 Cosgrove, Patrick AL2, TM1
 Cossitt, Alan TM10
 Costa, Demelza AL6, GEN8, TM2, WC2
 Costa, Francisco AL6, GEN8, TM2, WC2
 Costa, Tony AL2, TM1
 Costello, Thomas AL6, GEN8, TM2, WC2
 Cotter, Scott AL6, GEN8, TM2, WC2
 Cottle, Daniel AL6, GEN8, TM2, WC2
 Cottrell, Ricardo AL6, GEN8, TM2, WC2
 Couch, Kathryn AL6, GEN8, TM2, WC2
 Couey, Linda AL6, GEN8, TM2, WC2
 Couling, David AL6, GEN8, TM2, WC2
 Coulombe, Raymond AL6, GEN8, TM2, WC2
 Coulson, Barbara AL6, GEN8, TM2, WC2
 Coulson, Elyse AL6, GEN8, TM2, WC2
 Coulter, Kathryn AL6, GEN8, TM2, WC2
 Coultes, Julie K AL6, GEN8, TM2, WC2
 Counce, Nina AL6, GEN8, TM2, WC2
 Counterman, Jesse AL6, GEN8, TM2, WC2
 Coupas, Nick AL6, GEN8, TM2, WC2
 Courchane, Matthew L6, GEN8, TM2, WC2
 Courter, Matthew R L6, GEN8, TM2, WC2
 Courtney, Matt AL6, GEN8, TM2, WC2
 Courtright, Eriha AL6, GEN8, TM2, WC2
 Cousins, Vera AL6, GEN8, TM2, WC2
 Coventry, Joseph AL6, GEN8, TM2, WC2
 Cover, Mary AL6, GEN8, TM2, WC2
 Covington, Laurel AL6, GEN8, TM2, WC2
 Cowan, Barbara AL6, GEN8, TM2, WC2
 Cowden, Lester AL6, GEN8, TM2, WC2
 Cowett, Shannon AL6, GEN8, TM2, WC2
 Cowley, Mary R AL6, GEN8, TM2, WC2
 Cowley, Stephen AL5
 Cowperthwaite, Tanya AL6, GEN8, TM2, WC2
 Cox, Alvin AL1, GEN18, GEN5, SO1, TM7
 Cox, Darryl AL6, GEN8, TM2, WC2
 Cox, John J AL6, GEN8, TM2, WC2
 Cox, Joseph S AL6, GEN8, TM2, WC2
 Cox, Joyce AL1, GEN18, GEN5, SO1, TM7
 Cox, Kristie AL2, TM1
 Cox, Linda AL6, GEN8, TM2, WC2
 Cox, Lylanya AL6, GEN8, TM2, WC2
 Cox, Marilyn AL1, GEN13&16, RR27, TM3
 Cox, Mitzi AL6, GEN8, TM2, WC2
 Cox, Norm AL6, GEN8, TM2, WC2
 Cox, Sharon AL6, GEN8, TM2, WC2
 Coy, Haverley AL6, GEN8, TM2, WC2
 Coy, John AL6, GEN8, TM2, WC2
 Coyle, Gregory AL6, GEN8, TM2, WC2
 Coys, H AL1, SO1
 Cozzi, Matthew AL6, GEN8, TM2, WC2
 Crafts, William AL6, GEN8, TM2, WC2
 Craig, David AL6, GEN8, TM2, WC2
 Craig, Frances AL6, GEN8, TM2, WC2
 Craig, Jacqueline TM1
 Craig, Joyce AL6, GEN8, TM2, WC2
 Craig, Lynn AL6, GEN8, TM2, WC2
 Craig, William AL6, GEN8, TM2, WC2
 Cramer, Mary Ann AL6, GEN8, TM2, WC2
 Crane, Jan AL6, GEN8, TM2, WC2
 Crandall, Neal AL6, GEN8, TM2, WC2
 Crandell, Chuck AL4, CL1
 Crandell, Herbert AL6, GEN8, TM2, WC2
 Crane, Donna AL6, GEN8, TM2, WC2
 Crane, Hollace AL2&6, GEN8, TM1-2, WC2
 Crane, Robert AL6, GEN8, TM2, WC2
 Crane, Stephen AL6, GEN8, TM2, WC2
 Cranfill, Ron RR12
 Craven, Lori AL2, TM1
 Crawford, Bonnie AL6, GEN8, TM2, WC2
 Crawford, Brandon AL1, GEN13&16, RR27, TM3
 Crawford, David AL6, GEN8, TM2, WC2
 Crawford, Melissa AL1, GEN13&16, RR27, TM3
 Crawford, Morgan AL6, GEN8, TM2, WC2
 Crawford, Richard AL2, TM1
 Crawley, Karen AL6, GEN8, TM2, WC2
 Creatore, Wilma AL6, GEN8, TM2, WC2
 Cree, Ian AL6, GEN8, TM2, WC2
 Creighton, Charles AL6, GEN8, TM2, WC2
 Creighton, Mary AL6, GEN8, TM2, WC2
 Crenshaw, Aisha AL6, GEN8, TM2, WC2
 Crenshaw, Shirley AL6, GEN8, TM2, WC2
 Cresseveur, Jessica AL6, GEN8, TM2, WC2
 Cressy, Norman AL6, GEN8, TM2, WC2
 Creswell, Richard AL6, GEN8, TM2, WC2
 Crezee, Kelvin TM10
 Cripps, Dennis AL6, GEN8, TM2, WC2
 Criscola, Anthony AL6, GEN8, TM2, WC2
 Crist, Edward AL6, GEN8, TM2, WC2
 Criswell, T AL6, GEN8, TM2, WC2
 Crocker, Sharon AL6, GEN8, TM2, WC2
 Crofts, Darren AL1, GEN11&13, GM2&5, SD5, SO2, TM12-13, VM2, WC2, WS6
 Croghan, Jon TM10
 Croll, Philip AL6, GEN8, TM2, WC2
 Croll, Tamara AL6, GEN8, TM2, WC2
 Crom, Nancy AL6, GEN8, TM2, WC2
 Cromwick, William AL6, GEN8, TM2, WC2
 Cronan, Terri AL2, TM1
 Cronin, Jim AL6, GEN8, TM2, WC2
 Crook, Michelle AL6, GEN8, TM2, WC2
 Crooms, Sandy AL2, TM1
 Crosby, Kathie AL6, GEN8, TM2, WC2
 Crosby, Brewster AL6, GEN8, TM2, WC2
 Crosby, Donald AL6, GEN8, TM2, WC2
 Crosby, Michael D AL1, GEN13&16, RR27, TM3
 Crosby, Shelly AL6, GEN8, TM2, WC2
 Crosby, Tom AL6, GEN8, TM2, WC2
 Crosland, Richard AL6, GEN8, TM2, WC2
 Cross, Alfred AL6, GEN8, TM2, WC2
 Cross, Heather AL2, TM1
 Crossley, Jean AL6, GEN8, TM2, WC2
 Crotty, Charles AL6, GEN8, TM2, WC2
 Crotty, Megan AL6, GEN8, TM2, WC2
 Crowhurst, Chris AL2, TM1
 Crowl, Rod AL6, GEN8, TM2, WC2
 Crowley, Joyee AL6, GEN8, TM2, WC2
 Crowley, Lawrence AL6, GEN8, TM2, WC2
 Crugnola, T AL6, GEN8, TM2, WC2
 Crum, William AL6, GEN8, TM2, WC2
 Crump, Thomas P AL1, GEN5&18, SO1, TM7
 Crutcher, Allen AL6, GEN8, TM2, WC2
 Crutehfield, Penny RR1
 Cruz III, Pascual AL6, GEN8, TM2, WC2
 Cruz, Ana AL2, AL6, GEN8, TM1-2, WC2
 Cser, Stephen AL6, GEN8, TM2, WC2
 Cueny, Colleen AL6, GEN8, TM2, WC2
 Cukrov, Vince AL6, GEN8, TM2, WC2
 Culbert, Patrick AL2, TM1
 Cullen, Dale AL6, GEN8, TM2, WC2
 Culp, Chad AL6, GEN8, TM2, WC2
 Culp, Krista AL6, GEN8, TM2, WC2
 Culpepper, Pat AL6, GEN8, TM2, WC2
 Culver, Carolyn AL6, GEN8, TM2, WC2
 Cummings, Nataline AL6, GEN8, TM2, WC2
 Cummings, Terry AL2&6, GEN8, TM1-2, WC2
 Cunningham, Carol AL6, GEN8, TM2, WC2
 Cunningham, Megan AL6, GEN8, TM2, WC2
 Curatolo, Linda AL6, GEN8, TM1-2, WC2
 Curmow, Connie AL6, GEN8, TM2, WC2
 Curotto, John AL2&6, GEN8, TM1-2, WC2
 Curran, Thomas TM3
 Current, Jon AL6, GEN8, TM2, WC2

Currier, James AL6, GEN8, TM2, WC2
 Curry, Franca AL6, GEN8, TM2, WC2
 Curry, Kc AL2, TM1
 Curry, Toni AL6, GEN8, TM2, WC2
 Curtin, Doreen AL6, GEN8, TM2, WC2
 Curtin, Sheila AL6, GEN8, TM2, WC2
 Curtis, Jamie Rothschild AL6, GEN8, TM2, WC2
 Curtis, Richard AL6, GEN8, RR1, TM2, WC2
 Cusack, Odean AL6, GEN8, TM2, WC2
 Cushing, Aaron AL6, GEN8, TM2, WC2
 Cushing, Catherine AL6, GEN8, TM2, WC2
 Cushing, Colbert AL6, GEN8, TM2, WC2
 Cushing, Jim AL6, GEN8, TM2, WC2
 Cuthbertson, Tim AL6, GEN8, TM2, WC2
 Cuthill, Felicia AL2, TM1
 Cutrera, Mary AL6, GEN8, TM2, WC2
 Cutting, Amy AL6, GEN8, TM2, WC2
 Cuttler, Curtis AL1, GEN13&16, RR27, TM3
 Cyr, Vicki AL6, GEN8, TM2, WC2
 Cyriacks, Christine AL2&6, GEN8, TM1-2, WC2
 D Alessio, Glenn AL6, GEN8, TM2, WC2
 D, Liz AL2, TM1
 Dabby, William AL6, GEN8, TM2, WC2
 Dadant, Thomas AL6, GEN8, TM2, WC2
 Daharsh, Caryn AL6, GEN8, TM2, WC2
 Dahlgren, Paul N AL6
 Dahlquist, Abby AL6, GEN8, TM2, WC2
 Dailey, Christa AL6, GEN8, TM2, WC2
 Dailey, Greg AL6, GEN8, TM2, WC2
 Dailey, Ronald AL6, GEN8, TM2, WC2
 Daily, Barbara AL6, GEN8, TM2, WC2
 Daily, Janet AL6, GEN8, TM2, WC2
 Daiss, Becky AL2&6, GEN8, TM1&2, WC2
 Dake, Chuck TM10
 Dal Pino, Ida Jane AL6, GEN8, TM2, WC2
 Dale, Adrienne AL2, TM1
 Dale, Emily AL2, TM1
 Dalesky, Karin AL6, GEN8, TM2, WC2
 Daletski, Anne AL6, GEN8, TM2, WC2
 Dalmau, Richard AL2, TM1
 Daly, Deirdre AL6, GEN8, TM2, WC2
 Damiano, John TM10
 Damico, Judith AL6, GEN8, TM2, WC2
 Damico, Ron AL6, GEN8, TM2, WC2
 Damico, Tony Jr AL6, GEN8, TM2, WC2
 Dane, William AL6, GEN8, TM2, WC2
 Dang, Khoi AL6, GEN8, TM2, WC2
 Dangelo, Joseph AL6, GEN8, TM2, WC2
 Daniel, Marc AL6, GEN8, TM2, WC2
 Daniels, J Scott AL2&6, GEN8, TM1-2, WC2
 Daniels, Matthew AL6, GEN8, TM2, WC2
 Daniels, Walter AL6, GEN8, TM2, WC2
 Danielson, Ron AL1, GEN13&16, RR27, TM3
 Danko, Barbara AL6, GEN8, TM2, WC2
 Danley-Kilgo, Reese AL6, GEN8, TM2, WC2
 Dann, Duane AL6, GEN8, TM2, WC2
 Danner, Harry AL6, GEN8, TM2, WC2
 Dantonio, Lisa AL6, GEN8, TM2, WC2
 Danzinger, Ryan AL6, GEN8, TM2, WC2
 Dapore, Wendy AL2, TM1
 Dargatz, Barbara A AL6, GEN8, TM2, WC2
 Darling, Alan AL6, GEN8, TM2, WC2
 Daro-Ohare, Lynda AL6, GEN8, TM2, WC2
 Darrar, Jim AL6, GEN8, TM2, WC2
 Darrington, Roy D AL1, GEN5&18, SO1, TM7
 Das, Anita AL6, GEN8, TM2, WC2
 Dattoli, Sandra AL6, GEN8, TM2, WC2
 Daugherty, Crystal AL6, GEN8, TM2, WC2
 Davenport, Angela AL6, GEN8, TM2, WC2
 Davenport, Anne AL6, GEN8, TM2, WC2
 Davenport, Brian O AL1, GEN18, GEN5, SO1, TM7
 Davenport, Helen AL2, TM1
 Davfield, Robert AL6, GEN8, TM1-2, WC2
 David, Maxyne AL6, GEN8, TM2, WC2
 David, Temperence AL6, GEN8, TM2, WC2
 Davidson, Bruce AL5, TM3, 6, 11&13, WC1
 Davidson, Kim AL6, GEN8, TM2, WC2
 Davine, Jill AL6, GEN8, TM2, WC2
 Davis, Alice Christine AL6, GEN8, TM2, WC2
 Davis, Amanda AL6, GEN8, TM2, WC2
 Davis, Augusta AL2, TM1
 Davis, Ben TM10
 Davis, Beth AL6, GEN8, TM2, WC2
 Davis, Carol AL6, GEN8, TM2, WC2
 Davis, Chuck & Jan TM1
 Davis, Constance AL6, GEN8, TM2, WC2
 Davis, Diane AL2, TM1
 Davis, Eileen AL6, GEN8, TM2, WC2
 Davis, Ellen AL6, GEN8, TM2, WC2
 Davis, George AL6, GEN8, TM2, WC2
 Davis, Harry AL6, GEN8, TM2, WC2
 Davis, Jamie TM1
 Davis, Jennifer AL6, GEN8, TM2, WC2
 Davis, John AL6, GEN8, TM2, WC2
 Davis, Lawrence Fosnick AL6, GEN8, TM2, WC2
 Davis, Lori A AL6, GEN8, TM2, WC2
 Davis, Luise AL6, GEN8, TM2, WC2
 Davis, Margot AL6, GEN8, TM2, WC2
 Davis, Melissa AL6, GEN8, TM2, WC2
 Davis, Robert AL6, GEN8, TM2, WC2
 Davis, Sarah AL6, GEN8, TM2, WC2
 Davis, Sheila AL6, GEN8, TM2, WC2
 Davis, Sue AL6, GEN8, TM2, WC2
 Davis-Born, Renee AL6, GEN8, TM2, WC2
 Dawes, Daniel AL6, GEN8, TM2, WC2
 Dawes, Steven AL6, GEN8, TM2, WC2
 Dawson, Jim AL6, GEN8, TM2, WC2
 Dawson, John AL6, GEN8, TM2, WC2
 Dawson, Robert AL6, GEN8, TM2, WC2
 Day, Charlie AL2, TM1
 Day, Kristian AL6, GEN8, TM2, WC2
 Day, Margaret AL6, GEN8, TM2, WC2
 Daye, Katherine AL6, GEN8, TM2, WC2
 Dayfield, Lee AL6, GEN8, TM2, WC2
 De Arteaga, Jose AL6, GEN8, TM2, WC2
 De Dios, Alicia AL6, GEN8, TM2, WC2
 De Jasu, Barry AL6, GEN8, TM2, WC2
 De La Fuente, Ma Elena AL2, TM1
 De La Garza, Nancy AL6, GEN8, TM2, WC2
 De Lapena, Mary T AL6, GEN8, TM2, WC2
 De Mirjian, Carolyn AL6, GEN8, TM2, WC2
 De Paola, Charles AL6, GEN6&8, TM2, WC2
 De Sart, Marci AL6, GEN8, TM2, WC2
 De Sio, Elisse AL6, GEN8, TM2, WC2
 De Smith, Jennifer AL6, GEN8, TM2, WC2
 De Soto, Hector AL6, GEN8, TM2, WC2
 De Sousa, Sarah AL6, GEN8, TM2, WC2
 De Stefano, Ron AL6, GEN8, TM2, WC2
 De Velez, Darcie Clausen AL6, GEN8, TM2, WC2
 Deacon, Joel AL6, GEN8, TM2, WC2
 Deal, Jeffrey AL6, GEN8, TM2, WC2
 Deal, Mike TM10
 Dean, Andrea AL6, GEN8, TM2, WC2
 Dean, Asa TM10
 Dean, Leslie AL6, GEN8, TM2, WC2
 Dean, Rachel AL6, GEN8, TM2, WC2
 Dean, Rayline AL6, GEN8, TM2, WC2
 Dean, Sue E AL6, AL6, GEN11, GEN8, RR1, TM1&2, TM2, WC2, WC2
 Deane, Alan AL6, GEN8, TM2, WC2
 Deangelis, Kate AL6, GEN8, TM2, WC2
 Dean-Love, Pat AL6, GEN8, TM2, WC2
 Deantoni, Carol AL6, GEN8, TM2, WC2
 Deardo, Margaret AL6, GEN8, TM2, WC2
 Dearie, Debora AL6, GEN8, TM2, WC2
 Dearing, Deborah AL6, GEN8, TM2, WC2
 Deauville, Paul M AL6, GEN8, TM2, WC2
 Debenedittis, Suzanne AL6, GEN8, TM2, WC2
 Debona, Kaye AL6, GEN8, TM2, WC2
 Debruton, Noel AL6, GEN8, TM2, WC2
 Dec, Eric AL6, GEN8, TM2, WC2
 Decastro, Ines AL6, GEN8, TM2, WC2
 Decker, Joe AL1, GEN13&16, RR27, TM3
 Decker, Susan AL6, GEN8, TM2, WC2
 Dee, Diana AL6, GEN8, TM2, WC2
 Deegan, James AL6, GEN8, TM2, WC2
 Defalco, Tony AL2, TM1
 Defaltay, Sarolta AL6, GEN8, TM2, WC2
 Defranco, Adam AL2, TM1
 Defrin, Elin AL6, GEN8, TM2, WC2
 Degenhart, Dawn AL6, GEN8, TM2, WC2
 Degero, Beverly AL6, GEN8, TM2, WC2
 Degrace, Val AL6, GEN8, TM2, WC2
 Degreen, Hal TM10
 Degroat, Allyson AL6, GEN8, TM2, WC2
 Dehler, Frank AL6, GEN8, TM2, WC2
 Dehmel, Craig AL6, GEN8, TM2, WC2
 Dehn, Amanda AL2, TM1
 Dehn, Charlie AL6, GEN8, TM2, WC2
 Dejong, Suki AL6, GEN8, TM2, WC2
 Del Duca, Barbara AL6, GEN8, TM2, WC2
 Del Valle, Marcela AL6, GEN8, TM2, WC2
 Delacey, Carol AL6, GEN8, TM2, WC2
 Delage, Joseph AL6, GEN8, TM2, WC2
 Delarios, Gary AL6, GEN8, TM2, WC2
 Delazzer, David AL6, GEN8, TM2, WC2
 Delcoure, J Clay TM14
 Delevoryas, John AL6, GEN8, TM2, WC2

Delgiudice, Barbara AL6, GEN8, TM2, WC2
 Delisi, Carol AL2, TM1
 Delker, Jennifer AL2&6, GEN8, TM1-2, WC2
 Dellaloggia, Denis AL6, GEN8, TM2, WC2
 Dellapenna, Mike AL6, GEN8, TM2, WC2
 Deller, James AL6, GEN8, TM2, WC2
 Delles, Susan AL6, GEN8, TM2, WC2
 Delmestre, Marie-Helene AL2, TM1
 Deluca, John AL6, GEN8, TM2, WC2
 Deluca, Matt AL6, GEN8, TM2, WC2
 Demairo, Pauline AL6, GEN8, TM2, WC2
 Demarais, Jackie AL6, GEN8, TM2, WC2
 Demaras, Denise AL6, GEN8, TM2, WC2
 Demarco, Frank AL6, GEN8, TM2, WC2
 Demari, Justine AL6, GEN8, TM2, WC2
 Demas, James AL6, GEN8, TM2, WC2
 Demesek, Harriet AL6, GEN8, TM2, WC2
 Deming, Janet AL6, GEN8, TM2, WC2
 Dempsey, Della AL6, GEN8, TM2, WC2
 Denenberg, Harold J AL6, GEN8, TM2, WC2
 Dengler, Carolyn AL2, TM1
 Denherder-Thomas, Timothy AL6, GEN8, TM2, WC2
 Denison, Laurie AL6, GEN8, TM2, WC2
 Denison, Lou Anna AL2, TM1
 Denman, Jack AL6, GEN8, TM2, WC2
 Denner, Larry AL6, GEN8, TM2, WC2
 Denning, Elizabeth AL6, GEN8, TM2, WC2
 Dennis, Barbara AL6, GEN8, TM2, WC2
 Dennis, Larry AL6, GEN8, TM2, WC2
 Dennis, Steve AL6, GEN8, TM2, WC2
 Dennis, Todd E AL6, GEN8, TM2, WC2
 Dennison, Carolyn AL6, GEN8, TM2, WC2
 Denny, Margaret AL6, GEN8, TM2, WC2
 Denny, Rachael AL2&6, GEN8, TM1-2, WC2
 Denoel, Tami AL6, GEN8, TM2, WC2
 Denos, Richard L AL1, GEN5&18, SO1, TM7
 Dent, Jerry TM10
 Dent, Sandra Sue AL6, GEN8, TM2, WC2
 Depoy, Maxine AL2, TM1
 Derbidge, Diana AL1, GEN13&16, RR27, TM3
 Dercole, Kerrie AL6, GEN8, TM2, WC2
 Derek, Nancy TM10
 Derial, Gahlyne AL6, GEN8, TM2, WC2
 Deromana, I AL2, TM1
 Derosier, Chad AL6, GEN8, TM2, WC2
 Derrick, George CL4, GEN1, RR4, TM10, WF1
 Derrick, Thales A "Tad" TM10
 Dersch, Barbara AL6, GEN8, TM2, WC2
 Derwingson, Jennifer AL6, GEN8, TM2, WC2
 Derzon, Jim AL6, GEN8, TM2, WC2
 Desai, Helen AL6, GEN8, TM2, WC2
 Desbrow, Stacy AL2&6, GEN8, TM1-2, WC2
 Deschene, Patricia AL6, GEN8, TM2, WC2
 Desfor, Paul AL6, GEN8, TM2, WC2
 Deshotel, Clint AL6, GEN8, TM2, WC2
 Desiderio, Randi AL6, GEN8, TM2, WC2
 Desmarais, Jeannine AL6, GEN8, TM2, WC2
 Desrcuisseau, Judy AL6, GEN8, TM2, WC2
 Determan, Margie AL6, GEN8, TM2, WC2
 Deth, Susan AL6, GEN8, TM2, WC2
 Dethlefsen, Les AL6, GEN8, TM2, WC2
 Detora, Danny AL6, GEN8, TM2, WC2
 Devere, Kirsten AL2, TM1
 Devine, Brennan AL6, GEN8, TM2, WC2
 Devine, Connie AL2&6, GEN8, TM1-2, WC2
 Devine, Lauren AL2&6, GEN8, TM1-2, WC2
 Dewald, Coralie AL6, GEN8, TM2, WC2
 Dewane, Maggie AL6, GEN8, TM2, WC2
 Dewitt, Ethlynn AL6, GEN8, TM2, WC2
 Dexheimer, Derek AL6, GEN8, TM2, WC2
 Dial, Don AL6, GEN8, TM2, WC2
 Diamond, Jessica AL6, GEN8, TM2, WC2
 Diamond, Karen W AL6, GEN8, TM2, WC2
 Diana, Patty AL6, GEN8, TM2, WC2
 Diaz, Jay AL6, GEN8, TM2, WC2
 Diaz, Richard AL6, GEN8, TM2, WC2
 Diaz, Zaidy AL6, GEN8, TM2, WC2
 Dibacco, Kathleen M AL6, GEN8, TM2, WC2
 Dibble, Marcia AL6, GEN8, TM2, WC2
 Dicamillo, Jessica AL6, GEN8, TM2, WC2
 Dicenso, Michael AL6, GEN8, TM2, WC2
 Dickens, Charles AL6, GEN8, TM2, WC2
 Dickerson, Aimee AL6, GEN8, TM2, WC2
 Dickerson, Deborah AL6, GEN8, TM2, WC2
 Dickey, Emma AL6, GEN8, TM2, WC2
 Dicoste, Patricia AL6, GEN8, TM2, WC2
 Dierig, John AL6, GEN8, TM2, WC2
 Diernbach, Diane AL6, GEN8, TM2, WC2
 Dietz, Kerry AL6, GEN8, TM2, WC2
 Difiore, Greg AL6, GEN8, TM2, WC2
 Difiore, Maria AL6, GEN8, TM2, WC2
 Digby, Jean AL6, GEN8, TM2, WC2
 Diliberto, Pam AL2, TM1
 Dilks, Cleon AL6, GEN8, TM2, WC2
 Dill, Art TM10
 Dill, Kacie AL6, GEN8, TM2, WC2
 Dilley, Richard AL2&6, GEN8, TM1-2, WC2
 Dilliard, Marcus AL6, GEN8, TM2, WC2
 Dillon, Deb AL6, GEN8, TM2, WC2
 Dillon, Henry AL6, GEN8, TM2, WC2
 Dillon, Nancy AL6, GEN8, TM2, WC2
 Dimario, Angelo AL6, GEN8, TM2, WC2
 Dimen, Michael AL6, GEN8, TM2, WC2
 Dimin, Lee AL6, GEN8, TM2, WC2
 Dinaberg, Brigitte AL6, GEN8, TM2, WC2
 Dines, Robert AL6, GEN8, TM2, WC2
 Dinu, Eleonora AL6, GEN8, TM2, WC2
 Dipasquale-Hunton, Chelsey AL6, GEN8, TM2, WC2
 Dipert, Brain AL6, GEN8, TM2, WC2
 Dirosse, Betty AL6, GEN8, TM2, WC2
 Discind, Morton AL6, GEN8, TM2, WC2
 Dishion, Catherine AL6, GEN8, TM2, WC2
 Dishman, Patricia AL6, GEN8, TM2, WC2
 Ditter, Steven TM10
 Dittmer, Rosemary AL6, GEN8, TM2, WC2
 Divers, Sheri AL6, GEN8, TM2, WC2
 Divittorio, Antoinette AL6, GEN8, TM2, WC2
 Dixon, 1 AL6, GEN8, TM2, WC2
 Dixon, Donna L AL6, GEN8, TM2, WC2
 Dixon, John AL6, GEN8, TM2, WC2
 Dixon, Troy AL6, GEN8, TM2, WC2
 Dixon, William T AL6, GEN8, TM2, WC2
 Dlugosz, Janice AL6, GEN8, TM2, WC2
 Dobson, Carol AL6, GEN8, TM2, WC2
 Dobson, Michael AL6, GEN8, TM2, WC2
 Dochoff, Erick AL2, TM1
 Dodd, Elizabeth AL6, GEN8, TM2, WC2
 Dodson, Paula AL6, GEN8, TM2, WC2
 Dodson, Sandie AL6, GEN8, TM2, WC2
 Doherty, Melanie AL6, GEN8, TM2, WC2
 Doherty, Nia AL2, TM1
 Doherty, Tom AL1, GEN13&16, RR27, TM3
 Dolan, Judy AL6, GEN8, TM2, WC2
 Doll, Garry AL6, GEN8, TM2, WC2
 Dolloff, Don AL2, TM1
 Dolney, Rachel AL2&6, GEN8, TM1-2, WC2
 Dolney, Renee AL6, GEN8, TM2, WC2
 Dolowitz, Alexander AL6, GEN8, TM2, WC2
 Dombeck, Carrie AL6, GEN8, TM2, WC2
 Dombrowski, Fran AL6, GEN8, TM2, WC2
 Domke, Del E AL6, GEN8, TM2, WC2
 Doms, Nobertas J AL1, GEN5&18, SO1, TM7
 Donahue, Maryann AL6, GEN8, TM2, WC2
 Donaldson, John AL6, GEN8, TM2, WC2
 Donegan, Heather AL6, GEN8, TM2, WC2
 Donlen, William III AL6, GEN8, TM2, WC2
 Donnelly, Lisa AL6, GEN8, TM2, WC2
 Donnelly, Stephen AL2&6, GEN8, TM1-2, WC2
 Donnici, Anthony AL2, TM1
 Donoho, Kim AL1, GEN13&16, RR27, TM3
 Donohue, Eugene AL6, GEN8, TM2, WC2
 Donohue, Sarah AL6, GEN8, TM2, WC2
 Donovan, Abby AL6, GEN8, TM2, WC2
 Donovan, Diana AL6, GEN8, TM2, WC2
 Donovan, Hugh AL6, GEN8, TM2, WC2
 Donovan, Stephan AL6, GEN8, TM2, WC2
 Dooney, Meghan AL6, GEN8, TM2, WC2
 Dorchak, Lillian AL6, GEN8, TM2, WC2
 Dorfman, Mary Virginia AL6, GEN8, TM2, WC2
 Dorfman, Richard AL6, GEN8, TM2, WC2
 Dornan, Ellen AL6, GEN8, TM2, WC2
 Dornan, John AL1, GEN13&16, RR27, TM3
 Dorn-Odonnell, Linda AL6, GEN8, TM2, WC2
 Dorschner, Jon AL6, GEN8, TM2, WC2
 Dorsett, Felicity AL6, GEN8, TM2, WC2
 Dorton, Beth AL6, GEN8, TM2, WC2
 Dosaj, Rajan AL6, GEN8, TM2, WC2
 Dotson, D AL6, GEN8, TM2, WC2
 Dotson, Tim AL1, GEN5&18, SO1, TM7
 Doty, Don AL6, GEN8, TM2, WC2

Doucet, Lisha AL6, GEN8, TM2, WC2
 Dougherty, Christopher AL6, GEN8, TM2, WC2
 Dougherty, Donald AL6, GEN8, TM2, WC2
 Dougherty, Mona AL6, GEN8, TM2, WC2
 Doughty, Harry AL6, GEN8, TM2, WC2
 Douglas, Alyce AL6, GEN8, TM2, WC2
 Douglas, Stephanie AL6, GEN8, TM2, WC2
 Douglas, Susie AL2, TM1
 Douglas, Virginia AL2&6, GEN8, TM1-2, WC2
 Douglass, Kent AL1, GEN13&16, RR27, TM3
 Douglass, Sandy AL6, GEN8, TM2, WC2
 Douglass, Sheldon AL1, GEN13&16, RR27, TM3
 Dovala, Joseph AL6, GEN8, TM2, WC2
 Dowd, Karen AL6, GEN8, TM2, WC2
 Dowler, Nelson AL6, GEN8, TM2, WC2
 Downer, Craig AL6, GEN8, TM2, WC2
 Downing, Edith AL2, TM1
 Doyal, John AL6, GEN8, TM2, WC2
 Drabek, Donna AL6, GEN8, TM2, WC2
 Drager, Lance AL6, GEN8, TM2, WC2
 Drake, Geraldine AL6, GEN8, TM2, WC2
 Drake, Madeleine AL6, GEN8, TM2, WC2
 Drake, Mercy AL6, GEN8, TM2, WC2
 Draper, Mary AL6, GEN8, TM2, WC2
 Drechsler, Ann AL2, TM1
 Drescher, Linda AL6, GEN8, TM2, WC2
 Dreste, Arlene AL6, GEN8, TM2, WC2
 Dreyfuss, Meri AL6, GEN8, TM2, WC2
 Driban, Bunny AL6, GEN8, TM2, WC2
 Driscoll, Edward AL6, GEN8, TM2, WC2
 Drumm, G M AL6, GEN8, TM2, WC2
 Drumm, Thomas AL6, GEN8, TM2, WC2
 Drummond, Jay AL6, GEN8, TM2, WC2
 Drummond, Scott AL6, GEN8, TM2, WC2
 Dryer, Ivan AL6, GEN8, TM2, WC2
 Dsouza, Gladwyn AL6, GEN8, TM2, WC2
 Du Brin, Jane AL6, GEN8, TM2, WC2
 Du Mont, M AL6, GEN8, TM2, WC2
 Dubay, Jonathan AL6, GEN8, TM2, WC2
 Dubno, Danielle AL6, GEN8, TM2, WC2
 Dubois, Courtney AL6, GEN8, TM2, WC2
 Dubois, Jim AL6, GEN8, TM2, WC2
 Dubois, Stephen AL6, GEN8, TM2, WC2
 Duchaine, George AL6, GEN8, TM2, WC2
 Duck, Dennis AL6, GEN8, TM2, WC2
 Duckett, Laurelin AL6, GEN8, TM2, WC2
 Duckett, Nida AL6, GEN8, TM2, WC2
 Duda, Tim AL6, GEN8, TM2, WC2
 Dudeck, Michelle AL6, GEN8, TM2, WC2
 Dudley, P L AL6, GEN8, TM2, WC2
 Duffey, Michael R AL6, GEN8, TM2, WC2
 Dufort, Matthew AL6, GEN8, TM2, WC2
 Dugan, Julia AL2&6, GEN8, TM1&2, WC2
 Duggan, Jack AL6, GEN8, TM2, WC2
 Duggan, Jessica AL6, GEN8, TM2, WC2
 Dukes, Glenys AL6, GEN8, TM2, WC2
 Dukovich, John AL6, GEN8, TM2, WC2
 Dulfer, Anne AL6, GEN8, TM2, WC2
 Dumont, William AL2, TM1
 Duncan, Michele & Jim AL6, GEN8, TM2, WC2
 Duncan, Mike AL2&6, GEN8, TM1-2, WC2
 Duneman, Gary AL6, GEN8, TM2, WC2
 Dunham, Janet AL2&6, GEN8, TM1&2, WC2
 Dunham, Karen AL6, GEN8, TM2, WC2
 Dunkleberger, David AL6, GEN8, TM2, WC2
 Dunlap, Anne AL6, GEN8, TM2, WC2
 Dunlop, Matt AL6, GEN8, TM2, WC2
 Dunn, Lois AL2, TM1
 Dunn, Michael AL6, GEN8, TM2, WC2
 Dunn, Nancy AL6, GEN8, TM2, WC2
 Dunn, Scott AL1, GEN13&16, RR27, TM3
 Dunn, Tovah AL6, GEN8, TM2, WC2
 Dunnavant, William AL6, GEN8, TM2, WC2
 Dunne, Stephen AL6, GEN8, TM2, WC2
 Dunny, Irene AL6, GEN8, TM2, WC2
 Duplessis, Robert AL6, GEN8, TM2, WC2
 Dupree, Pamela AL6, GEN8, TM2, WC2
 Dupuis, James AL6, GEN8, TM2, WC2
 Durante, Eric AL6, GEN8, TM2, WC2
 Durbin, Andy TM10
 Durbin, Marvin AL6, GEN8, TM2, WC2
 Durieux, Paul AL6, GEN8, TM2, WC2
 Durussel, Mark AL6, GEN8, TM2, WC2
 Dusine, C AL6, GEN8, TM2, WC2
 Dutton, Joel AL1, GEN13&16, RR27, TM3
 Dutton, Nancy AL1, GEN13&16, RR27, TM3
 Duvoogles, David A AL1, GEN13&16, RR27, TM3
 Dvorak Jr, David AL6, GEN8, TM2, WC2
 Dworakowski, Helena AL6, GEN8, TM2, WC2
 Dwyer, Jim AL6, GEN8, TM2, WC2
 Dwyer, Timothy AL6, GEN8, TM2, WC2
 Dyas, Melissa AL6, GEN8, TM2, WC2
 Dyer, Bill AL2&6, GEN8, TM1-2, WC2
 Dyer, Hank AL2&6, GEN8, TM1-2, WC2
 Dyer, Henry AL2, TM1
 Dyer, Holly AL2&6, GEN8, TM1-2, WC2
 Dyer, Mary AL2, TM1
 Dymkowski, Evelyn AL6, GEN8, TM2, WC2
 Dynnik, Judy AL6, GEN8, TM2, WC2
 Dziekonski, Thadeus AL6, GEN8, TM2, WC2
 Dzienius, Susan AL2&6, GEN8, TM1-2, WC2
 Dzindzeleta, Mercedes AL2, TM1
 Dzindzeleta, Ramona AL6, GEN8, TM2, WC2
 Eades, Debra AL6, GEN8, TM2, WC2
 Eagle, Nee AL2&6, GEN8, TM1-2, WC2
 Eagle, Rev White AL6, GEN8, TM2, WC2
 Eakes, Carmen AL6, GEN8, TM2, WC2
 Eargle, Geoff AL6, GEN8, TM2, WC2
 Earhart, David AL6, GEN8, TM2, WC2
 Earhart, Linda AL6, GEN8, TM2, WC2
 Earl, Mark AL6, GEN8, TM2, WC2
 Earle, Elinor AL6, GEN8, TM2, WC2
 Earnhart, Darlene AL2&6, GEN8, TM1-2, WC2
 East, Elyssa AL6, GEN8, TM2, WC2
 East, Turns AL6, GEN8, TM2, WC2
 Eastlake, Brenda AL6, GEN8, TM2, WC2
 Eastman, Ajax AL6, GEN8, TM2, WC2
 Eastman, Bill AL6, GEN8, TM2, WC2
 Eastwood, David AL6, GEN8, TM2, WC2
 Eaton, Holly AL6, GEN8, TM2, WC2
 Eaton, Kathleen S AL6, GEN8, TM2, WC2
 Eaton, Pamela AL6, GEN8, TM2, WC2
 Ebel-Bailey, Nichole AL6, GEN8, TM2, WC2
 Ebeling, Leslie G TM10
 Ebelt, Judy AL6, GEN8, TM2, WC2
 Eberle, Anne AL6, GEN8, TM2, WC2
 Ebert, Mersadies AL1, GEN13&16, RR27, TM3
 Ebright, Scott AL6, GEN8, TM2, WC2
 Echevarria, Mari T AL6, GEN8, TM2, WC2
 Eck, Daniel AL6, GEN8, TM2, WC2
 Eckel, Nancy AL6, GEN8, TM2, WC2
 Eckels, Guy AL6, GEN8, TM2, WC2
 Eckert, Nancy AL2, TM1
 Eckhart, Charles AL6, GEN8, TM2, WC2
 Eckholdt, Diana J AL2, TM1
 Ecklund, Lars AL6, GEN8, TM2, WC2
 Eckman, Joyce AL6, GEN8, TM2, WC2
 Eckstein, Kenneth AL6, GEN8, TM2, WC2
 Eckstrand, Marilyn AL6, GEN8, TM2, WC2
 Eddy, Danton AL1, GEN13&16, RR27, TM3
 Eddy, Debbie AL1, GEN13&16, RR27, TM3
 Ede, Richard AL6, GEN8, TM2, WC2
 Edelstein, Eric AL6, GEN8, TM2, WC2
 Edelstein, Susan AL6, GEN8, TM2, WC2
 Edgerton, Carol AL2&6, GEN8, TM1-2, WC2
 Edmunds, Bryce AL1, GEN13&16, RR27, TM3
 Edmunds, Mike TM10
 Edmunds, Susan AL1, GEN13&16, RR27, TM3
 Edwards, Eric AL6, GEN8, TM2, WC2
 Edwards, Gail AL6, GEN8, TM2, WC2
 Edwards, Jeri AL6, GEN8, TM2, WC2
 Edwards, Lucile AL6, GEN8, TM2, WC2
 Edwards, Melody AL6, GEN8, TM2, WC2
 Edwards, Michael AL6, GEN8, TM2, WC2
 Edwards, Richard AL6, GEN8&11, TM1&2, WC2
 Edwards, Robert AL6, GEN8, TM2, WC2
 Edwards, Terry AL1, GEN13&16, RR27, TM3
 Edwards, Tim AL1, SO1
 Edwards, Wendy AL6, GEN8, TM2, WC2
 Eenhuis, Sharon AL6, GEN8, TM2, WC2
 Efron, Deborah AL6, GEN8, TM2, WC2
 Efross, Monnie AL6, GEN8, TM2, WC2
 Egan, Kevin AL6, GEN8, TM2, WC2
 Egan, Lola L AL6, GEN6, RR10&27, TM3, TM4&8
 Egan, Veronica AL6, GEN8, TM2, WC2
 Egbert, Anne AL6, GEN8, TM2, WC2
 Egelman Md, Glenn AL6, GEN8, TM2, WC2
 Egen, Ned AL6, GEN8, TM2, WC2

Ehrensperger, David AL6, GEN8, TM2, WC2
 Ehret, Cynthia AL6, GEN8, TM2, WC2
 Ehrisman, Linda AL6, GEN8, TM2, WC2
 Ehrlich, Sharon TM1
 Eich, Bill TM1
 Eichman, Bruce AL6, GEN8, TM2, WC2
 Eigenberger, Kurt AL6, GEN8, TM2, WC2
 Eisenberg, Lee AL6, GEN8, TM2, WC2
 Eiterman, Elisabeth AL2, TM1
 Ekberg, Jim AL6, GEN8, TM2, WC2
 Ekman, Lea AL6, GEN8, TM2, WC2
 El Masri, Judy AL2&6, GEN8, TM1-2, WC2
 Elder, Barbara AL6, GEN8, TM2, WC2
 Eldridge-Matra, Robyn AL6, GEN8, TM2, WC2
 Eley, Lynn AL6, GEN8, TM2, WC2
 Elholm, Debbie AL6, GEN8, TM2, WC2
 Elias, Benjamin AL6, GEN8, TM2, WC2
 Elizondo, Joe AL6, GEN8, TM2, WC2
 Ellenburg, Erin AL6, GEN8, TM2, WC2
 Ellerbeck, B AL6, GEN8, TM2, WC2
 Ellingford, Jay & Maureen TM11
 Ellingwood, Beverly AL6, GEN8, TM2, WC2
 Elliott, Benton AL2&6, GEN8, TM1-2, WC2
 Elliott, Erica AL6, GEN8, TM2, WC2
 Elliott, Julie AL6, GEN8, TM2, WC2
 Ellis, Harvey M TM10
 Ellis, Jennifer AL6, GEN8, TM2, WC2
 Ellison, Susan AL6, GEN8, TM2, WC2
 Ellsworth, Shirley AL6, GEN8, TM2, WC2
 Ellyn, Maura AL2, TM1
 Elmore, James AL2&6, GEN8, TM1-2, WC2
 Elms, Laurie AL6, GEN8, TM2, WC2
 Elson, Valerie AL6, GEN8, TM2, WC2
 Elwell, Barbara AL6, GEN8, TM2, WC2
 Elwood, Adela AL6, GEN8, TM2, WC2
 Emblad, Marianne AL6, GEN8, TM2, WC2
 Emblom, Nancy AL6, GEN8, TM2, WC2
 Embry, Judith AL2&6, GEN8, TM1-2, WC2
 Emerich, Brenda AL2, TM1
 Emerson, Linda & Larry AL6, GEN8, TM2, WC2
 Emerson, Richard TM10
 Emery, Donna AL6, GEN8, TM2, WC2
 Emery, Michael AL6, GEN8, TM2, WC2
 Ence, Chase T AL1, SO1
 Ence, Rod AL1, GEN18, GEN5, SO1, TM7
 Enerio, Cheryl AL6, GEN8, TM2, WC2
 Enfield, Jacqueline AL2, TM1
 Engel, Cayenne AL6, GEN8, TM2, WC2
 Engel, Ron AL6, GEN8, TM2, WC2
 Engel, Sarah AL6, GEN8, TM2, WC2
 Engel, Sharon AL6, GEN8, TM2, WC2
 Engelman, Marilyn AL6, GEN8, TM2, WC2
 Engelsiepen, Jane AL6, GEN8, TM2, WC2
 Engisch-Platt, Debroah AL6, GEN8, TM2, WC2
 England, Mac AL6, GEN8, TM2, WC2
 Engle, Eliza AL6, GEN8, TM2, WC2
 Englebert, Erik AL6, GEN8, TM2, WC2
 English, Dana AL6, GEN8, TM2, WC2
 English, Denie AL6, GEN8, TM2, WC2
 English, Doug AL6, GEN8, TM2, WC2
 English, Jennifer AL6, GEN8, TM2, WC2
 Engstrom, Julie AL6, GEN8, TM2, WC2
 Ennis, David AL6, GEN8, TM2, WC2
 Eno, Jean AL6, GEN8, TM2, WC2
 Enriquez, Margaret AL6, GEN8, TM2, WC2
 Ensing, Raymond AL6, GEN8, TM2, WC2
 Eppelsheimer, David AL6, GEN8, TM2, WC2
 Epperson, Leslie Ann AL6, GEN11, RR1, TM1-2, WC2
 Epstein, Kelly AL6, GEN8, TM2, WC2
 Epstein, Linda AL6, GEN8, TM2, WC2
 Erb, Lydia AL6, GEN8, TM2, WC2
 Erickson, Alden & Norma AL6, GEN8, TM2, WC2
 Erickson, Daniel AL6, GEN8, TM2, WC2
 Erickson, Elaine AL6, GEN8, TM2, WC2
 Erickson, Wade TM3
 Ericson, Judy AL6, GEN8, TM2, WC2
 Erkel, Melissa AL2, TM1
 Ernst, Cathie AL6, GEN8, TM2, WC2
 Ervin, Winifred AL6, GEN8, TM2, WC2
 Erwin, Jeffrey AL6, GEN8, TM2, WC2
 Escobales, Lauren AL6, GEN8, TM2, WC2
 Escobar, Annette AL6, GEN8, TM2, WC2
 Escudier, Kylan AL6, GEN8, TM2, WC2
 Espinosa, Ivan AL6, GEN8, TM2, WC2
 Espinosa, Sally AL6, GEN8, TM2, WC2
 Esplin, Brad GM5, SD6
 Esplin, Cody GEN11&13, GM2&5, LR7, SD5, TM12, WC2, WS6
 Esplin, Dale AL1, SO1
 Esplin, Darlo L GM5, SD5&6
 Esplin, Dillon GEN11&13, GM2&5, LR7, SD5, TM12, WC2, WS6
 Esplin, Donald J GM5, SD5&6
 Esplin, Jeff AL1, GEN11&13, GM2&5, SD5, SO2&4, TM12-13, VM2, WC3, WS6
 Esplin, Karen AL1, GEN5&18, SO1, TM7
 Esplin, Kline GM2
 Esplin, Spencer TM13
 Esplin, Stanley C SD5&6, TM12
 Esplin, Stephanie GEN11&13, GM2&5, LR7, SD5, TM12, WC2, WS6
 Esposito, Lori AL6, GEN8, TM2, WC2
 Esra, Nijn AL2, TM1
 Esser, Nick AL6, GEN8, TM2, WC2
 Esson, Richard AL2, TM1
 Estelle, Douglas Blackstream AL6, GEN8, TM2, WC2
 Estes, Douglas AL6, GEN8, TM2, WC2
 Esteve, Gregory AL6, GEN8, TM2, WC2
 Etchison, Craig AL6, GEN8, TM2, WC2
 Etheridge, Ramona AL6, GEN8, TM2, WC2
 Ettl, Linda AL6, GEN8, TM2, WC2
 Eubank, Lynn AL2&6, GEN8, TM1-2, WC2
 Evangelisto, Mark AL6, GEN8, TM2, WC2
 Evans, Audrey AL6, GEN8, TM2, WC2
 Evans, Dinda AL2&6, GEN8&11, RR1, TM1&2, WC2
 Evans, James AL6, GEN8, TM2, WC2
 Evans, K AL6, GEN8, TM2, WC2
 Evans, Michael W AL2&6, GEN8, TM1-2, WC2
 Evans, Michelle AL6, GEN8, TM2, WC2
 Evans, Sarah AL6, GEN8, TM2, WC2
 Eventoff, Franklin AL6, GEN8, TM2, WC2
 Everett, Theresa AL6, GEN8, TM2, WC2
 Everett, Todd AL6, GEN8, TM2, WC2
 Everson, Landis AL6, GEN8, TM2, WC2
 Everton, Clyde AL6, GEN8, TM2, WC2
 Evertsen, Rick LR1, TM3
 Evilsizer, Susan AL6, GEN8, TM2, WC2
 Ewaskey, April AL6, GEN8, TM2, WC2
 Ewing, Tory AL6, GEN8, TM2, WC2
 Ewing, Tracy AL6, GEN8, TM2, WC2
 Excell, Douglas AL1, GEN13&16, RR27, TM3
 Excell, Lynn L AL1, GEN5&18, SO1, TM7
 Eyes, River AL6, GEN8, TM2, WC2
 Eyler, Kelly AL6, GEN8, TM2, WC2
 Ezust, Paul AL6, GEN8, TM2, WC2
 F, Kenny AL1, GEN18, GEN5, SO1, TM7
 Faber, Brian AL6, GEN8, TM2, WC2
 Fabrega, Joan AL6, GEN8, TM2, WC2
 Facciponti, Lisa AL6, GEN8, TM2, WC2
 Fahlberg, Maureen AL6, GEN8, TM2, WC2
 Fahlgren, Vivian AL6, GEN8, TM2, WC2
 Fahmy, David AL6, GEN8, TM2, WC2
 Fain, Steven AL6, GEN8, TM2, WC2
 Fairbanks, Jonathan AL6, GEN8, TM2, WC2
 Fairchild, Jamie AL6, GEN8, TM2, WC2
 Fairchild, Stephanie AL6, GEN8, TM2, WC2
 Faires, Alicia AL6, GEN8, TM2, WC2
 Fairfield, John AL2&6, GEN8, TM1-2, WC2
 Faith, Bonnie AL6, GEN8, TM2, WC2
 Faith-Smith, Yahanna AL6, GEN8, TM2, WC2
 Fakes, Pat AL6, GEN8, TM2, WC2
 Falcan, Peter AL6, GEN8, TM2, WC2
 Falcon, Jenn AL6, GEN8, TM2, WC2
 Falcone, Janet AL6, GEN8, TM2, WC2
 Falcone, Scott AL6, GEN8, TM2, WC2
 Faletti, Christine AL6, GEN8, TM2, WC2
 Falise, Alain AL6, GEN8, TM2, WC2
 Falk, Jane AL6, GEN8, TM2, WC2
 Faller, Adam AL6, GEN8, TM2, WC2
 Falls, Jeannie AL6, GEN8, TM2, WC2
 Falotico, Georgann AL6, GEN8, TM2, WC2
 Falzarano, Sarah AL6, GEN8, TM2, WC2
 Fano, Emily AL2, TM1
 Fant, Cathy AL6, GEN8, TM2, WC2
 Fantino, Edmund AL6, GEN8, TM2, WC2
 Farer, Rhonda AL6, GEN8, TM2, WC2
 Faria, Adriana AL6, GEN8, TM2, WC2
 Farina, John AL6, GEN8, TM2, WC2
 Farkas, Nolan AL6, GEN8, TM2, WC2
 Farkash, Stephanie AL6, GEN8, TM2, WC2
 Farley, Rebecca AL6, GEN8, TM2, WC2
 Farmer, Mark AL6, GEN8, TM2, WC2
 Farmer, Tawna AL6, GEN8, TM2, WC2
 Farmer, Vivian AL6, GEN8, TM2, WC2
 Farnham, Kolleen AL6, GEN8, TM2, WC2
 Farnham, Ross AL6, GEN8, TM2, WC2
 Farnsworth, Karr AL1, GEN13&16, RR27, TM3

Farrar, Mark RR19, RR2, TM1, TM3
 Farrell, Catherine AL6, GEN8, TM2, WC2
 Farrell, Kelleen AL6, GEN8, TM2, WC2
 Farrell, Phillip AL2, TM1
 Farris, Dawn AL6, GEN8, TM2, WC2
 Farwell, Elizabeth AL6, GEN8, TM2, WC2
 Faszczewski, Joan AL6, GEN8, TM2, WC2
 Faucher, Peggy AL6, GEN8, TM2, WC2
 Faurot, Bruce AL6, GEN8, TM2, WC2
 Fazzino, Frances AL6, GEN8, TM2, WC2
 Fearey, Patricia AL6, GEN8, TM2, WC2
 Featherstone, Peter AL6, GEN8, TM2, WC2
 Fecko, Albert AL6, GEN8, TM2, WC2
 Feder, Erik AL6, GEN8, TM2, WC2
 Feder, Janet AL6, GEN8, TM2, WC2
 Federgreen, Lesley AL6, GEN8, TM2, WC2
 Federkeil, Gabe AL1, GEN13&16, RR27, TM3
 Fedorka, Thomas AL6, GEN8, TM2, WC2
 Fedorov, Karen AL2&6, GEN8, TM1-2, WC2
 Feely, John AL6, GEN8, TM2, WC2
 Feemster, Gary AL6, GEN8, TM2, WC2
 Feichtinger, Dennis AL6, GEN8, TM2, WC2
 Feigenbaum, Cliff AL2, TM1
 Feighner, Gordon AL6, GEN8, TM2, WC2
 Feinstein, Dan AL2, TM1
 Feinstein, Joe AL6, GEN8, TM2, WC2
 Feldman, Elizabeth AL2, TM1
 Feldman, Mark AL2&6, GEN8, TM1-2, WC2
 Feldman, Nicole AL6, GEN8, TM2, WC2
 Feldman, Ruth AL6, GEN8, TM2, WC2
 Fellrath, James AL6, GEN8, TM2, WC2
 Felshaw, GEN6
 Felsing, Dawn AL6, GEN8, TM2, WC2
 Felt, Thomas AL6, GEN8, TM2, WC2
 Fenimore, Dave AL6, GEN8, TM2, WC2
 Fennell, Michael GEN15, TM3, WF10
 Fenton, Jennifer AL6, GEN8, TM2, WC2
 Fenton, Michael AL6, GEN8, TM2, WC2
 Ferguson, Chris AL6, GEN8, TM2, WC2
 Ferguson, D W AL1, GEN5&18, SO1, TM7
 Ferguson, Dirke AL1, GEN5&18, SO1, TM7
 Ferguson, Joanne AL6, GEN8, TM2, WC2
 Ferguson, Marilyn AL6, GEN8, TM2, WC2
 Ferguson, Martina AL6, GEN8, TM2, WC2
 Ferguson, Susan AL6, GEN8, TM2, WC2
 Ferguson, Ted AL6, GEN8, TM2, WC2
 Ferguson, William AL6, GEN8, TM2, WC2
 Fernandez, Julie Lynch AL6, GEN8, TM2, WC2
 Ferrabee, Brian AL2, TM1
 Ferranto, Anthony AL6, GEN8, TM2, WC2
 Ferrara, Susan AL2&6, GEN8, TM1-2, WC2
 Ferrel, Catherine AL1, GEN13&16, RR27, TM3
 Ferrell, Matthew AL6, GEN8, TM2, WC2
 Ferris, C AL2, AL6, GEN8, TM1&2, WC2
 Ferrulli, Anthony AL6, GEN8, TM2, WC2
 Fertaly, Vanessa AL6, GEN8, TM2, WC2
 Fertig, Laura AL1, SO1
 Feschuk, Paul AL6, GEN8, TM2, WC2
 Fetter, Sharon AL6, GEN8, TM2, WC2
 Fiddler, Jim AL6, GEN8, TM2, WC2
 Fiedler, Ed AL6, GEN8, TM2, WC2
 Field, Barbara AL6, GEN8, TM2, WC2
 Field, Jessie AL1, GEN18, GEN5, TM7
 Field, Jim AL6, GEN8, TM2, WC2
 Field, Lele AL6, GEN8, TM2, WC2
 Field, Rachel AL6, GEN8, TM2, WC2
 Fieldman, Anita AL6, GEN8, TM2, WC2
 Fields, Amber AL6, GEN11, RR1, TM1-2, WC2
 Fields, Beverly AL6, GEN8, TM2, WC2
 Fields, Douglas AL6, GEN8, TM2, WC2
 Fife, Anthony AL6, GEN8, TM2, WC2
 Figiel, Michael AL6, GEN8, TM2, WC2
 Figueiredo, Eva AL2, TM1
 Fike, Chris AL2, TM1
 Fike, Julie AL2, TM1
 Filaseta, Judith AL6, GEN8, TM2, WC2
 Files, N AL6, GEN8, TM2, WC2
 Filice-Smith, Noelle AL6, GEN8, TM2, WC2
 Filip, Michael AL6, GEN8, TM2, WC2
 Filipelli, Deborah AL6, GEN8, TM2, WC2
 Filipiak, Beth AL6, GEN8, TM2, WC2
 Filipiak, Michael AL2&6, GEN8, TM1-2, WC2
 Filocamo, Kevin AL6, GEN8, TM2, WC2
 Fina, Christopher AL6, GEN8, TM2, WC2
 Fincher, Sid AL6, GEN8, TM2, WC2
 Findley, Jon AL6, GEN8, TM2, WC2
 Fine, Michael AL6, GEN8, TM2, WC2
 Finerman, Dorine AL6, GEN8, TM2, WC2
 Fink, Dorothy AL6, GEN8, TM2, WC2
 Finkbine, Robert AL6, GEN8, TM2, WC2
 Finkelstein, Laura AL6, GEN8, TM2, WC2
 Finlay, Rita AL6, GEN8, TM2, WC2
 Finn, Maureen AL6, GEN8, TM2, WC2
 Finn, Wendy AL6, GEN8, TM2, WC2
 Finsterwald, Dowell AL5
 Fiore, Mark J AL6, GEN8, TM2, WC2
 Firling, Martha AL6, GEN8, TM2, WC2
 Firmin, R AL6, GEN8, TM2, WC2
 Fischella, Bob AL6, GEN8, TM2, WC2
 Fischer, Kristin AL6, GEN8, TM2, WC2
 Fischerman, Lawrence AL6, GEN8, TM2, WC2
 Fisette, Karen AL6, GEN8, TM2, WC2
 Fish, Mary AL6, GEN8, TM2, WC2
 Fisher, Eric AL6, GEN8, TM2, WC2
 Fisher, Kathy AL6, GEN8, TM2, WC2
 Fisher, Maria AL6, GEN8, TM2, WC2
 Fisher, Matthew AL6, GEN8, TM2, WC2
 Fisher, Owen AL6, GEN8, TM2, WC2
 Fisher, Ruth AL6, GEN8, TM2, WC2
 Fisher, Sarah AL6, GEN8, TM2, WC2
 Fisher, Zachary AL6, GEN8, TM2, WC2
 Fiske, Colin AL6, GEN8, TM2, WC2
 Fiszgerald, Cathy AL6, GEN8, TM2, WC2
 Fite, Austin AL6, GEN8, TM2, WC2
 Fitting, Darren AL1, GEN13&16, RR27, TM3
 Fitz Randolph, Joan TM1
 Fitz, Linda AL6, GEN8, TM2, WC2
 Fitzgerald, Joseph AL6, GEN8, TM2, WC2
 Fitzgerald, Martin AL6, GEN8, TM2, WC2
 Fitzgibbon, Michael AL6, GEN8, TM2, WC2
 Fitzpatrick, Barbara AL6, GEN8, TM2, WC2
 Fitzpatrick, Lief AL6, GEN8, TM2, WC2
 Fitzsimmons, Patricia AL6, GEN8, TM2, WC2
 Flade, Donna AL6, GEN8, TM2, WC2
 Flaherty, John AL6, GEN8, TM2, WC2
 Flaherty, Lenka AL6, GEN8, TM2, WC2
 Flaherty, Virginia AL6, GEN8, TM2, WC2
 Fleek, Kimberly AL6, GEN8, TM2, WC2
 Fleming, Mary AL2, TM1
 Fletcher, Barbara AL6, GEN8, TM2, WC2
 Fletcher, Carol E AL6, GEN8, TM2, WC2
 Fletcher, Ethan AL6, GEN8, TM2, WC2
 Flewitt, Claire AL6, GEN8, TM2, WC2
 Fligel, Charles TM10
 Fligel, Thelma AL6, GEN8, TM2, WC2
 Flint, Nancy AL6, GEN8, TM2, WC2
 Flogel, Adam AL6, GEN8, TM2, WC2
 Flood, Danise AL6, GEN8, TM2, WC2
 Florence, Jim AL5
 Flournoy, Elizabeth AL6, GEN8, TM2, WC2
 Floyd, Ananda AL6, GEN8, TM2, WC2
 Fluder, Charlene AL6, GEN8, TM2, WC2
 Flum, Charles AL6, GEN8, TM2, WC2
 Flynn, A G AL6, GEN8, TM2, WC2
 Flynn, Christopher AL6, GEN8, TM2, WC2
 Flynn, Dennis TM10
 Flynn, Robert AL6, GEN8, TM2, WC2
 Flynn, Susan AL6, GEN8, TM2, WC2
 Fobes, Alexander AL6, GEN8, TM2, WC2
 Fogarty, Patricia AL6, GEN8, TM2, WC2
 Fogleman, Maxwell AL6, GEN8, TM2, WC2
 Foley Jr, Robert L AL6, GEN8, TM2, WC2
 Foley, Sylvia AL6, GEN8, TM2, WC2
 Folkerts, Clifford L TM3
 Folsom, Susan AL6, GEN8, TM2, WC2
 Foltz, John AL6, GEN8, TM2, WC2
 Fonda, Thomas AL6, GEN8, TM2, WC2
 Fonfa, Ann AL6, GEN8, TM2, WC2
 Fong, Christina AL6, GEN8, TM2, WC2
 Fonken, Gunther AL6, GEN8, TM2, WC2
 Fonoti, Chris AL2, SD1&2
 Foote Edelman, Carolyn AL6, GEN8, TM2, WC2
 Forbes, Ellen AL6, GEN8, TM2, WC2
 Ford, Betty AL6, GEN8, TM2, WC2
 Ford, Janet AL6, GEN8, TM2, WC2
 Ford, Julie AL6, GEN8, TM2, WC2
 Ford, Michael B AL1, GEN5&18, SO1, TM7
 Fore, Whitney AL6, GEN8, TM2, WC2
 Foreman, Edwina AL6, GEN8, TM2, WC2
 Forest, Marge AL2, TM1
 Forestieri, Anne AL6, GEN8, TM2, WC2
 Formalities, Skip AL2, TM1
 Formanek, R AL6, GEN8, TM2, WC2
 Forney, Dan TM10
 Forrest, James AL6, GEN8, TM2, WC2
 Forrester, Andrew AL6, GEN8, TM2, WC2
 Forristal, Jennifer AL6, GEN8, TM2, WC2
 Forster, Helen AL6, GEN8, TM2, WC2
 Forsythe, Thomas AL6, GEN8, TM2, WC2

Fort, J K AL6, GEN8, TM2, WC2
Fort, Mary B AL6, GEN8, TM2, WC2
Forte-Gardner, O AL2, TM1
Fortin, Lily AL6, GEN8, TM2, WC2
Fortner, Patrick AL6, GEN8, TM2, WC2
Fortunoff, Laurel AL6, GEN8, TM2, WC2
Foskett, Maryanna AL2, TM1
Foster, Jenny AL6, GEN8, TM2, WC2
Foster, Stephanie AL6, GEN8, TM2, WC2
Fotos, Janet AL6, GEN8, TM2, WC2
Fourroux III, Henri Andre AL6, GEN8, TM2, WC2
Foushee, Gene TM10
Fowers, Dwight AL1, GEN13&16, RR27, TM3&11
Fowler, Gregory AL6, GEN8, TM2, WC2
Fowler, James AL6, GEN8, TM2, WC2
Fowler, Jason AL6, GEN8, TM2, WC2
Fowler, John AL6, GEN8, TM2, WC2
Fowler, Josephine AL6, GEN8, TM2, WC2
Fowler, Kathleen AL6, GEN8, TM2, WC2
Fowler, Luci AL6, GEN8, TM2, WC2
Fox, John AL6, GEN8, TM2, WC2
Fox, Katherine AL6, GEN8, TM2, WC2
Fox, Kristi AL6, GEN8, TM2, WC2
Fox, Lorrie AL6, GEN8, TM2, WC2
Fox, Margi AL6, GEN8, TM2, WC2
Fox, Martin AL6, GEN8, TM2, WC2
Fox, Mason AL1, GEN13&16, RR27, TM3
Fox, Nicole AL6, GEN8, TM2, WC2
Fox, Patricia AL6, GEN8, TM2, WC2
Fozard, Marcelle AL6, GEN8, TM2, WC2
Fragetta, William AL6, GEN8, TM2, WC2
Frame, George W AL6, GEN8, TM2, WC2
Frampton, David AL1
Francia, Lisa AL2&6, GEN8, TM1-2, WC2
Francis, Benjamin AL6, GEN8, TM2, WC2
Francis, Duane TM10
Francis, Eldon TM2
Francisco, Linda AL6, GEN8, TM2, WC2
Franck, Jamaica AL6, GEN8, TM2, WC2
Franco, Paul AL6, GEN8, TM2, WC2
Frank, Cynthia AL6, GEN8, TM2, WC2
Frank, Harriette AL2&6, GEN8, TM1-2, WC2
Frank, Henry AL6, GEN8, TM2, WC2
Frank, James AL2, TM1
Frank, Kurtis AL2, TM1
Frank, Lee AL2&6, GEN8, TM1-2, WC2
Frank, Volker AL6, GEN8, TM2, WC2
Franke, Damon AL6, GEN8, TM2, WC2
Franken, Kevin AL6, GEN8, TM2, WC2
Franklin, Audrey AL6, GEN8, TM2, WC2
Franklin, Carroll AL6, GEN8, TM2, WC2
Franklin, Jan TM1
Franklin, Jenny AL6, GEN8, TM2, WC2
Franklin, Nancy AL6, GEN8, TM2, WC2
Franklin, Scot TM1
Franks, Elizabeth AL6, GEN8, TM2, WC2
Franks, Steve AL6, GEN11, RRI, TM1-2, WC2
Franson, S AL6, GEN8, TM2, WC2
Frantz, Donald AL6, GEN8, TM2, WC2
Franz, Judy AL1, GEN13&16, RR27, TM3
Franzetta, David AL6, GEN8, TM2, WC2
Fraser, Nova AL6, GEN8, TM2, WC2
Fravert, Larry AL6, GEN8, TM2, WC2
Frazzell, Phyllis AL6, GEN8, TM2, WC2
Frazer, Steven AL6, GEN8, TM2, WC2
Frazier, Adrian AL6, GEN8, TM2, WC2
Frazier, Douglas AL6, GEN11, RRI&19, TM1&2, WC2
Frazier, Marion AL6, GEN8, TM2, WC2
Frazier, Terry TM10
Frecentese, Dominic AL6, GEN8, TM2, WC2
Frederick, Nicholas AL6, GEN8, TM2, WC2
Fredericksen, Matthew AL6, RRI10, TM3, WF10
Freeberg, James AL6, GEN8, TM2, WC2
Freed, Hannah AL6, GEN8, TM2, WC2
Freedman, Scott AL6, GEN8, TM2, WC2
Freel, Dorothy AL6, GEN8, TM2, WC2
Freeland, Chris AL6, GEN8, TM2, WC2
Freeman, Curtis AL2&6, GEN8, TM1-2, WC2
Freeman, Linda AL2&6, GEN8, TM1-2, WC2
Freeman, Mark AL6, GEN8, TM2, WC2
Freeman, Rosalind AL6, GEN8, TM2, WC2
Frei, Dennis GM2, TE1
Frei, Riley LR2
Freiberg, Harry AL6, GEN8, TM2, WC2
Freidberg, Marianne G AL6, GEN8, TM2, WC2
Frese, Glenn TM10
Freudiger, Sabine AL6, GEN8, TM2, WC2
Freund, Julia AL6, GEN8, TM2, WC2
Freund, Matt & Danielle TM10
Frey, Darrel W AL1, SO1
Frey, J AL2, TM1
Frey, Robert AL6, GEN8, TM2, WC2
Frey, Tracy Nicole AL6, GEN8, TM2, WC2
Fricano, Marian AL6, GEN8, TM2, WC2
Friday, Norma AL6, GEN8, TM2, WC2
Fried, David AL6, GEN8, TM2, WC2
Friedenberg, Claire AL6, GEN8, TM2, WC2
Friederichsen, Jacqueline AL6, GEN8, TM2, WC2
Friedman, Elyse AL6, GEN8, TM2, WC2
Friedman, Erica AL2, TM1
Friedman, Ina AL6, GEN8, TM2, WC2
Friedman, Kathleen AL6, GEN8, TM2, WC2
Friedman, Robert AL6, GEN8, TM2, WC2
Friedmann, Vivian AL6, GEN8, TM2, WC2
Friesen, Debbie AL6, GEN8, TM2, WC2
Friis, Jessica AL6, GEN8, TM2, WC2
Frindik, Kevin AL2, TM1
Frinks, June AL6, GEN8, TM2, WC2
Frisby, Dennis AL6, GEN8, TM2, WC2
Froiland, J AL2, TM1
Frontz, Jeffri AL2, TM1
Froome, Roberta AL6, GEN8, TM2, WC2
Frost, Ann AL6, GEN8, TM2, WC2
Frost, Christopher AL6, GEN8, TM2, WC2
Frost, Veronica AL6, GEN8, TM2, WC2
Frugoli, Tina AL6, GEN8, TM2, WC2
Fry, Douglas AL6, GEN8, TM2, WC2
Fry, Miguela AL6, GEN8, TM2, WC2
Fryer, Kathy AL6, GEN8, TM2, WC2
Fryer, Sherri AL6, GEN8, TM2, WC2
Frytak, Monica AL6, GEN8, TM2, WC2
Fucile, Lisa AL6, GEN8, TM2, WC2
Fuhrer, Carol AL6, GEN8, TM2, WC2
Fule, Peter VM2
Fulk, Mike AL6, GEN8, TM2, WC2
Fulkerson, Erik TM10
Fullard, Christina AL6, GEN8, TM2, WC2
Fuller, Jeffrey AL2, TM1
Fuller, Kristie AL6, GEN8, TM2, WC2
Fuller, Laverne AL6, GEN8, TM2, WC2
Fuller, Lindmuth AL6, GEN8, TM2, WC2
Fuller, Roy AL6, GEN8, TM2, WC2
Fuller, W AL6, GEN8, TM2, WC2
Fulton, Ernest AL6, GEN8, TM2, WC2
Fulwider, Wendy AL6, GEN8, TM2, WC2
Funk, Trent AL1, GEN13&16, RR27, TM3
Furman, Victor AL6, GEN8, TM2, WC2
Furnish, Shearle AL6, GEN8, TM2, WC2
Furst, Stefan AL6, GEN8, TM2, WC2
Furtner, Jeremy AL6, GEN8, TM2, WC2
Futrell, Sherrill AL2, TM1
Fuzear, Janet AL6, GEN8, TM2, WC2
Fyke, Jan AL6, GEN8, TM2, WC2
Gaasch, Mary AL6, GEN8, TM2, WC2
Gabeler, Stephen AL6, GEN8, TM2, WC2
Gabriel, Elora AL6, GEN8, TM2, WC2
Gabriel, Sonda AL6, GEN8, TM2, WC2
Gac, Ce AL2, TM1
Gac, M AL2, TM1
Gach, Peter AL6, GEN8, TM2, WC2
Gad, Simone AL6, GEN8, TM2, WC2
Gadoury, Kathryn AL6, GEN8, TM2, WC2
Gaede, Marnie AL6, GEN8, TM2, WC2
Gage, Cathy AL2, TM1
Gagliardi, Aislinn AL6, GEN8, TM2, WC2
Gaidos, Carol AL2, TM1
Gaines, Carol AL6, GEN8, TM2, WC2
Gajda, Malgorzata AL6, GEN8, TM2, WC2
Gakeler, Debra AL6, GEN8, TM2, WC2
Gakeler, Kenneth AL6, GEN8, TM2, WC2
Galdamez, Alicia AL6, GEN8, TM2, WC2
Galhouse, Michael AL6, GEN8, TM2, WC2
Galieti, Ronald AL2&6, GEN8, TM1-2, WC2
Gallagher, Dan AL6, GEN8, TM2, WC2
Gallagher, Frank TM10
Gallagher, John AL2&6, GEN8, TM1-2, WC2
Gallagher, Tom AL6, GEN8, TM2, WC2
Galli, Margaret AL6, GEN8, TM2, WC2
Gallion, Brenda AL6, GEN8, TM2, WC2
Gallo, Kathryn AL2, TM1
Galloway, Carla AL6, GEN8, TM2, WC2
Galloway, Nancy AL6, GEN8, TM2, WC2
Galluci, Christine AL6, GEN8, TM2, WC2
Galton, Christopher AL6, GEN8, TM2, WC2
Galus, Dawn AL6, GEN8, TM2, WC2
Galuska, Michael AL6, GEN8, TM2, WC2
Galvin, Theresa AL6, GEN8, TM2, WC2
Gama, Renee AL6, GEN8, TM2, WC2
Gana, Jessica AL6, GEN8, TM2, WC2
Gannon, Jeanne AL6, GEN8, TM2, WC2
Gannon, Michele AL6, GEN8, TM2, WC2
Gano, Susan AL6, GEN8, TM2, WC2

Gant, Sarah AL6, GEN8, TM2, WC2
 Gantt, Emily AL2, TM1
 Ganz, Sheila AL6, GEN8, TM2, WC2
 Garbato, Kelly AL2&6, GEN8, TM1-2, WC2
 Garber, Sandra AL6, GEN8, TM2, WC2
 Garcia, Alexis AL6, GEN8, TM2, WC2
 Garcia, Bridgette AL2&6, GEN8, TM1-2, WC2
 Garcia,Carolynn AL6, GEN8, TM2, WC2
 Garcia, Dena AL6, GEN8, TM2, WC2
 Garcia, Heidi Ann AL6, GEN8, TM2, WC2
 Garcia, Jeffery AL6, GEN8, TM2, WC2
 Garcia, Kale TM10
 Garcia, Marc David AL6, GEN8, TM2, WC2
 Garcia, Sandy AL6, GEN8, TM2, WC2
 Garcia, Sarah AL6, GEN8, TM2, WC2
 Garcia, Shelley RR1
 Garcia, Yolanda AL6, GEN8, TM2, WC2
 Garcia-Bish, Todd AL6, GEN8, TM2, WC2
 Gardiner, Shayna AL2&6, GEN8, TM1-2, WC2
 Gardner, Alan AL1, SO1
 Gardner, Darrell AL6, GEN8, TM2, WC2
 Gardner, Don AL1, GEN13&16, RR27, TM3
 Gardner, Gabriel AL6, GEN8, TM2, WC2
 Gardner, Jason AL6, GEN8, TM2, WC2
 Gardner, Jennifer AL6, GEN8, TM2, WC2
 Gardner, Joseph AL6, GEN8, TM2, WC2
 Gardner, Katherine AL6, GEN8, TM2, WC2
 Gardner, Kyle AL2&6, GEN8, TM1-2, WC2
 Gardner, Nadine AL1, GEN13&16, RR27, TM3
 Gardner, Todd AL1, GEN13&16, RR27, TM3
 Garetti, John AL6, GEN8, TM2, WC2
 Gargan, Marlene AL2, TM1
 Garger, Jerome AL6, GEN8, TM2, WC2
 Gargiulo, Linda AL6, GEN8, TM2, WC2
 Garlette, William AL2, TM1
 Garmon, Jennea AL6, GEN8, TM2, WC2
 Garoutte, Karen Jo AL6, GEN8, TM2, WC2
 Garrett, Don AL6, GEN8, TM2, WC2
 Garrett, Lela & John AL6, GEN8, TM2, WC2
 Garrett, Suzanne AL6, GEN8, TM2, WC2
 Garritson, David AL6, GEN8, TM2, WC2
 Garside, Cheryl AL6, GEN8, TM2, WC2
 Garst, Sam AL2, TM1
 Gartin, Courtney AL6, GEN8, TM2, WC2
 Gartin, Wayne AL6, GEN8, TM2, WC2
 Gartner, Daniel AL6, GEN8, TM2, WC2
 Gartner, Robert AL6, GEN8, TM2, WC2
 Gartner, Ted AL6, GEN8, TM2, WC2
 Garton, Gary AL6, GEN8, TM2, WC2
 Garton, Jan AL6, GEN8, TM2, WC2
 Garvey, Lydia AL6, GEN6, 8&11, GM2, RR1, TM1&2, VM2, WC2
 Garvin, Michael AL6, GEN8, TM2, WC2
 Gaskins, Mary Anne AL6, GEN8, TM2, WC2
 Gassman, Jay AL6, GEN8, TM2, WC2
 Gaterud, Abbey AL6, GEN8, TM2, WC2
 Gates, Christopher AL6, GEN8, TM2, WC2
 Gates, Victor AL6, GEN8, TM2, WC2
 Gathing, Nancy AL6, GEN8, TM2, WC2
 Gatto, Judi AL6, GEN8, TM2, WC2
 Gaudreau, Brenda AL6, GEN8, TM2, WC2
 Gault, Sandra TM8
 Gauss, Gordon AL6, GEN8, TM2, WC2
 Gauthier, Grady AL6, GEN8, TM2, WC2
 Gauthier, Mike AL6, GEN8, TM2, WC2
 Gay, Candice AL6, GEN8, TM2, WC2
 Gaydon, Sandra AL2, TM1
 Geary, Pamela TM17
 Gebhard, Ilona Kay AL6, GEN8, TM2, WC2
 Gee, Lisa AL6, GEN8, TM2, WC2
 Gear, Jim AL6, GEN8, TM2, WC2
 Gefter, Marcy AL6, GEN8, TM2, WC2
 Gehring, Tom AL6, GEN8, TM2, WC2
 Geist, Barbara AL6, GEN8, TM2, WC2
 Gelczis, Lisa AL6, GEN8, TM2, WC2
 Gelfand, Dale AL6, GEN8, TM2, WC2
 Gelfer, Michael AL6, GEN8, TM2, WC2
 Geller, Leslie AL6, GEN8, TM2, WC2
 Geller, Stephanie AL6, GEN8, TM2, WC2
 Gellman, Ruth AL6, GEN8, TM2, WC2
 Gelsey, Giana AL6, GEN8, TM2, WC2
 Gemmill, Robert AL6, GEN8, TM2, WC2
 Genandt, Judy AL6, GEN8, TM2, WC2
 Genge, Pamela D AL6, GEN8, TM2, WC2
 Gengo, Julie AL6, GEN8, TM2, WC2
 Genthner, Sara AL6, GEN8, TM2, WC2
 Geoghegan, Shelagh AL6, GEN8, TM2, WC2
 Georg, Rich AL6, GEN8, TM2, WC2
 George, La AL6, GEN8, TM2, WC2
 Georgiou, Christine AL6, GEN8, TM2, WC2
 Gerber, Larry AL6, GEN8, TM2, WC2
 Gerdes, Althea AL6, GEN8, TM2, WC2
 Gergel, Inna AL6, GEN8, TM2, WC2
 Gernady, John AL6, GEN8, TM2, WC2
 Gershefski, Ann AL6, GEN8, TM2, WC2
 Gervais, Margaret AL6, GEN8, TM2, WC2
 Gethmann, Virginia C TM1
 Getz, Caroline AL2, TM1
 Geyer, Mary K AL6, GEN8, TM2, WC2
 Gianopoulos, Deanna AL6, GEN8, TM2, WC2
 Gibb, Kenneth AL6, GEN8, TM2, WC2
 Gibbons, Brian AL2&6, GEN8, TM1-2, WC2
 Gibbons, Jeannie AL6, GEN8, TM2, WC2
 Gibbs, Bruce AL1, GEN13&16, RR27, TM3
 Gibbs, Cindy AL1, GEN13&16, RR27, TM3
 Gibbs-Halm, Deborah AL2&6, GEN8, TM1-2, WC2
 Gibson, Bill AL6, GEN8, TM2, WC2
 Gibson, Sara AL6, GEN8, M11, TM2, WC1&2
 Gibson, Sherry AL6, GEN8, TM2, WC2
 Gibson, Teri AL6, GEN8, TM2, WC2
 Gibson, Valeric AL2&6, GEN8, TM1-2, WC2
 Giese, Dale AL6, GEN8, TM2, WC2
 Giffen, Helen TM11
 Giffen, Leroy TM11
 Giffin, Daniel R WF6
 Gignac, David AL6, GEN8, TM2, WC2
 Gigrich, John AL6, GEN8, TM2, WC2
 Gilbert, Amy AL1, GEN5&18, SO1, TM7
 Gilbert, Carrie AL6, GEN8, TM2, WC2
 Gilbert, Nancy AL6, GEN8, TM2, WC2
 Gilbert, Nicole AL6, GEN8, TM2, WC2
 Gilbert, Tracy AL6, GEN8, TM2, WC2
 Giles, Howard AL6, GEN8, TM2, WC2
 Giles, William AL6, GEN8, TM2, WC2
 Gilhooley, Zachary AL6, GEN8, TM2, WC2
 Gill, Kent AL6, GEN8, TM2, WC2
 Gill, Kim AL6, GEN11, RR1, TM1-2, WC2
 Gill, Michael AL6, GEN8, TM2, WC2
 Gilland, James AL2, TM1
 Gille, Greg AL2, TM1
 Gillespie, Sharon AL6, GEN8, TM2, WC2
 Gillett, Julia Marie AL6, GEN8, TM2, WC2
 Gilliland, Donna AL2&6, GEN8, TM1-2, WC2
 Gillis, Greg AL6, GEN8, TM2, WC2
 Gillis, Joyce AL6, GEN8, TM2, WC2
 Gillis, Regina AL6, GEN8, TM2, WC2
 Gillono, Mark AL6, GEN8, TM2, WC2
 Gilman, Monica AL6, GEN8, TM2, WC2
 Gilman, Richard AL2&6, GEN8, TM1-2, WC2
 Gilman-Clapham, Maude AL6, GEN8, TM2, WC2
 Gilmartin, Jennifer AL2, TM1
 Gilmore, Carl AL6, GEN8, TM2, WC2
 Gilmore, Suzann AL6, GEN8, TM2, WC2
 Gilmore, Thomas E TM1
 Gilmore, Timothy AL6, GEN8, TM2, WC2
 Gilmour, Ken AL2&6, GEN8, TM1-2, WC2
 Gilroy, Keith AL6, GEN8, TM2, WC2
 Gilson, Al TM9
 Gilton, Chad AL2, TM1
 Giniewicz, Deborah AL2&6, GEN8, TM1&2, WC2
 Gintz, Aimee AL2&6, GEN8, TM1&2, WC2
 Gioannetti, Mary AL6, GEN8, TM2, WC2
 Gioielli, Lawrence AL6, GEN8, TM2, WC2
 Giovanni, Dianne AL6, GEN8, TM2, WC2
 Girardeau, Laura AL6, GEN8, TM2, WC2
 Gisick, Rodney AL6, GEN8, TM2, WC2
 Gisselquist, Carol AL6, GEN8, TM2, WC2
 Gitis, Joline AL6, GEN8, TM2, WC2
 Giudici, Tullio AL6, GEN8, TM2, WC2
 Giuttari, Joanna A AL6, GEN8, TM2, WC2
 Givens-Hartman, Sue AL2, TM1
 Gkonos, Peter AL6, GEN8, TM2, WC2
 Glahn, Herb AL6, GEN8, TM2, WC2
 Glanzman, Kiwibob AL6, GEN8, TM2, WC2
 Glasgow, Bonnie AL6, GEN8, TM2, WC2
 Glasier, Linda AL6, GEN8, TM2, WC2
 Glaskova, Lena AL6, GEN8, TM2, WC2
 Glasner, L AL6, GEN8, TM2, WC2
 Glass, Mary Jane AL6, GEN8, TM2, WC2
 Glass, Suzanne AL6, GEN8, TM2, WC2
 Glatz, K AL6, GEN8, TM2, WC2
 Glatz, Rick AL6, GEN8, TM2, WC2
 Glauber, Karen AL6, GEN8, TM2, WC2
 Glavina, Sonja AL6, GEN8, TM2, WC2
 Glavina, Vesna AL6, GEN8, TM2, WC2
 Gleason, Marilyn AL6, GEN8, TM2, WC2

Gleekel, Garry AL6, GEN8, TM2, WC2
 Gleitsman, Avram AL2, TM1
 Glendye, Leslie AL6, GEN8, TM2, WC2
 Glenn, Joshua AL6, GEN8, TM2, WC2
 Glennon, James M AL6, GEN11, RR1, TM1-2, WC2
 Gley, Debra AL6, GEN8, TM2, WC2
 Gliick, James AL6, GEN8, TM2, WC2
 Gliick, Marion AL2, TM1
 Gliva, Dave AL6, GEN8, TM2, WC2
 Gliva, Stephen AL6, GEN8, TM2, WC2
 Glor, Poppy AL6, GEN8, TM2, WC2
 Glover, Brian AL6, GEN8, TM2, WC2
 Glover, Coby AL1, GEN13&16, RR27, TM3
 Glover, Linda TM10
 Goeke, Alison AL6, GEN8, TM2, WC2
 Goddard, Marsha AL6, GEN8, TM2, WC2
 Goddard, Scott AL6, GEN8, TM2, WC2
 Godfredsen, Niels AL6, GEN8, TM2, WC2
 Godfrey, Laura AL6, GEN8, TM2, WC2
 Godfrey, Susi AL6, GEN8, TM2, WC2
 Godinez, Miguel AL6, GEN8, TM2, WC2
 Goetinck, Jean AL6, GEN8, TM2, WC2
 Goetz, Lisa AL6, GEN8, TM2, WC2
 Goetze, Karen AL6, GEN8, TM2, WC2
 Goewey, Jennifer AL6, GEN8, TM2, WC2
 Goff, Ed GM2, TM1
 Gohres, Marc TM10
 Golbeck, Kathy AL6, GEN8, TM2, WC2
 Gold, Marilyn AL6, GEN8, TM2, WC2
 Goldberg, Ellen AL6, GEN8, TM2, WC2
 Goldberg, Lucy AL6, GEN8, TM2, WC2
 Golden, Connie AL6, GEN8, TM2, WC2
 Golden, Jerry AL6, GEN8, TM2, WC2
 Goldin, Jesse AL6, GEN8, TM2, WC2
 Goldin, Susan AL6, GEN8, TM2, WC2
 Goldman, Kenn AL6, GEN8, TM2, WC2
 Goldsmith, Ilse AL6, GEN8, TM2, WC2
 Goldstein, Carol Ann AL2&6, GEN8, TM1-2, WC2
 Goldstein, Jody AL6, GEN8, TM2, WC2
 Goldstein, Maxane AL2, TM1
 Goldstein, Rosalie AL2, TM1
 Golove, William AL2&6, GEN8, TM1-2, WC2
 Gols, L AL2, AL6, GEN8, TM1&2, WC2
 Golser, Wolfgang AL6, GEN8, TM2, WC2
 Gomez, Grace AL6, GEN8, TM2, WC2
 Gomez, AL2&6, GEN8, TM1-2, WC2
 Gonsalves, John AL6, GEN8, TM2, WC2
 Gonzales, Diane AL6, GEN8, TM2, WC2
 Gonzales, Julian AL6, GEN8, TM2, WC2
 Gonzales, Ramona AL6, GEN8, TM2, WC2
 Gonzalez Jauregui, Jose AL6, GEN8, TM2, WC2
 Gonzalez, Concepcion AL6, GEN8, TM2, WC2
 Gonzalez, Pat AL6, GEN8, TM2, WC2
 Gonzalez, Paula AL6, GEN8, TM2, WC2
 Gonzalez, Sharon AL6, GEN8, TM2, WC2
 Good, Chris AL6, GEN8, TM2, WC2
 Goodlin, David AL6, GEN8, TM2, WC2
 Goodman, Lorelle AL6, GEN8, TM2, WC2
 Goodman, Robert M AL6, GEN8, TM2, WC2
 Goodman, Shelley AL6, GEN8, TM2, WC2
 Goodman, Trudi AL2&6, GEN8, TM1-2, WC2
 Goodrich, Patty AL6, GEN8, TM2, WC2
 Goodrow, Kenn AL6, GEN8, TM2, WC2
 Goodwin, Allison AL6, GEN8, TM2, WC2
 Goodwin, Chris AL6, GEN8, TM2, WC2
 Goodwin, Mary AL6, GEN8, TM2, WC2
 Goodwin, Steve AL6, GEN8, TM2, WC2
 Goolsby, Alta AL6, GEN8, TM2, WC2
 Gordon, Billie AL6, GEN8, TM2, WC2
 Gordon, David AL6, GEN8, TM2, WC2
 Gordon, Jill AL6, GEN8, TM2, WC2
 Gordon, Judy AL6, GEN8, TM2, WC2
 Gordon, Julie AL6, GEN8, TM2, WC2
 Gordon, Riek AL6, GEN8, TM2, WC2
 Gordon-Pike, Cheryl AL6, GEN8, TM2, WC2
 Gore, D M AL6, GEN8, TM2, WC2
 Gore, Jesse AL2&6, GEN8, TM1-2, WC2
 Gore, Kellie AL6, GEN8, TM2, WC2
 Gorringer, Richard AL6, GEN8, TM2, WC2
 Gorsline, Sally Marie AL6, GEN8, TM2, WC2
 Gosnell, Greg AL2, TM1
 Gosnell, Lisa J AL6, GEN8, TM2, WC2
 Gossner, Harry & Eleanor AL6, GEN8, TM2, WC2
 Gostomski, John TM10
 Gottejman, Brian AL6, GEN8, TM2, WC2
 Gottesfeld, Christina AL6, GEN8, TM2, WC2
 Gottschalk, Lyn AL6, GEN8, TM2, WC2
 Gotz, Ben AL6, GEN8, TM2, WC2
 Gotzmer, Virginia AL6, GEN8, TM2, WC2
 Gould, Julianne AL6, GEN8, TM2, WC2
 Gould, Laura AL6, GEN8, TM2, WC2
 Gould, Richard AL6, GEN8, TM2, WC2
 Gove, Walter AL2, TM1
 Goyen, Keith R TM3, VR2
 Goynes, Beverlee AL6, GEN8, TM2, WC2
 Gozlan, Philippe AL2, TM1
 Gracey, Kyle AL6, GEN8, TM2, WC2
 Grady, Linda AL6, GEN8, TM2, WC2
 Grady, Patty AL6, GEN8, TM2, WC2
 Graf, Catherine AL6, GEN8, TM2, WC2
 Graf, Rosemary AL6, GEN8, TM2, WC2
 Grafton, George AL6, GEN8, TM2, WC2
 Graham, Amanda AL6, GEN8, TM2, WC2
 Graham, Donald AL6, GEN8, TM2, WC2
 Graham, Erin AL2&6, GEN8, TM1-2, WC2
 Graham, Kimberley AL2&6, GEN8, TM1-2, WC2
 Graham, Lynn AL6, GEN8, TM2, WC2
 Graham, Madeline AL6, GEN8, TM2, WC2
 Graham-Gardner, Rosemary AL6, GEN8, TM2, WC2
 Graham-Hurd, Melissa AL6, GEN8, TM2, WC2
 Gramstedt, Al AL6, GEN8, TM2, WC2
 Granberry, Philip TM10
 Grandinetti, Elena AL6, GEN8, TM2, WC2
 Grange, Dale AL4, GEN1, 7&13, RR2&14, SD4&6, SO4, TM3, 5, 7, 13&15, WC2-3
 Grant, Charlene M AL6, GEN8, TM2, WC2
 Grant, Douglas E TM10
 Grant, E AL6, GEN8, TM2, WC2
 Grant, Gilbert AL6, GEN8, TM2, WC2
 Grant, Gordon P AL2&6, GEN8, TM1-2, WC2
 Grappo, Nicole AL6, GEN8, TM2, WC2
 Grasso, Dina AL6, GEN8, TM2, WC2
 Grasso, Dori AL2&6, GEN8, TM1-2, WC2
 Grathwohl, Harrison AL6, GEN8, TM2, WC2
 Grauer, James & Rita AL6, GEN8, TM2, WC2
 Gravel, A Joan AL6, GEN8, TM2, WC2
 Graves, Caryn AL6, GEN8, TM2, WC2
 Graves, Mike TM10
 Grawolfe, Susan AL6, GEN8, TM2, WC2
 Gray, Colleen AL6, GEN8, TM2, WC2
 Gray, Jim AL6, GEN8, TM2, WC2
 Gray, Kathryn AL6, GEN8, TM2, WC2
 Gray, Warren AL6, GEN8, TM2, WC2
 Graziosa, Sara AL2, TM1
 Grech, Rhyan AL6, GEN8, TM2, WC2
 Greco, Andrea AL6, GEN8, TM1&2, WC2
 Greco, Claudia AL6, GEN8, TM2, WC2
 Greemann, Ellen AL2, TM1
 Green, Barbara AL6, GEN8, TM2, WC2
 Green, Betty Jean AL6, GEN8, TM2, WC2
 Green, Carol AL6, GEN8, TM2, WC2
 Green, David W AL6, GEN8, TM2, WC2
 Green, Lavender AL6, GEN8, TM2, WC2
 Green, Margaret AL6, GEN8, TM2, WC2
 Green, Mike AL6, GEN8, TM2, WC2
 Green, Pamela AL6, GEN8, TM2, WC2
 Green, Richard G AL6, GEN8, TM2, WC2
 Greenberg, Lenore AL6, GEN8, TM2, WC2
 Greene, David AL6, GEN8, TM2, WC2
 Greene, Dominic AL1, GEN5&18, SO1, TM7
 Greene, Howard AL6, GEN8, TM2, WC2
 Greene, Karen AL6, GEN8, TM2, WC2
 Greene, Lynn M AL5
 Greene, Teri AL6, GEN8, TM2, WC2
 Greenfield, Ann RR1
 Greenhalgh, Leonard AL6, GEN8, TM2, WC2
 Greenley, Deborah AL6, GEN8, TM2, WC2
 Greenwald, Cheryl AL6, GEN8, TM2, WC2
 Greenwalt, Clint AL6, GEN8, TM2, WC2
 Greenwell, Donna AL6, GEN8, TM2, WC2
 Greenwell, Terri AL6, GEN8, TM2, WC2
 Greer, Gene AL6, GEN8, TM2, WC2
 Greer, Helen AL6, GEN8, TM2, WC2
 Greer, Robert AL6, GEN8, TM2, WC2
 Gregas, Jean AL2, TM1
 Gregory, Branwen AL6, GEN8, TM2, WC2
 Gregory, John TM10
 Gregory, Probyn AL6, GEN8, TM2, WC2
 Gregory, Susan AL6, GEN8, TM2, WC2
 Gregson, Jean AL6, GEN8, TM2, WC2
 Greig, Margaret AL6, GEN8, TM2, WC2
 Grenard, Mark AL2&6, GEN8, TM1-2, WC2
 Grew, Katie AL6, GEN8, TM2, WC2
 Grice, Gary AL6, GEN8, TM2, WC2
 Grierson, Don AL6, GEN8, TM2, WC2

Grieser, Karyn AL6, GEN8, TM2, WC2
 Griest, Fred AL6, GEN8, TM2, WC2
 Griffin, Debbie AL6, GEN8, TM2, WC2
 Griffin, Fred AL6, GEN8, TM2, WC2
 Griffin, Nancy AL6, GEN8, TM2, WC2
 Griffin, Suzy AL6, GEN8, TM2, WC2
 Griffin, Virginia AL6, GEN8, TM2, WC2
 Griffith, Dian AL6, GEN8, TM2, WC2
 Griffith, Jennifer AL2&6, GEN8, TM1-2, WC2
 Griffith, Kerrin AL6, GEN8, TM2, WC2
 Griffith, Leslie AL6, GEN8, TM2, WC2
 Griffith, Lisa AL6, GEN8, TM2, WC2
 Griffith, Margaret AL6, GEN8, TM2, WC2
 Griffith, Paul AL6, GEN8, TM2, WC2
 Griffiths, Eddie AL6, GEN8, TM2, WC2
 Griggs, Brenda AL2&6, GEN8, TM1-2, WC2
 Grimes, Patrick GEN15, TM3, WF9
 Grimes, Thomas AL6, GEN8, TM2, WC2
 Grimm, Barbara AL6, GEN8, TM2, WC2
 Grimm, Barton AL6, GEN8, TM2, WC2
 Grimm, Melissa AL6, GEN8, TM2, WC2
 Grimstead, E AL6, GEN8, TM2, WC2
 Grimwald, Elizabeth AL6, GEN8, TM2, WC2
 Grindstaff, Duane AL6, GEN8, TM2, WC2
 Griph, Sarah AL6, GEN8, TM2, WC2
 Grise, Karlyn LR1, TM13
 Grise, Robert LR1, TM13
 Grissom, Dolores AL6, GEN8, TM2, WC2
 Groff, Richard AL6, GEN6&8, RR1, TM2, WC2
 Groff, Robert AL6, GEN8, TM2, WC2
 Grogan, Michael AL6, GEN8, TM2, WC2
 Grogan, Sterling TM10
 Gromulat, Martin AL6, GEN8, TM2, WC2
 Gronlund, Nancy AL2&6, GEN8, TM1-2, WC2
 Groobert, Lawrence AL6, GEN8, TM2, WC2
 Groome, Malcolm AL6, GEN8, TM2, WC2
 Groover, Jason AL6, GEN8, TM2, WC2
 Gross, David AL2, TM1
 Gross, Martin AL6, GEN8, TM2, WC2
 Gross, Mary AL6, GEN8, TM2, WC2
 Gross, Vivian AL6, GEN8, TM2, WC2
 Grosskurth, Alex AL6, GEN8, TM2, WC2
 Grossman, Janet AL6, GEN8, TM2, WC2
 Grosvenor, Melissa AL2, TM1
 Grosz, Wayne GEN6, TM3, VM2
 Grotegut, Bette AL2&6, GEN8, TM1-2, WC2
 Grove, Paul AL6, GEN8, TM2, WC2
 Grove, R I AL6, GEN8, TM2, WC2
 Grover, Ravi AL2&6, GEN8, TM1-2, WC2
 Grow, Roger D AL6, GEN8, TM2, WC2
 Gruber, Karl TM10
 Gruden, Nicholas AL6, GEN8, TM2, WC2
 Grueschow, Kenneth AL2&6, GEN8, TM1-2, WC2
 Grunden, Kimberly AL6, GEN8, TM2, WC2
 Grupp, Joseph & Dolores AL6, GEN8, TM2, WC2
 Gruszka, Belinda AL6, GEN8, TM2, WC2
 Guarracino, Vicky AL6, GEN8, TM2, WC2
 Guarton, Greta AL6, GEN8, TM2, WC2
 Guastavino, Adiana AL6, GEN8, TM2, WC2
 Gudmundson, Linda AL6, GEN8, TM2, WC2
 Guenther, Joel AL6, GEN8, TM2, WC2
 Guernsey, Cindy AL6, GEN8, TM2, WC2
 Guerra, David AL6, GEN8, TM2, WC2
 Guerriero, Robin AL6, GEN8, TM2, WC2
 Guest, Michael AL6, GEN8, TM2, WC2
 Guettinger, Jeff AL6, GEN8, TM2, WC2
 Guevara, Lupe AL6, GEN8, TM2, WC2
 Guffy, Karen AL6, GEN8, TM2, WC2
 Guglielmo, Karen AL6, GEN8, TM2, WC2
 Guida, Patricia AL6, GEN8, TM2, WC2
 Guidry, Jeff AL6, GEN8, TM2, WC2
 Guillory, Renee AL6, GEN8, TM2, WC2
 Gullam, Paul AL6, GEN8, TM2, WC2
 Gullerud, Lois AL6, GEN8, TM2, WC2
 Gunn, L L AL6, GEN8, TM2, WC2
 Gunn, Leslie AL6, GEN8, TM2, WC2
 Gunter, Karlene AL6, GEN8, TM2, WC2
 Gunther, Susan AL6, GEN8, TM2, WC2
 Gupton, William AL6, GEN8, TM2, WC2
 Gurevich, Vsevolod AL6, GEN8, TM2, WC2
 Gurley, Dale TM3
 Gurley, Gwendolyn AL6, GEN8, TM2, WC2
 Gurley, Marianne AL6, GEN8, TM2, WC2
 Gustafson, David AL6, GEN8, TM2, WC2
 Gustavino, Adriana AL2, TM1
 Gustk, TM10
 Guthrie, Barbara AL2, TM1
 Guthrie, Karen AL6, GEN8, TM2, WC2
 Guthrie, Patricia AL6, GEN8, TM2, WC2
 Guthrie, Taza AL2, TM1
 Gutierrez, Nickolas AL6, GEN8, TM2, WC2
 Gutkowski, Marie AL2&6, GEN8, TM1-2, WC2
 Gutmann, Pete TM10
 Gutsmuth, Jean AL6, GEN8, TM2, WC2
 Guzman, Ernest AL6, GEN8, TM2, WC2
 Gwynn, Elizabeth AL6, GEN8, TM2, WC2
 Gyrko, Dorothy AL6, GEN8, TM2, WC2
 H, Casey AL1, GEN5&18, SO1, TM7
 H, David A TM11
 Haan, Wendy AL6, GEN8, TM2, WC2
 Haar, Priscilla AL6, GEN8, TM2, WC2
 Haas, Frances AL6, GEN8, TM2, WC2
 Haas, Margaret AL6, GEN8, TM2, WC2
 Haas, Marjorie AL6, GEN8, TM2, WC2
 Haase, Eddie AL6, GEN8, TM2, WC2
 Haberman, Eugene AL6, GEN8, TM2, WC2
 Hack, Amanda AL6, GEN8, TM2, WC2
 Haddad, Elsy AL6, GEN8, TM2, WC2
 Hadley, Cami AL6, GEN8, TM2, WC2
 Hadley, Virginia AL6, GEN8, TM2, WC2
 Hadnott, Roxanne AL6, GEN8, TM2, WC2
 Hadrawi, Abdul AL6, GEN8, TM2, WC2
 Hadsall, Donna AL6, GEN8, TM2, WC2
 Haely, Kristen Hylton AL2, TM1
 Hafar, Diana AL2, TM1
 Hafen, Darrell G TM7
 Hafen, Kelton TM3
 Hafer, Sarah AL2&6, GEN8, TM1-2, WC2
 Hafner, Gina AL2&6, GEN8, TM1-2, WC2
 Haftings, Mary Catherine AL6, GEN8, TM2, WC2
 Hagan, Thomas AL6, GEN8, TM2, WC2
 Hagar, Alicia AL6, GEN8, TM2, WC2
 Hagar, Arthur AL6, GEN8, TM2, WC2
 Hagedorn, Elaine AL2&6, GEN8, TM1-2, WC2
 Hager, Jon AL6, GEN8, TM2, WC2
 Hager, Margaret AL6, GEN8, TM2, WC2
 Hager, Stephanie AL6, GEN8, TM2, WC2
 Hagerty, Marycie AL6, GEN8, TM2, WC2
 Haggard, Margot AL6, GEN8, TM2, WC2
 Hagler, Benjamin AL6, GEN8, TM2, WC2
 Haglind, Ron AL6, GEN8, TM2, WC2
 Hahn, Melissa AL6, GEN8, TM2, WC2
 Hahn, Peter H TM3
 Hahn, William AL6, GEN8, TM2, WC2
 Haidinyak, Jennifer AL6, GEN8, TM2, WC2
 Haik, Chuck AL6, GEN8, TM2, WC2
 Hailey, John AL6, GEN8, TM2, WC2
 Haines, Amy AL6, GEN8, TM2, WC2
 Haines, Karen AL6, GEN8, TM2, WC2
 Hains, Jenna AL6, GEN8, TM2, WC2
 Hajek, Jim AL6, GEN8, TM2, WC2
 Hakes, David AL6, GEN8, TM2, WC2
 Hakey, Donald AL6, GEN8, TM2, WC2
 Hakmila, George AL6, GEN8, TM2, WC2
 Halderman, Barrett & Debbie AL6, GEN8, TM2, WC2
 Hale, Allain AL6, GEN8, TM2, WC2
 Hale, Elaine L TM11
 Haley, Margie AL6, GEN8, TM2, WC2
 Hall, Alan AL1, GEN18, GEN5, SO1, TM7
 Hall, Alex AL6, GEN8, TM2, WC2
 Hall, David AL6, GEN8, TM2, WC2
 Hall, Derek L AL1, GEN5&18, SO1, TM7
 Hall, Dorothy AL6, GEN8, TM2, WC2
 Hall, James W AL1, GEN5&18, SO1, TM7
 Hall, Kathy AL2&6, GEN8, TM1-2, WC2
 Hall, Matthew AL6, GEN11, RR1, TM1-2, WC2
 Hall, Michaela AL6, GEN8, TM2, WC2
 Hall, Myra AL6, GEN8, TM2, WC2
 Hall, Penny AL6, GEN8, TM2, WC2
 Hall, Sarah Jane AL6, GEN8, TM2, WC2
 Hall, Stan AL6, GEN8, RR5, TM2&10, WC2
 Hall, Tessa AL2 & 6, GEN8 & 11, RR1, TM1 & 2, WC2
 Hall, Thomas M AL6, GEN8, TM2, WC2
 Halley, Christine AL6, GEN8, TM2, WC2
 Halliburton, Carol AL6, GEN8, TM2, WC2
 Hallin, John Jr TM1
 Hall-Medoza, Audrey AL6, GEN8, TM2, WC2
 Hally-Rosendahl, Kai AL6, GEN8, TM2, WC2
 Halstead, Mary E AL6, GEN6&8, TM2, WC2
 Ham, Lisa AL6, GEN8, TM2, WC2
 Hamblin, Harold E AL1, GEN13 & 16, RR27, TM3
 Hamburg, Stacey GEN4, WC2
 Hamel, Melissa AL6, GEN8, TM2, WC2

Hamill, Betsy AL6, GEN8, TM2, WC2
 Hamilton, Bonnie AL6, GEN8, TM2, WC2
 Hamilton, Don AL6, GEN8, TM2, WC2
 Hamilton, Gary TM10
 Hamilton, George AL6, GEN8, TM2, WC2
 Hamilton, Jim AL6, GEN8, TM2&10, WC2
 Hamilton, Katherine AL2&6, GEN8, TM1-2, WC2
 Hamilton, Suzanna AL6, GEN8, TM2, WC2
 Hamilton, Wesley AL6, GEN8, TM2, WC2
 Hamlin, Debi AL6, GEN8, TM2, WC2
 Hammer, Nancy AL6, GEN8, TM2, WC2
 Hammersley, Ross AL6, GEN8, TM2, WC2
 Hammond, Elizabeth AL6, GEN8, TM2, WC2
 Hammond, Keith AL2, TM1
 Hammond, Robert AL6, GEN8, TM2, WC2
 Hammond, Stacy AL2, TM1
 Hammond, Teresa AL6, GEN8, TM2, WC2
 Hammonds, Carolyn AL6, GEN8, TM2, WC2
 Hampson, Donna AL6, GEN8, TM2, WC2
 Hampson, James AL6, GEN8, TM2, WC2
 Hampton, Betty AL6, GEN8, TM2, WC2
 Hanahan, Lillian AL6, GEN8, TM2, WC2
 Hance, Maria AL6, GEN8, TM2, WC2
 Handeli, Shlomo AL2, TM1
 Handelsman, Robert AL6, GEN8, SD2, TM2, WC2
 Handler, M AL6, GEN8, TM2, WC2
 Handwerker, Michelle AL6, GEN8, TM2, WC2
 Haneke, Ingrid AL6, GEN8, TM2, WC2
 Haner, Charles AL6, GEN8, TM2, WC2
 Haney, Howard AL2&6, GEN8, TM1-2, WC2
 Hanks, John AL6, GEN8, TM2, WC2
 Hanna, Helen AL6, GEN8, TM2, WC2
 Hanneken, Donna AL6, GEN8, TM2, WC2
 Hannon, Stephen R AL6, GEN8, TM2, WC2
 Hanold, Dena AL6, GEN8, TM2, WC2
 Hanrion, Donald J & Sonya AL1, GEN13 & 16, RR27, TM3
 Hanschka, Mark AL6, GEN8, TM2, WC2
 Hansell, Jody AL6, GEN8, TM2, WC2
 Hanselman, Galen L TM10
 Hansen, Corey TM3
 Hansen, G Scott AL5, GM4
 Hansen, Gage-David AL6, GEN8, TM2, WC2
 Hansen, J R AL6, GEN8, TM2, WC2
 Hansen, Jens AL6, GEN8, TM2, WC2
 Hansen, Joy Kaleta AL6, GEN8, TM2, WC2
 Hansen, Martin C AL1, GEN13&16, RR27, TM3
 Hansenbein, Francine AL6, GEN8, TM2, WC2
 Hanson, Art AL6, GEN8, TM2, WC2
 Hanson, Ed RR21
 Hanson, Edward AL6, GEN8, TM2, WC2
 Hanson, James AL6, GEN8, TM2, WC2
 Hanson, Natalie AL6, GEN8, TM2, WC2
 Hanson, Thor AL6, GEN8, TM2, WC2
 Hanta, Hashi AL6, GEN8, TM2, WC2
 Harbin, G AL6, GEN8, TM2, WC2
 Harbus, R AL6, GEN8, TM2, WC2
 Hardack, Richard AL6, GEN8, TM2, WC2
 Harden, Harry B AL6, GEN8, TM2&10, WC2
 Harden, Marsha AL2, TM1
 Harden, Ronald AL6, GEN8, TM2, WC2
 Harder, Gregory AL6, GEN8, TM2, WC2
 Hardie, Daniel B AL6, GEN8, TM2, WC2
 Hardie, Mary Joan AL6, GEN8, TM2, WC2
 Hardin, Nicole AL6, GEN8, TM2, WC2
 Harding, Pauline AL2, TM1
 Hardy, Ann AL2, TM1
 Hardy, Jane AL6, GEN8, TM2, WC2
 Hardy, Kathryn AL6, GEN8, TM2, WC2
 Hardy, Kenneth AL6, GEN8, TM2, WC2
 Harford, Wendy TM1
 Hargrove, Christopher Hill AL6, GEN8, TM2, WC2
 Hargrove, Oren K Jr AL6, GEN8, TM2, WC2
 Harker, Jana AL6, GEN8, TM2, WC2
 Harkess, Anita AL6, GEN8, TM2, WC2
 Harkins, Douglas AL6, GEN8, TM2, WC2
 Harlib, Amy AL2&6, GEN11, RR1, TM1-2, WC2
 Harmon, Pollyana AL6, GEN8, TM2, WC2
 Harn, Paul TM3
 Harper, Laura AL6, GEN8, TM2, WC2
 Harper, Michael AL6, GEN8, TM2, WC2
 Harper, Shannon AL6, GEN8, TM2, WC2
 Harper-Mccombs, Sherry AL6, GEN8, TM2, WC2
 Harper-Smith, Pamela AL6, GEN8, TM2, WC2
 Harpole, Thane AL6, GEN8, TM2, WC2
 Harpster, Heather AL6, GEN8, TM2, WC2
 Harr, Marion AL6, GEN8, TM2, WC2
 Harrell, Helen AL2, TM1
 Harrell, Linda AL6, GEN8, TM2, WC2
 Harrell, Peter AL6, GEN8, TM2, WC2
 Harries, Susan AL6, GEN8, TM2, WC2
 Harrington, Michael AL6, GEN8, TM2, WC2
 Harris, Bill AL1, GEN13&16, RR27, TM3
 Harris, Bradley A AL2, TM1
 Harris, Carroll AL6, GEN8, TM2, WC2
 Harris, Charles AL6, GEN8, TM2, WC2
 Harris, Christine AL6, GEN8, TM2, WC2
 Harris, Collin AL6, GEN8, TM2, WC2
 Harris, Daniel AL6, GEN8, TM2, WC2
 Harris, Ed AL2&6, GEN8, TM1-2, WC2
 Harris, Irene AL1, GEN13&16, RR27, TM3
 Harris, James A AL1, GEN13&16, RR27, TM3
 Harris, Joanne AL6, GEN8, TM2, WC2
 Harris, Jody AL6, GEN8, TM2, WC2
 Harris, Kenneth AL6, GEN8, TM2, WC2
 Harris, Kevin AL1, GEN13&16, RR27, TM3
 Harris, Kurt TM1
 Harris, Louis AL6, GEN8, TM2, WC2
 Harris, Lynda K AL1, GEN13&16, RR27, TM3
 Harris, Mike RR21
 Harris, Noel AL6, GEN8, TM2, WC2
 Harris, Ronald TM1, WC2
 Harris, Sian AL6, GEN8, TM2, WC2
 Harris, Susan AL6, GEN8, TM2, WC2
 Harrison, Bert AL2, TM1
 Harrison, Cherryanne AL6, GEN8, TM2, WC2
 Harrison, Gwen AL6, GEN8, TM2, WC2
 Harrison, Linda AL6, GEN8, TM2, WC2
 Harrison, Marielle AL6, GEN8, TM2, WC2
 Harrison, Rachael AL6, GEN8, TM2, WC2
 Harrison, Scott AL6, GEN8, TM2, WC2
 Harrod, Katherine AL6, GEN8, TM2, WC2
 Harron, Y AL6, GEN8, TM2, WC2
 Hart, Karryn AL6, GEN8, TM2, WC2
 Hart, Nancy AL6, GEN8, TM2, WC2
 Harte, Mary Ellen AL6, GEN8, TM2, WC2
 Hartford, Dana D AL1, GEN13&16, RR27, TM3
 Hartford, Kathy AL1, GEN13&16, RR27, TM3
 Hartleben, Christian AL6, GEN8, TM2, WC2
 Hartley, Rebecca AL6, GEN8, TM2, WC2
 Hartman, Vanessa AL6, GEN8, TM2, WC2
 Hartman-Apgar, Sherry AL6, GEN8, TM2, WC2
 Hartsough, Gary AL6, GEN8, TM2, WC2
 Hartzler, Margaret AL6, GEN8, TM2, WC2
 Harvey, Rodney AL6, GEN8, TM2, WC2
 Harvick, Joy M TM10
 Haseltine, Allan AL6, GEN8, TM2, WC2
 Haskell, Constance AL6, GEN8, TM2, WC2
 Haskell, Dan AL6, GEN8, TM2, WC2
 Haskett, Matthew AL6, GEN11, RR1, TM1-2, WC2
 Haslinger, John AL6, GEN8, TM2, WC2
 Hassell, Carl AL6, GEN8, TM2, WC2
 Hassell, Cynthia AL6, GEN8, TM2, WC2
 Hassell, Joyce K AL6, GEN8, TM2, WC2
 Hass-Holcombe, Anita AL6, GEN8, TM2, WC2
 Hassman, Carol AL6, GEN8, TM2, WC2
 Hastie III, Coiin C AL6, GEN8, TM2, WC2
 Hastings, Helen AL6, GEN8, TM2, WC2
 Hastings, Neil AL6, GEN8, TM2, WC2
 Hatch, Kandi AL6, GEN8, TM2, WC2
 Hatch, Ryan S AL5, TM13
 Hatchett, Ethan AL6, GEN8, TM2, WC2
 Hatfield, Barry AL6, GEN8, TM2, WC2
 Hatfield, Frances AL6, GEN8, TM2, WC2
 Hathaway, Susan AL6, GEN8, TM2, WC2
 Hathorn, Mel AL6, GEN8, TM2, WC2
 Hatton, Robert AL6, GEN8, TM2, WC2
 Hatzenbeler, Karan AL6, GEN8, TM2, WC2
 Hauck, Dennis AL6, GEN8, TM2, WC2
 Haugen, Bob AL6, GEN8, TM2, WC2
 Haugen, Valerie AL6, GEN8, TM2, WC2
 Hauser, Loretta AL6, GEN8, TM2, WC2
 Havandjian, Julian AL6, GEN8, TM2, WC2
 Havens, Gary AL6, GEN11, RR1, TM1-2, WC2
 Haverlan, Linda AL6, GEN8, TM2, WC2
 Havey, Donald G TM1
 Havins, Thea AL1, GEN13&16, RR27, TM3
 Hawk, John M AL6, GEN8, TM2, WC2
 Hawk, Spirit AL6, GEN8, TM2, WC2

Hawkins, D AL6, GEN8, TM2, WC2
 Hawkins, Mark TM10
 Hawkins, Paul AL6, GEN8, TM2, WC2
 Hawkins, Phyllis AL6, GEN8, TM2, WC2
 Hawkins, Robert AL6, GEN8, TM2, WC2
 Hawks, J AL6, GEN8, TM2, WC2
 Hawley, Daniel AL6, GEN8, TM2, WC2
 Haworth, Randy AL6, GEN8, TM2, WC2
 Hawthorne, Deborah AL6, GEN8, TM2, WC2
 Hawthorne, Julia AL2, TM1
 Haycock, Robert AL6, GEN8, TM2, WC2
 Hayden, Tony AL6, GEN8, TM2, WC2
 Hayduk, Matthew TM10
 Hayes, Lisa AL6, GEN8, TM2, WC2
 Hayes, Mike AL1, RR19, VM7
 Hayes, Sara AL2, TM1
 Hayevsky, Maria K AL6, GEN8, TM2, WC2
 Haynes, Deborah AL6, GEN8, TM2, WC2
 Haynes, Dorothy AL6, GEN8, TM2, WC2
 Haynes, Elisabeth AL6, GEN8, TM2, WC2
 Haynes, John AL6, GEN8, TM2, WC2
 Hays, Zona AL6, GEN8, TM2, WC2
 Hayward, Barbara AL6, GEN8, TM2, WC2
 Hayward, Elizabeth AL6, GEN8, TM2, WC2
 Hazard, Bob AL6, GEN8, TM2, WC2
 Hazelrig, Sam AL2, TM1
 Hazlehurst, Charle AL2, TM1
 Hazzard, Norman AL6, GEN8, TM2, WC2
 Hc, AL1, GEN13, GEN16, RR27, TM3
 Heacox, B AL6, GEN8, TM2, WC2
 Head, Jim AL2, TM1
 Headrick, Laurie AL6, GEN8, TM2, WC2
 Heahl, Elizabeth AL6, GEN8, TM2, WC2
 Heald, Debbie AL6, GEN8, TM2, WC2
 Healey, Gerilyn (Gess) AL6, GEN8, TM2, WC2
 Healy, Brian AL6, GEN8, TM2, WC2
 Healy, Deirdre AL6, GEN8, TM2, WC2
 Healy, Kristen Hylton AL6, GEN8, TM2, WC2
 Heaning, Richard AL6, GEN8, TM2, WC2
 Hears, Joan AL6, GEN8, TM2, WC2
 Heart, PJ AL6, GEN8, TM2, WC2
 Heasley, Lenora AL6, GEN8, TM2, WC2
 Heath, Linda A AL6, GEN8, TM2, WC2
 Heatherington, K AL6, GEN8, TM2, WC2
 Heatherly, Samantha AL6, GEN8, TM2, WC2
 Heaton, Karl GEN13, GL1, GM2, 4, & 5, LR5, MI1, RR25, TM13, VM2, 5, & 8
 Heaton, Kenneth AL1, GEN13&16, RR27, TM3
 Heaton, Lacey AL1, GEN13 & 16, RR27, TM3
 Heaton, Raymond & Alida GM5, SO2, TM3, WF4
 Heaton, Tammy AL1, GEN13&16, RR27, TM3
 Hebbberger, Jo Anna AL6, GEN8, TM2, WC2
 Hebert, Esther AL6, GEN8, TM2, WC2
 Hebert, Jeanne AL2&6, GEN8, TM1-2, WC2
 Hebert, Mary AL2&6, GEN8, TM1-2, WC2
 Hedahl, Bj AL6, GEN8, TM2, WC2
 Hedditch, David R RR5, TM10
 Hedges, Ken AL6, GEN8, TM2, WC2
 Heffron, Joshau AL6, GEN8, TM2, WC2
 Hegemann, Glenn AL6, GEN8, TM2, WC2
 Hehman, Chris AL6, GEN8, TM2, WC2
 Heide, Andra AL6, GEN8, TM2, WC2
 Heilferty, John AL6, GEN8, TM2, WC2
 Heilman, Marilynn AL6, GEN8, TM2, WC2
 Heiman III, Maury J AL6, GEN8, TM2, WC2
 Heiman, Ronald AL6, GEN8, TM2, WC2
 Heinemann, Henning TM10
 Heines, Carolyn AL6, GEN8, TM2, WC2
 Heinlen, Emily AL6, GEN8, TM2, WC2
 Heinold, Christian AL2&6, GEN8, TM1-2, WC2
 Heinrich, Tom AL6, GEN8, TM2, WC2
 Heinrichsdorff, Gernot AL6, GEN8, TM2, WC2
 Heins, Sandra AL6, GEN8, TM2, WC2
 Heintz, James AL6, GEN8, TM2, WC2
 Heister, Ella AL6, GEN8, TM2, WC2
 Heitkamp, Terry AL6, GEN8, TM2, WC2
 Heizmann, Christina AL6, GEN8, TM2, WC2
 Helems, Phyllis AL2, TM1
 Helfman, Laura AL6, GEN8, TM2, WC2
 Helfrich, Erin AL6, GEN8, TM2, WC2
 Helle, Darcia AL6, GEN8, TM2, WC2
 Heller, Andrew AL6, GEN8, TM2, WC2
 Heller, Elizabeth AL6, GEN8, TM2, WC2
 Hellman, Yvon AL6, GEN8, TM2, WC2
 Helm, Amanda AL6, GEN8, TM2, WC2
 Helmecey, Robert W AL6, GEN8, TM2, WC2
 Helms, Wanda AL6, GEN8, TM2, WC2
 Helms, Whitney AL6, GEN8, TM2, WC2
 Helsing, James AL2&6, GEN8, TM1-2, WC2
 Helton, Ryan AL6, GEN8, TM2, WC2
 Helverson, Jeanne AL6, GEN8, TM2, WC2
 Hemmat, Joan AL6, GEN8, TM2, WC2
 Henderson, Anita AL6, GEN8, TM2, WC2
 Henderson, Barbara AL6, GEN8, TM2, WC2
 Henderson, Cheryl AL2&6, GEN8, TM1&2, WC2
 Henderson, Chris AL6, GEN8, TM2, WC2
 Henderson, Clay AL6, GEN8, TM2, WC2
 Henderson, Elena AL6, GEN8, TM2, WC2
 Henderson, Holly AL6, GEN8, TM2, WC2
 Henderson, Kristin AL6, GEN8, TM2, WC2
 Hendlin, Richard AL6, GEN8, TM2, WC2
 Hendricks, Sandy AL6, GEN8, TM2, WC2
 Hendrickson, Janice AL6, GEN8, TM2, WC2
 Henke, Margaret AL6, GEN8, TM2, WC2
 Hennessy, Denise AL6, GEN8, TM2, WC2
 Henning, Linda AL6, GEN8, TM2, WC2
 Henning, Sylvie AL6, GEN8, TM2, WC2
 Henninger, Maryann AL6, GEN8, TM2, WC2
 Henri, Lyn AL6, GEN8, TM2, WC2
 Henrick, Diane AL6, GEN8, TM2, WC2
 Henric, Gordon C TM10
 Henrie, Kurt AL1, GEN13&16, RR27, TM3
 Henriques, Joy AL2, TM1
 Henry, Ben TM9
 Henry, Calvin TM3
 Henry, Mallika AL6, GEN8, TM2, WC2
 Henry, Patricia A AL6, GEN8, TM2, WC2
 Henry, Russell AL6, GEN8, TM2, WC2
 Henry, Steve AL6, GEN8, TM2, WC2
 Henshaw, Mel AL6, GEN8, TM2, WC2
 Hensley, Regina AL6, GEN8, TM2, WC2
 Henson, Debbie AL2, TM1
 Henson, Lana AL6, GEN8, TM2, WC2
 Henson, Rebecca AL6, GEN8, TM2, WC2
 Hepburn, Chet AL6, GEN8, TM2, WC2
 Hepler, Deborah AL6, GEN8, TM2, WC2
 Hepworth, Anthony TM3
 Herbert, Betty AL6, GEN8, TM2, WC2
 Herbruck, Janet AL6, GEN8, TM2, WC2
 Herbst, Joe AL6, GEN8, TM2, WC2
 Herbstrith, Tim AL6, GEN8, TM2, WC2
 Herdliska, Robert AL6, GEN11, RR1, TM1&2, WC2
 Herman, Kathy AL6, GEN8, TM2, WC2
 Herman, Robert AL6, GEN8, TM2, WC2
 Hermann, Richard AL2&6, GEN8, TM1-2, WC2
 Hermeyer, David AL6, GEN8, TM2, WC2
 Hernandez, Carlos AL1, GEN13&16, RR27, TM3
 Hernandez, Charles AL6, GEN8, TM2, WC2
 Herndon, Laura AL2&6, GEN8, TM1-2, WC2
 Herndon, Tomas AL6, GEN8, TM2, WC2
 Heron, Joan AL6, GEN8, TM2, WC2
 Herr, Gail AL6, GEN8, TM2, WC2
 Herring, Al AL2, TM1, WC2
 Herrison, Emily AL6, GEN8, TM2, WC2
 Herrmann, Angela AL6, GEN8, TM2, WC2
 Herrmann, Linda AL6, GEN8, TM2, WC2
 Hersevoort, Suzanne AL6, GEN8, TM2, WC2
 Hershey, Bob AL6, GEN8, TM2, WC2
 Herson, KJ AL6, GEN8, TM2, WC2
 Herther, James AL6, GEN8, TM2, WC2
 Hertz, La AL6, GEN8, TM2, WC2
 Hervert, Carla AL6, GEN8, TM2, WC2
 Herzberg, William L AL6, GEN8, TM2, WC2
 Herzog, Michael GM4
 Hess, Carolyn AL6, GEN8, TM2, WC2
 Hess, John AL6, GEN8, TM2, WC2
 Hess, Kathryn AL6, GEN8, TM2, WC2
 Hessel, Laura AL6, GEN8, TM2, WC2
 Hesselrode, Alice AL6, GEN8, TM2, WC2
 Hessler, Charles AL6, GEN8, TM2, WC2
 Hester, Edward AL6, GEN8, TM2, WC2
 Heuertz, Rachel AL6, GEN8, TM2, WC2
 Heuman, Christopher AL2&6, GEN8, TM1-2, WC2
 Heuman, Jeanette AL6, GEN8, TM2, WC2
 Heuwinkel, Ryan AL6, GEN8, TM2, WC2
 Hewitt, Alana AL6, GEN8, TM2, WC2
 Hey, Nancy AL6, GEN8, TM2, WC2
 Heyde, Paul AL6, GEN8, TM2, WC2

Heylman, Edgar B GEN16, GEN7, M12
 Hiatt, Ettus AL6, GEN8, TM2, WC2
 Hickey, Konstanze AL6, GEN8, TM2, WC2
 Hickey, Mary AL6, GEN8, TM2, WC2
 Hickey, P AL6, GEN8, TM2, WC2
 Hickman, Heather AL6, GEN8, TM2, WC2
 Hickman, Jennifer AL6, GEN8, TM2, WC2
 Hickman, Scott AL6, GEN8, TM2, WC2
 Hicks, Josh AL6, GEN8, TM2, WC2
 Hicks, Nancy AL6, GEN8, TM2, WC2
 Hicks, Robert L GEN15, GEN16, TM3
 Hicks, Swink AL6, GEN8, TM2, WC2
 Hideki, Mana AL6, GEN8, TM2, WC2
 Hier, Jim TM10
 Hiesrodt, David AL6, GEN8, TM2, WC2
 Higbee, Audrey AL6, GEN8, TM2, WC2
 Higbee, Brad AL1, GEN13&16, RR27, TM3
 Higdon, William AL1, GEN13&16, RR27, TM3
 Higgins, Karen AL6, GEN8, TM2, WC2
 Higgins, Kathleen AL2, TM1
 High, Chere AL6, GEN8, TM2, WC2
 High, Vicki AL6, GEN8, TM2, WC2
 Highland, Harold AL6, GEN8, TM2, WC2
 Hignell, Julie AL6, GEN8, TM2, WC2
 Hilburn, Hal GEN3&10, LR4-5, RR18, SD1, TM9-10, VR2, WF1
 Hildebrandt, Joel AL2&6, GEN8, TM1-2, WC2
 Hildenbrand, Denis AL6, GEN8, TM2, WC2
 Hildenbrand, Mary AL6, GEN8, TM2, WC2
 Hill Jr, Richard T AL6, GEN8, TM2, WC2
 Hill, Bryan E AL1, SO1
 Hill, Charles AL6, GEN8, TM2, WC2
 Hill, Jeffery AL6, GEN8, TM2, WC2
 Hill, Julie AL6, GEN8, TM2, WC2
 Hill, Karen AL6, GEN8, TM2, WC2
 Hill, Kedrann AL6, GEN8, TM2, WC2
 Hill, Robert AL2&6, GEN8, TM1-2, WC2
 Hill, Russell AL6, GEN8, TM2, WC2
 Hill, Sharon AL6, GEN8, TM2, WC2
 Hill, Virgil AL6, GEN8, TM2, WC2
 Hiller, Andrea AL6, GEN8, TM2, WC2
 Hiller, James T AL1, TM13, TM3
 Hiller, R George AL6, GEN8, TM2, WC2
 Hillery, Karie AL6, GEN8, TM2, WC2
 Hilsinger, James AL6, GEN8, TM2, WC2
 Hilton, Carol AL6, GEN8, TM2, WC2
 Himebaugh, Glenn AL6, GEN8, TM2, WC2
 Hind, David AL6, GEN8, TM2, WC2
 Hinderaker, Philip AL6, GEN8, TM2, WC2
 Hinds, John AL2, TM1
 Hinds, Kathryn AL6, GEN8, TM2, WC2
 Hinds, Minori AL6, GEN8, TM2, WC2
 Hindy, Peggy AL6, GEN8, TM2, WC2
 Hines, Lisa AL6, GEN8, TM2, WC2
 Hinkelman, Carol AL6, GEN8, TM2, WC2
 Hinshaw, Michael AL6, GEN8, TM2, WC2
 Hinwood, Melissa AL6, GEN8, TM2, WC2
 Hinz, John TM1
 Hinze, Willie L AL6, GEN8, TM2, WC2
 Hirning, Carolyn AL6, GEN8, TM2, WC2
 Hirose, Mary AL6, GEN8, TM2, WC2
 Hirsch, Harriet AL6, GEN8, TM2, WC2
 Hirsch-Tauber, Ethan AL6, GEN8, TM2, WC2
 Hirsh, Sidney AL6, GEN8, TM2, WC2
 Hirshfield, Jeanne AL6, GEN8, TM2, WC2
 Hirth, Donald AL6, GEN8, TM2, WC2
 Hissam, Timothy AL6, GEN8, TM2, WC2
 Hitchcock, Corey AL6, GEN8, TM2, WC2
 Hitchcock, Cliff AL1, GEN13&16, RR27, TM3
 Hitchcock, Darlos AL1, GEN13&16, RR27, TM3
 Hittel, Kenneth AL2, TM1
 Hix, Hildegard AL6, GEN8, TM2, WC2
 Hixon, Ruth AL6, GEN8, TM2, WC2
 Hlis, Katie AL6, GEN8, TM2, WC2
 Hlis, Michael AL6, GEN8, TM2, WC2
 Hlmm, Roger AL6, GEN8, TM2, WC2
 Hoagey, Elizabeth AL6, GEN8, TM2, WC2
 Hobart, Patricia AL6, GEN8, TM2, WC2
 Hobbs, Jack AL6, GEN8, TM2, WC2
 Hobbs, Melissa AL2, TM1
 Hobby, Amos AL2&6, GEN8, TM1-2, WC2
 Hoch, Rhea AL6, GEN8, TM2, WC2
 Hodge, Kathryn AL6, GEN8, TM2, WC2
 Hodges, Carroll Ann AL6, GEN8, TM2, WC2
 Hodges, Tash AL6, GEN8, TM2, WC2
 Hodgkins, Crystal AL6, GEN8, TM2, WC2
 Hoefs, Carole AL6, GEN8, TM2, WC2
 Hoeke, Marcia AL2, TM1
 Hoeschele Jr, Dan AL6, GEN8, TM2, WC2
 Hoeschler, Rebecca AL6, GEN8, TM2, WC2
 Hofberg, Eva AL6, GEN8, TM2, WC2
 Hoff, Maura AL6, GEN8, TM2, WC2
 Hofferkamp, Paul AL6, GEN8, TM2, WC2
 Hoffman, Curtis & Jane AL6, GEN8, TM2, WC2
 Hoffman, Gretchen AL6, GEN8, TM2, WC2
 Hoffman, Lauren AL6, GEN8, TM2, WC2
 Hoffman, Lisa AL6, GEN8, TM2, WC2
 Hoffman, Mary AL6, GEN8, TM2, WC2
 Hoffman, Stanlry AL6, GEN8, TM2, WC2
 Hoffman, Tom AL6, GEN8, TM2, WC2
 Hoffman, Valerie AL6, GEN8, TM2, WC2
 Hoffman, Wendy AL6, GEN8, TM2, WC2
 Hofford, William AL6, GEN8, TM2, WC2
 Hofgard, Mark TM1
 Hofheins, Paul AL6, GEN8, TM2, WC2
 Hofland, Freda AL6, GEN8, TM2, WC2
 Hogan, Brian AL6, GEN8, TM2, WC2
 Hogarty, Ellen AL6, GEN8, TM2, WC2
 Hogg, Andrew AL6, GEN8, TM2, WC2
 Hogle, Michael TM10
 Hogue, Charlie AL6, GEN8, TM2, WC2
 Hohl, Renee Thompson AL2, TM1
 Hoi, Leong Yan AL2, TM1
 Hoisington-Pimentel, Rhonda AL6, GEN8, TM2, WC2
 Holaday, Bobbie AL6, GEN8, TM2, WC2
 Holbert, Rebecca AL2, TM1
 Holbrook, Morgan AL6, GEN8, TM2, WC2
 Holbrook, Patricia AL6, GEN8, TM2, WC2
 Holden, Joshua AL6, GEN8, TM2, WC2
 Holden, Nicole AL6, GEN8, TM2, WC2
 Holder, Mary AL6, GEN8, TM2, WC2
 Holdsworth, Andrew AL6, GEN8, TM2, WC2
 Holdsworth, Jeff TM10
 Holdsworth, Walter AL6, GEN8, TM2, WC2
 Holeman, Heidi AL6, GEN8, TM2, WC2
 Holl, Darwin AL1, GEN5&18, SO1, TM7
 Hollabaugh, Steven AL6, GEN8, TM2, WC2
 Holland, Ann AL2, TM1
 Holland, Roger F AL1, GEN13&16, RR27, TM3
 Holland, Susan AL6, GEN8, TM2, WC2
 Hollander, Emily AL6, GEN8, TM2, WC2
 Hollembeak, Demaris AL6, GEN8, TM2, WC2
 Hollerman, Jess C LR2
 Holley, Carl AL1, GEN13&16, RR27, TM3
 Holley, William Jr AL2, TM1
 Hollingsworth, Deen AL6, GEN8, TM2, WC2
 Hollister, Richard AL2&6, GEN8, TM1-2, WC2
 Hollman, Freddie AL6, GEN8, TM2, WC2
 Holloman, Lee TM10
 Holloway, Christen AL6, GEN8, TM2, WC2
 Hollyfield, Ann AL6, GEN8, TM2, WC2
 Holman, Shawn AL1, GEN5&18, SO1, TM7
 Holmes Fatooh, Audrey AL6, GEN8, TM2, WC2
 Holmes, Brad AL6, GEN8, TM2, WC2
 Holmes, Eamon AL6, GEN8, TM2, WC2
 Holmes, John J AL6, GEN8, TM2, WC2
 Holmgren, Skye Dianne AL6, GEN8, TM2, WC2
 Holst, Alice AL6, GEN8, TM2, WC2
 Holstine, Janet AL2, TM1
 Holt, Amy AL6, GEN8, TM2, WC2
 Holt, Mabel AL1, GEN18, GEN5, SO1, TM7
 Holtz, Barbara AL2&6, GEN8, TM1-2, WC2
 Holtz, James AL6, GEN8, TM2, WC2
 Holyouth, Trevor AL1
 Holzle, Cheryl AL6, GEN8, TM2, WC2
 Holzman, Michael AL6, GEN8, TM2, WC2
 Holznagel, Barb AL6, GEN8, TM2, WC2
 Holzweiler, Deirdre AL6, GEN8, TM2, WC2
 Homer, Virgil AL1, GEN13&16, RR27, TM3
 Honey, Sheldon AL1, GEN13&16, RR27, TM3
 Honey, Terril AL1, GEN13&16, RR27, TM3
 Honeychuck, Nancy AL6, GEN8, TM2, WC2
 Honeycutt, Donna AL2, TM1
 Honican, Albert AL2&6, GEN8, TM1-2, WC2
 Honican, Gunn AL6, GEN8, TM2, WC2
 Honigs, Dennis AL6, GEN8, TM2, WC2
 Honish, David AL6, GEN8, TM2, WC2
 Hoofnagle, Suzanne AL6, GEN8, TM2, WC2
 Hook, Kristi AL6, GEN8, TM2, WC2
 Hooley, Daniel AL6, GEN8, TM2, WC2
 Hoopes, Phila AL6, GEN8, TM2, WC2

Hooten, Jane AL6, GEN8, TM2, WC2
 Hooton, Robert AL6, GEN8, TM2, WC2
 Hoover, Mary AL6, GEN8, TM2, WC2
 Hoover, Rodney AL6, GEN8, TM2, WC2
 Hoover, Victoria N AL2, AL6, TM1
 Hope, Cathy AL6, GEN8, TM2, WC2
 Hopfenberg, Russell AL6, GEN8, TM2, WC2
 Hopkins, Amy AL2, TM1
 Hopkins, Ernest AL6, GEN8, TM2, WC2
 Hopkins, Jeff AL6, GEN8, TM2, WC2
 Hopkins, Teresa AL6, GEN11, RR1, TM1-2, WC2
 Hopkinson, Patty AL6, GEN8, TM2, WC2
 Hopper, James AL6, GEN8, TM2, WC2
 Horlacher, John AL1, GEN13&16, RR27, TM3
 Horn, Jon AL6, GEN8, TM2, WC2
 Horne, Bayne TM10
 Horne, Melinda AL6, GEN8, TM2, WC2
 Horner, Daniel AL6, GEN8, TM2, WC2
 Horning, David AL6, GEN8, TM2, WC2
 Horning, Laura AL6, GEN8, TM2, WC2
 Horowitz, Aileen AL6, GEN8, TM2, WC2
 Horstman, Brian AL6, GEN8, TM2, WC2
 Horton, Rachael AL6, GEN8, TM2, WC2
 Horvath, Elena AL6, GEN8, TM2, WC2
 Horvath, Elizabeth AL6, GEN8, TM2, WC2
 Hotchkiss, John AL6, GEN8, TM2, WC2
 Hotopp, Kristen AL6, GEN8, TM2, WC2
 Houck, Holiday AL6, GEN8, TM2, WC2
 Hough, Peggy AL2, TM1
 Houghtaling, Mike AL6, GEN8, TM2, WC2
 Houle, Catherine AL6, GEN8, TM2, WC2
 Housefield, Steve AL6, GEN8, TM2, WC2
 Houser, Joel AL6, GEN8, TM2, WC2
 Houser, Keith AL6, GEN8, TM2, WC2
 Housley, Mike TM10
 Houston, Edward AL6, GEN8, TM2, WC2
 Houston, Lynn AL6, GEN8, TM2, WC2
 Hover, Violet TM1, WF2
 Howald, Shanna AL6, GEN8, TM2, WC2
 Howald, William N AL6, GEN8, TM2, WC2
 Howard, Bonnie AL1, GEN13&16, RR27, TM3
 Howard, Carl AL6, GEN8, TM2, WC2
 Howard, Charles S AL1, GEN13&16, RR27, TM3
 Howard, Ilene AL6, GEN8, TM2, WC2
 Howard, Judith AL6, GEN8, TM2, WC2
 Howard, Judy A AL6, GEN8, TM2, WC2
 Howard, Lee AL6, GEN8, TM2, WC2
 Howard, Stefan AL6, GEN8, TM2, WC2
 Howard, Toni AL2, TM1
 Howarth, Donna AL6, GEN8, TM2, WC2
 Howe, Cherie AL6, GEN8, TM2, WC2
 Howe, Linda AL6, GEN8, TM2, WC2
 Howe, Melyssa AL6, GEN8, TM2, WC2
 Howell, M AL6, GEN8, TM2, WC2
 Howenstein, David T AL2&6, GEN8, TM1-2, WC2
 Howie, Mary Elizabeth AL6, GEN8, TM2, WC2
 Hoxeng, Jessica AL6, GEN8, TM2, WC2
 Hoyt, Earle AL6, GEN8, TM2, WC2
 Hoyt, Helen R AL6, GEN8, TM2, WC2
 Hoyt, Jennifer AL6, GEN8, TM2, WC2
 Hreha, D AL6, GEN8, TM2, WC2
 Hubacek, Richard AL6, GEN8, TM2, WC2
 Hubbard, Robert AL6, GEN8, TM2, WC2
 Hubbert, Margaret AL6, GEN8, TM2, WC2
 Hubble, Gary AL6, GEN8, TM2, WC2
 Huddleston, Leah AL6, GEN8, TM2, WC2
 Hudgins, William AL6, GEN8, TM2, WC2
 Hudson, Denise AL6, GEN11, RR1, TM1-2, WC2
 Huesgen, William AL6, GEN8, TM2, WC2
 Huey, Terry AL6, GEN8, TM2, WC2
 Huff, Chris AL6, GEN8, TM2, WC2
 Huffman, Melodie AL6, GEN8, TM2, WC2
 Huggins, Martha AL6, GEN8, TM2, WC2
 Huggins, Robert AL6, GEN8, TM2, WC2
 Huggins, William AL2, TM1
 Hughes, Angie AL2&6, GEN8, TM1-2, WC2
 Hughes, Arlin GM3, TM13, TM3
 Hughes, Brendan AL2&6, GEN8 & 11, RR1, TM1-2, WC2
 Hughes, Chuck AL6, GEN8, TM2, WC2
 Hughes, David AL6, GEN8, TM2, WC2
 Hughes, Denice AL1, GEN5 & 18, SO1, TM7
 Hughes, Jimmie B GEN16, GM4, TM3&13
 Hughes, Kim AL2, TM1
 Hughes, Maria AL6, GEN8, TM2, WC2
 Hughes, Nina Vee AL1, GEN5&18, SO1, TM7
 Hughes, Rozell AL1, SO1, TM15
 Hughes, Sally K AL6, GEN8, TM2, WC2
 Hughes, Stacey AL1&6, GEN8, SO1, TM2, WC2
 Hulet, Jeff AL1, GEN13&16, RR27, TM3
 Hulett, Patrick AL6, GEN8, TM2, WC2
 Hull, Anne AL6, GEN8, TM2, WC2
 Hulstrom, Erica AL6, GEN8, TM2, WC2
 Hult, Philip AL6, GEN8, TM2, WC2
 Humble, Beth AL6, GEN8, TM2, WC2
 Hume, Lewis TM3
 Humes, Leah AL6, GEN8, TM2, WC2
 Hummel, Jared AL1
 Hummel, Steve AL6, GEN8, TM2, WC2
 Hummell, Toni AL6, GEN8, TM2, WC2
 Humowiecki, Jennifer AL2, TM1
 Humpfer, Madeline RR2 & 19, TM3 & 14
 Humphrey, Jay AL6, GEN8, TM2, WC2
 Hundley, Martha AL6, GEN8, TM2, WC2
 Hunneweel, Sarah AL6, GEN8, TM2, WC2
 Hunrichs, Paul AL2&6, GEN8, TM1-2, WC2
 Hunsaker, Dan GEN13&18, SO1, TM3&7
 Hunsicker, Donna AL6, GEN8, TM2, WC2
 Hunt, Abby AL6, GEN8, TM2, WC2
 Hunt, Elliot AL6, GEN8, TM2, WC2
 Hunt, Fayon AL1, SO1
 Hunt, Herbert AL6, GEN8, TM2, WC2
 Hunt, James AL6, GEN8, TM2, WC2
 Hunt, Jerald AL1, GEN18, GEN5, SO1, TM7
 Hunt, Katie AL1, GEN5&18, SO1, TM7
 Hunt, Linda AL6, GEN8, TM2, WC2
 Hunt, Mary AL1, GEN18, GEN5, TM7
 Hunt, Otto AL6, GEN8, TM2, WC2
 Hunt, Russel L AL1, GEN13&16, RR27, TM3
 Hunt, Trevor AL1, GEN5&18, SO1, TM3, TM7
 Hunter, Aurora AL6, GEN8, TM2, WC2
 Hunter, D RR21
 Hunter, Deborah AL6, GEN8, TM2, WC2
 Hunter, Janice AL6, GEN8, TM2, WC2
 Hunter, John AL6, GEN8, TM2, WC2
 Hunter, Peter AL1, GEN5&18, SO1, TM7
 Huntley, Robert AL6, GEN8, TM2, WC2
 Hupp, Melinda AL6, GEN8, TM2, WC2
 Hupp-Clark, Johannah AL6, GEN8, TM2, WC2
 Hurley, Kristin AL6, GEN8, TM2, WC2
 Hurni, Richard AL6, GEN8, TM2, WC2
 Hurst, Rose AL6, GEN8, TM2, WC2
 Hurst, Ted AL1, GEN18, GEN5, SO1, TM7
 Hurst-Matulewicz, Darcia AL6, GEN8, TM2, WC2
 Huser, Verne AL6, GEN8, TM2, WC2
 Huss, Phil AL6, GEN8, TM2, WC2
 Husted, Harlene AL6, GEN8, TM2, WC2
 Hutchcroft, Dennett AL6, GEN8, TM2, WC2
 Hutcherson, Debbie AL6, GEN8, TM2, WC2
 Hutchinson, Peggy AL6, GEN8, TM2, WC2
 Hutchinson, Richard AL6, GEN8, TM2, WC2
 Hutchinson, Robert AL6, GEN8, TM2, WC2
 Hutchison, Michele AL6, GEN8, TM2, WC2
 Hutsell, Staci AL2, TM1
 Hyatt, Donna AL6, GEN8, TM2, WC2
 Hyde, Richard AL6, GEN8, TM2, WC2
 Hydeman, Jinx AL2&6, GEN8, TM1-2, WC2
 Hyers, Jocelyn AL6, GEN8, TM2, WC2
 Hynd, J AL6, GEN8, TM2, WC2
 Hyslop, Janelle AL6, GEN8, TM2, WC2
 Ibbotson, Daveril AL6, GEN8, TM2, WC2
 Ibreighith, Ali AL6, GEN8, TM2, WC2
 Ice, Greg AL2, TM1
 Ide, Melissa AL6, GEN8, TM2, WC2
 Ifill, Tim AL6, GEN8, TM2, WC2
 Ikaris, Despoina AL6, GEN8, TM2, WC2
 Iles, Lisa AL6, GEN8, TM2, WC2
 Ilgen, Joan AL6, GEN8, TM2, WC2
 Illes, George AL6, GEN8, TM2, WC2
 Illes, Greg TM10
 Iltzsche, William AL6, GEN8, TM2, WC2
 Image, Sweet AL6, GEN8, TM2, WC2
 Immar, Ed AL6, GEN8, TM2, WC2
 Imrie, George AL6, GEN8, TM2, WC2
 Ingato, Erika AL2, TM1
 Ingebrigtsen, Paul AL6, GEN8, TM2, WC2
 Ingersoll, Jack AL6, GEN8, TM2, WC2
 Ingold, J B TM3
 Ingraffia, Gia AL6, GEN8, TM2, WC2
 Inlove, Rich AL6, GEN8, TM2, WC2
 Inskeep, James AL6, GEN8, TM2, WC2
 Insley, Cathy AL6, GEN8, TM2, WC2
 Interis, Evelyn AL6, GEN8, TM2, WC2

Inzerillo-Latella, Gail AL6, GEN8, TM2, WC2
 Iracki, Donna AL6, GEN8, TM2, WC2
 Irby, Tanya AL6, GEN8, TM2, WC2
 Ireland, Kaisa AL6, GEN8, TM2, WC2
 Irving, Dennis H GEN18, GEN6, TM1
 Isaacs, Jim AL2&6, GEN8, TM1-2, WC2
 Isbell, Linda AL6, GEN8, TM2, WC2
 Ivanhoff, Estelle AL2, TM1
 Iversen, Jeri AL6, GEN8, TM2, WC2
 Iverson, Karen AL6, GEN8, TM2, WC2
 Ives, Claire RR1
 Ives, Jamie AL2&6, GEN8, TM1-2, WC2
 Iwankiw, Pilar AL6, GEN8, TM2, WC2
 Jab, Sharon AL6, GEN8, TM2, WC2
 Jablow, Lisa AL6, GEN8, TM2, WC2
 Jabs, Sharon AL2, TM1
 Jaccard, Wendy AL6, GEN8, TM2, WC2
 Jackson, Clay AL6, GEN8, TM2, WC2
 Jackson, Ginny AL6, GEN8, TM2, WC2
 Jackson, Ira J AL1, GEN13&16, RR27, TM3
 Jackson, Jan AL6, GEN8, TM2, WC2
 Jackson, Julie AL6, GEN8, TM2, WC2
 Jackson, Karen AL6, GEN8, TM2, WC2
 Jackson, Kevin AL1, GEN13&16, RR27, TM3
 Jackson, Maria AL6, GEN8, TM2, WC2
 Jackson, Patricia AL6, GEN8, TM2, WC2
 Jackson, Richard AL6, GEN8, TM2, WC2
 Jackson, Stephanie AL6, GEN8, TM2, WC2
 Jackson, Tom AL2, TM1
 Jackson, Weldon H AL6, GEN8, TM2, WC2
 Jacob, Donna AL6, GEN8, TM2, WC2
 Jacob, Greg AL6, GEN8, TM2, WC2
 Jacob, Stephen AL6, GEN8, TM2, WC2
 Jacobs, Daniel AL6, GEN8, TM2, WC2
 Jacobs, Lorraine AL6, GEN8, TM2, WC2
 Jacobs, Patricia AL6, GEN8, TM2, WC2
 Jacobs, Suzanne AL6, GEN8, TM2, WC2
 Jacobson, Chani AL6, GEN8, TM2, WC2
 Jacobson, Don AL6, GEN8, TM2, WC2
 Jacoby, Sharon AL6, GEN8, TM2, WC2
 Jacoby, Susan AL6, GEN8, TM2, WC2
 Jacqueline, James AL6, GEN8, TM2, WC2
 Jaegel-Aulito, Laura AL6, GEN8, TM2, WC2
 Jaeger, James AL6, GEN8, TM2, WC2
 Jaggi, Shaun AL1, GEN5 & 18, SO1, TM7
 Jakobcic, Fred AL6, GEN8, TM2, WC2
 James, Chad AL6, GEN8, TM2, WC2
 James, Clark AL6, GEN8, TM2, WC2
 James, Connie AL1, GEN5&18, SO1, TM7
 James, David AL6, GEN8, TM2, WC2
 James, Jason AL1, GEN18, GEN5, SO1, TM7
 Jameson, Mike AL6, GEN8, TM2, WC2
 Jamison, Michele AL6, GEN8, TM2, WC2
 Janelle, Susan AL2, TM1
 Jani, Purvi AL2&6, GEN8, TM1-2, WC2
 Janjigian, Andrew AL6, GEN8, TM2, WC2
 Jankowski, Rob GEN6
 Janssen, John AL6, GEN8, TM2, WC2
 Janusko, Robert AL6, GEN8, TM2, WC2
 Janzen, Gayle AL6, GEN8, TM2, WC2
 Jaquess, Theresa AL6, GEN8, TM2, WC2
 Jarabek, Martin AL6, GEN8, TM2, WC2
 Jarboe, Jolynn AL6, GEN8, TM2, WC2
 Jarecki, Chuck TM10, WC3
 Jarrell, Dan AL6, GEN8, TM2, WC2
 Jarvis, Marlene AL1, GEN13&16, RR27, TM3
 Jarvis, Paul AL6, GEN8, TM2, WC2
 Jarvis, Scott AL6, GEN8, TM2, WC2
 Jaslow, Douglas AL2 & 6, GEN8, TM1-2, WC2
 Jasoni, Marilyn AL6, GEN8, TM2, WC2
 Jaworowska, Joanna AL6, GEN8, TM2, WC2
 Jay, B AL6, GEN8, TM2, WC2
 Jay, Kimberly AL6, GEN8, TM2, WC2
 Jay, Patty AL6, GEN8, TM2, WC2
 Jayakumar, Prerana AL6, GEN8, TM2, WC2
 Jeff, Kimett E AL1, SO1
 Jeffries, Lynne AL6, GEN8, TM2, WC2
 Jeffries, Michael AL6, GEN8, TM2, WC2
 Jelinnek, Cartney AL6, GEN8, TM2, WC2
 Jenkins, John AL6, GEN8, TM2, WC2
 Jenkins, Karlyn AL6, GEN8, TM2, WC2
 Jenkins, Melodie AL6, GEN8, TM2, WC2
 Jenkins, Sara AL6, GEN8, TM2, WC2
 Jenkins, William O AL6, GEN8, TM2, WC2
 Jenkins-Murphy, Katherine AL6, GEN8, TM2, WC2
 Jenks, Alan AL6, GEN8, TM2, WC2
 Jenks, Katya AL6, GEN8, TM2, WC2
 Jennetten, Paul AL6, GEN8, TM2, WC2
 Jennings, Linda AL6, GEN8, TM2, WC2
 Jensch, Kristy AL6, GEN8, TM2, WC2
 Jensen, Andrea AL1, GEN18, GEN5, TM7
 Jensen, Dale TM10
 Jensen, H Thomas AL5, LR2, RR21, TM13, WF10
 Jensen, Jeff TM3
 Jensen, Jill AL6, GEN8, TM2, WC2
 Jensen, Lisa AL6, GEN8, TM2, WC2
 Jensen, Ronald AL2, TM1
 Jensen, Vickie AL4
 Jensen, Lj AL6, GEN11, RR1, TM1-2, WC2
 Jentzsch, Richard A AL1, GEN13&16, RR27, TM3
 Jenvey, Lottie AL6, GEN8, TM2, WC2
 Jereczek, Richard AL6, GEN8, TM2, WC2
 Jernigan, Malissa AL6, GEN8, TM2, WC2
 Jesse, Harold AL6, GEN8, TM2, WC2
 Jessing, Carol M AL6, GEN8, TM2, WC2
 Jessler, Darynne AL2&6, GEN8, TM1-2, WC2
 Jessop, Julia AL6, GEN8, TM2, WC2
 Jessop, Richard AL1, GEN13&16, RR27, TM3
 Jester, Julia AL2, TM1
 Jett, Jim AL4
 Jindrich, Ervin AL6, GEN8, TM2, WC2
 Jiobu, Laurie AL6, GEN8, TM2, WC2
 Jiranek, Pamela AL6, GEN8, TM2, WC2
 Jobe, Susan AL2, TM1
 Joerg, John AL6, GEN8, TM2, WC2
 Joerg, Jude AL6, GEN8, TM2, WC2
 Johanson, Wynn AL6, GEN8, TM2, WC2
 Johns, Christina AL2, TM1
 Johns, Julia AL6, GEN8, TM2, WC2
 Johns, Melanie B AL6, GEN8, TM2, WC2
 Johnson, Alice AL6, GEN8, TM2, WC2
 Johnson, Ammon AL1, GEN13&16, RR27, TM3
 Johnson, Andrea AL2&6, GEN8, TM1-2, WC2
 Johnson, Andrew AL6, GEN8, TM2, WC2
 Johnson, Anne AL6, GEN8, TM2, WC2
 Johnson, Bonnie AL6, GEN11, GM2, RR1, TM1&2, WC2
 Johnson, Brigham SD5, SO2, TM3
 Johnson, Brook TM3
 Johnson, Bruce GEN2, 3 & 15, TM3, 4 & 13, VR2, WC3
 Johnson, Carne AL1, GEN13&16, RR27, TM3
 Johnson, Corine AL6, GEN8, TM2, WC2
 Johnson, Dana AL6, GEN8, TM2, WC2
 Johnson, Debra AL2&6, GEN8, TM1-2, WC2
 Johnson, Denny AL6, GEN8, TM2, WC2
 Johnson, Don AL6, GEN8, TM2, WC2
 Johnson, Douglas AL6, GEN8, TM2, WC2
 Johnson, Erin AL6, GEN8, TM2, WC2
 Johnson, Eva AL6, GEN8, TM2, WC2
 Johnson, Heather AL6, GEN8, TM2, WC2
 Johnson, Jeff AL1 & 6, GEN8, 13 & 16, RR27, TM2 & 3, WC2
 Johnson, Joe AL1, GEN13 & 16, RR27, TM3
 Johnson, Joel AL6, GEN8, TM2, WC2
 Johnson, Judith AL6, GEN8, TM2, WC2
 Johnson, Julie AL2&6, GEN8, TM1-2, WC2
 Johnson, Karen AL6, GEN8, TM2, WC2
 Johnson, Kim AL2, TM1
 Johnson, Lee TM3, WF10
 Johnson, Linda AL6, GEN8, TM2, WC2
 Johnson, Lorraine D AL6, GEN8, TM2, WC2
 Johnson, Lynn TM3, WF10
 Johnson, Marilyn AL6, GEN8, TM2, WC2
 Johnson, Marina AL1, GEN13&16, RR27, TM3
 Johnson, Matt AL2, TM1
 Johnson, Mike GEN16
 Johnson, Mona AL6, GEN8, TM2, WC2
 Johnson, Nancy AL2, TM1
 Johnson, Pat AL6, GEN8, TM2, WC2
 Johnson, Patricia AL6, GEN8, TM2, WC2
 Johnson, Paula AL6, GEN8, TM2, WC2
 Johnson, Raymond AL6, GEN8, TM2, WC2
 Johnson, Rheta AL6, GEN8, TM2, WC2
 Johnson, Richard GEN17, VM5
 Johnson, Richard M AL6, GEN8, TM2, WC2
 Johnson, Sandy AL1, GEN13&16, RR27, TM3
 Johnson, Scott AL6, GEN8, TM2, WC2
 Johnson, Sharon AL1 & 6, GEN8, 13, & 16, RR27, TM2 & 3, WC2
 Johnson, Stanley AL6, GEN8, TM2, WC2
 Johnson, Sufi AL6, GEN8, TM2, WC2
 Johnson, Susanne AL6, GEN8, TM2, WC2

- Johnson, Tessie AL1, GEN13&16, RR27, TM3
 Johnson, Theresa AL6, GEN6&8, TM1&2, WC2
 Johnson, Tim AL6, GEN8, TM2, WC2
 Johnson, Ty AL6, GEN8, TM2, WC2
 Johnson, Vicki AL6, GEN8, TM2, WC2
 Johnson, Virginia AL6, GEN8, TM2, WC2
 Johnson, Ze AL6, GEN8, TM2, WC2
 Johnson, Zelma AL1, GEN13&16, RR27, TM3
 Johnston, Kalista AL6, GEN8, TM2, WC2
 Johnston, Timothy AL6, GEN8, TM2, WC2
 Johnstone, Grace AL6, GEN8, TM2, WC2
 Johnstone, Penelope AL6, GEN8, TM2, WC2
 Johnston, Alison AL6, GEN8, TM2, WC2
 Jonckheere, Benoit AL6, GEN8, TM2, WC2
 Jones, Allen Myron AL5, RR20, WS6, WS7
 Jones, Andrew AL6, GEN8, TM2, WC2
 Jones, Beth AL6, GEN8, TM2, WC2
 Jones, Bradley AL6, GEN8, TM2, WC2
 Jones, Brian C AL6, GEN8, TM2, WC2
 Jones, Catherine AL6, GEN8, TM2, WC2
 Jones, Charles AL6, GEN8, TM2, WC2
 Jones, David H AL2&6, GEN8, TM1-2, WC2
 Jones, Diane AL6, GEN8, TM2, WC2
 Jones, Elliot AL6, GEN8, TM2, WC2
 Jones, Hedy AL6, GEN8, TM2, WC2
 Jones, J R AL1, GEN13 & 16, RR27, TM3
 Jones, Jennifer AL6, GEN8, TM2, WC2
 Jones, Jim AL1, GEN18, GEN5, SO1, TM7
 Jones, Joy AL6, GEN8, TM2, WC2
 Jones, Judy AL6, GEN8, TM2, WC2
 Jones, Katherine AL6, GEN8, TM2, WC2
 Jones, Ken AL1, GEN13&16, RR27, TM3
 Jones, Laura AL6, GEN8, TM2, WC2
 Jones, Lynette AL1, GEN13&16, RR27, TM3
 Jones, Malcom AL6, GEN8, TM2, WC2
 Jones, Mark AL6, GEN8, TM2, WC2
 Jones, Martin AL6, GEN8, TM2, WC2
 Jones, Marvin A AL1, GEN5&18, SO1, TM7
 Jones, Roslyn AL6, GEN8, TM2, WC2
 Jones, Thomas AL6, GEN8, TM2, WC2
 Jones, Tom AL6, GEN8, TM2, WC2
 Jones, Tori AL1, GEN13&16, RR27, TM3
 Jones, Warren AL6, GEN8, TM2, WC2
 Jones-Ford, Jacqueline AL6, GEN8, TM2, WC2
 Jonsson, Erik TM10
 Joos, Sandra AL6, GEN8, TM2, WC2
 Jordan, Diane AL6, GEN8, TM2, WC2
 Jordan, Heidi AL6, GEN8, TM2, WC2
 Jordan, Kirk TM13, TM3
 Jordan, Kristine AL6, GEN8, TM2, WC2
 Jorgensen, James H AL2&6, GEN8, TM1-2, WC2
 Jorgensen, Lynn AL6, GEN8, TM2, WC2
 Jorgensen, Richard AL6, GEN8, TM2, WC2
 Jorgenson, Rhodie AL2&6, GEN8, TM1-2, WC2
 Joseph, Herb AL6, GEN8, TM2, WC2
 Jostlein, J AL6, GEN8, TM2, WC2
 Jover, Karl AL1, GEN13&16, RR27, TM3
 Joyce, Mary Anne AL6, GEN8, TM2, WC2
 Joyner, Marjorie AL6, GEN8, TM2, WC2
 Joyner, Stephanie AL6, GEN8, TM2, WC2
 Joynes, Patricia AL6, GEN8, TM2, WC2
 Juba, Anne AL6, GEN8, TM2, WC2
 Judd, Daren W AL1, GEN5&18, TM7
 Judd, Dixie Lee AL1, GEN13&16, RR27, TM3
 Judd, Tina AL1, GEN13&16, RR27, TM3
 Judd, Tony AL1, GEN13&16, RR27, TM3
 Judd, Veldon AL1, GEN13&16, RR27, TM3
 Judge, Melissa AL6, GEN8, TM2, WC2
 Judice, Greg AL6, GEN8, TM2, WC2
 Judson, Barbara AL6, GEN8, TM2, WC2
 Juell, Carol AL6, GEN8, TM2, WC2
 Juknialis, Barbara AL6, GEN8, TM2, WC2
 Julia, Earl AL6, GEN8, TM2, WC2
 Julian, Lucy AL6, GEN8, TM2, WC2
 Jungen, Tammy AL6, GEN8, TM2, WC2
 Juon, Linda AL6, GEN8, TM2, WC2
 Jurgens, Victoria AL6, GEN8, TM2, WC2
 Just, Halina AL6, GEN8, TM2, WC2
 Kabisch, Mary Ethel AL6, GEN8, TM2, WC2
 Kaden, Hayden AL6, GEN8, TM2, WC2
 Kadon, Debra AL6, GEN8, TM2, WC2
 Kadrmas, Tim AL2&6, GEN8, TM1-2, WC2
 Kafton, Pamela AL6, GEN8, TM2, WC2
 Kahle, Judith AL6, GEN8, TM2, WC2
 Kahny, Rachael AL6, GEN8, TM2, WC2
 Kain, Joan AL6, GEN8, TM2, WC2
 Kaiser, Chuck AL6, GEN8, TM2, WC2
 Kaiwi, Jean AL6, GEN8, TM2, WC2
 Kaku, Agness AL6, GEN5&8, TM2, WC2
 Kalatzes, Gust G TM10
 Kalfus, Elyse AL6, GEN8, TM2, WC2
 Kalina, Charles AL6, GEN8, TM2, WC2
 Kalina, Claire RR1, TM1
 Kalina, Matt AL6, GEN8, TM2, WC2
 Kallenbach, Kevin AL6, GEN8, TM2, WC2
 Kalovsky, Robert AL6, GEN8, TM2, WC2
 Kaminski, Gary AL2, TM1
 Kanda, Kevin AL6, GEN8, TM2, WC2
 Kane, Marie AL6, GEN8, TM2, WC2
 Kaneko, Massayo AL6, GEN8, TM2, WC2
 Kanellakis, Susan AL2, TM1
 Kanoff, Alexandria AL2&6, GEN8, TM1-2, WC2
 Kapell, David AL6, GEN8, TM2, WC2
 Kapke, Lorel AL6, GEN8, TM2, WC2
 Kaplan, Phil & Susie AL6, GEN8, TM2, WC2
 Kaplan, Robert AL6, GEN8, TM2, WC2
 Kaplan, Sarah AL6, GEN8, TM2, WC2
 Kaplan, Susan AL6, GEN8, TM2, WC2
 Karan, Elizabeth AL6, GEN8, TM2, WC2
 Karberg, Janice AL6, GEN8, TM2, WC2
 Karcich, Bob AL6, GEN8, TM2, WC2
 Karges, Robert AL6, GEN8, TM2, WC2
 Karlovich, David AL6, GEN8, TM2, WC2
 Karol, Karen AL6, GEN8, TM2, WC2
 Karowe, David AL6, GEN8, TM2, WC2
 Kaspick, Carl AL6, GEN8, TM2, WC2
 Kassis, Deborah AL6, GEN8, TM2, WC2
 Kastel, Diane AL6, GEN8, TM2, WC2
 Kastelberg, Dale AL6, GEN8, TM2, WC2
 Katheiser, Laini AL6, GEN8, TM2, WC2
 Katsen, Yelena AL6, GEN8, TM2, WC2
 Katten, Dc AL6, GEN8, TM2, WC2
 Katz, C Nichole AL6, GEN8, TM2, WC2
 Katz, Marilyn AL6, GEN8, TM2, WC2
 Katz, Michael AL6, GEN8, TM2, WC2
 Kauffman, George B AL6, GEN8, TM2, WC2
 Kauffman, Maryann AL6, GEN8, TM2, WC2
 Kauffman, Michael AL6, GEN8, TM2, WC2
 Kauffmann, Patricia AL6, GEN8, TM2, WC2
 Kaufmann, Barbara AL2, TM1
 Kautner, Varida AL6, GEN8, TM2, WC2
 Kautz, Katherine AL2&6, GEN8, TM1-2, WC2
 Kavanagh, Kristin AL6, GEN8, TM2, WC2
 Kawa, Sandra AL6, GEN8, TM2, WC2
 Kawaler, Lydia AL6, GEN8, TM2, WC2
 Kaweck, Lewis AL6, GEN8, TM2, WC2
 Kay, Beatrice AL6, GEN8, TM2, WC2
 Kay, Sasha AL6, GEN8, TM2, WC2
 Kearney, Mary AL6, GEN8, TM2, WC2
 Keary, Michael AL6, GEN8, TM2, WC2
 Keate, Kenneth J TM10
 Keating-Secular, Karen AL6, GEN8, TM2, WC2
 Keech, Lisa Marie AL2&6, GEN8, TM1-2, WC2
 Keefe, Kathleen AL6, GEN8, TM2, WC2
 Keefer, Julie AL6, GEN8, TM2, WC2
 Keefer, Neal AL6, GEN8, TM2, WC2
 Keegan, Helen AL6, GEN8, TM2, WC2
 Keenan, Matt AL6, GEN8, TM2, WC2
 Keene, Bruce AL6, GEN8, TM2, WC2
 Keene, Paul GEN6
 Keeney, Larry AL6, GEN8, TM2, WC2
 Keeney, Sharon AL6, GEN8, TM2, WC2
 Keenum, S M AL6, GEN8, TM2, WC2
 Keeting, William AL6, GEN8, TM2, WC2
 Keeton, Vicky AL6, GEN8, TM2, WC2
 Kehas, Alethea AL6, GEN8, TM2, WC2
 Keinath, Marilyn AL6, GEN8, TM2, WC2
 Keiser, John L AL6, GEN8, TM2, WC2
 Keiser, Robert AL6, GEN8, TM2, WC2
 Keith, Dennis AL6, GEN8, TM2, WC2
 Kekic, Dan AL6, GEN8, TM2, WC2
 Keller, Kathleen AL6, GEN8, TM2, WC2
 Keller, Koley AL1, GEN13&16, RR27, TM3
 Keller, L Lynn TM3
 Keller, Mary Beth AL6, GEN8, TM2, WC2
 Keller, Robert AL6, GEN8, TM2, WC2
 Keller, Tom AL6, GEN8, TM2, WC2
 Keller, William AL1, GEN13&16, RR27, TM3
 Kellerman, Betsy AL6, GEN8, TM2, WC2
 Kellett, Margaret AL6, GEN8, TM2, WC2
 Kelley, Alice AL6, GEN8, TM2, WC2
 Kelley, Barbara AL6, GEN8, TM2, WC2
 Kelley, Dan AL6, GEN8, TM2, WC2
 Kelley, Dorinda AL6, GEN8, TM2, WC2

Kellgreen, Theresa AL6, GEN8, TM2, WC2
 Kellmann, Jack TM9
 Kellogg, Chev AL6, GEN8, TM2, WC2
 Kellstrom, Sandra AL6, GEN8, TM2, WC2
 Kelly, Barbara AL6, GEN8, TM2, WC2
 Kelly, Dan A R AL6, GEN8, TM2, WC2
 Kelly, George AL1, GEN13&16, RR27, TM3
 Kelly, Jane N AL6, GEN8, TM2, WC2
 Kelly, Jennifer AL6, GEN8, TM2, WC2
 Kelly, Joanna AL6, GEN8, TM2, WC2
 Kelly, Joanne AL6, GEN8, TM2, WC2
 Kelly, Joel AL6, GEN8, TM2, WC2
 Kelly, Lee Anna AL6, GEN8, TM2, WC2
 Kelly, Michael AL6, GEN8, TM2, WC2
 Kelly, Wayne AL2&6, GEN8, TM1-2, WC2
 Kelsey, Paul AL6, GEN8, TM2, WC2
 Kelson, Elizabeth AL6, GEN8, TM2, WC2
 Kembel, Robert TM10
 Kemmerer, David AL6, GEN8, TM2, WC2
 Kemmerer, Kurt AL2&6, GEN8, TM1-2, WC2
 Kendall, Vaughan AL6, GEN8, TM2, WC2
 Kendrick, Cindy AL6, GEN8, TM2, WC2
 Kennedy, Arthur AL6, GEN8, TM2, WC2
 Kennedy, Bill AL2&6, GEN8, TM1-2, WC2
 Kennedy, Karen AL6, GEN8, TM2, WC2
 Kennedy, Michael AL6, GEN8, TM2, WC2
 Kennedy, Patricia AL6, GEN8, TM2, WC2
 Kennedy, Roger AL6, GEN8, TM2, WC2
 Kennedy, Sharon J AL6, GEN8, TM2, WC2
 Kenney, Martha J AL6, GEN8, TM2, WC2
 Kennison, Jim AL2&6, GEN8, TM1-2, WC2
 Kennison, Leigh A AL2&6, GEN8, TM1-2, WC2
 Kent, Molly AL6, GEN8, TM2, WC2
 Kent, Sue AL6, GEN8, TM2, WC2
 Kenyon, Katheryn AL6, GEN8, TM2, WC2
 Kenyon, Lucy AL6, GEN8, TM2, WC2
 Kepner, Susan AL6, GEN8, TM2, WC2
 Kercher, Becca AL6, GEN8, TM2, WC2
 Kerns, Loretta AL6, GEN8, TM2, WC2
 Kerr, Bob AL6, GEN8, TM2, WC2
 Kerr, Deborah AL6, GEN8, TM2, WC2
 Kerr, Sarah AL6, GEN8, TM2, WC2
 Kersey, Gloria AL6, GEN8, TM2, WC2
 Kesler, Dale & Sheree AL6, GEN8, TM2, WC2
 Kessler, Marjorie AL6, GEN8, TM2, WC2
 Kestenbaum, David AL2, TM1
 Kester, Adrian M AL1, GEN13&16, RR27, TM3
 Kester, Kay AL6, GEN8, TM2, WC2
 Ketschersid, Bubba AL1, GEN13, GEN16, RR27, TM3
 Kettling, Michele AL6, GEN8, TM2, WC2
 Kevany, Kathryn AL6, GEN8, TM2, WC2
 Key, Lynda AL6, GEN8, TM2, WC2
 Khalsa, Mha Atma S AL2, AL6, GEN8, TM1&2, WC2
 Khambolja, Ann AL2, TM1
 Khanlian, Richard AL6, GEN8, TM2, WC2
 Kiaer, Alita AL6, GEN8, TM2, WC2
 Kiama, Hoda AL6, GEN8, TM2, WC2
 Kidawski, Geri AL6, GEN8, TM2, WC2
 Kidwell, Hilda AL6, GEN8, TM2, WC2
 Kiecal, Mary AL2&6, GEN8, TM1-2, WC2
 Kielarowski, Henry AL6, GEN8, TM2, WC2
 Kieler, Robert AL6, GEN8, TM2, WC2
 Kiger, Mary Ann AL6, GEN8, TM2, WC2
 Kilcrease, Terry AL6, GEN8, TM2, WC2
 Kilcullen, Caitlin AL6, GEN8, TM2, WC2
 Kile, Beverly AL6, GEN8, TM2, WC2
 Killay, Sharon AL2, TM1
 Kilmer, Kathy GEN6
 Kilpatrick, Wilma G AL6, GEN8, TM2, WC2
 Kim, Jennifer AL6, GEN8, TM2, WC2
 Kim, Juliet AL6, GEN8, TM2, WC2
 Kim, Sang AL6, GEN8, TM2, WC2
 Kim, Suzanne AL2, TM1
 Kim, Tiffany AL6, GEN8, TM2, WC2
 Kimme, Duane AL6, GEN8, TM2, WC2
 Kincaid, Alison AL6, GEN8, TM2, WC2
 Kincaid, Peggy AL6, GEN8, TM2, WC2
 Kindsvater, Harold TM10
 Kinduell, Glenn AL6, GEN8, TM2, WC2
 King, Betty AL6, GEN8, TM2, WC2
 King, Celest AL6, GEN8, TM2, WC2
 King, June AL6, GEN8, TM2, WC2
 King, Kathleen AL6, GEN8, TM2, WC2
 King, Mike WC1
 King, Patty AL6, GEN8, TM2, WC2
 King, Sara AL6, GEN8, TM2, WC2
 King, Sarah AL6, CL2, GEN6&11, RR1, TM1-2, WC2
 King, Steven AL6, GEN8, TM2, WC2
 Kinn, Joan AL6, GEN8, TM2, WC2
 Kinney, Douglas AL6, GEN8, TM2, WC2
 Kinslow, Paul RR3
 Kinyo, Anthony AL6, GEN8, TM2, WC2
 Kiovisto, Ellen AL6, GEN8, TM2, WC2
 Kiphart, Ridlon J AL6, GEN8, TM2, WC2
 Kirby, Alison AL2&6, GEN8, TM1-2, WC2
 Kirby, Brenda AL6, GEN8, TM2, WC2
 Kirby, J AL6, GEN8, TM2, WC2
 Kirby, Jim AL6, GEN8, TM2, WC2
 Kirby, Jonathan RR2
 Kirby, Peter AL6, GEN8, TM2, WC2
 Kirchesh, Wendy AL1, GEN5&18, SO1, TM7
 Kirchner, John AL6, GEN8, TM2, WC2
 Kirk, Jane AL2, TM1
 Kirkley, Don AL6, GEN8, TM2, WC2
 Kirkpatrick, Renee AL6, GEN8, TM2, WC2
 Kisielius, Dalia AL6, GEN8, TM2, WC2
 Kislak, Philip TM10
 Kisor, Dave AL6, GEN8, TM2, WC2
 Kissock, Nancy AL6, GEN8, TM2, WC2
 Kistler, Robert AL6, GEN8, TM2, WC2
 Kistner, Carrie AL2, TM1
 Kitaguchi, Terry TM10
 Kitchen, Claire AL2, TM1
 Kitchen, Michael AL6, GEN8, TM2, WC2
 Kitti, Donna AL6, GEN8, TM2, WC2
 Kittleson, Marcia AL2, TM1
 Kivanoski, Sid AL6, GEN8, TM2, WC2
 Klages, Norgard AL6, GEN8, TM2, WC2
 Klass, Kristin AL6, GEN8, TM2, WC2
 Klaus, Robert AL6, GEN8, TM2, WC2
 Klaw, Erica AL6, GEN11, RR1, TM1-2, WC2
 Kleber, Keith AL6, GEN8, TM2, WC2
 Klehr, Amanda AL6, GEN8, TM2, WC2
 Kleier, Jeremy AL6, GEN8, TM2, WC2
 Klein, Mark AL6, GEN8, TM2, WC2
 Klein, Ron AL6, GEN11, RR1 & 10, TM1-2, WC2
 Klein, Samuel AL6, GEN8, TM2, WC2
 Klein, Tom TM10
 Kleinhenz, Don AL6, GEN8, TM2, WC2
 Kleinrichert, Jennifer AL6, GEN8, TM2, WC2
 Kleis, Angela AL6, GEN8, TM2, WC2
 Klem, Thomas AL6, GEN8, TM2, WC2
 Klerer, Leona AL6, GEN8, TM2, WC2
 Kleshinski, Frank X AL6, GEN8, TM2, WC2
 Klick, Andrea AL6, GEN8, TM2, WC2
 Kliewer, Thomas TM13
 Kligge, Elizabeth AL6, GEN8, TM2, WC2
 Kligman, Adrienne AL2&6, GEN8, TM1-2, WC2
 Klimchak, Amre AL6, GEN8, TM2, WC2
 Kline, Susan AL6, GEN8, TM2, WC2
 Klinefelter, Ann AL6, GEN8, TM2, WC2
 Klinefelter, Michael AL6, GEN8, TM2, WC2
 Klingler, Janeane AL6, GEN8, TM2, WC2
 Klocek, D AL6, GEN8, TM2, WC2
 Klocki, Pete AL1
 Klohr, Antonia AL6, GEN8, TM2, WC2
 Kloor, Patrick AL6, GEN8, TM2, WC2
 Klosner, Bruce AL6, GEN8, TM2, WC2
 Kloss, Sheila AL6, GEN8, TM2, WC2
 Klubnikin, Alex AL6, GEN8, TM2, WC2
 Kluger, Claire AL6, GEN8, TM2, WC2
 Kluthe, Mike AL6, GEN8, TM2, WC2
 Kmotorka, Chris AL6, GEN8, TM2, WC2
 Knaack, Deborah AL6, GEN8, TM2, WC2
 Knabe, Kari AL6, GEN8, TM2, WC2
 Knape, Darren AL1, GEN13&16, RR27, TM3
 Knapp, Brenda AL6, GEN8, TM2, WC2
 Knapp, Regina AL6, GEN8, TM2, WC2
 Knapp, Theresa AL6, GEN8, TM2, WC2
 Knight, Heather AL6, GEN8, TM2, WC2
 Knight, Sue AL6, GEN8, TM2, WC2
 Knipp, Donna AL6, GEN8, TM2, WC2
 Knoch, Wesley AL2, TM1
 Knouse, Tracey AL6, GEN8, TM2, WC2
 Knowles, Mark AL6, GEN8, TM1-2, WC2
 Knowlton, Margaret AL6, GEN8, TM2, WC2
 Knox, Janet AL2, TM1
 Knox, Patricia AL6, GEN8, TM2, WC2
 Knudsen, Barry AL6, GEN8, TM2, WC2
 Knudsen, Patricia AL6, GEN8, TM2, WC2
 Knudsen-Dyke, Jean AL6, GEN8, TM2, WC2
 Knuffke, Darrell AL6, GEN8, TM2, WC2
 Knuffke, Mary J AL6, GEN8, TM2, WC2
 Knutsen, Karl AL6, GEN8, TM2, WC2
 Knutson, Carol AL6, GEN8, TM2, WC2
 Knutzen, David AL6, GEN8, TM2, WC2

Koch, Adrienne AL6, GEN8, TM2, WC2
 Koch, Peter AL6, GEN8, TM2, WC2
 Koch, Scott AL6, GEN8, TM2, WC2
 Koch, Shane AL6, GEN8, TM2, WC2
 Koch, Sharon AL6, GEN8, TM2, WC2
 Kochmeister, Jan AL6, GEN8, TM2, WC2
 Kochmeister, Sharisa AL6, GEN8, TM2, WC2
 Kockritz, Kathleen AL6, GEN8, TM2, WC2
 Koenig, John AL6, GEN8, TM2, WC2
 Koepke, Niels TM1
 Kohan, Shayna AL6, GEN8, TM2, WC2
 Kohl, Peter J TM1
 Kokjohn, Tyler GEN11, TM1,4&14, WC2
 Kolakowski, John AL6, GEN8, TM2, WC2
 Kolb, Judy AL6, GEN8, TM2, WC2
 Kolbert, Stephan W AL6, GEN8, TM2, WC2
 Kolin, April AL6, GEN8, TM2, WC2
 Koltz, Adam AL6, GEN8, TM2, WC2
 Komisar, M AL6, GEN8, TM2, WC2
 Komisarof, Jeff AL6, GEN8, TM2, WC2
 Komishock, Paul Jr AL6, GEN8, TM2, WC2
 Komor, Irene AL6, GEN8, TM2, WC2
 Konezal, Adrienne AL6, GEN8, TM2, WC2
 Konezal, Eddie AL6, GEN8, TM2, WC2
 Konczyk, Christopher AL6, GEN8, TM2, WC2
 Konkle, Ty TM10
 Konno, Calvin AL6, GEN8, TM2, WC2
 Konrad, Martin AL6, GEN8, TM2, WC2
 Koontz, H AL6, GEN8, TM2, WC2
 Koop, Susan AL6, GEN8, TM2, WC2
 Kopp, Helen AL2&6, GEN8, TM1-2, WC2
 Korach, Michael AL6, GEN8, TM2, WC2
 Kordus, Tom AL6, GEN8, TM2, WC2
 Kornfeld, Fran AL6, GEN8, TM2, WC2
 Korr, David AL6, GEN8, TM2, WC2
 Kortsch, Karen AL6, GEN8, TM2, WC2
 Koscielski, Debi AL2&6, GEN8, TM1-2, WC2
 Kosec, Dawn AL6, GEN8, TM2, WC2
 Kosek, Shirley GEN6
 Koshiol, Ted AL6, GEN8, TM2, WC2
 Koshofer, Bonnie AL6, GEN8, TM2, WC2
 Koski, Hope AL6, GEN8, TM2, WC2
 Kossack, Steve AL6, GEN8, TM2, WC2
 Koster, Fred AL6, GEN8, TM2, WC2
 Koster, Valerie AL6, GEN8, TM2, WC2
 Kosuda, Constance AL6, GEN8, TM2, WC2
 Koteff, Carl AL6, GEN8, TM2, WC2
 Kotlik, Ann Marie AL6, GEN8, TM2, WC2
 Kotter, Brent AL1, GEN13&16, RR27, TM3
 Koukol, Henry AL6, GEN8, TM2, WC2
 Kountz, Charles AL6, GEN8, TM2, WC2
 Kowing, Kerri AL2, TM1
 Kozaka, Josef AL6, GEN8, TM2, WC2
 Kozarksy, Daniel AL2, TM1
 Kozel, Julie AL6, GEN8, TM2, WC2
 Kozlowski, David AL6, GEN8, TM2, WC2
 Kozubowski, Mark AL6, GEN8, TM2, WC2
 Krach, Judy AL6, GEN8, TM2, WC2
 Krackiewicz, Ernesta AL6, GEN8, TM2, WC2
 Kraft, Diane AL6, GEN8, TM2, WC2
 Kraft, Kathrin AL6, GEN8, TM2, WC2
 Krall, Dave TM10
 Kramer, Dennis AL6, GEN8, TM2, WC2
 Kramer, Guy AL6, GEN8, TM2, WC2
 Kramer, Lauren AL6, GEN8, TM2, WC2
 Kramer, Richard AL6, GEN8, TM2, WC2
 Kramer, Tracy AL2, TM1
 Krank, Jessica AL6, GEN8, TM2, WC2
 Krasikov, Natalie E TM1
 Krastin, Allan AL6, GEN8, TM2, WC2
 Kraus, Andrea AL6, GEN8, TM1&2, WC2
 Krause, Al AL6, GEN8, TM2, WC2
 Krause, Nina AL6, GEN8, TM2, WC2
 Krause, W AL6, GEN8, TM2, WC2
 Kravitz, Cynthia AL6, GEN8, TM2, WC2
 Krawczyk, G Donald AL6, GEN8, TM2, WC2
 Krawisz, Bruce AL6, GEN8, TM2, WC2
 Krayner, Barry TM11
 Kraynak, Ed AL6, GEN8, TM2, WC2
 Krecik, Brian AL6, GEN8, TM2, WC2
 Krecker, Jon AL6, GEN8, TM2, WC2
 Kreger, Jennifer AL2, TM1
 Kreh, Donald AL6, GEN8, TM2, WC2
 Kreider, Ben AL6, GEN8, TM2, WC2
 Kreider, Nancy AL6, GEN8, TM2, WC2
 Kreiger, Penny AL6, GEN8, TM2, WC2
 Kreis, Deborah AL6, GEN8, TM2, WC2
 Kreis, Julie AL6, GEN8, TM2, WC2
 Kremer, Karen AL6, GEN8, TM2, WC2
 Kress, Marin AL2, TM1
 Kreuzer, Michaela AL6, GEN8, TM2, WC2
 Krezdorn, Roxanne AL6, GEN8, TM2, WC2
 Kriebel, Sally AL6, GEN8, TM2, WC2
 Kripli, Paul AL6, GEN8, TM2, WC2
 Kritner, Pamela AL6, GEN8, TM2, WC2
 Kritzman, Philip AL6, GEN8, TM2, WC2
 Kritzer, Sherry AL6, GEN8, TM2, WC2
 Krivach, Jeanine AL6, GEN8, TM2, WC2
 Kroening, Nancy AL6, GEN11, RR1, TM1&2, VM5, WC2
 Kroft, Mary AL6, GEN8, TM2, WC2
 Krohne, Sheryl AL6, GEN8, TM2, WC2
 Krone, Robert AL6, GEN8, TM2, WC2
 Krone, Tim TM10
 Kropf, Dave AL1, GEN13&16, RR27, TM3
 Kroth, Denise AL6, GEN8, TM2, WC2
 Kroutter, Emily AL6, GEN8, TM2, WC2
 Krueger, Fred & Betty AL6, GEN8, TM2, WC2
 Krueger, Richard AL6, GEN8, TM2, WC2
 Krueger, Sharon AL6, GEN8, TM2, WC2
 Kruger, Crystal Von AL6, GEN8, TM2, WC2
 Krummenacher, Bruce AL6, GEN8, TM2, WC2
 Krumrein, John AL6, GEN8, TM2, WC2
 Krupinski, K AL6, GEN8, TM2, WC2
 Kruschwitz, Vicki AL6, GEN8, TM2, WC2
 Kuba, Alfredo AL6, GEN8, TM2, WC2
 Kube, Carrie AL6, GEN8, TM2, WC2
 Kuegelgen, Margaret Von AL6, GEN11, RR1, TM1-2, WC2
 Kuehnert, Kim AL6, GEN8, TM2, WC2
 Kuelper, Carol AL6, GEN8, TM2, WC2
 Kuenzi, Amanda M AL6, RR1
 Kuester, Aric TM10
 Kugelman, Edna AL6, GEN8, TM2, WC2
 Kugelman-Kropp, Claire AL6, GEN8, TM2, WC2
 Kugler, Peter AL6, GEN8, TM2, WC2
 Kuhler, Ron AL6, GEN8, TM2, WC2
 Kuhlman, Lewis AL6, GEN8, TM2, WC2
 Kuhlmann, John AL6, GEN8, TM2, WC2
 Kuhn, Rich TM11
 Kuhn, Rose Marie AL6, GEN8, TM2, WC2
 Kuhnert, Robert AL6, GEN11, RR1, TM1&2, WC2
 Kulakofsky, Michael AL6, GEN8, TM2, WC2
 Kulakowski, Susan AL6, GEN8, TM2, WC2
 Kulcsar, Michael AL2, TM1
 Kumm, John J TM10
 Kunke, Pamela AL6, GEN8, TM2, WC2
 Kunkel, Chris AL2&6, GEN8, TM1-2, WC2
 Kunkel, Michael AL6, GEN8, TM2, WC2
 Kuntz, Laurie AL6, GEN8, TM2, WC2
 Kuny, Megaera AL6, GEN8, TM2, WC2
 Kunz, Keith AL6, GEN8, TM2, WC2
 Kunz, Kevin AL6, GEN8, TM2, WC2
 Kupyier, Kathy AL6, GEN8, TM2, WC2
 Kurkov, Marina AL6, GEN8, TM2, WC2
 Kurth, Paula AL6, GEN8, TM2, WC2
 Kurtz, Christian AL2, TM1
 Kurtz, Dean AL1, GEN13&16, RR27, TM3
 Kurz, Robert AL6, GEN8, TM2, WC2
 Kurzweil, Andrew AL6, GEN8, TM2, WC2
 Kusold, Dorothy AL6, GEN8, TM2, WC2
 Kusterer, Jacky AL6, GEN8, TM2, WC2
 La Freniere, Cher Louise AL6, GEN8, TM2, WC2
 La Point, Thomas W AL2, TM1
 Laan, Roseanne AL6, GEN8, TM2, WC2
 Labelle, Jacqueline AL6, GEN8, TM2, WC2
 Lacey, Dave AL2&6, GEN8, TM1-2, WC2
 Lacognata, Dale AL6, GEN8, TM2, WC2
 Lacorti, Tonja AL1, GEN13&16, RR27, TM3
 Ladd, Vern AL6, GEN8, TM2, WC2
 Lafaye, Michelle AL6, GEN8, TM2, WC2
 Lafferty, Susan AL6, GEN8, TM2, WC2
 Laffey, John Kevin AL6, GEN8, TM2, WC2
 Lafleur, Bibi AL6, GEN8, TM2, WC2
 Lafleur, Kimberly AL6, GEN8, TM2, WC2
 Lafollette, Doug AL6, GEN8, TM2, WC2
 Lafontaine, Michele AL6, GEN8, TM2, WC2
 Laford, Kenneth AL6, GEN8, TM2, WC2
 Lagi, Cindy AL6, GEN8, TM2, WC2
 Lahaie, Andrew AL6, GEN8, TM2, WC2
 Lahaie, Edward AL6, GEN8, TM2, WC2
 Lahners, Victoria AL6, GEN8, TM2, WC2
 Lahr, Ken AL6, GEN8, TM2, WC2
 Lai, Molly AL6, GEN8, TM2, WC2
 Lain, Emily AL6, GEN8, TM2, WC2
 Laine, Cate AL6, GEN8, TM2, WC2
 Laing, David AL6, GEN8, TM2, WC2
 Laird, Glenda AL6, GEN11, RR1, TM1-2, WC2

Laird, Michael AL2&6, GEN8, TM1-2, WC2
Lakatosh, Eleanor AL6, GEN8, TM2, WC2
Lake, Carol AL6, GEN8, TM2, WC2
Lakin, Douglas AL6, GEN8, TM2, WC2
Laliberte, Joan AL6, GEN8, TM1-2, WC2
Lalonde, Terry TM10
Lamb, Doran AL1, GEN13 & 16, GM5, RR27, TM3, WC2
Lamb, R AL2, TM1
Lambert, Betsy AL6, GEN8, TM2, WC2
Lambert, Chelsea AL6, GEN8, TM2, WC2
Lambert, Jerrell AL6, GEN8, TM2, WC2
Lambert, Mary Ann AL6, GEN8, TM2, WC2
Lambeth, Larry AL6, GEN8, TM2, WC2
Lambrecht, Gretchen AL2, TM1
Lamkin, Justin AL6, GEN8, RR1, TM2, WC2
Lamm, Dorothy CL2, GEN13, TM1, VM2, VM8, WC2, WF2
Lamm, Ken AL6, GEN11, RR1, TM1-2, WC2
Lancaster, Emily AL2, TM1
Lance, Barbara AL2, TM1
Lancman, Deborah AL6, GEN8, TM2, WC2
Land, Martha AL6, GEN8, TM2, WC2
Landau, Beryl AL6, GEN8, TM2, WC2
Landau, Stuart AL6, GEN8, TM2, WC2
Landers, Chad AL6, GEN8, TM2, WC2
Landi, Carol AL6, GEN8, TM2, WC2
Landi, John AL6, GEN8, TM2, WC2
Landi, Zenia AL6, GEN8, TM2, WC2
Landis-Hanna, Amanda AL6, GEN8, TM2, WC2
Landon, Keith AL6, GEN8, TM2, WC2
Landrum, Marc AL6, GEN8, TM2, WC2
Landry, Ted AL6, GEN8, TM2, WC2
Landskroner, Ron AL6, GEN8, TM2, WC2
Lane, Michael AL6, GEN8, TM2, WC2
Lane, Viva AL6, GEN8, TM2, WC2
Lang, A T AL6, GEN8, TM2, WC2
Lang, Stephen AL6, GEN8, TM2, WC2
Langan, Eileen AL6, GEN8, TM2, WC2
Langberg, Maureen AL6, GEN8, TM2, WC2
Langer, Alice AL6, GEN8, TM2, WC2
Langer, Steven AL6, GEN8, TM2, WC2
Langford, Jill AL6, GEN8, TM2, WC2
Langley, Jane AL6, GEN8, TM2, WC2
Langley, Mark AL6, GEN8, TM2, WC2
Langley, Mike AL6, GEN8, TM2, WC2
Langley, Tom AL6, GEN8, TM2, WC2
Langreck, Lillia AL6, GEN8, TM2, WC2
Langston, Michael GM5, LR1, MI1, SO2, TM3&12, WC2, WS6 & 8
Langston, Verl GM5, LR1, MI1, TM3, WC2, WS6 & 8
Langton, Kenneth AL6, GEN8, TM2, WC2
Lankton, Martha AL6, GEN8, TM2, WC2
Lannon, Mary L AL6, GEN8, TM2, WC2
Lanoir, Bridget AL6, GEN8, TM2, WC2
Lansberry, Don D TM10
Lansdowne, Jerry AL6, GEN8, TM2, WC2
Lantz, Gary AL6, GEN8, TM2, WC2
Lantz, Jennifer AL6, GEN8, TM2, WC2
Lantz, Randy AL6, GEN8, TM2, WC2
Lapin, George L AL6, GEN8, TM2, WC2
Laplaca, Nancy AL6, GEN8, TM2, WC2
Laplant, Gloria AL2, TM1
Laplante, Rene AL2&6, GEN8, TM1-2, WC2
Lapointe-Meyer, Drena AL6, GEN8, TM2, WC2
Laquey, Ronny AL6, GEN8, TM2, WC2
Lara, James R GEN11 & 16, GM2, RR1, TM3 & 14, WF2
Larcom, Julian AL6, GEN8, TM2, WC2
Lareau, Audrey AL2&6, GEN8, TM1-2, WC2
Largen, Timothy AL6, GEN8, TM2, WC2
Larsen, Jessica AL6, GEN8, TM2, WC2
Larsen, Karen AL2&6, GEN8, TM1-2, WC2
Larsen, Larry AL6, GEN8, TM2, WC2
Larsen, M Gale AL1, GEN5&18, SO1, TM7
Larsen, Martha AL2&6, GEN8, TM1-2, WC2
Larsen, Shirl AL1
Larson, Arline AL6, GEN8, TM2, WC2
Larson, Garvin AL6, GEN8, TM2, WC2
Larson, Jane AL6, GEN8, TM2, WC2
Larson, Julie AL6, GEN8, TM2, WC2
Larson, Kelly TM3
Larson, Paul AL6, GEN8, TM2, WC2
Larson, Susan AL6, GEN8, TM2, WC2
Lary, Alyssa AL6, GEN8, TM2, WC2
Lasahn, Jacqueline AL6, GEN8, TM2, WC2
Lash, Cal AL6, GEN8, TM1-2, WC2, WC2
Lashaway, Lisa AL6, GEN8, TM2, WC2
Lasher, Karen AL6, GEN8, TM2, WC2
Lasher, Roger AL2, TM1
Laspisa, Cecilia AL6, GEN8, TM2, WC2
Lathim, Deon AL1, GEN13&16, RR27, TM3
Lathim, Wayne AL1, GEN13&16, RR27, TM3
Latierra, Carolyn AL6, GEN8, TM2, WC2
Latlum, Bob AL1, GEN13&16, RR27, TM3
Latta, George AL6, GEN8, TM2, WC2
Lauder, David AL6, GEN8, TM2, WC2
Lauder, Leona AL6, GEN8, TM2, WC2
Laughrey, Jeff TM10
Laughtland, Josh AL6, GEN8, TM2, WC2
Laurie, Annie AL6, GEN8, TM2, WC2
Lauritson, Lynne AL6, GEN8, TM2, WC2
Lautz, Quinn AL6, GEN8, TM2, WC2
Lavender, Shell AL6, GEN8, TM2, WC2
Lavery, Barry AL6, GEN8, TM2, WC2
Laves-Mearini, Courtney AL6, GEN8, TM2, WC2
Law, Matt AL6, GEN8, TM2, WC2
Law, Patricia AL6, GEN8, TM2, WC2
Lawford, Rhonda AL6, GEN8, TM2, WC2
Lawhon, David AL6, GEN8, TM2, WC2
Lawless, Jack TM10
Lawrence, David AL1, GEN13&16, RR27, TM3
Lawrence, Mary AL6, GEN8, TM2, WC2
Lawrence, Pat AL6, GEN8, TM2, WC2
Lawrence, Sylvia AL6, GEN8, TM2, WC2
Lawrence, Veronica L TM3
Lawrence, Wanda AL1, GEN13&16, RR27, TM3
Lawrence, William AL6, GEN8, TM2, WC2
Lawrie-Higgins, Dolores AL6, GEN8, TM2, WC2
Lawrus, Nicholas AL6, GEN8, TM2, WC2
Lawton, Larry AL2, TM1
Lawton, Linda AL2, TM1
Lay, Kevin TM1
Layton, Kolter AL1, GM2, SD1
Layton, Rokelle AL1
Layton, Steve GEN6, GM2, TM3
Lazzarini, Howard AL6, GEN8, TM2, WC2
Lea, Isolt AL6, GEN8, TM2, WC2
Leach, Paul AL6, GEN8, TM2, WC2
Leahy, Martha AL2 & 6, GEN8, TM1-2, WC2
Leake, William AL6, GEN8, TM2, WC2
Leaper, Sandra AL6, GEN8, TM2, WC2
Leary, Michael AL6, GEN11, RR1, TM1-2, WC2
Leas, A AL6, GEN8, TM2, WC2
Leas, Rebecca AL6, GEN8, TM2, WC2
Leathers, Laura AL6, GEN8, TM2, WC2
Leaver, Lori AL6, GEN8, TM2, WC2
Leavitt, Richard AL1, GEN5, 13, 16 & 18, RR27, SO1, TM3 & 7
Leavitt-Pegaling, Patricia AL6, GEN8, TM2, WC2
Lebell, Jeanette AL6, GEN8, TM2, WC2
Leblanc, Janet AL6, GEN8, TM2, WC2
Leclair, Peg AL6, GEN8, TM2, WC2
Ledden, Dennis AL2&6, GEN8, TM1-2, WC2
Leddick, Jesse AL6, GEN8, TM2, WC2
Ledendecker, Wendy AL6, GEN8, TM2, WC2
Lederman, Beth AL6, GEN11, RR1, TM1-2, WC2
Ledgerwood, Lynn AL6, GEN8, TM2, WC2
Ledo, Suzanne TM1
Ledwith, Jerry AL6, GEN8, TM2, WC2
Lee, Andrea AL1, GEN13&16, RR27, TM3
Lee, Berry AL6, GEN8, TM2, WC2
Lee, Carolyn AL6, GEN8, TM2, WC2
Lee, Colene AL1, GEN13&16, RR27, TM3
Lee, Deanna AL6, GEN8, TM2, WC2
Lee, Dennis J AL6, GEN8, TM2, WC2
Lee, Gary AL6, GEN8, TM2, WC2
Lee, James D AL1, GEN13&16, RR27, TM3
Lee, Jinny AL6, GEN8, TM2, WC2
Lee, Jong TM10
Lee, Richard AL6, GEN8, TM2, WC2
Leeskamp, Kris AL6, GEN8, TM2, WC2
Leeson, Mark AL2, TM1
Leeson, Michael AL6, GEN8, TM2, WC2
Lefler, Susan AL6, GEN8, TM2, WC2
Lefsyk, Sara AL2, TM1
Lefton, Jennifer AL6, GEN8, TM2, WC2
Legate, Gene C Jr TM3
Leghart, Linda AL6, GEN8, TM2, WC2
Legner, Diane AL6, GEN8, TM2, WC2
Lehman, Judith E AL1, GEN5&18, SO1, TM7
Leibowitz, Lynda AL6, GEN8, TM2, WC2

Leider, Ethel AL6, GEN8, TM2, WC2
 Leightner, Richard GEN11, RR15, TM8
 Leighton, Milbrey AL6, GEN8, TM2, WC2
 Leiken, Ron AL6, GEN8, TM2, WC2
 Lein, Doris AL6, GEN8, TM2, WC2
 Leipzig, Laura AL6, GEN8, TM2, WC2
 Leist, Frederic AL6, GEN8, TM2, WC2
 Leist, Jeffrey AL6, GEN8, TM2, WC2
 Leist, Jennifer AL6, GEN8, TM2, WC2
 Leith, John D AL6, GEN8, TM2, WC2
 Leith, Kurt AL6, GEN8, TM2, WC2
 Leitzell, Gerald AL6, GEN8, TM2, WC2
 Lellouche, Mry AL6, GEN8, TM2, WC2
 Lemke, Deirdre AL6, GEN8, TM2, WC2
 Lemke, Melissa AL6, GEN8, TM2, WC2
 Lemmo, Elena AL6, GEN8, TM2, WC2
 Lemmon, John AL6, GEN8, TM2, WC2
 Lemmons, Barbara AL6, GEN8, TM2, WC2
 Lemoine, Kathryn K. AL6, GEN8, TM2, WC2
 Lenart, Rose AL6, GEN8, TM2, WC2
 Leng, Alison AL6, GEN8, TM2, WC2
 Lengerich, Tim AL6, GEN8, TM2, WC2
 Lenius, Janet AL6, GEN8, TM2, WC2
 Lennon, Sarah AL6, GEN8, TM2, WC2
 Lentes, Mike TM10
 Lenton, Peter TM10
 Lentz, Barry AL6, GEN8, TM2, WC2
 Lentz, James AL2, TM1
 Lenz, Andrew AL6, GEN8, TM2, WC2
 Lenz, Dennis J AL6, GEN8, TM2, WC2
 Leoff, Peter AL6, GEN8, TM2, WC2
 Leon, George AL6, GEN8, TM2, WC2
 Leonard, John AL6, GEN8, TM2, WC2
 Leonard, Wesley AL6, GEN8, TM2, WC2
 Lepoff, Jonathan AL6, GEN8, TM2, WC2
 Lepow, Cody AL6, GEN8, TM2, WC2
 Leppala, Maarit AL6, GEN8, TM2, WC2
 Lerman, Paul AL6, GEN8, TM2, WC2
 Lerner, Albert H AL2, TM1
 Lerner, Barbara AL6, GEN8, TM2, WC2
 Lerner, Michelle AL6, GEN8, TM2, WC2
 Lerner, Mike TM10
 Lerner, Pauline AL6, GEN8, TM2, WC2
 Leshner, Mark AL2&6, GEN8, TM1-2, WC2
 Leslie, Kathy AL6, GEN8, TM2, WC2
 Leslie, Megan AL6, GEN8, TM2, WC2
 Lesniewski, Mark AL6, GEN8, TM2, WC2
 Lessig, Wendy TM10
 Lesure, Paul AL6, GEN8, TM2, WC2
 Letendre, Michael AL6, GEN8, TM2, WC2
 Letourneau, Sophia AL6, GEN8, TM2, WC2
 Lettiere, John AL6, GEN8, TM2, WC2
 Leue, Frances AL6, GEN8, TM2, WC2
 Leung, Lily AL6, GEN8, TM2, WC2
 Levasseur, Virginia AL2&6, GEN8, TM1-2, WC2
 Levesque, Andrew AL6, GEN8, TM2, WC2
 Levesque, Jeanette AL6, GEN8, TM2, WC2
 Levin, Brian AL6, GEN8, TM2, WC2
 Levin, Jon AL2&6, GEN8, TM1-2, WC2
 Levin, Ross AL6, GEN8, TM2, WC2
 Levine, Dreania AL6, GEN8, TM2, WC2
 Levine, Marilyn AL6, GEN8, TM2, WC2
 Levine, Michael AL6, GEN8, TM2, WC2
 Levinton, Judith AL2, TM1
 Levitt, Lacy AL6, GEN8, TM2, WC2
 Levow, Ruth AL2&6, GEN8, TM1-2, WC2
 Levy, Andrea AL2, TM1
 Levy, Mark AL6, GEN8, TM2, WC2
 Lewandowski, Jean AL6, GEN8, TM2, WC2
 Leware, Edward AL6, GEN8, TM2, WC2
 Lewis, Amy AL6, GEN8, TM2, WC2
 Lewis, Anne AL6, GEN8, TM2, WC2
 Lewis, Cheryl AL6, GEN8, TM2, WC2
 Lewis, Connie Gratop AL6, GEN8, TM2, WC2
 Lewis, Donna AL6, GEN8, TM2, WC2
 Lewis, Elyssa AL6, GEN8, TM2, WC2
 Lewis, Gene AL6, GEN8, TM2, WC2
 Lewis, Lee AL6, GEN8, TM2, WC2
 Lewis, Mary AL6, GEN8, TM2, WC2
 Lewis, Red AL6, GEN8, TM2, WC2
 Lewis, Ryan AL2, TM1
 Leyser, Barbara AL6, GEN8, TM2, WC2
 Lheureux, Steve AL6, GEN8, TM2, WC2
 Libbey, Richard AL6, GEN8, TM2, WC2
 Liberman, John AL6, GEN8, TM2, WC2
 Libolt, Elysabeth AL6, GEN8, TM2, WC2
 Licher, Max AL6, GEN11, RR1, TM1-2, WC2
 Lichtenberger, Mark AL6, GEN8, TM2, WC2
 Liddell, Jessica AL6, GEN8, TM2, WC2
 Liebelt, Ron AL6, GEN8, TM2, WC2
 Lieberman, Maryann AL6, GEN8, TM2, WC2
 Liebermann, Jerry AL6, GEN8, TM2, WC2
 Liebman, Laura AL6, GEN8, TM2, WC2
 Liehe, Clifford AL6, GEN8, TM2, WC2
 Liem, David AL6, GEN8, TM2, WC2
 Lien, David AL2&6, GEN8, TM1-2, WC2
 Liermann, Erich TM10
 Liess, Jane AL6, GEN8, TM2, WC2
 Light, Dianne AL6, GEN8, TM2, WC2
 Lightcap, James & Norma AL6, GEN8, TM2, WC2
 Lilja, Dan TM10
 Lill, Nancy Enz AL6, GEN8, TM2, WC2
 Lilly, Carolyn AL6, GEN8, TM2, WC2
 Linakis, Stephanie AL6, GEN8, TM2, WC2
 Linarez, Karen AL6, GEN8, TM2, WC2
 Linda, Deb AL6, GEN11, RR1, TM1-2, WC2
 Lindahl, Fred AL6, GEN8, TM2, WC2
 Lindberg, Robin AL6, GEN8, TM2, WC2
 Linder, Josh AL6, GEN8, TM2, WC2
 Linderkamp, Eugene AL6, GEN8, TM2, WC2
 Lindquist, Steven AL6, GEN8, TM2, WC2
 Lindroth, Joan AL6, GEN8, TM2, WC2
 Lindsay, Daniel AL6, GEN8, TM2, WC2
 Lindsey, Barbara AL6, GEN8, TM2, WC2
 Lindsey, Emily AL6, GEN8, TM2, WC2
 Lindstrom, Michelle AL6, GEN8, TM2, WC2
 Linell, Thomas AL6, GEN8, TM2, WC2
 Liner, Norma AL6, GEN8, TM2, WC2
 Lingo, Leonard AL6, GEN8, TM2, WC2
 Linger, Christine AL6, GEN8, TM2, WC2
 Link-Schreiber, Doris AL6, GEN8, TM2, WC2
 Linnerooth, Steve AL6, GEN8, TM2, WC2
 Lino, Jeanine AL6, GEN8, TM2, WC2
 Linscott, Chuck AL6, GEN8, TM2, WC2
 Linsenberg, Richard AL6, GEN8, TM2, WC2
 Liolis, Donna AL2&6, GEN8, TM1-2, WC2
 Liotard, Marcia AL6, GEN8, TM2, WC2
 Lippert, Amy AL6, GEN8, TM2, WC2
 Lippert, Regina Defaleo AL6, GEN8, TM2, WC2
 Lippert, Timothy AL6, GEN8, TM2, WC2
 Lippert, Virginia AL6, GEN8, TM2, WC2
 Lippincott, John AL6, GEN8, TM2, WC2
 Lippincott, Melissa AL6, GEN8, TM2, WC2
 Lish, Christopher AL6, GEN8, TM2, WC2
 Lish, M Alan AL6, GEN8, TM2, WC2
 Lissauer, J AL6, GEN8, TM2, WC2
 Litchfield, Rob AL6, GEN8, TM2, WC2
 Lite, Joseph AL6, GEN8, TM2, WC2
 Little, Ann AL6, GEN8, TM2, WC2
 Little, Dave AL1, GEN13&16, RR27, TM3
 Little, Donna AL6, GEN8, TM2, WC2
 Little, Jamie AL6, GEN8, TM2, WC2
 Little, Jennifer AL1, GEN5&18, SO1, TM7
 Little, Lane AL1, GEN13&16, RR27, TM3
 Little, Mike AL1, GEN13&16, RR27, TM3
 Little, Ryan AL6, GEN8, TM2, WC2
 Little, Terri AL6, GEN8, TM2, WC2
 Little, Todd A AL1, GEN5&18, SO1, TM7
 Littlefield, Bruce A AL6, GEN8, TM2, WC2
 Litton, John AL6, GEN8, TM2, WC2
 Litwin, Edie AL6, GEN8, TM2, WC2
 Liu, Ted AL6, GEN8, TM2, WC2
 Liu, Whitney AL6, GEN8, TM2, WC2
 Liu-Elizabeth, Emily AL6, GEN8, TM2, WC2
 Livermore, Montgomery AL2, TM1
 Liversidge, Helen AL6, GEN8, TM2, WC2
 Livingston, Terri AL6, GEN8, TM2, WC2
 Ll, David AL1, GEN18, GEN5, TM7
 Ll, Nicole AL6, GEN8, TM2, WC2
 Lloyd, Dan AL1, SO1
 Lloyd, Georgia AL6, GEN8, TM2, WC2
 Lloyd, J D AL6, GEN8, TM2, WC2
 Lloyd, Jon AL6, GEN8, TM2, WC2
 Loar, Carol AL6, GEN8, TM2, WC2
 Locker, Jack AL6, GEN8, TM2, WC2
 Lockhart, Corina AL6, GEN8, TM2, WC2
 Lockwood, Hedvig AL6, GEN8, TM2, WC2
 Lockwood, William AL6, GEN8, TM2, WC2
 Loe, Steve AL6, GEN8, TM2, WC2
 Loeb, Robert AL6, GEN8, TM2, WC2
 Loebel-Fried, Caren AL6, GEN8, TM2, WC2
 Lochr, William AL6, GEN8, TM2, WC2
 Lofgren, Christine AL6, GEN8, TM2, WC2
 Loftis, Elliott AL6, GEN8, TM2, WC2
 Logal, Sean Patrick AL6, GEN8, TM2, WC2
 Logan, Corina AL6, GEN8, TM2, WC2
 Logan, Ed AL6, GEN8, TM2, WC2
 Logan, Jana AL6, GEN8, TM2, WC2
 Logan, Margo AL6, GEN8, TM2, WC2

Logan, Matt AL1, GEN13&16, RR27, TM3
 Logue, Terrence AL6, GEN8, TM2, WC2
 Lohaus, Tom AL6, GEN8, TM2, WC2
 Lohr, Krista AL6, GEN8, TM2, WC2
 Lomax, Shannon AL6, GEN8, TM2, WC2
 Lombard, Richard AL6, GEN8, TM2, WC2
 Long, Andrew AL6, GEN8, TM2, WC2
 Long, Carolyn AL6, GEN8, TM2, WC2
 Long, Diane AL2, TM1
 Long, Genvieve AL6, GEN8, TM2, WC2
 Long, Jeanne AL6, GEN8, TM2, WC2
 Long, Louise AL6, GEN8, TM2, WC2
 Long, Marilyn AL6, GEN8, TM2, WC2
 Long, Nichole AL6, GEN8, TM2, WC2
 Long, Sarah AL6, GEN8, TM2, WC2
 Long, Starr AL6, GEN8, TM2, WC2
 Long, Virginia AL6, GEN8, TM2, WC2
 Longo, Kathleen AL6, GEN8, TM2, WC2
 Lonner, Nicole AL6, GEN8, TM2, WC2
 Loomis, Beverly AL6, GEN11, RR1, TM1&2, WC2
 Loomis, Cindy AL6, GEN8, TM2, WC2
 Looney, Mike TM10, TM3
 Loomis, Cindy AL2, TM1
 Loper, Tristan AL6, GEN8, TM2, WC2
 Lopez, Christine AL2, TM1
 Lopez, Gina AL6, GEN8, TM2, WC2
 Lopez, Janet AL6, GEN8, TM2, WC2
 Lopez, Jason AL6, GEN8, TM2, WC2
 Lopez, Sandra AL6, GEN8, TM2, WC2
 Lord, Danyel AL6, GEN8, TM2, WC2
 Lord, Lydia AL2, TM1
 Lore, Chris AL6, GEN8, TM2, WC2
 Lorence, Veronica AL6, GEN8, TM2, WC2
 Lorenz, Eric AL2&6, GEN8, TM1-2, WC2
 Loret, Paul AL6, GEN8, TM2, WC2
 Loria, Steven AL6, GEN8, TM2, WC2
 Loring, Brick TM10
 Loring, Pamela AL6, GEN8, TM2, WC2
 Lorusso, Nichole AL6, GEN8, TM2, WC2
 Lott, William G AL6, GEN8, TM2, WC2
 Lotz, Jonathan AL6, GEN8, TM2, WC2
 Loucks, Cynthia AL6, GEN8, TM2, WC2
 Loucks, Robert AL6, GEN8, TM2, WC2
 Louin, Alanna AL6, GEN8, TM2, WC2
 Louis, Jeanette AL6, GEN8, TM2, WC2
 Louis, Kathy AL6, GEN8, TM2, WC2
 Louviere, Thad AL6, GEN8, TM2, WC2
 Love, Barbara AL2, TM1
 Lovejoy, Bill AL6, GEN8, TM2, WC2
 Lovejoy, Nancy S AL6, GEN8, TM2, WC2
 Lovelace, Marcia AL6, GEN8, TM2, WC2
 Lovelace, Steve AL6, GEN8, TM2, WC2
 Lovett, Jacque AL6, GEN8, TM2, WC2
 Lovett, Jonathan H. AL5, GM2, RR19, TM14, TM3
 Lovett, Marguerite AL6, GEN8, TM2, WC2
 Lovett, Mick TM3
 Lovitch, Derek AL6, GEN8, TM2, WC2
 Lovitch, Jeannette AL6, GEN8, TM2, WC2
 Lowder, Lisa AL6, GEN8, TM2, WC2
 Lowe, Brian AL6, GEN8, TM2, WC2
 Lowe, David AL6, GEN8, TM2, WC2
 Lowe, Kimberly AL2&6, GEN8, TM1-2, WC2
 Lowc, Patsy AL6, GEN8, TM2, WC2
 Lowell, John AL6, GEN8, TM2, WC2
 Lowrance, Pam AL6, GEN8, TM2, WC2
 Lowry, Joyce W AL6, GEN8, TM2, WC2
 Lozano, Laura AL6, GEN8, TM2, WC2
 Lozano, Rosalinda AL6, GEN8, TM2, WC2
 Lubinsky, Jennifer AL6, GEN8, TM2, WC2
 Lucas, David AL6, GEN8, TM2, WC2
 Lucas, Jeremy AL6, GEN8, TM2, WC2
 Lucas, K AL6, GEN8, TM2, WC2
 Lucas, Lawrence AL6, GEN8, TM2, WC2
 Lucas, Steven AL6, GEN8, TM2, WC2
 Luchies, Heather AL6, GEN8, TM2, WC2
 Luckens, Dave AL6, GEN8, TM2, WC2
 Lucks-Racek, Corlyn AL6, GEN8, TM2, WC2
 Lucore, Sandra AL6, GEN8, TM2, WC2
 Ludeking, Dana AL6, GEN8, TM2, WC2
 Ludwig, Griffin AL2, TM1
 Ludwig, John AL6, GEN8, TM2, WC2
 Luening, Judann AL6, GEN8, TM2, WC2
 Lukas, James AL2, TM1
 Lukon, Shelly AL6, GEN8, TM2, WC2
 Lukus, Lilian AL1, GEN13&16, RR27, TM3
 Lulzoz, George II AL1, GEN13&16, RR27, TM3
 Lund, Denise AL2&6, GEN8, TM1-2, WC2
 Lund, Joseph AL2&6, GEN8, TM1-2, WC2
 Lund, Richard AL6, GEN8, TM2, WC2
 Lund, Sierra AL6, GEN8, TM2, WC2
 Lundahl, Tim GEN6, TM1
 Lundberg, Kim AL6, GEN8, TM2, WC2
 Lunde, Carroll AL6, GEN8, TM2, WC2
 Lundgren, Helen D AL1, SO1
 Lundholm, Mark AL6, GEN8, TM2, WC2
 Lundmark, William AL6, GEN8, TM2, WC2
 Lundsgaard, Barb AL6, GEN8, TM2, WC2
 Lunow, Linda AL6, GEN8, TM2, WC2
 Luoto, Krista AL6, GEN8, TM2, WC2
 Luria, Mayra AL6, GEN8, TM2, WC2
 Lurman, Julie AL2, TM1
 Lusak, Stephanie AL6, GEN8, TM2, WC2
 Lustig, Thomas D GEN4, GM3, GM4
 Luther, Eleda AL6, GEN8, TM2, WC2
 Luther, Mark AL6, GEN8, TM2, WC2
 Lutz, Richard AL6, GEN8, TM2, WC2
 Lynch, Brian TM10
 Lynch, Frances AL6, GEN8, TM2, WC2
 Lynch, James AL6, GEN8, TM2, WC2
 Lynch, John Mark AL6, GEN8, TM2, WC2
 Lynch, Paul AL6, GEN8, TM2, WC2
 Lynn, Andy AL6, GEN8, TM2, WC2
 Lynn, John AL6, GEN8, TM2, WC2
 Lynn, Sandra AL6, GEN8, TM2, WC2
 Lynn, Sandy AL6, GEN8, TM2, WC2
 Lyon-Parker, Valerie AL6, GEN8, TM2, WC2
 Lyons, Beth AL6, GEN8, TM2, WC2
 Lyons, Christopher AL2, TM1
 Lyons, Susan AL6, GEN8, TM2, WC2
 Lyons-Fairbanks, Janet AL6, GEN8, TM2, WC2
 Lytle, Denise AL2 & 6, GEN8, TM1-2, WC2
 Maar, Sandra AL6, GEN8, TM2, WC2
 Macalpine, Deidre AL2, TM1
 Macarthur, June AL6, GEN8, TM2, WC2
 Macaulay, C Diane AL6, GEN8, TM2, WC2
 Macbride, Marcia AL6, GEN8, TM2, WC2
 Maccallum, Crawford AL6, GEN8, TM2, WC2
 McCormick, Margarida AL6, GEN8, TM2, WC2
 Macdonald, Be AL6, GEN8, TM2, WC2
 Macdonald, Deborah AL6, GEN8, TM2, WC2
 Macdonald, Keith AL6, GEN8, TM2, WC2
 Macdonald, Kevin AL6, GEN8, TM2, WC2
 Macdougall, Mike AL6, GEN8, TM2, WC2
 Mace, Pat AL6, GEN8, TM2, WC2
 Macelhiney, Michael AL6, GEN8, TM2, WC2
 Macfarlane, Bruce K AL6, GEN8, TM2, WC2
 Macfarlane, Janice AL6, GEN8, TM2, WC2
 Macfarlane, Tasha AL1, GEN13&16, RR27, TM3
 Machol, Marlena AL6, GEN8, TM2, WC2
 Macias, D AL1, GEN13 & 16, RR27, TM3
 Macintosh, Hugh AL6, GEN8, TM2, WC2
 Mackanic, Janice AL6, GEN8, TM2, WC2
 Mackay, Donald AL6, GEN8, TM2, WC2
 Mackelprang, Brent AL1, GEN6,13&16, GM2, RR27, SO2, TE3, TM3, WF5&6
 Mackelprang, Donny GM3, SD1, TE3, TM3, WF5, WS6
 Mackenn, Lee AL6, GEN8, TM2, WC2
 Mackey, Frederick AL6, GEN8, TM2, WC2
 Mackin, Richard AL6, GEN8, TM2, WC2
 Mackintosh, David AL6, GEN8, TM2, WC2
 Macko, Arnie AL6, GEN8, TM2, WC2
 Mackowski, Frank AL6, GEN8, TM2, WC2
 Maclean, David AL6, GEN8, TM2, WC2
 Macrae, Diann AL2&6, GEN8, TM1-2, WC2
 Macvittie, Mela AL6, GEN8, TM2, WC2
 Madden, Denise AL6, GEN8, TM2, WC2
 Madeska, Valerie AL6, GEN8, TM2, WC2
 Madigan, Lisa AL6, GEN11, RR1, TM1-2, WC2
 Magee, Brad D TM10
 Magee, Dan AL6, GEN8, TM2, WC2
 Magee, Don AL6, GEN8, TM2, WC2
 Magee, William AL2, TM1
 Maggied, Michael AL6, GEN8, TM2, WC2
 Magnuson, Paul AL6, GEN8, TM2, WC2
 Maguire, Jean AL6, GEN8, TM2, WC2
 Maher, Kathleen AL6, GEN8, TM2, WC2
 Mahlis, Larry AL6, GEN8, TM2, WC2
 Maier, Gregory AL6, GEN8, TM2, WC2
 Maier, John AL6, GEN11, RR1, TM1-2, WC2
 Maietta, Stephanie AL6, GEN8, TM2, WC2
 Maitland, Doris AL6, GEN8, TM2, WC2
 Makowski, Jane AL6, GEN8, TM2, WC2
 Malatinsky, Karen AL6, GEN8, TM2, WC2
 Malchiodi, Paul AL6, GEN8, TM2, WC2
 Malcolmson, Leslie AL6, GEN8, TM2, WC2
 Malewski, Sara AL6, GEN8, TM2, WC2
 Malides, Paul AL6, GEN8, TM2, WC2
 Malinowski, Scott AL6, GEN8, TM2, WC2

- Malley-Morrison, Kathleen AL6, GEN8, TM2, WC2
Mallner, Marlena AL6, GEN8, TM2, WC2
Mallory, Stephen AL6, GEN8, TM2, WC2
Malmberg, Stephen AL6, GEN8, TM2, WC2
Malmuth, Sonja AL6, GEN8, TM2, WC2
Malone, Annie AL6, GEN11, RR1, TM1&2, WC2
Maltby, Debra AL6, GEN8, TM2, WC2
Mamlok, Ward Jr AL6, GEN8, TM2, WC2
Mammenga, Jessica AL6, GEN8, TM2, WC2
Manchester, John AL6, GEN8, TM2, WC2
Mancini, Clare E AL6, GEN8, TM2, WC2
Mandel, Jennifer AL6, GEN8, TM2, WC2
Mandelbaum, Beth AL6, GEN8, TM2, WC2
Mandell, Peter AL6, GEN8, TM2, WC2
Mandell-Rice, Bonnie AL6, GEN8, TM2, WC2
Mandes, George TM10
Mandeville, Sandra AL6, GEN8, TM2, WC2
Manes, Thomas AL2&6, GEN8, TM1-2, WC2
Mang, J D AL2, TM1
Mangas, Heidi AL6, GEN8, TM2, WC2
Mangum, Ken TM10
Mangum, Travis AL1, GEN5&18, SO1, TM7
Manheim, Lynn AL6, GEN8, TM2, WC2
Maniatis, John T AL6, GEN8, TM2, WC2
Manion, Pearl AL6, GEN8, TM2, WC2
Mankowski, Craig AL6, GEN8, TM2, WC2
Mann, Louise AL2&6, GEN8, TM1-2, WC2
Mann, Susan AL6, GEN8, TM2, WC2
Manning, Mark GEN6
Mannino, Jennifer AL6, GEN8, TM2, WC2
Manno, N Jean AL6, GEN8, TM2, WC2
Manobianco, Daniel AL6, GEN8, TM2, WC2
Manriquez, Rosa AL2&6, GEN8, TM1-2, WC2
Mansfield, Lois AL6, GEN11, RR1, TM1-2, WC2
March, Lori AL6, GEN8, TM2, WC2
Marchese, John AL2&6, GEN8, TM1-2, WC2
Marchese, Nick AL6, GEN8, TM2, WC2
Marcia, Terry AL6, GEN8, TM2, WC2
Marcial, Mary Alice AL6, GEN8, TM2, WC2
Marcinkowski, J Marcel AL6, GEN8, TM2, WC2
Marekini, David AL6, GEN8, TM2, WC2
Marcol, Ann AL6, GEN8, TM2, WC2
Marcu, Kelly AL6, GEN8, TM2, WC2
Marcus, Janet AL6, GEN8, TM2, WC2
Marcus, Jesse AL6, GEN8, TM2, WC2
Marcus, Mary AL2, TM1
Marcus, Seth AL6, GEN8, TM2, WC2
Maresea, Josh AL6, GEN8, TM2, WC2
Marflitt, John AL2
Margolis, Asher AL6, GEN8, TM2, WC2
Marias, Maria AL6, GEN11, RR1, TM1-2, WC2
Marienau, Suzanne K AL6, GEN8, TM2, WC2
Marion, Joanna AL6, GEN8, TM2, WC2
Mariotti, Lisa AL6, GEN8, TM2, WC2
Marjoricastle, Val AL6, GEN8, TM2, WC2
Mark, Daniel AL6, GEN8, TM2, WC2
Mark, Robert AL6
Markel, Stephen AL6, GEN8, TM2, WC2
Marken, Alec AL6, GEN8, TM2, WC2
Markham, Barbra AL6, GEN8, TM2, WC2
Markham, Craig AL6, GEN8, TM2, WC2
Markham, Thomas AL6, GEN8, TM2, WC2
Markle, Annabel AL6, GEN8, TM2, WC2
Markoe, Hilary AL6, GEN8, TM2, WC2
Marks, Al TM10
Marks, Donna AL6, GEN8, TM2, WC2
Marks, Jeremy Nathan AL6, GEN8, TM2, WC2
Marks, Kathy AL2, GEN6, TM1
Marks, Linda AL6, GEN8, TM2, WC2
Marks, Theresa AL6, GEN8, TM2, WC2
Markson, Bill AL6, GEN8, TM2, WC2
Markus, Mary AL6, GEN8, TM2, WC2
Marowitz, Jenny AL2, TM1
Marra, Albert AL6, GEN8, TM2, WC2
Marrinez, Danny J AL6, GEN8, TM2, WC2
Marrriott, Pat AL6, GEN8, TM2, WC2
Marsh, Heather AL6, GEN8, TM2, WC2
Marshall, Edna AL6, GEN8, TM2, WC2
Marshall, Emili AL1, GEN13&16, RR27, TM3
Marshall, Gerald AL6, GEN8, TM2, WC2
Marshall, Jack Preston AL6, GEN8, TM2, WC2
Marshall, Mark AL6, GEN8, TM2, WC2
Marshall, Sherry AL6, GEN8, TM2, WC2
Martell, Jon AL6, GEN8, TM2, WC2
Martillo, Ruth E AL6, GEN8, TM2, WC2
Martin Dambrosi, Anthony AL6, GEN8, TM2, WC2
Martin, Adele GEN6, SD2, VM5
Martin, Angela AL6, GEN8, TM2, WC2
Martin, April AL6, GEN8, TM2, WC2
Martin, Betty AL6, GEN8, TM2, WC2
Martin, Bill AL6, GEN8, TM2, WC2
Martin, Brenda AL6, GEN8, TM2, WC2
Martin, David AL6, GEN8, TM2, WC2
Martin, Diane AL6, GEN8, TM2, WC2
Martin, Drew AL6, GEN8, TM2, WC2
Martin, Elizabeth AL6, GEN8, TM2, WC2
Martin, Jeff AL6, GEN8, TM2, WC2
Martin, Jo Anne AL6, GEN8, TM2, WC2
Martin, M E AL6, GEN8, TM2, WC2
Martin, Margot AL6, GEN8, TM2, WC2
Martin, Michael AL6, GEN8, TM2, WC2
Martin, Nikki AL6, GEN8, TM2, WC2
Martin, Ron AL6, GEN8, TM2, WC2
Martin, Ruth E AL6, GEN8, TM2, WC2
Martin, Sebastian AL6, GEN8, TM2, WC2
Martin, Todd AL1, GEN13&16, RR27, TM3
Martin, Wendy AL6, GEN8, TM2, WC2
Martin-Brodak, Diane AL2&6, GEN8, TM1-2, WC2
Martinez, Fredda AL6, GEN8, TM2, WC2
Martinez, Kathy AL6, GEN8, TM2, WC2
Martinez, Mary AL6, GEN8, TM2, WC2
Martini, Henry AL6, GEN8, TM2, WC2
Martinson, Ernest AL6, GEN8, TM2, WC2
Martucci, Marianne AL6, GEN8, TM2, WC2
Marugg, Cynthia AL6, GEN8, TM2, WC2
Marx, Christy AL6, GEN8, TM2, WC2
Marx, Gregg AL6, GEN8, TM2, WC2
Marx, Joel AL6, GEN8, TM2, WC2
Mascaro, Anne AL6, GEN8, TM2, WC2
Masengarb, Laurel AL2, TM1
Masino, Albert AL6, GEN8, TM2, WC2
Maslanek, Michael AL2&6, GEN8, TM1-2, WC2
Maslin, Linda AL6, GEN8, TM2, WC2
Mason, Barbara AL6, GEN8, TM2, WC2
Mason, Davi-Ann AL6, GEN8, TM2, WC2
Mason, David AL6, GEN8, TM2, WC2
Mason, Jacqueline AL6, GEN8, TM2, WC2
Mason, Kent AL1, GEN13&16, RR27, TM3
Mason, Toby AL6, GEN8, TM2, WC2
Masoud, Bisanne AL6, GEN8, TM2, WC2
Massafra, Samuel AL6, GEN8, TM2, WC2
Massaro, Bob AL6, GEN8, TM2, WC2
Massey, Aaron AL6, GEN8, TM2, WC2
Massey, Eileen AL6, GEN8, TM2, WC2
Massimini, Esther AL2, TM1
Mastenbrook, Marianne AL2 & 6, GEN8, TM1 & 2, WC2
Masters, Joseph AL6, GEN8, TM2, WC2
Masters, Judy AL6, GEN8, TM2, WC2
Masters, Richard GEN15, TM3
Mastin, William AL6, GEN8, TM2, WC2
Mastracco, Marie AL2, TM1
Mastri, Francis AL2&6, GEN8, TM1-2, WC2
Matar, Adam AL6, GEN8, TM2, WC2
Matarrese, Tom AL6, GEN8, TM2, WC2
Mates, Ben AL6, GEN8, TM2, WC2
Mathes, Barbara AL6, GEN8, TM2, WC2
Mathews, Andrea S WC2
Mathews, Ronnie GM2, TM3, VM2
Mathieu, Kathleen AL6, GEN8, TM2, WC2
Mathis, Richard AL1, GEN5&18, SO1, TM7
Mathis, Wally GM2, TM11, VM5, WC2
Mathiss, Barb AL6, GEN8, TM2, WC2
Matiasek, Mike AL6, GEN8, TM2, WC2
Matika, Laura AL6, GEN8, TM2, WC2
Matlock, KI AL2&6, GEN8, TM1-2, WC2
Matson, Cheryl AL6, GEN8, TM2, WC2
Matson, Kenneth AL6, GEN8, TM2, WC2
Mattan, Steve AL6, GEN8, TM2, WC2
Matteson, Stephanie AL6, GEN8, TM2, WC2
Matthew, Elaine AL2&6, GEN8, TM1-2, WC2
Matthews, Steven C AL1, TM3
Mattics, Greg AL6, GEN8, TM2, WC2
Mattis, Nan AL6, GEN8, TM2, WC2
Mattison, Michael V AL6, GEN8, TM2, WC2
Mattson, Virginia AL6, GEN8, TM2, WC2
Mau, Laurie Megrew AL6, GEN8, TM2, WC2
Mauer, Jane AL6, GEN8, TM2, WC2
Mauer, Michael D RR1

Mauler, Judy AL6, GEN8, TM2, WC2
 Maulhardt, Thomas AL6, GEN8, TM2, WC2
 Mauloff, Dolores AL6, GEN8, TM2, WC2
 Maurandy, Jean-Pierre AL6, GEN8, TM2, WC2
 Maurer, Lora AL6, GEN8, TM2, WC2
 Maxwell, Eric AL6, GEN8, TM2, WC2
 Maxwell, John Chase AL6, GEN8, TM2, WC2
 Maxwell, Sara AL6, GEN8, TM2, WC2
 May, Alvin AL6, GEN8, TM2, WC2
 May, Elizabeth AL6, GEN8, TM2, WC2
 May, Julie AL6, GEN8, TM2, WC2
 May, River AL6, GEN8, TM2, WC2
 May, Robert AL6, GEN8, TM2, WC2
 Mayer, Dorothy AL6, GEN8, TM2, WC2
 Mayer, Joseph AL6, GEN8, TM2, WC2
 Mayer, Michelle AL6, GEN8, TM2, WC2
 Mayer, Vic AL6, GEN8, TM2, WC2
 Mayer, Willard RR2 & 3, SD2, TM13
 Mayers, Marilyn AL6, GEN8, TM2, WC2
 Mayers, Mindy AL6, GEN8, TM2, WC2
 Mayfield-Chapin, Shannon AL6, GEN8, TM2, WC2
 Mayhar, Ardath AL6, GEN8, TM2, WC2
 Maynard, Aurelia AL2&6, GEN8, TM1-2, WC2
 Maynard, James AL6, GEN8, TM2, WC2
 Maynard, Kris TM10
 Mayo, Gary RR1, TM1
 Mayo, Kim AL6, GEN8, TM2, WC2
 Mays, Melissa AL6, GEN8, TM2, WC2
 Mazzone, Tracey AL6, GEN8, TM2, WC2
 Mcadoo, Hosea AL6, GEN8, TM2, WC2
 Mcaleenan, Marian AL6, GEN8, TM2, WC2
 Mcallister, Bud AL6, GEN8, TM2, WC2
 Mcallister, Elise GEN13 & 16, TM3, WC2
 Mcalpine, Roberta TM10
 Mcarthur, Breck AL1, GEN5&18, SO1, TM7
 McBride, Margaret AL6, GEN8, TM2, WC2
 Mcburney, Bill AL1, GEN13&16, RR27, TM3
 Mcburney, Laura AL1, GEN13&16, RR27, TM3
 McCall, Elaine AL6, GEN8, TM2, WC2
 McCall, Wm AL6, GEN8, TM2, WC2
 McCarron, Mary AL6, GEN8, TM2, WC2
 McCarter, Tom AL6, GEN8, TM2, WC2
 McCarthy, Daniel AL6, GEN8, TM2, WC2
 McCarthy, Ed AL6, GEN8, TM2, WC2
 McCarthy, Glenda AL2, TM1
 McCarthy, Jim TM1
 McCarthy, Rich AL6, GEN8, TM2, WC2
 McCarthy, Robert AL6, GEN8, TM2, WC2
 McCarthy, Sharon AL6, GEN8, TM2, WC2
 McCartin, AL6, GEN8, TM2, WC2
 McCartney, Don AL6, GEN8, TM2, WC2
 McCarty, Michael AL6, GEN8, TM2, WC2
 Mccauley, Duane M TM10
 Mcchesney, Frances AL6, GEN8, TM2, WC2
 McClain, Barbara AL6, GEN8, TM2, WC2
 McClain, Gloria AL2&6, GEN8, TM1-2, WC2
 McClanahan, Darrell AL6, GEN8, TM2, WC2
 McClannahan, Mike AL6, GEN8, TM2, WC2
 McClatchey, Walter AL2, TM1
 McCleary, Harold W Jr AL6, GEN8, TM2, WC2
 McCleary, Harriet AL6, GEN8, TM2, WC2
 McClenahan, Judi AL6, GEN8, TM2, WC2
 McClinton, Ben & Karen AL6, GEN8, TM2, WC2
 McCliss, Paul TM10
 McCollum, Sudi AL2&6, GEN8, TM1-2, WC2
 Mcconnell, Ellen AL6, GEN8, TM2, WC2
 Mcconnell, Elyse AL6, GEN8, TM2, WC2
 Mcconnell, John H AL6, GEN8, TM2, WC2
 Mcconnell, Kathy AL6, GEN8, TM2, WC2
 Mccool, Kerry AL6, GEN8, TM2, WC2
 Mccool, Melissa AL6, GEN8, TM2, WC2
 Mccord, Ruth AL6, GEN8, TM2, WC2
 McCormack-Ament, Ellen AL6, GEN8, TM2, WC2
 McCormick, Cathryn AL6, GEN11, RR1, TM1-2, WC2
 McCormick, Eric AL1, GEN13 & 16, RR27, TM3
 McCormick, Jennifer AL6, GEN8, TM2, WC2
 McCormick, Patricia AL6, GEN8, TM2, WC2
 McCormick, Steve AL2, TM1
 Mccoy, Cherie AL6, GEN8, TM2, WC2
 Mccoy, Hazel AL6, GEN8, TM2, WC2
 Mccoy, Katherine AL6, GEN8, TM2, WC2
 Mccoy, Robin AL2, TM1
 Mccreary, Jan AL6, GEN8, TM2, WC2
 Mccredie, Brian AL6, GEN8, TM2, WC2
 Mccullam, Jane AL6, GEN8, TM2, WC2
 Mccullough, Al AL6, GEN8, TM2, WC2
 Mccullough, Jamie AL1 & 6, GEN 8, 13 & 16, RR27, TM2-3, WC2
 Mccullough, Megan AL6, GEN8, TM2, WC2
 Mccutcheon, Danna AL6, GEN8, TM2, WC2
 Medaniel, Cindy AL1, GEN13&16, RR27, TM3
 Medaniel, Jan AL6, GEN8, TM2, WC2
 Medaniel, Karina AL6, GEN8, TM2, WC2
 Medermott, Ann AL6, GEN8, TM2, WC2
 Medermott, Bonnie AL6, GEN8, TM2, WC2
 Medermott, Elizabeth AL6, GEN8, TM2, WC2
 Medermott, Marianne AL6, GEN8, TM2, WC2
 Medermott, Rose AL6, GEN8, TM2, WC2
 Medonald, Carrol AL6, GEN8, TM2, WC2
 Medonald, Christa AL6, GEN8, TM2, WC2
 Medonald, Emily AL6, GEN8, TM2, WC2
 Medonald, Jonathan AL6, GEN8, TM2, WC2
 Medonald, Mary Lou AL6, GEN8, TM2, WC2
 Mcdonnell, Helena AL6, GEN8, TM2, WC2
 Mcdonnell, Martha AL6, GEN8, TM2, WC2
 Mcdonnell, Rosemary AL2, TM1
 McDougall, Gordon AL6, GEN8, TM2, WC2
 Mceachron Taylor, Linda Lee AL6, GEN8, TM2, WC2
 Mcelliott, Geraldine AL6, GEN8, TM2, WC2
 Mcelroy, Barbara AL6, GEN8, TM2, WC2
 Mefarland, Kenneth AL1, GEN13&16, RR27, TM3
 Mefarland, Mary Ann AL6, GEN8, TM2, WC2
 Mefarland, Noel AL6, GEN8, TM2, WC2
 Megannon, Louise AL6, GEN8, TM2, WC2
 Megarry, Ann AL6, GEN8, TM2, WC2
 Megee, Sandra AL6, GEN8, TM2, WC2
 Megeehan, Carol AL6, GEN8, TM2, WC2
 Megettigan, Kellie AL6, GEN8, TM2, WC2
 Meghee, David AL6, GEN8, TM2, WC2
 McGill, Ann C AL2, TM1
 McGill, Beverly AL6, GEN8, TM2, WC2
 McGill, Linda AL6, GEN8, TM2, WC2
 Meginness, Doria AL2, TM1
 Meginty, Alison AL6, GEN8, TM2, WC2
 Meglothlin, Dan WS7
 Megovern, Donlon AL6, GEN8, TM2, WC2
 Megovern, Kathleen AL6, GEN8, TM2, WC2
 Megowan, Louise AL6, GEN8, TM2, WC2
 Megrail, John AL6, GEN8, TM2, WC2
 McGrath, Wr TM10
 McGregor, Rob Roy AL6, GEN8, TM2, WC2
 Megrew, Glenn AL2, TM1
 Meguffin, Rom AL6, GEN8, TM2, WC2
 Meguire, James AL6, GEN8, TM2, WC2
 McIntyre, Julie AL6, GEN8, TM2, WC2
 McIntyre, Micah AL6, GEN8, TM2, WC2
 Meiver, Dorothy AL6, GEN8, TM2, WC2
 Mckay, Amy AL6, GEN8, TM2, WC2
 McKeage, Chris TM10
 McKeage, Colleen TM10
 McKeane, John AL6, GEN8, TM2, WC2
 McKee, John J AL6, GEN8, TM2, WC2
 McKee, Laura AL6, GEN8, TM2, WC2
 McKee, Sally AL6, GEN8, TM2, WC2
 McKelvie, Patricia AL2&6, GEN8, TM1-2, WC2
 McKenna, Colleen AL6, GEN8, TM2, WC2
 McKenna, Jacci AL6, GEN8, TM2, WC2
 McKenna, James AL6, GEN8, TM2, WC2
 McKenzie, Mary Jo AL6, GEN8, TM2, WC2
 Mckindley, Lauri M AL6, GEN8, TM2, WC2
 McKinney, Marilyn AL6, GEN8, TM2, WC2
 McKinney, Sarah AL6, GEN8, TM2, WC2
 Mckinnis, Diane AL6, GEN8, TM2, WC2
 Mckinstry, Dennis AL6, GEN8, TM2, WC2
 Mcknight, Shoshanah AL6, GEN8, TM2, WC2
 McLane, John AL2, TM1
 McLane, Kathleen AL6, GEN8, TM2, WC2
 Mclaughlin, Amy AL6, GEN8, TM2, WC2
 Mclaughlin, Blair AL6, GEN8, TM2, WC2
 Mclaughlin, Jim TM10

McLaughlin, Robert AL2
 Mclean, Robin AL6, GEN8, TM2, WC2
 McLendon, Barbara AL6, GEN8, TM2, WC2
 McLendon, Carole AL6, GEN8, TM2, WC2
 McLinden, Michelle AL6, GEN8, TM2, WC2
 McMahan, Lindsey AL6, GEN8, TM2, WC2
 McMahan, Sue AL6, GEN8, TM2, WC2
 McMahon, Alisa AL6, GEN8, TM2, WC2
 McMahon, Gail AL6, GEN8, TM2, WC2
 McMahan, Sandi AL6, GEN8, TM2, WC2
 Mcmanus, Eileen AL6, GEN8, TM2, WC2
 Mcmanus, Mike AL2&6, GEN8, TM1-2, WC2
 Mcmillen, Mimi AL6, GEN8, TM2, WC2
 Mcmorrow, Jennifer AL6, GEN8, TM2, WC2
 McMullen, Ann AL6, GEN8, TM2, WC2
 McMullen, Gail AL6, GEN8, TM2, WC2
 McMullen, Robert AL6, GEN8, TM2, WC2
 McMullin, William AL6, GEN8, TM2, WC2
 Mcmurdie, Janine AL6, GEN8, TM2, WC2
 McNabb, Angelina AL6, GEN8, TM2, WC2
 McNally, Grace AL6, GEN8, TM2, WC2
 McNally, Misty TM3
 Mcnamara, Eileen AL6, GEN8, TM2, WC2
 McNatt, Mary AL6, GEN8, TM2, WC2
 Mcnaull, AL6, GEN8, TM2, WC2
 Mcnaull, Sarah AL6, GEN8, TM2, WC2
 Mcneff, Catherine AL6, GEN8, TM2, WC2
 Mcneil, Judith AL6, GEN8, TM2, WC2
 Mcneil, Larry TM10
 Mcneil, Sherry AL6, GEN8, TM2, WC2
 Mcneill, Norma AL6, GEN8, TM2, WC2
 Mcnew, Deborah AL6, GEN8, TM2, WC2
 McNutt, Andy AL6, GEN8, TM2, WC2
 Mcpeek, John AL6, GEN8, TM2, WC2
 Mcpeek, Roger TM13
 Mcpherson, Marc AL1, GEN13&16, RR27, TM3
 Mcpherson, Peter AL6, GEN8, TM2, WC2
 Mcquinn, Don AL6, GEN8, TM2, WC2
 Mcrae, Patricia AL6, GEN8, TM2, WC2
 Meshane, Jackie AL6, GEN8, TM2, WC2
 Mesheehy, Audrey E AL6, GEN8, TM2, WC2
 Mcvarish, Linda AL6, GEN8, TM2, WC2
 Mcvoy, Heather AL6, GEN8, TM2, WC2
 Mcwilliams, John AL6, GEN8, TM2, WC2
 Meacham, Kh AL6, GEN8, TM2, WC2
 Meacham, Lisa AL6, GEN8, TM2, WC2
 Mead, Barbara AL6, GEN8, TM2, WC2
 Mead, Marge AL6, GEN8, TM2, WC2
 Meade, William AL6, GEN8, TM2, WC2
 Meadows, Tom TM10
 Meagher, Michael AL6, GEN8, TM2, WC2
 Mears, Lisa AL6, GEN8, TM2, WC2
 Medin, Gary AL6, GEN8, TM2, WC2
 Medina, Kathleen AL6, GEN8, TM2, WC2
 Meeker, Helen AL6, GEN8, TM2, WC2
 Meeks, Fred AL6, GEN8, TM2, WC2
 Megas, Kristi AL6, GEN6 & 8, TM2, WC2
 Mehrotra, Sanjeev AL6, GEN8, TM2, WC2
 Meinschein, Margaret AL6, GEN8, TM2, WC2
 Meissler, Robert AL6, GEN8, TM2, WC2
 Meissler-Deslandes, Lillian J AL6, GEN8, TM2, WC2
 Mejides, Andres AL6, GEN8, TM2, WC2
 Melikian, Nevine TM1
 Mello, Eileen AL6, GEN8, TM2, WC2
 Melody, Kim AL6, GEN8, TM2, WC2
 Melody, Patricia AL6, GEN8, TM2, WC2
 Meltzer, Rachel AL6, GEN8, TM2, WC2
 Melvin, Kathy AL6, GEN8, TM2, WC2
 Menanno, Susan AL6, GEN8, TM2, WC2
 Mendelson, Linda AL6, GEN8, TM2, WC2
 Mendoza, Durango AL6, GEN8, TM2, WC2
 Mendoza, Laura AL6, GEN8, TM2, WC2
 Mendoza, Nancy AL6, GEN8, TM2, WC2
 Mendrola, Jeannine AL6, GEN8, TM2, WC2
 Meneghin, Karen AL6, GEN8, TM2, WC2
 Mennano, Susan AL6, GEN8, TM2, WC2
 Mercer, Benjamin AL6, GEN8, TM2, WC2
 Mercer, Jo Ann AL6, GEN8, TM2, WC2
 Merenda, Michael AL6, GEN8, TM2, WC2
 Meril, Rick AL6, GEN8, TM2, WC2
 Merithew, Marcia AL6, GEN8, TM2, WC2
 Merrick, Kate AL6, GEN8, TM2, WC2
 Merrill, Cathy AL6, GEN8, TM2, WC2
 Merrill, Derrick AL1, GEN5&18, SO1, TM7
 Merrill, Hilary AL6, GEN8, TM2, WC2
 Merrill, Susanne AL6, GEN8, TM2, WC2
 Merritt, Courtney AL6, GEN8, TM2, WC2
 Merritt, Hunter AL6, GEN8, TM2, WC2
 Merson, Keith AL6, GEN8, TM2, WC2
 Mertens, Stephaie AL6, GEN8, TM2, WC2
 Mertz, Robert A AL6, GEN8, TM2, WC2
 Merville, Kim AL6, GEN8, TM2, WC2
 Merzenich, Daniel P TM13
 Merzenich, Greer K TM13
 Messeisunter, Dawn TM13
 Messer, James AL6, GEN8, TM2, WC2
 Messersmith, Dan W RR5, TM13, TM3
 Messick, Jerry AL6, GEN8, TM2, WC2
 Messina, Ronald AL6, GEN8, TM2, WC2
 Messing, Mark AL6, GEN8, TM2, WC2
 Metcalf, A AL6, GEN8, TM2, WC2
 Mettler, Nicole AL6, GEN8, TM2, WC2
 Metz, Emily AL6, GEN8, TM2, WC2
 Metz, Kevin AL6, GEN8, TM2, WC2
 Metz, Richard AL6, GEN8, TM2, WC2
 Meyer, Allyn AL6, GEN8, TM2, WC2
 Meyer, Brode GEN11, TM1
 Meyer, Debra AL6, GEN8, TM2, WC2
 Meyer, Jeff AL6, GEN8, TM2, WC2
 Meyer, Patricia AL2&6, GEN8, TM1-2, WC2
 Meyer, Robert AL2&6, GEN8, TM1-2, WC2
 Meyer, Sally AL6, GEN8, TM2, WC2
 Meyerhofer, Eric AL6, GEN8, TM2, WC2
 Meyers, Elizabeth AL6, GEN8, TM2, WC2
 Mich, Pam AL6, GEN8, TM2, WC2
 Michael, L Vista AL6, GEN8, TM2, WC2
 Michael, Maureen AL6, GEN8, TM2, WC2
 Michaels, Patricia AL6, GEN8, TM2, WC2
 Michalenko, Elizabeth AL6, GEN8, TM2, WC2
 Michaux, George AL6, GEN8, TM2, WC2
 Michel, Mark AL2, TM1
 Michels, George TM10
 Michelson, Golda AL6, GEN8, TM2, WC2
 Michelson, Kristen AL6, GEN8, TM2, WC2
 Michenzi, Matthew AL6, GEN8, TM2, WC2
 Mick, Lawrence AL6, GEN8, TM2, WC2
 Mickelsen, Reid AL6, GEN8, TM2, WC2
 Mickelson, Paul TM10
 Micklewright, John AL6, GEN8, TM2, WC2
 Middaugh, Linda AL6, GEN8, TM2, WC2
 Mihok, Michael AL2, TM1
 Mikalson, Claire AL6, GEN8, TM2, WC2
 Milas, Fritz AL6, GEN8, TM2, WC2
 Milatovich, Lisa AL6, GEN8, TM2, WC2
 Milbrandt, Marilyn AL6, GEN8, TM2, WC2
 Milburn, Renee AL6, GEN8, TM2, WC2
 Miles, Dan AL6, GEN8, TM2, WC2
 Miles, Mark AL6, GEN11, RR1, TM1-2, WC2
 Miles, Maurine B GEN6
 Miles, Rob TM10
 Milet, Maureen AL6, GEN8, TM2, WC2
 Milgrom, Phil AL6, GEN8, TM2, WC2
 Milham, Sue AL6, GEN8, TM2, WC2
 Milianta, Meredith AL6, GEN8, TM2, WC2
 Milillo, Mike TM1
 Miller Jr, Michael H AL6, GEN8, TM2, WC2
 Miller, Adam AL6, GEN8, TM2, WC2
 Miller, Blair AL6, GEN8, TM2, WC2
 Miller, Brad AL2, TM1
 Miller, Bradford AL6, GEN8, TM2, WC2
 Miller, Brianna AL2, TM1
 Miller, Cheryl AL6, GEN8, TM2, WC2
 Miller, D Rex AL6, GEN8, TM2, WC2
 Miller, Dianne AL2, TM1
 Miller, Dick AL6, GEN8, TM2, WC2
 Miller, Dinah AL6, GEN8, TM2, WC2
 Miller, Doug AL6, GEN8, TM2, WC2
 Miller, J AL6, GEN8, TM2, WC2
 Miller, Jane AL6, GEN8, TM2, WC2
 Miller, Jean AL2&6, GEN8, TM1-2, WC2
 Miller, Jeanne AL6, GEN8, TM2, WC2
 Miller, Jim AL6, GEN8, TM2, WC2
 Miller, John AL6, GEN8, TM2, WC2
 Miller, Karen AL6, GEN8, TM2, WC2
 Miller, Kathryn AL2, TM1
 Miller, Kenneth AL6, GEN8, TM2, WC2
 Miller, Lora AL6, GEN8, TM2, WC2
 Miller, Lorraine AL6, GEN8, TM2, WC2
 Miller, Megan AL6, GEN8, TM2, WC2
 Miller, Mike A AL6, RR3, TM1, WF3
 Miller, Nancy AL6, GEN8, TE3, TM1-2, WC2
 Miller, Patricia AL6, GEN8, TM2, WC2
 Miller, Phillip AL1, GEN13&16, RR27, TM3
 Miller, Phyllis AL6, GEN8, TM2, WC2
 Miller, Rhonda AL6, GEN8, TM2, WC2
 Miller, Robert AL1, GEN5&18, SO1, TM7
 Miller, Sandra AL6, GEN8, TM2, WC2
 Miller, Shirley AL6, GEN8, TM2, WC2
 Miller, Stacie AL6, GEN8, TM2, WC2
 Miller, Suzanne AL6, GEN8, TM2, WC2
 Miller, Victoria AL6, GEN8, TM2, WC2
 Millerman, Sharon AL6, GEN8, TM2, WC2

Millett, David AL1, GEN13&16, RR27, TM3
 Millett, Emma Lou AL1, GEN13&16, RR27, TM3
 Millett, Katie AL1, GEN13&16, RR27, TM3
 Milliken, Gerry AL6, GEN8, TM2, WC2
 Millin, Frank AL6, GEN8, TM2, WC2
 Milliner, Susan Emge AL6, GEN8, TM2, WC2
 Millman, Robert AL6, GEN8, TM2, WC2
 Millonig, A AL6, GEN8, TM2, WC2
 Mills, Coeta AL6, GEN8, TM2, WC2
 Mills, Kelly AL6, GEN8, TM2, WC2
 Millsap, Riek AL1, GEN13&16, RR27, TM3
 Milne, Bryan AL6, GEN8, TM2, WC2
 Milne, Martha AL6, GEN8, TM2, WC2
 Milner, Celia AL1, GEN13&16, RR27, TM3
 Milstein, Karne AL6, GEN8, TM2, WC2
 Milton, J W AL2, TM1
 Mims, Matthew AL6, GEN8, TM2, WC2
 Minard, Cindy AL6, GEN8, TM2, WC2
 Minault, Kent AL6, GEN8, TM2, WC2
 Mincer, Brittney AL6, GEN8, TM2, WC2
 Mineer, Nichole AL1, GEN13&16, RR27, TM3
 Minechenko, Jennifer AL6, GEN8, TM2, WC2
 Miner, Curt AL6, GEN8, TM2, WC2
 Ming, Erie AL6, GEN8, TM2, WC2
 Minion, Tammy AL2&6, GEN8, TM1-2, WC2
 Minneman, Lynn AL6, GEN8, TM2, WC2
 Minnerly, Don AL6, GEN8, TM2, WC2
 Minnix, Amanda AL6, GEN8, TM2, WC2
 Minor, Jeanne AL6, GEN8, TM2, WC2
 Minor, Shannon AL6, GEN8, TM2, WC2
 Minton, Mark AL6, GEN8, TM2, WC2
 Mirabella, August AL6, GEN8, TM2, WC2
 Miracle, Donna AL2, TM1
 Miramontes-Johnson, Danile AL6, GEN8, TM2, WC2
 Miranda, Lara AL6, GEN8, TM2, WC2
 Mirzatury, Marita AL6, GEN8, TM2, WC2
 Misawie, Dawn AL6, GEN8, TM2, WC2
 Miskel, Jolie AL6, GEN8, TM2, WC2
 Mistal, Amy AL6, GEN8, TM2, WC2
 Mitchel, Walter AL2, TM1
 Mitchell, Daniel AL6, GEN8, TM2, WC2
 Mitchell, Heather AL6, GEN8, TM2, WC2
 Mitchell, Ina AL6, GEN8, TM2, WC2
 Mitchell, Karen AL6, GEN8, TM2, WC2
 Mitchell, Kenneth AL6, GEN8, TM2, WC2
 Mitchell, Michael AL6, GEN8, TM2, WC2
 Mitchell, Michael A TM10
 Mitchell, Rosamond AL6, GEN8, TM2, WC2
 Mitchell, Walter AL6, GEN8, TM2, WC2
 Mittelsteadt, Scott AL6, GEN8, TM2, WC2
 Mittleman, Rita TM1
 Mitton, Darren AL6, GEN8, TM2, WC2
 Mitzel, Boomer AL2&6, GEN8, TM1-2, WC2
 Mitzel, Meghan AL6, GEN8, TM2, WC2
 Mizner, Vernon AL2, TM1
 Mo, Donna AL6, GEN8, TM2, WC2
 Moan, Benjamin GEN6
 Moan, Eugene R TM1
 Moctezuma, Patriek AL6, GEN8, TM2, WC2
 Modarelli, David AL2, TM1
 Moehiman, Bruce AL6, GEN11, RR1, TM1-2, WC2
 Moehlenkamp, York AL6, GEN8, TM2, WC2
 Moeller, Lisa AL6, GEN8, TM2, WC2
 Moench, Malin AL6, GEN8, TM2, WC2
 Mogen, Ayako AL2&6, GEN8, TM1-2, WC2
 Mognett, Crystal AL1, GEN13&16, RR27, TM3
 Mognett, Dan AL1, GEN13&16, RR27, TM3
 Mognett, Kathy AL1, GEN13&16, RR27, TM3
 Mognett, Stephen AL1, GEN13&16, RR27, TM3
 Mohler, Rose AL6, GEN8, TM2, WC2
 Mohorich, Phillip AL6, GEN8, TM2, WC2
 Mohr, Dale AL6, GEN8, TM2, WC2
 Mollen, Phyllis AL2, TM1
 Mollenhauer, Paul AL6, GEN8, TM2, WC2
 Moller, Cilla AL2, TM1
 Mollineaux, Colleen TM3, WF3
 Moloney, Rieh AL6, GEN8, TM2, WC2
 Monaghan, Dina AL6, GEN8, TM2, WC2
 Monahan, John AL6, GEN8, TM2, WC2
 Monahan, Michael AL6, GEN8, TM2, WC2
 Monasky, Heather AL2, TM1
 Mondazzi, Jennifer AL6, GEN8, TM2, WC2
 Monheim, Eva AL6, GEN8, TM2, WC2
 Monnig, Daniel AL6, GEN8, TM2, WC2
 Monnig, Donald AL6, GEN8, TM2, WC2
 Monroe, Marilyn L AL6, GEN8, TM2, WC2
 Monroe, Molly AL6, GEN8, TM2, WC2
 Monroe, Stephen AL6, GEN8, TM2, WC2
 Monson, Ron AL6, GEN8, TM2, WC2
 Monson, Todd AL6, GEN8, TM2, WC2
 Montague, Susan AL6, GEN8, TM2, WC2
 Montalvo, Candida AL6, GEN8, TM2, WC2
 Monteiro, Sergio AL6, GEN8, TM2, WC2
 Montezy, Vinnie AL6, GEN8, TM2, WC2
 Montgomery, Christine AL6, GEN8, TM2, WC2
 Montgomery, Connie AL6, GEN8, TM2, WC2
 Montgomery, Dorothy AL6, GEN8, TM2, WC2
 Montpas, Janet AL6, GEN8, TM2, WC2
 Montpetit, Kristin AL6, GEN8, TM2, WC2
 Montroy, Phil AL6, GEN8, TM2, WC2
 Moodie, David AL6, GEN8, TM2, WC2
 Moodie, Christina AL6, GEN8, TM2, WC2
 Moody, Edward AL6, GEN8, TM2, WC2
 Moody, Robin C AL2&6, GEN8, TM1-2, WC2
 Moon, Carolyn AL6, GEN8, TM2, WC2
 Mooney, Lisa AL6, GEN8, TM2, WC2
 Mooney, Phyllis AL6, GEN8, TM2, WC2
 Moonier, Jeanne AL6, GEN8, TM2, WC2
 Moore, Audrey AL6, GEN8, TM2, WC2
 Moore, Bob AL6, GEN8, TM2, WC2
 Moore, Burton AL6, GEN8, TM2, WC2
 Moore, Eric AL6, GEN8, TM2, WC2
 Moore, Gwen AL6, GEN8, TM2, WC2
 Moore, James AL6, GEN8, TM2, WC2
 Moore, Jane AL6, GEN8, TM2, WC2
 Moore, Janie AL6, GEN8, TM2, WC2
 Moore, Jay AL6, GEN8, TM2, WC2
 Moore, Joan AL6, GEN8, TM2, WC2
 Moore, Judy AL6, GEN8, TM2, WC2
 Moore, Kelly AL6, GEN8, TM2, WC2
 Moore, Lindsay AL6, GEN8, TM2, WC2
 Moore, Martha AL6, GEN8, TM2, WC2
 Moore, Tom AL1 & 6, GEN8, SD4, TM2-3 & 13, WC2
 Moore, Wayne AL1, GEN13&16, RR27, TM3
 Moore-Bahm, Sarah AL6, GEN8, TM2, WC2
 Moore-Ortiz, Cheryl AL2, TM1
 Morales, Biana AL6, GEN8, TM2, WC2
 Moran, James AL6, GEN8, TM2, WC2
 Moran, Liana AL2, TM1
 Morea, Cragi AL6, GEN8, TM2, WC2
 Moreland, Tom & Patricia AL6, GEN8, TM2, WC2
 Morello, B AL2, TM1
 Morello, Phyl AL2&6, GEN8, TM1-2, WC2
 Moreno, Olivia AL6, GEN8, TM2, WC2
 Moreno, Olyme AL6, GEN8, TM2, WC2
 Moreno, Veronica AL6, GEN8, TM2, WC2
 Moreton, Marion AL6, GEN8, TM2, WC2
 Morey, Kathy AL6, GEN8, TM2, WC2
 Morgan, David AL6, GEN8, TM2, WC2
 Morgan, Doug AL6, GEN8, TM2, WC2
 Morgan, John TM10
 Morgan, Judith AL6, GEN8, TM2, WC2
 Morgan, Kate AL6, GEN8, TM2, WC2
 Morgan, Kathryn AL6, GEN8, TM2, WC2
 Morgan, Lawrence AL6, GEN8, TM2, WC2
 Morgan, Lori AL2&6, GEN8, TM1-2, WC2
 Morgan, Marilyn AL6, GEN8, TM2, WC2
 Morgan, Nony AL6, GEN8, TM2, WC2
 Morgan, Shannon AL6, GEN8, TM2, WC2
 Morgan, Susan AL6, GEN8, TM2, WC2
 Moriarty, Andrew AL6, GEN8, TM2, WC2
 Morijah, Heather AL2, TM1
 Morin, Ed AL6, GEN8, TM2, WC2
 Mork, Stephen AL6, GEN8, TM2, WC2
 Morley, Dennis AL6, GEN8, TM2, WC2
 Morley, Juliane AL6, GEN8, TM2, WC2
 Morman, Janelle AL6, GEN8, TM2, WC2
 Morreau, Darrell AL6, GEN8, TM2, WC2
 Morrell, Steven AL6, GEN8, TM2, WC2
 Morresi, Gian Andrea AL2&6, GEN8, TM1-2, WC2
 Morrical, David AL6, GEN8, TM2, WC2
 Morrill, Ann AL2 & 6, GEN8, TM1-2, WC2
 Morris, Amy AL2, TM1
 Morris, Cheryl AL6, GEN8, TM2, WC2
 Morris, Darlene AL6, GEN8, TM2, WC2
 Morris, David AL6, GEN8, TM2, WC2
 Morris, Gerald AL6, GEN8, TM2, WC2
 Morris, Glen AL1, GEN13&16, RR27, TM3
 Morris, Kathleen AL6, GEN8, TM2, WC2
 Morris, Laura AL6, GEN8, TM2, WC2

- Morris, Mary AL6, GEN8, TM2, WC2
 Morris, Ray AL6, GEN8, TM2, WC2
 Morris, Tom TM10
 Morrison, Camille AL6, GEN8, TM2, WC2
 Morrison, Connell AL6, GEN8, TM2, WC2
 Morrison, D AL2, TM1
 Morrison, Donald AL6, GEN8, TM2, WC2
 Morrison, Gloria AL6, GEN8, TM2, WC2
 Morrison, Janet GEN6
 Morrison, Pat AL6, GEN8, TM2, WC2
 Morrison, Robert AL6, GEN8, TM2, WC2
 Morrissey, Darrell AL6, GEN8, TM2, WC2
 Morrow, Christopher AL6, GEN8, TM2, WC2
 Morse, Constance AL6, GEN8, TM2, WC2
 Mortensen, Jean AL6, GEN8, TM2, WC2
 Mortimer, Claire AL6, GEN8, TM2, WC2
 Morton, Arlena TM10
 Morton, John TM10
 Morton, Sandra AL6, GEN8, TM2, WC2
 Moser, Gregory AL6, GEN8, TM2, WC2
 Moser, Janet AL6, GEN8, TM2, WC2
 Moser, Rosemary AL6, GEN8, TM2, WC2
 Mosley, Ursula AL6, GEN8, TM2, WC2
 Moss, Karyn R AL6, GEN8, TM2, WC2
 Moss, Kim AL6, GEN8, TM2, WC2
 Moss, Marc AL2&6, GEN8, TM1-2, WC2
 Moss, Paul AL2, AL6, GEN8, TM1-2, WC2
 Mosser, Karen AL6, GEN8, TM2, WC2
 Mossman, Robert C TM1
 Mostov, Elizabeth AL6, GEN8, TM2, WC2
 Motheral, Dorothy TM14
 Mottola, Phyllis AL6, GEN8, TM2, WC2
 Moulton, Paul Charbonnet AL2, TM1
 Moumin, Adrienne AL6, GEN8, TM2, WC2
 Movsky, Rick AL6, GEN8, TM2, WC2
 Mower, Amy AL6, GEN8, TM2, WC2
 Mower, Todd AL6, GEN8, TM2, WC2
 Moylan, Carrie Lynn AL6, GEN8, TM2, WC2
 Mrozinski, Ryan TM10
 Mudge, Carrie AL6, GEN8, TM2, WC2
 Mudrey, Susan AL6, GEN8, TM2, WC2
 Muehl, Laurel Strong AL6, GEN11, RR1, TM1-2, WC2
 Muehlenkamp, Angel AL6, GEN8, TM2, WC2
 Muehller, Lyle AL1, GEN13&16, RR27, TM3
 Mueller, Karsten AL6, GEN8, TM2, WC2
 Muellner, William AL6, GEN8, TM2, WC2
 Muhammad, Ryan AL6, GEN8, TM2, WC2
 Muhly, Ernest Jp AL6, GEN8, TM2, WC2
 Muhm, Lolita AL6, GEN8, TM2, WC2
 Mulazzi, Joyce AL2, TM1
 Mulberry, Alice AL6, GEN8, TM2, WC2
 Mulcahy, Sarah AL6, GEN8, TM2, WC2
 Muldavin, Josh AL6, GEN8, TM2, WC2
 Mulholland, Jane AL6, GEN8, TM2, WC2
 Mull, Penny AL6, GEN8, TM2, WC2
 Mullane, Sharon AL6, GEN8, TM2, WC2
 Mullarkey, Mike AL2&6, GEN11, RR1, TM1-2, WC2
 Mullarky, John TM3
 Mullenax, Raymond AL6, GEN8, TM2, WC2
 Muller, David AL6, GEN8, TM2, WC2
 Muller, Joan AL6, GEN8, TM2, WC2
 Muller, Peter AL6, GEN8, TM2, WC2
 Mulligan, Glorian AL6, GEN8, TM2, WC2
 Mullikin, Albert AL6, GEN8, TM2, WC2
 Mulvey, Lori AL6, GEN8, TM2, WC2
 Mummert, Kim AL6, GEN8, TM2, WC2
 Munaretto, Angela AL6, GEN8, TM2, WC2
 Munger, Doris AL6, GEN8, TM2, WC2
 Munn, Donald AL6, GEN8, TM2, WC2
 Munro, Alan AL6, GEN8, TM2, WC2
 Munson, Leann AL6, GEN8, TM2, WC2
 Murcek, Tony AL2, TM1
 Murin, Carol AL6, GEN8, TM2, WC2
 Murphy, Charles AL6, GEN8, TM2, WC2
 Murphy, David AL6, GEN8, TM2, WC2
 Murphy, Diane AL6, GEN8, TM2, WC2
 Murphy, Doris AL6, GEN8, TM2, WC2
 Murphy, Emmett J AL6, GEN8, TM2, WC2
 Murphy, Juliann AL6, GEN8, TM2, WC2
 Murphy, Pamala AL6, GEN8, TM2, WC2
 Murphy, Sean AL5, GM4
 Murphy, Wendy AL6, GEN8, TM2, WC2
 Murray, Barbara AL6, GEN8, TM2, WC2
 Murray, Consuelo AL6, GEN8, TM2, WC2
 Murray, Cristy AL2, TM1
 Murray, Linda AL6, GEN8, TM2, WC2
 Murray, Noel AL6, GEN8, TM2, WC2
 Murray, Terry AL1, GEN5&18, SO1, TM7
 Murrow, Rol TM10
 Murti, Vasu AL6, GEN8, TM2, WC2
 Muse, Jill AL6, GEN8, TM2, WC2
 Musen, Arthur AL2, TM1
 Musialowski, Monique AL2&6, GEN8, TM1&2, WC2
 Musick, Pat AL6, GEN8, TM2, WC2
 Mutschler, Jay AL6, GEN8, TM2, WC2
 Myers, Carrie AL6, GEN8, TM2, WC2
 Myers, Chris AL6, GEN8, TM2, WC2
 Myers, Corinne AL2&6, GEN8, TM1-2, WC2
 Myers, Marcus AL6, GEN8, TM2, WC2
 Myers, Peggy AL1, GEN13&16, RR27, TM3
 Myers, Roger P TM3
 Myers, Sylvia AL6, GEN8, TM2, WC2
 Myers, Wade AL6, GEN8, TM2, WC2
 Myerson, Alan AL2, TM1
 Myles, Martha AL6, GEN8, TM2, WC2
 Myrick, Karen AL1, GEN13&16, RR27, TM3
 Myrick, Ted H TM3
 Mystrom, Kerry AL1, GEN13&16, RR27, TM3
 Naas, Vanessa AL6, GEN8, TM2, WC2
 Naclerio, Lynda AL6, GEN8, TM2, WC2
 Nadelman, Fred AL6, GEN8, TM2, WC2
 Naeseth, Joan AL6, GEN8, TM2, WC2
 Nagel, Stephanie AL6, GEN8, TM2, WC2
 Nagle, Tim AL6, GEN8, TM2, WC2
 Nagy, Patricia AL6, GEN8, TM2, WC2
 Nakajima, Yuko AL6, GEN8, TM2, WC2
 Nakashian, Diane AL6, GEN8, TM2, WC2
 Nam, S AL6, GEN8, TM2, WC2
 Namaste, Heather AL6, GEN11, RR1, TM1-2, WC2
 Napier, Brian AL6, GEN6 & 8, TM2, WC2
 Naples, Monica AL6, GEN8, TM2, WC2
 Napoleon, Laura AL6, GEN8, TM2, WC2
 Narada, Ty AL1, GEN13&16, RR27, TM3
 Nash, Barbara AL6, GEN8, TM2, WC2
 Nash, Jonathan AL6, GEN8, TM2, WC2
 Nash, Kevin AL1, GEN13&16, RR27, TM3
 Nash, Ocie D AL6, GEN8, TM2, WC2
 Nasif, Marcelo E AL6, GEN8, TM2, WC2
 Nass, Thomas AL6, GEN8, TM2, WC2
 Nathan, Nano AL6, GEN8, TM2, WC2
 Navarrete, Patty AL2&6, GEN8, TM1-2, WC2
 Nay, Blaine TM3
 Neal, Andrea AL6, GEN8, TM2, WC2
 Neal, Jim TM3
 Nealen, Paul AL6, GEN8, TM2, WC2
 Nealon, Sandra AL6, GEN8, TM2, WC2
 Nedeau, Elden AL6, GEN8, TM2, WC2
 Needham, James AL6, GEN8, TM2, WC2
 Needham, Meredith AL6, GEN8, TM2, WC2
 Needler, Carrie AL2 & 6, GEN8, TM1-2, WC2
 Neel, Heather AL6, GEN8, TM2, WC2
 Neff, Grace AL6, GEN8, TM2, WC2
 Neff, Isaac C AL5, RR2
 Neff, John RR9
 Negri, Regina AL2, TM1
 Neidell, Merle AL2&6, GEN8, TM1-2, WC2
 Neidich, Theresa AL6, GEN8, TM2, WC2
 Neil, Linda AL6, GEN8, TM2, WC2
 Neill, Theresa AL6, GEN8, TM2, WC2
 Neiman, Karl AL2&6, GEN8, TM1-2, WC2
 Nell, Sandi AL6, GEN8, TM2, WC2
 Nelson, Chris AL6, GEN8, TM2, WC2
 Nelson, Cody AL6, GEN8, TM2, WC2
 Nelson, Dency AL6, GEN8, TM2, WC2
 Nelson, Donna AL2&6, GEN8, TM1-2, WC2
 Nelson, Earl AL6, GEN8, TM2, WC2
 Nelson, John AL6, GEN8, TM2, WC2
 Nelson, John K AL6, GEN8, TM2, WC2
 Nelson, Marcia AL6, GEN8, TM2, WC2
 Nelson, Matthew AL6, GEN8, TM2, WC2
 Nelson, Raymond AL6, GEN8, TM2, WC2
 Nelson, Scott E AL1, GEN13&16, RR27, TM3
 Nelson, Steven AL6, GEN8, TM2, WC2
 Neogy, Sunetra AL6, GEN8, TM2, WC2
 Nerode, Gregory AL6, GEN8, TM2, WC2
 Nesbitt, Toni AL6, GEN8, TM2, WC2
 Nesmith, June AL6, GEN8, TM2, WC2
 Nestor, Mike AL6, GEN8, TM2, WC2
 Netardus, Debbie GEN6, GM2, TM1&2
 Neu, Cy AL6, GEN8, TM2, WC2
 Neuhauser, Alice AL6, GEN8, TM2, WC2
 Neumann, Charles TM14, TM3
 Neuzil, Denise AL6, GEN8, TM2, WC2
 New, Robert AL6, GEN8, TM2, WC2
 Newberry, Nancy AL6, GEN8, TM2, WC2
 Newbury, Liz AL6, GEN8, TM2, WC2

Newbury, Nancy AL2, TM1
 Newcomb, Dawn AL6, GEN8, TM2, WC2
 Newcomer, Betsy AL6, GEN8, TM2, WC2
 Newcomer, Kayly AL6, GEN8, TM2, WC2
 Newell, John AL6, GEN8, TM2, WC2
 Newell, Michael AL6, GEN8, TM2, WC2
 Newhouse, Richard AL6, GEN8, TM2, WC2
 Newman, Cheri AL6, GEN8, TM2, WC2
 Newman, Dan AL1, GEN5&18, SO1, TM7
 Newman, Donna AL6, GEN8, TM2, WC2
 Newman, Joyce AL6, GEN8, TM2, WC2
 Newman, Menina AL6, GEN8, TM2, WC2
 Newman, Ray AL2, TM1
 Newman, Roberta E AL2, TM1
 Newman, Samantha AL6, GEN8, TM2, WC2
 Newton, Elizabeth AL6, GEN8, TM2, WC2
 Newton, James K TM10
 Newton, Peter AL6, GEN8, TM2, WC2
 Niccoli, Anne AL6, GEN8, TM2, WC2
 Nicholas, Luke AL6, GEN8, TM2, WC2
 Nichols, Betty AL6, GEN8, TM2, WC2
 Nichols, Carol AL6, GEN8, TM2, WC2
 Nichols, Lyle AL6, GEN8, TM2, WC2
 Nichols, Richard AL6, GEN8, TM2, WC2
 Nichols, Warren AL6, GEN8, TM2, WC2
 Nicholson, Mary AL6, GEN8, TM2, WC2
 Nicholson-Schenk, Marguerite AL6, GEN8, TM2, WC2
 Nichols-Young, Stephanie AL6, WF10, WF8
 Nick, Katherine AL6, GEN8, TM2, WC2
 Nickerson, Nancy AL6, GEN6&8, TM2, WC2
 Nicklay, Crystal AL2, TM1
 Nicol, Deborah AL6, GEN8, TM2, WC2
 Nicol, Scott AL6, GEN8, TM2, WC2
 Nicosia, Chris AL6, GEN8, TM2, WC2
 Nicosia, Kimberly AL2&6, GEN8, TM1-2, WC2
 Nidess, Rael AL6, GEN8, TM2, WC2
 Niebieszczanski, Antoinette AL6, GEN8, TM2, WC2
 Niedenthal, Richard J AL6, GEN8, TM2, WC2
 Nielson, Bill SD4
 Nieman, Cathy AL6, GEN8, TM2, WC2
 Niemeyer, Will AL6, GEN8, TM2, WC2
 Nieporent, Marcy AL6, GEN8, TM2, WC2
 Niesen, Andreas AL6, GEN8, TM2, WC2
 Nightingale, Barb AL6, GEN8, TM2, WC2
 Nishioka, Joy AL6, GEN8, TM2, WC2
 Nisiewicz, Henry AL6, GEN8, TM2, WC2
 Nisselson, Catherine AL6, GEN8, TM2, WC2
 Noah, Ian AL6, GEN8, TM2, WC2
 Nobile, Maryanne AL6, GEN8, TM2, WC2
 Nobles, William AL6, GEN8, TM2, WC2
 Noboa, Carlos AL6, GEN8, TM2, WC2
 Noland, John & Jean AL6, GEN8, TM2, WC2
 Nolen, Terrance P AL6, GEN8, TM2, WC2
 Nolfi, David AL6, GEN8, TM2, WC2
 Noll, Judy AL6, GEN8, TM2, WC2
 Nolte, Gwen AL6, GEN8, TM2, WC2
 Nord, Jill AL6, GEN8, TM2, WC2
 Nordhof, Pamela AL6, GEN8, TM2, WC2
 Nordman, Ron AL6, GEN8, TM2, WC2
 Nordtrom, Cathy AL6, GEN8, TM2, WC2
 Norie, Gayle AL6, GEN8, TM2, WC2
 Norman, Jody AL2, TM1
 Norrigan, Alicia AL6, GEN8, TM2, WC2
 Norrigan, Paul AL6, GEN8, TM2, WC2
 Norris, Robert TM10
 North, Elizabeth AL6, GEN8, TM2, WC2
 Northrop, Christina AL6, GEN8, TM2, WC2
 Norton, Harriet AL6, GEN8, TM2, WC2
 Norton, Jeff AL6, GEN8, TM2, WC2
 Norton, John AL6, GEN8, TM2, WC2
 Norton, Michelle AL6, GEN8, TM2, WC2
 Norton, P AL6, GEN8, TM2, WC2
 Norton, Robert TM3
 Nosek, Ron AL6, GEN8, TM2, WC2
 Notaro, Vicki AL6, GEN8, TM2, WC2
 Novak, Annette AL6, GEN8, TM2, WC2
 Novellino, Louis AL2, TM1
 Novitski, Margaret AL6, GEN8, TM2, WC2
 Novotne, Holly AL6, GEN8, TM2, WC2
 Nowland, Ruth AL6, GEN8, TM2, WC2
 Nun, Marion AL6, GEN8, TM2, WC2
 Nunez, Carlos AL6, GEN8, TM2, WC2
 Nusbaum, Cyndi AL6, GEN8, TM2, WC2
 O Neil, John AL6, GEN8, TM2, WC2
 O, Dan AL6, GEN8, TM2, WC2
 Oakes, Bonnie AL6, GEN8, TM2, WC2
 Oakes, Sharon AL6, GEN8, TM2, WC2
 Oakley, Deborah AL6, GEN8, TM2, WC2
 Oaks, Lucy AL6, GEN8, TM2, WC2
 Oates, Tracy AL6, GEN8, TM2, WC2
 Obenchain, David AL6, GEN8, TM2, WC2
 Oberg, Pamela AL6, GEN8, TM2, WC2
 Obermeyer, Julie AL6, GEN8, TM2, WC2
 Oblige, Noblesse AL6, GEN8, TM2, WC2
 Obrien, A J AL6, GEN8, TM2, WC2
 Obrien, Attie AL6, TM1
 Obrien, Florence AL6, GEN8, TM2, WC2
 Obrien, Francis AL6, GEN8, TM2, WC2
 Obrien, Kathleen AL6, GEN8, TM2, WC2
 Obrien, Michael AL6, GEN8, TM2, WC2
 Obrien, Robert AL2&6, GEN8, TM1-2, WC2
 Obrien, S AL6, GEN8, TM2, WC2
 Obuszewski, Max AL6, GEN8, TM2, WC2
 Obyrne, Nancy AL6, GEN8, TM2, WC2
 Ochal, Melissa AL6, GEN8, TM2, WC2
 Oconnell, Ryan AL2, TM1
 Oconnell, Timothy AL6, GEN8, TM2, WC2
 Oconnor, Brigid AL6, GEN8, TM2, WC2
 Oconnor, Cornelia GEN6
 Oconnor, Richard AL6, GEN8, TM2, WC2
 Oconnor, Sean AL6, GEN8, TM2, WC2
 Oconnor, Sudie Lea AL6, GEN8, TM2, WC2
 Odievich, Angelina AL6, GEN8, TM2, WC2
 Odonnell, Judith AL6, GEN8, TM2, WC2
 Odonnell, Kathleen AL6, GEN8, TM2, WC2
 Odonnell, Kelly AL6, GEN8, TM2, WC2
 Odonnell, Robert AL6, GEN8, TM2, WC2
 Oehl, Celeste AL6, GEN8, TM2, WC2
 Oehl, Mark AL6, GEN8, TM2, WC2
 Oelerich, Red AL6, GEN11, RR1, TM1-2, WC2
 Oesterhaus, Laura AL2, TM1
 Ogden, Louis AL6, GEN8, TM2, WC2
 Ogden-Schuette, Kelly AL6, GEN8, TM2, WC2
 Oggiono, Nanette AL6, GEN8, TM2, WC2
 Ogle, Madeline AL6, GEN8, TM2, WC2
 Ogorzaly, Rose AL6, GEN8, TM2, WC2
 Ogren, Lorrie AL6, GEN11, RR1, TM1-2, WC2
 Ohman, Rochelle AL6, GEN8, TM2, WC2
 Ohring, Margy AL2, TM1
 Olander, Alan AL6, GEN8, TM2, WC2
 OLaughlin, Carol AL6, GEN8, TM2, WC2
 Oleary, Jennifer AL6, GEN8, TM2, WC2
 Oliver III, George AL6, GEN8, TM2, WC2
 Oliver, Carter AL6, GEN8, TM2, WC2
 Oliver, Debra AL6, GEN8, TM2, WC2
 Oliver, Jerry AL6, GEN8, TM2, WC2
 Ollar, Scott AL6, GEN8, TM2, WC2
 Ollendorff, Monica AL6, GEN8, TM2, WC2
 Olonia, Joseph AL6, GEN8, TM2, WC2
 Olsen, Jill AL1, GEN18, GEN5, SO1, TM7
 Olsen, Lisa AL6, GEN8, TM2, WC2
 Olsen, Mark AL1 & 6, GEN5, 8 & 18, SO1, TM2 & 7, WC2
 Olsen, Raymond E TM10
 Olsen, Shawn AL6, GEN8, TM2, WC2
 Olshin, Maria AL6, GEN8, TM2, WC2
 Olson, Andrew AL6, GEN8, TM2, WC2
 Olson, Denise AL1, GEN13&16, RR27, TM3
 Olson, Kristine AL6, GEN8, TM2, WC2
 Olson, Marc AL6, GEN8, TM2, WC2
 Olson, Monica AL6, GEN8, TM2, WC2
 Olson, Rick AL1, GEN13&16, RR27, TM3
 Olsson, Kristin AL6, GEN8, TM2, WC2
 Olvey, Janelle AL6, GEN8, TM2, WC2
 Omalley, Gresham AL6, GEN8, TM2, WC2
 Omalley, Virginia AL6, GEN8, TM2, WC2
 Omer, Don & Anne AL6, GEN8, TM2, WC2
 Onasch, Frederick AL6, GEN8, TM2, WC2
 Onderko, James AL6, GEN8, TM2, WC2
 Ondry, Carl AL6, GEN8, TM2, WC2
 Oneal, James AL6, GEN8, TM2, WC2
 Oneal, Megan AL6, GEN8, TM2, WC2
 Oneal, Ruth AL6, GEN8, TM2, WC2
 Oneill, Bridget AL6, GEN8, TM2, WC2
 Opacki, Thomas AL6, GEN8, TM2, WC2
 Opechowski, Jarek TM10
 Oppenheim, Vicki AL6, GEN8, TM2, WC2
 Oravec, Christine AL2, AL6, GEN3, TM1
 Orcholski, Gerald AL2, TM1
 Ordonez, Richard AL6, GEN8, TM2, WC2
 Orear, Mike TM10
 Orleman, Ed AL6, GEN8, TM2, WC2
 Orourke, Coreen AL6, GEN8, TM2, WC2
 Orourke, Theresa AL2, TM1
 Orr, Amy AL6, GEN8, TM2, WC2
 Orr, Edward AL6, GEN8, TM2, WC2
 Orr, James & Patty AL6, GEN8, TM2, WC2
 Orsary, Stephen AL6, GEN8, TM2, WC2
 Orsini, Rachel AL6, GEN8, TM2, WC2
 Orsuka, Judith AL6, GEN8, TM2, WC2

Ortiz, Cynthia AL2&6, GEN8, TM1-2, WC2
 Orton, Allen AL1, GEN13&16, RR27, TM3
 Orton, Bucky AL1, GEN13&16, RR27, TM3
 Orzechowski, Larry AL6, GEN8, TM2, WC2
 Osborn, Brian AL2, TM1
 Osborn, Calvin AL6, GEN8, TM2, WC2
 Osborn, Peter AL6, GEN8, TM2, WC2
 Osborn, Richard AL6, GEN8, TM2, WC2
 Osborne, Alan AL2, TM1
 Osborne, Don TM10
 Osborne-Smith, Andrew AL6, GEN8, TM2, WC2
 Oscarson, Janice AL6, GEN8, TM2, WC2
 O Shea, Mike AL6, GEN8, TM2, WC2
 Osman, Kristen AL6, GEN8, TM2, WC2
 Osorio, Christian AL6, GEN8, TM2, WC2
 Ososki, Richard & Margaret TM3
 Oster, Julie AL6, GEN8, TM2, WC2
 Osterberg, Nils AL6, GEN8, TM2, WC2
 Ostergren, David AL6, GEN1&12, SD1-2, TM1, VM1, WC1
 Osterhoudt, Melissa AL6, GEN8, TM2, WC2
 Ostoich, Julie AL2&6, GEN8, TM1-2, WC2
 Ostrander, H Marie AL6, GEN8, TM2, WC2
 Osullivan, Joseph AL6, GEN8, TM2, WC2
 Otero, Aline AL6, GEN8, TM2, WC2
 Otto, Jim AL6, GEN8, TM2, WC2
 Otto, Lauren AL6, GEN8, TM2, WC2
 Ouellette, Tracy AL6, GEN8, TM2, WC2
 Overall, Fran AL6, GEN8, TM2, WC2
 Overby, Eric TM10
 Overholt, Roger AL6, GEN8, TM2, WC2
 Overholt, Tamara AL6, GEN8, TM2, WC2
 Overland, Mark AL6, GEN8, TM2, WC2
 Overstreet, Annette AL6, GEN8, TM2, WC2
 Overstreet, Rosemarie AL6, GEN8, TM2, WC2
 Owchar, Ann AL6, GEN8, TM2, WC2
 Owczarczyk, Zbyslaw AL6, GEN8, TM2, WC2
 Owens, Barbara AL6, GEN8, TM2, WC2
 Owens, Emily AL6, GEN8, TM2, WC2
 Owens, Robert AL6, GEN8, TM2, WC2
 Oxyer, Jim AL6, GEN8, TM2, WC2
 Ozerengin, Billie AL6, GEN8, TM2, WC2
 Ozkan, Dogan AL6, GEN8, TM2, WC2
 Ozuna, Michelle AL6, GEN8, TM2, WC2
 Pace, Jennifer AL6, GEN8, TM2, WC2
 Pace, Maria AL6, GEN8, TM2, WC2
 Pacheco, Roseanne AL2, TM1
 Pacholik, Tom AL6, GEN8, TM2, WC2
 Pacifico, Lynn AL6, GEN8, TM2, WC2
 Pacitti, Dena AL6, GEN8, TM2, WC2
 Pack, Mary M AL6, GEN8, TM2, WC2
 Packard, Gwen AL6, GEN8, TM2, WC2
 Packer, Patti AL6, GEN8, TM2, WC2
 Pacquin, Jean AL6, GEN8, TM2, WC2
 Pagano, Robert AL6, GEN8, TM2, WC2
 Paget, Keri AL1, GEN18, GEN5, SO1, TM7
 Paglia, Victor AL6, GEN8, TM2, WC2
 Paige, Dennis AL2, TM1
 Paine, Maite AL6, GEN8, TM2, WC2
 Painter, John D AL6, GEN8, TM2, WC2
 Painter, Lori AL6, GEN8, TM2, WC2
 Pakaln, Laura AL6, GEN8, TM2, WC2
 Palacky, Tami AL6, GEN8, TM2, WC2
 Palas, Margaret AL6, GEN8, TM2, WC2
 Palen, Norma AL6, GEN8, TM2, WC2
 Palermo, Patricia AL6, GEN8, TM2, WC2
 Paley, Kenya AL6, GEN8, TM2, WC2
 Palinkos, Stephen TM10
 Palladine, Michelle AL6, GEN8, TM2, WC2
 Pallazola, Paul AL2, TM1
 Palmer, Brad AL6, GEN8, TM2, WC2
 Palmer, R Brent AL6, GEN8, TM2, WC2
 Palmer, Ron TM10
 Palmeri, Richard & Marcia AL6, GEN8, TM2, WC2
 Palmer-Laber, Elaine AL6, GEN8, TM2, WC2
 Palumbo, Jean GEN6, RR1, WC2
 Pan, Pinky Jain AL2 & 6, GEN8, TM1-2, WC2
 Pandian, Murugan AL6, GEN8, TM2, WC2
 Pangle, Robert AL6, GEN8, TM2, WC2
 Panitz, Patricia AL6, GEN8, TM2, WC2
 Panzica, Maruerite AL6, GEN8, TM2, WC2
 Papandrea, John AL6, GEN8, TM2, WC2
 Papazoglow, Roberta AL6, GEN8, TM2, WC2
 Pappas, Florence AL6, GEN8, TM2, WC2
 Paquett, M AL6, GEN8, TM2, WC2
 Paquette, Michelle AL2, TM1
 Paradise, Wisdom AL6, GEN8, TM2, WC2
 Parcell, Teresa AL6, GEN8, TM2, WC2
 Parcels, Julie AL6, GEN8, TM2, WC2
 Parecki, Amalia AL6, GEN8, TM2, WC2
 Paredi, S AL6, GEN8, TM2, WC2
 Paret, Amanda AL6, GEN8, TM2, WC2
 Parker, Brenda AL6, GEN8, TM2, WC2
 Parker, Cindy AL6, GEN8, TM2, WC2
 Parker, Erika AL6, GEN8, TM2, WC2
 Parker, Guy TM10
 Parker, J T AL6, GEN8, TM2, WC2
 Parker, Penny AL6, GEN8, TM2, WC2
 Parker, Richard AL6, GEN8, TM2, WC2
 Parkinen, Mitch AL6, GEN8, TM2, WC2
 Parkinson, Ward TM10
 Parkkila, John AL6, GEN8, TM2, WC2
 Parks, Sheila AL6, GEN8, TM2, WC2
 Parlee, Kimberly AL6, GEN8, TM2, WC2
 Parr, Keely AL6, GEN8, TM2, WC2
 Parrish, L AL6, GEN8, TM2, WC2
 Parson, Tl AL6, GEN8, TM2, WC2
 Parsons, Brandon AL6, GEN8, TM2, WC2
 Partansky, Julie AL6, GEN8, TM2, WC2
 Partlow, Daniel AL6, GEN8, TM2, WC2
 Partridge, Gary AL6, GEN8, TM2, WC2
 Pasch, Barbara AL6, GEN8, TM2, WC2
 Pasch, Marjorie AL6, GEN8, TM2, WC2
 Pashrel, Elie TM10
 Pastula, A J AL6, GEN8, TM2, WC2
 Patch, Frances AL6, GEN8, TM2, WC2
 Patel, A AL6, GEN8, TM2, WC2
 Patel, Divyesh AL6, GEN8, TM2, WC2
 Patenaude, David AL6, GEN8 & 11, RR1, TM1 & 2, WC2
 Paterson, Geoffrey AL6, GEN8, TM2, WC2
 Paterson, Kimberly AL6, GEN8, TM2, WC2
 Paterson, Leah AL6, GEN8, TM2, WC2
 Patrick, A A AL6, GEN8, TM2, WC2
 Patrick, Todd AL6, GEN8, TM2, WC2
 Patrie, Susan AL6, GEN8, TM2, WC2
 Patroskie, Joseph AL6, GEN8, TM2, WC2
 Patsis, Elizabeth AL6, GEN8, TM2, WC2
 Patterson, Ananda AL6, GEN8, TM2, WC2
 Patterson, Carol Jean AL6, GEN8, TM2, WC2
 Patterson, Skye AL6, GEN8, TM2, WC2
 Patton, Lesley AL6, GEN8, TM2, WC2
 Patton, Suchitra AL6, GEN8, TM2, WC2
 Patumanoan, Nancy AL6, GEN8, TM2, WC2
 Paul, Shirley AL6, GEN8, TM2, WC2
 Paul, Skip AL6, GEN8, TM2, WC2
 Pauline, Jean AL2, TM1
 Paulsen, Melodie AL6, GEN8, TM2, WC2
 Paulus, Emily AL6, GEN8, TM2, WC2
 Pawlikowski, Gabi AL6, GEN8, TM2, WC2
 Payne, David AL6, GEN8, TM2, WC2
 Payne, Harold Lamont AL1, GEN13&16, RR27, TM3
 Payne, Leah AL6, GEN8, TM2, WC2
 Payton, Rosanne AL6, GEN8, TM2, WC2
 Peacock, Lauri AL2&6, GEN8, TM1-2, WC2
 Pearce, Bill TM10
 Pearce, John B Sr AL6, GEN8, TM2, WC2
 Pearce, Allison AL6, GEN8, TM2, WC2
 Pearson, Sandra AL2&6, GEN8, TM1-2, WC2
 Pearson, Sarah AL6, GEN8, TM2, WC2
 Pease, Allyson AL6, GEN8, TM2, WC2
 Pease, Mary AL6, GEN8, TM2, WC2
 Pease, Raven AL6, GEN8, TM2, WC2
 Peck, Ellen AL6, GEN8, TM2, WC2
 Pedersen, Bruce TM3
 Pedersen, John AL2&6, GEN8, TM1-2, WC2
 Pedraza-Tucker, Liette AL2&6, GEN8, TM1-2, WC2
 Pedvin, David AL6, GEN8, TM2, WC2
 Peele-Masek, Mary AL6, GEN8, TM2, WC2
 Peer, Kevin AL6, GEN8, TM2, WC2
 Peirce, Roger AL6, GEN8, TM2, WC2
 Peirce, Sumner AL6, GEN8, TM2, WC2
 Peirce, Susan AL2&6, GEN8, TM1-2, WC2
 Peleltier, Angela AL6, GEN8, TM2, WC2
 Pelham, Christopher AL6, GEN8, TM2, WC2
 Pelikan, Lisa AL6, GEN8, TM2, WC2
 Pelkey, Clare AL6, GEN8, TM2, WC2
 Pelkey, Jo AL6, GEN8, TM2, WC2
 Pelleg, Joshua AL2, TM1
 Pelletier, Ken AL6, GEN8, TM2, WC2
 Pelletiere, Marc AL6, GEN8, TM2, WC2
 Peluso, Anthony R AL6, GEN8, TM2, WC2
 Pena, Debra AL6, GEN8, TM2, WC2
 Pendergast, Betsy AL6, GEN8, TM2, WC2
 Pendergrass, Mike AL1, GEN5&18, SO1, TM7
 Pendleton, Lelia AL6, GEN8, TM2, WC2

- Pendze, Irene AL6, GEN8, TM2, WC2
 Pendze, Stanley AL6, GEN8, TM2, WC2
 Pennett, Belinda AL6, GEN8, TM2, WC2
 Pennington, Carolyn AL6, GEN8, TM2, WC2
 Pennington, Shirley AL6, GEN8, TM2, WC2
 Pennisi, Lisa AL6, GEN8, TM2, WC2
 Penrod, Bart AL1, GEN5 & 18, SO1, TM7
 Penta, Brenda AL6, GEN8, TM2, WC2
 Pentkowski, Greg AL6, GEN8, TM2, WC2
 Penwell, Deanna AL6, GEN8, TM2, WC2
 Peoples, Ann AL6, GEN8, TM2, WC2
 Pepper, Fred AL6, GEN8, TM2, WC2
 Pepper, Sarah AL6, GEN8, TM2, WC2
 Peralta, Sharon AL6, GEN8, TM2, WC2
 Perantoni, Greg AL2, TM1
 Perchonock, Ellen AL6, GEN8, TM2, WC2
 Perez, Luiz AL6, GEN8, TM2, WC2
 Perez, Paul A RR2, TM3
 Perkins, Deor AL1, GEN13&16, RR27, TM3
 Perkins, Joel AL6, GEN8, TM2, WC2
 Perkins, Marie AL2, TM1
 Perkins, Sherry AL6, GEN8, TM2, WC2
 Perkins, V E AL6, GEN8, TM2, WC2
 Perkovich, Becky AL6, GEN8, TM2, WC2
 Perl, Robin AL6, GEN8, TM2, WC2
 Perla, Firelei AL6, GEN8, TM2, WC2
 Perlman, Frances AL6, GEN8, TM2, WC2
 Perlman, Janine AL6, GEN8, TM2, WC2
 Perner, Mary AL6, GEN8, TM2, WC2
 Perras, Richard AL6, GEN8, TM2, WC2
 Perreault, Al AL6, GEN8, TM2, WC2
 Perry, Eileen AL6, GEN8, TM2, WC2
 Perry, Harold AL6, GEN8, TM2, WC2
 Perry, Lisa AL6, GEN8, TM2, WC2
 Perry, Nicholas AL6, GEN8, TM2, WC2
 Perry, S AL6, GEN8, TM2, WC2
 Perryman, Joann AL6, GEN8, TM2, WC2
 Persichetty, Rita AL2, TM1
 Perstein, Angela AL6, GEN8, TM2, WC2
 Pesteanu, Loretta AL6, GEN8, TM2, WC2
 Peter, Bobbie AL2, TM1
 Peter, Lydia AL6, GEN8, TM2, WC2
 Peternel, Nadine AL6, GEN8, TM2, WC2
 Peters, Beth AL6, GEN8, TM2, WC2
 Peters, Gene AL6, GEN8, TM2, WC2
 Peters, Paula AL6, GEN8, TM2, WC2
 Peters, Sarah AL6, GEN8, TM2, WC2
 Peters, Wayne B AL2, TM1
 Peters, Yvonne AL6, GEN8, TM2, WC2
 Petersen, Elsa AL6, GEN8, TM2, WC2
 Petersen, Jesse AL6, GEN8, TM2, WC2
 Peterson, David AL6, GEN8, TM2, WC2
 Peterson, James AL6, GEN8, TM2, WC2
 Peterson, Joel AL6, GEN8, TM2, WC2
 Peterson, John AL6, GEN11, RR1, TM1-2, WC2
 Peterson, Kirsten AL6, GEN8, TM2, WC2
 Peterson, Mark AL2, TM1
 Peterson, Nancy AL6, GEN8, TM2, WC2
 Peterson, Raymond AL1, GEN13 & 16, RR27, TM3
 Peterson, Sandra AL6, GEN8, TM2, WC2
 Peterson, Victoria AL6, GEN8, TM2, WC2
 Petersondegroff, David AL6, GEN8, TM2, WC2
 Petite, Duane AL6, GEN8, TM2, WC2
 Petite, Pamela AL6, GEN8, TM2, WC2
 Petrakis, Dean AL6, GEN8, TM2, WC2
 Petrello, Robert AL6, GEN8, TM2, WC2
 Petrick, Candy AL6, GEN8, TM2, WC2
 Petry, Gabor AL6, GEN8, TM2, WC2
 Petry, Kim AL6, GEN8, TM2, WC2
 Pettit, David AL6, GEN8, TM2, WC2
 Pettit, Evan AL6, GEN8, TM2, WC2
 Petty, Carlene AL6, GEN8, TM2, WC2
 Petty, Don AL1, GEN13&16, RR27, TM3
 Petty, Rose AL1, GEN13&16, RR27, TM3
 Pfaff, Alyssa AL6, GEN8, TM2, WC2
 Pfeffer, Donna AL6, GEN8, TM2, WC2
 Pfeil, Walt AL6, GEN8, TM2, WC2
 Pflanz, Deborah AL6, GEN8, TM2, WC2
 Pflug, Maria A AL6, GEN8, TM2, WC2
 Pfohl, Anthony AL6, GEN8, TM2, WC2
 Phelps, Brad TM1
 Phelps, Michael AL6, GEN8, TM2, WC2
 Pheneger, Tracy AL6, GEN8, TM2, WC2
 Philbates, Michelle AL6, GEN8, TM2, WC2
 Phillipa, Becky AL6, GEN8, TM2, WC2
 Phillips, Anne AL6, GEN8, TM2, WC2
 Phillips, Chip AL6, GEN8, TM2, WC2
 Phillips, Dianne AL6, GEN8, TM2, WC2
 Phillips, Greg AL6, GEN8, TM2, WC2
 Phillips, Joseph AL6, GEN8, TM2, WC2
 Phillips, Julia AL6, GEN8, TM2, WC2
 Phillips, Mary AL2, TM1
 Phillips, Michael AL6, GEN8, TM2, WC2
 Phillips, Patricia AL2&6, GEN8, TM1-2, WC2
 Phillips, Richard AL6, GEN8, TM2, WC2
 Phillips, Robert AL6, GEN8, TM2, WC2
 Phillips, Shannon AL6, GEN8, TM2, WC2
 Phillips, Thomas AL6, GEN8, TM2, WC2
 Philothea, Sister M AL6, GEN8, TM2, WC2
 Philpott, Louis AL2, TM1
 Phipps, Maria AL6, GEN8, TM2, WC2
 Piani, James AL6, GEN8, TM2, WC2
 Piazza, Randall AL6, GEN8, TM2, WC2
 Picchetti, Gloria AL6, GEN8, TM2, WC2
 Picciotti, Melanie AL6, GEN8, TM2, WC2
 Pic-Harrison, Sara AL6, GEN8, TM2, WC2
 Pickarski, Karen AL6, GEN8, TM2, WC2
 Pickett, William A AL4
 Piehl, Eric AL6, GEN8, TM2, WC2
 Pienciak, Sue AL2, TM1
 Pieniazek, Annette AL6, GEN8, TM2, WC2
 Pierce, Allison AL6, GEN8, TM2, WC2
 Pierce, Camille AL6, GEN8, TM2, WC2
 Pierce, Caroline AL6, GEN8, TM2, WC2
 Pierce, Larry TM10
 Pierce, Rachel AL6, GEN8, TM2, WC2
 Pierquet, Kat AL6, GEN8, TM2, WC2
 Pike, Andrea AL6, GEN8, TM2, WC2
 Pike, Norma AL6, GEN8, TM2, WC2
 Pike, Tara AL2, TM1
 Pilert, Michael TM10
 Pillmore, Jason AL1, GEN13&16, RR27, TM3
 Pine, Richard AL6, GEN8, TM2, WC2
 Piner, Lisa AL6, GEN8, TM2, WC2
 Pinkston, Tommy AL6, GEN8, TM2, WC2
 Pinnell, Janna AL6, GEN8, TM2, WC2
 Pino, Meghan AL6, GEN8, TM2, WC2
 Piper, Janna AL6, GEN8, TM2, WC2
 Pipkin, Jon AL1, GEN13&16, RR27, TM3
 Pipkin, Michelle AL1, GEN13&16, RR27, TM3
 Pippin, Carol AL6, GEN8, TM2, WC2
 Pire, Patricia AL6, GEN8, TM2, WC2
 Pisanic, Lisa AL2, TM1
 Pisano, Donna AL6, GEN8, TM2, WC2
 Pisano, Lisa AL6, GEN8, TM2, WC2
 Piscatelli, Danielle AL6, GEN8, TM2, WC2
 Piszczek-Sheffield, Carole AL6, GEN11, RR1, TM1&2, WC2
 Pitblado, Bonnie AL6, GEN8, TM2, WC2
 Pitblado, Nancy AL6, GEN8, TM2, WC2
 Pitkin, Paul TM10
 Pitner, Claire RR1
 Pixley, Marshall AL6, GEN8, TM2, WC2
 Place, Toni AL2, TM1
 Placone, Richard AL6, GEN8, TM2, WC2
 Platter-Rieger, Mary AL6, GEN8, TM2, WC2
 Plemmons, Ralph TM10
 Plimpton, Leslie AL6, GEN8, TM2, WC2
 Plughoff, Kelly AL6, GEN8, TM2, WC2
 Plumley, Michael AL6, GEN8, TM2, WC2
 Plummer, John AL6, GEN8, TM2, WC2
 Pluta, James AL6, GEN8, TM2, WC2
 Plutschuck, Donna AL6, GEN8, TM2, WC2
 Plutt, Steve AL6, GEN8, TM2, WC2
 Podgorski, Joel AL6, GEN8, TM2, WC2
 Podolsky, Ellen AL6, GEN8, TM2, WC2
 Poe, Charley AL1, GEN3, SD4, TM3&13, WC3
 Pofperl, Gerrie AL6, GEN8, TM2, WC2
 Poindexter, Charlotte AL6, GEN8, TM2, WC2
 Poindexter, Holly AL6, GEN8, TM2, WC2
 Poisson, Paul AL6, GEN8, TM2, WC2
 Poist, Ellen AL6, GEN8, TM2, WC2
 Pokorny, Paul AL6, GEN8, TM2, WC2
 Polacok, Alicia AL6, GEN8, TM2, WC2
 Poland, Barbara AL6, GEN8, TM2, WC2
 Polanski, Ann AL6, GEN8, TM2, WC2
 Polayes, Joanne AL6, GEN8, TM2, WC2
 Polczynski, Eric AL6, GEN8, TM2, WC2
 Poler, Ascension AL6, GEN8, TM2, WC2
 Polick, Melissa AL6, GEN8, TM2, WC2
 Poling, John AL6, GEN8, TM2, WC2
 Polis, Rose AL6, GEN8, TM2, WC2
 Polk, Sandra J AL2&6, GEN8, TM1-2, WC2
 Pollak, Greg AL6, GEN8, TM2, WC2
 Pollard, Bev AL6, GEN8, TM2, WC2
 Pollard, Ted AL6, GEN8, TM2, WC2
 Pollman, Jan AL6, GEN8, TM2, WC2
 Pollock, James D AL6, GEN8, TM2, WC2
 Pollock, Jeri AL2&6, GEN8, TM1-2, WC2
 Polya, Lance AL6, GEN8, TM2, WC2
 Pomerantz, Fred AL2&6, GEN8, TM1-2, WC2
 Pomies, Jackie AL2&6, GEN8, TM1-2, WC2

Pongracz, Adam AL6, GEN8, TM2, WC2
 Ponisciak, Joseph AL6, GEN8, TM2, WC2
 Pontoriero, Fernando AL6, GEN8, TM2, WC2
 Pope, Brian AL6, GEN8, TM2, WC2
 Pope, David M AL2&6, GEN8, TM1-2, WC2
 Pope, Karen AL6, GEN8, TM2, WC2
 Popelka, Kay AL6, GEN8, TM2, WC2
 Poplawski, Terry AL6, GEN8, TM2, WC2
 Poppa, Francesca AL6, GEN8, TM2, WC2
 Poppe, Donnal AL6, GEN8, TM2, WC2
 Pora, Jeannette AL6, GEN8, TM2, WC2
 Porter, David AL6, GEN8, TM2, WC2
 Porter, Kim AL6, GEN8, TM2, WC2
 Porter, Leroy AL6, GEN8, TM2, WC2
 Porter, Robert R AL6, GEN8, TM2, WC2
 Porter, Sandra AL6, GEN8, TM2, WC2
 Posey, Amala AL6, GEN8, TM2, WC2
 Posey, Kay AL6, GEN8, TM2, WC2
 Posey, Ronald AL6, GEN8, TM2, WC2
 Posey, Sharon AL6, GEN8, TM2, WC2
 Post, Shelley AL6, GEN8, TM2, WC2
 Post, Thomas GEN6, TM1
 Potaszniak, R AL6, GEN8, TM2, WC2
 Pototsky, Myrna AL6, GEN8, TM2, WC2
 Pott, Caroline AL6, GEN8, TM2, WC2
 Potter, Brandon AL6, GEN8, TM2, WC2
 Potter, Claudia AL6, GEN8, TM2, WC2
 Potter, Deborah AL6, GEN8, TM2, WC2
 Potter, Harry AL6, GEN8, TM2, WC2
 Potter, Jacquelyn AL6, GEN8, TM2, WC2
 Potter, Ryan AL6, GEN8, TM2, WC2
 Potter, Theresa AL6, GEN8, TM2, WC2
 Pottinger, Randy AL6, GEN8, TM2, WC2
 Poulos, Bonnie GEN6, TM1
 Poulson, Judi AL6, GEN8, TM2, WC2
 Pousman, Robert AL6, GEN8, TM2, WC2
 Poverchuk, Amanda AL6, GEN8, TM2, WC2
 Powell, Michael AL6, GEN8, TM2, WC2
 Powell, Ralph AL6, GEN8, TM2, WC2
 Powell, Ron AL6, GEN8, TM2, WC2
 Powell, Victoria AL6, GEN8, TM2, WC2
 Powers, Elena AL6, GEN8, TM2, WC2
 Powers, Richard AL6, GEN8, TM2, WC2
 Powers, Victoria AL2&6, GEN8, TM1-2, WC2
 Powers, Wendy AL2, TM1
 Prairie, Annamarie AL6, GEN8, TM2, WC2
 Pranger, Carol AL6, GEN8, TM2, WC2
 Pratt Jr, Louis AL1, GEN13&16, RR27, TM3
 Pratt, Amy AL1, GEN18, GEN5, SO1, TM7
 Pratt, John AL6, GEN8, TM2, WC2
 Pratt, Tess AL1, GEN13 & 16, RR27, TM3
 Pratt, Traci AL1, GEN13&16, RR27, TM3
 Pregent, Greg AL6, GEN8, TM2, WC2
 Prentice, Letitia AL6, GEN8, TM2, WC2
 Press, Charlie AL6, GEN8, TM2, WC2
 Preuss, G AL6, GEN8, TM2, WC2
 Preuss, Jennifer AL6, GEN8, TM2, WC2
 Pribble, Nicholas AL6, GEN8, TM2, WC2
 Price, Elisabeth AL6, GEN8, TM2, WC2
 Price, Heather AL6, GEN8, TM2, WC2
 Price, Maria AL6, GEN8, TM2, WC2
 Price, Marie AL6, GEN8, TM2, WC2
 Price, Milo AL6, GEN8, TM2, WC2
 Priest, Maxine AL6, GEN8, TM2, WC2
 Prieve, Dennis AL6, GEN8, TM2, WC2
 Prigge, Diane AL6, GEN8, TM2, WC2
 Prigmore, Sissie AL6, GEN8, TM2, WC2
 Primmer, P AL6, GEN8, TM2, WC2
 Prince, Ann AL6, GEN8, TM2, WC2
 Prince, Virginia AL6, GEN8, TM2, WC2
 Pringle, Mary Jane GEN6, TM1, VM5, WC2
 Printz, Lisa AL6, GEN8, TM2, WC2
 Prinz, Dawn AL2, TM1
 Prioste, Annette GEN6, TM1
 Pritchard, John AL6, GEN8, TM2, WC2
 Pritchard, Joyce AL6, GEN8, TM2, WC2
 Pritchard, Mary AL6, GEN8, TM2, WC2
 Pritchard, Morgan AL6, GEN8, TM2, WC2
 Procter, Rebecca AL6, GEN8, TM1&2, WC2
 Proeger, Terry AL6, GEN8, TM2, WC2
 Proenza, Lynn AL6, GEN8, TM2, WC2
 Profit, Steven AL6, GEN8, TM2, WC2
 Prokopowycz, Maria AL6, GEN8, TM2, WC2
 Propst, Paula AL6, GEN8, TM2, WC2
 Proshok, Gordon AL6, GEN8, TM2, WC2
 Proske, Ted AL6, GEN8, TM2, WC2
 Prosperie, Johnnie AL2&6, GEN8, TM1-2, WC2
 Prostko, Linda AL6, GEN8, TM2, WC2
 Protheroe, Merry Kay AL6, GEN8, TM2, WC2
 Prouty, Guy AL6, GEN8, TM2, WC2
 Provence, Kelly AL6, GEN8, TM2, WC2
 Provencio, Rick AL6, GEN8, TM2, WC2
 Provensen, Christian AL6, GEN8, TM2, WC2
 Provenzano, James AL6, GEN8, TM2, WC2
 Prowell, Jeffrey AL6, GEN8, TM2, WC2
 Pryor, Donna AL6, GEN8, TM2, WC2
 Puca, Laurie AL6, GEN8, TM2, WC2
 Puckett, Karen AL6, GEN8, TM2, WC2
 Puelle, Geryll E AL6, GEN8, TM2, WC2
 Puetz, Daniel AL6, GEN8, TM2, WC2
 Puga, Shirley AL6, GEN8, TM2, WC2
 Pulliam, John T TM10
 Pullins, Wendy AL6, GEN8, TM2, WC2
 Purcell, Deidre AL6, GEN8, TM2, WC2
 Purosky, Bob AL6, GEN8, TM2, WC2
 Purvis, Freda-Wood AL6, GEN8, TM2, WC2
 Pusel, Joyce AL6, GEN8, TM2, WC2
 Pyle, Carolyn AL6, GEN8, TM2, WC2
 Pylpowycz, Christine AL6, GEN8, TM2, WC2
 Quade, Harry AL6, GEN8, TM2, WC2
 Quass, David LR1
 Quelland, Kathleen AL6, GEN8, TM2, WC2
 Quellas, Matthew AL6, GEN8, TM2, WC2
 Quick, Holly AL6, GEN8, TM2, WC2
 Quigley, April AL6, GEN8, TM2, WC2
 Quinlan, Michael GEN6, TM1
 Quinlivan, Tom AL6, GEN8, TM2, WC2
 Quinn, Diana AL6, GEN8, TM2, WC2
 Quinn, Mary AL6, GEN8, TM2, WC2
 Quinn, Vicki AL6, GEN8, TM2, WC2
 Quinones, Richard AL6, GEN8, TM2, WC2
 Quirk, Michael AL6, GEN8, TM2, WC2
 Quirk, William A TM10
 Quiroga, Estrella AL6, GEN8, TM2, WC2
 R, Agne G AL1, GEN13&16, RR27, TM3
 R, Kristen AL6, GEN8, TM2, WC2
 Raab, W Arthur AL6, GEN8, TM2, WC2
 Rabichow, Barry AL6, GEN8, TM2, WC2
 Rabin, Mariola AL6, GEN8, TM2, WC2
 Rabinowitz, Rebecca AL6, GEN8, TM2, WC2
 Rackages, Van AL6, GEN8, TM2, WC2
 Radcliff, Ruth-Ann AL6, GEN8, TM2, WC2
 Radcliffe, Shawn AL6, GEN8, TM2, WC2
 Radell, Dana AL6, GEN8, TM2, WC2
 Rader, Doug AL6, GEN8, TM2, WC2
 Radford, Jeffrey AL6, GEN8, TM2, WC2
 Radke, Irene AL6, GEN8, TM2, WC2
 Rae, Celia AL6, GEN8, TM2, WC2
 Raftery, Mary Kay AL6, GEN8, TM2, WC2
 Raghav, Shyla AL6, GEN8, TM2, WC2
 Ragsdale, Grace AL2&6, GEN8, TM1-2, WC2
 Raider, Phil AL6, GEN8, TM2, WC2
 Rainbow, Billy AL6, GEN8, TM2, WC2
 Raineri, Paul AL6, GEN8, TM2, WC2
 Rains, Gail AL2&6, GEN8, TM1-2, WC2
 Rains, Nadia AL6, GEN8, TM2, WC2
 Rajagopalan, Raman AL6, GEN8, TM2, WC2
 Rakowski, Beverly AL6, GEN8, TM2, WC2
 Ralston, Elizabeth AL6, GEN8, TM2, WC2
 Ramaker, Julianne AL6, GEN8, TM2, WC2
 Ramauro, M AL6, GEN8, TM2, WC2
 Ramberg, David AL6, GEN8, TM2, WC2
 Ramos, Edna AL2, TM1
 Ramos, Joann AL6, GEN8, TM2, WC2
 Ramos, Miguel AL2&6, GEN8, TM1-2, WC2
 Ramos, Paula AL6, GEN8, TM2, WC2
 Ramos, Teresa AL6, GEN8, TM2, WC2
 Ramsey, Elizabeth AL6, GEN8, TM2, WC2
 Rand, Ellen AL2, AL6, GEN8, TM1-2, WC2
 Randall, Lynda AL6, GEN8, TM2, WC2
 Randall, Mel AL6, GEN8, TM2, WC2
 Randolph, Dee AL6, GEN8, TM2, WC2
 Rangel, George AL6, GEN8, TM2, WC2
 Rangel, Xavier AL6, GEN8, TM2, WC2
 Rankin, H L AL6, GEN8, TM2, WC2
 Ransom, G Harry AL6, GEN8, TM2, WC2
 Ransom, Jill AL6, GEN8, TM2, WC2
 Rantz, Jennifer AL6, GEN8, TM2, WC2
 Rao, Sandra AL6, GEN8, TM2, WC2
 Rape, Jon AL6, GEN8, TM2, WC2
 Rapp, Harold AL6, GEN8, TM2, WC2
 Rapp, Kathy AL6, GEN8, TM2, WC2
 Rapp, Kimberly AL6, GEN8, TM2, WC2
 Rapport, Adi AL6, GEN8, TM2, WC2
 Rarick, Ivan AL6, GEN8, TM2, WC2
 Rasche, Sandra AL6, GEN8, TM2, WC2
 Rasmussen, David AL6, GEN8, TM2, WC2
 Rasmusson, Par AL6, GEN11, RR1, TM1-2, WC2

Rastegar, Jennifer AL6, GEN8, TM2, WC2
 Ratcliff, Amy AL6, GEN8, TM2, WC2
 Ratcliff, Philip AL6, GEN8, TM2, WC2
 Rathbone, Marjorie AL6, GEN8, TM2, WC2
 Ratliff, Charity AL6, GEN8, TM2, WC2
 Ratliff, Greta AL6, GEN8, TM2, WC2
 Rattay, Joan TM2
 Rattner, Ron AL6, GEN8, TM2, WC2
 Raub, Ann AL6, GEN8, TM2, WC2
 Rauch, Ann AL6, GEN8, TM2, WC2
 Rauch, Robin AL6, GEN11, RR1, TM1-2, WC2
 Rauscher, Richard AL6, GEN8, TM2, WC2
 Rauwolf, Terrell AL6, GEN8, TM2, WC2
 Ravenstein, Kate AL2, TM1
 Rawlings, Peter AL6, GEN8, TM2, WC2
 Rawstern, Rocky AL6, GEN8, TM2, WC2
 Ray, Ellin AL6, GEN8, TM2, WC2
 Ray, Eve AL6, GEN8, TM2, WC2
 Ray, Kristy AL6, GEN8, TM2, WC2
 Rayburn, Marc AL6, GEN8, TM2, WC2
 Rayman, Pat AL6, GEN8, TM2, WC2
 Raymond, Debra AL6, GEN8, TM2, WC2
 Raynor, Leslie AL6, GEN8, TM2, WC2
 Razzo, Maryanne AL6, GEN8, TM2, WC2
 Reade, David AL6, GEN8, TM2, WC2
 Reagel, Peter AL6, GEN8, TM2, WC2
 Reams, Gail J AL6, GEN8, TM2, WC2
 Reaves, Gene AL1, GEN13&16, RR27, TM3
 Reback, Mark AL6, GEN8, TM2, WC2
 Rebello, Stephen AL6, GEN8, TM2, WC2
 Reckers, Pamela AL6, GEN8, TM2, WC2
 Redding, Sherley AL6, GEN8, TM2, WC2
 Redish, Maryellen AL2&6, GEN8, TM1-2, WC2
 Redman, Dia AL6, GEN8, TM2, WC2
 Redoutey, Karolyn AL6, GEN8, TM2, WC2
 Redoutey, Mary AL6, GEN8, TM2, WC2
 Reed, Ann T AL6, GEN8, TM2, WC2
 Reed, Jason AL6, GEN8, TM2, WC2
 Reed, Lisa AL2&6, GEN8, TM1-2, WC2
 Reed, Marcy AL6, GEN8, TM2, WC2
 Reed, Mary S AL6, GEN8, TM2, WC2
 Reed, Ruth AL6, GEN8, TM2, WC2
 Reede, Tim AL6, GEN8, TM2, WC2
 Reens, Linda AL6, GEN8, TM2, WC2
 Rees, Hannah AL6, GEN8, TM2, WC2
 Rees, Michael AL6, GEN8, TM2, WC2
 Reese, Don AL6, GEN8, TM2, WC2
 Reese, Ellen AL2, TM1
 Reese, Garth AL6, GEN8, TM2, WC2
 Reese, Steve AL6, GEN8, TM2, WC2
 Reese, Sylvia AL6, GEN8, TM2, WC2
 Reeve, Brad GM5, SD5, TE2, VM5, WC2
 Reeve, Tom AL6, GEN8, TM2, WC2
 Reeves, Loretta AL1, GEN13&16, RR27, TM3
 Refregier, Lea-Ann AL6, GEN8, TM2, WC2
 Register, Charlotte AL6, GEN8, TM2, WC2
 Rehn, Debra AL2 & 6, GEN8, TM1-2, WC2
 Reich, Andrew AL6, GEN8, TM2, WC2
 Reichard, Bob AL6, GEN8, TM2, WC2
 Reichert, Erica AL6, GEN8, TM2, WC2
 Reidenbach, Gregory AL6, GEN8, TM2, WC2
 Reilly, Helena TM1
 Reilly, Laurence AL6, GEN8, TM2, WC2
 Reilly, Mary AL6, GEN8, TM2, WC2
 Reilly, Michael AL2&6, GEN8, TM1-2, WC2
 Reilly, Mike RR9
 Reina-Rosenbaum, Rose AL6, GEN8, TM2, WC2
 Reinberg, Don AL6, GEN8, TM2, WC2
 Reinbold, Gary AL6, GEN8, TM2, WC2
 Reinhart, Hannah AL6, GEN8, TM2, WC2
 Reinoehl, Richard AL6, GEN8, TM2, WC2
 Reis, Kurt D GEN6
 Reiser, Katharyn AL6, GEN8, TM2, WC2
 Reiss, Kelly AL6, GEN8, TM2, WC2
 Reissen, Gail AL6, GEN8, TM2, WC2
 Reitz, Krista AL6, GEN8, TM2, WC2
 Remke, Prescilla AL6, GEN8, TM2, WC2
 Rempel, Connie AL6, GEN8, TM2, WC2
 Renard, Jennifer AL6, GEN8, TM2, WC2
 Renden, Robert AL6, GEN8, TM2, WC2
 Renfroe, Debra AL6, GEN8, TM2, WC2
 Renninger, William AL2&6, GEN8, TM1-2, WC2
 Reno, Angela AL6, GEN8, TM2, WC2
 Renteria, Maricela AL6, GEN8, TM2, WC2
 Renton, Barbara AL6, GEN8, TM2, WC2
 Repenning, Barbara AL6, GEN8, TM2, WC2
 Reppert, Regina AL6, GEN8, TM2, WC2
 Reskof, Melissa AL6, GEN8, TM2, WC2
 Resotko, Karen AL6, GEN8, TM2, WC2
 Rethoret, Laura AL1, GEN13&16, RR27, TM3
 Rethoret, William P AL1, GEN13&16, RR27, TM3
 Rettig, June AL6, GEN8, TM2, WC2
 Reuther, Carol AL6, GEN8, TM2, WC2
 Reuther, Karen AL6, GEN8, TM2, WC2
 Revesz, Bruce AL6, GEN8, TM2, WC2
 Rex, Teresa AL6, GEN8, TM2, WC2
 Rexrode, John AL6, GEN8, TM2, WC2
 Reyes, Blaine AL6, GEN8, TM2, WC2
 Reyes, Fran AL2&6, GEN8, TM1-2, WC2
 Reyes, Mildred Gandia AL6, GEN6&8, TM2, WC2
 Reynolds, Ashleigh AL6, GEN8, TM2, WC2
 Reynolds, Barbara AL6, GEN8, TM2, WC2
 Reynolds, Cathy AL6, GEN8, TM2, WC2
 Reynolds, Debra AL6, GEN8, TM2, WC2
 Reynolds, Dolores AL6, GEN8, TM2, WC2
 Reynolds, Ken AL6, GEN8, TM2, WC2
 Reynolds, Nancy AL6, GEN8, TM2, WC2
 Reynolds, Rik AL2, TM1
 Rhea, Tina AL6, GEN8, TM2, WC2
 Rhine, Rick TM10
 Rhoades, Bruce AL2, TM1
 Rhoads, Kirk AL2&6, GEN8, TM1-2, WC2
 Rhodes, Harriet AL6, GEN8, TM2, WC2
 Rhodes, Jay AL1, SO1
 Rhodes, Louis AL6, GEN8, TM2, WC2
 Ribe, Tom AL6, GEN8, TM2, WC2
 Ricard, Cecily AL6, GEN8, TM2, WC2
 Ricci, Scott TM3
 Rice, Daryl AL6, GEN8, TM2, WC2
 Rice, Jennifer AL2, TM1
 Rice, Kyla AL6, GEN8, TM2, WC2
 Rice, Nena AL6, GEN8, TM2, WC2
 Rice, Susan AL6, GEN8, TM2, WC2
 Ricevuto, Chuck AL6, GEN8, TM2, WC2
 Rich, Barry AL6, GEN8, TM2, WC2
 Rich, Candace AL6, GEN8, TM2, WC2
 Rich, Charles AL6, GEN8, TM2, WC2
 Rich, Felicity AL6, GEN8, TM2, WC2
 Rich, Ken AL1, GEN18, GEN5, SO1, TM7
 Richard, Nancy AL6, GEN8, TM2, WC2
 Richards, Dancn AL6, GEN8, TM2, WC2
 Richards, James C TM10
 Richards, Ron AL6, GEN8, TM2, WC2
 Richardson, Albert AL6, GEN8, TM2, WC2
 Richardson, Amy AL6, GEN8, TM2, WC2
 Richardson, Don AL6, GEN8, TM2, WC2
 Richardson, Ed R AL1, GEN13&16, RR27, TM3
 Richardson, Michael AL6, GEN8, TM2, WC2
 Richardson, Nancy AL6, GEN8, TM2, WC2
 Richardson, Roberta AL6, GEN8, TM2, WC2
 Richesson, Jennifer AL6, GEN8, TM2, WC2
 Richman, Noah AL6, GEN11, RR1, TM1 & 2, WC2
 Richmond, Lonna AL6, GEN8, TM2, WC2
 Richmond, Susan AL6, GEN8, TM2, WC2
 Richter, Monique AL6, GEN8, TM2, WC2
 Rickard, James AL6, GEN8, TM2, WC2
 Rickenbach, Deborah AL6, GEN8, TM2, WC2
 Ricker, Aaron TM1
 Rickey, James AL6, GEN8, TM2, WC2
 Rickman, Bobbie AL6, GEN8, TM2, WC2
 Ricks, Linda AL6, GEN8, TM2, WC2
 Ridd, Susan AL6, GEN8, TM2, WC2
 Rideout, Ray AL6, GEN8, TM2, WC2
 Rider, Heather AL6, GEN8, TM2, WC2
 Ridgely, Elizabeth AL6, GEN11, RR1, TM1&2, WC2
 Ridgeway, William AL6, GEN8, TM2, WC2
 Rieck, Michael & Alyce AL6, GEN8, TM2, WC2
 Riehart, Dale AL6, GEN8, TM2, WC2
 Riemer, Robert L GEN18, RR1, RR10
 Riether, Dorothy AL6, GEN8, TM2, WC2
 Rifkind, Michael AL6, GEN8, TM2, WC2
 Rigatti, Karen AL6, GEN8, TM2, WC2
 Riggan, Karen AL6, GEN8, TM2, WC2
 Riggan, Fred AL6, GEN8, TM2, WC2
 Riggs, Randy TM10
 Riggs, Richard AL6, GEN8, TM2, WC2
 Rigney, J AL2, TM1
 Riker, Rose AL6, GEN8, TM2, WC2
 Riley, Callie AL2&6, GEN8, TM1-2, WC2
 Riley, Debbi Cloven AL6, GEN8, TM2, WC2
 Riley, Kelly AL2&6, GEN8, TM1-2, WC2
 Riley, Nancy AL6, GEN8, TM2, WC2
 Riley, Rusty AL6, GEN8, TM2, WC2
 Rinear, Randi AL6, GEN8, TM2, WC2

- Rini, Thomas AL6, GEN8, TM2, WC2
 Riolo, Marion AL2, TM1
 Riordan, Kristen AL6, GEN8, TM2, WC2
 Rios, Antonio AL6, GEN8, TM2, WC2
 Ripki, Cheryl AL1, GEN13&16, RR27, TM3
 Rippy, Levi AL6, GEN8, TM2, WC2
 Risner, Richard AL1, GEN13&16, RR27, TM3
 Ristom, William AL6, GEN8, TM2, WC2
 Ritchey Jr, Albert AL6, GEN8, TM2, WC2
 Ritchie, Christine AL6, GEN8, TM2, WC2
 Ritchings, Anne AL6, GEN8, TM2, WC2
 Ritchison, Ric AL6, GEN8, TM2, WC2
 Ritsky, Marilyn AL6, GEN8, TM2, WC2
 Rittenhouse, Calvin AL6, GEN8, TM2, WC2
 Ritter, Mitchell AL6, GEN8, TM2, WC2
 Rivers, Virginia & Richard AL6, GEN8, TM2, WC2
 Rivkin, Mark AL6, GEN8, TM2, WC2
 Rizzo, Rosetta AL2&6, GEN8, TM1-2, WC2
 Rizzuti, Greta AL6, GEN8, TM2, WC2
 Roane, Christine AL6, GEN8, TM2, WC2
 Robbins-Smith, Jennifer AL6, GEN8, TM2, WC2
 Robert, Fliegel AL6, GEN8, TM2, WC2
 Robertazzo, Kathleen AL6, GEN8, TM2, WC2
 Roberts, A AL6, GEN8, TM2, WC2
 Roberts, Alyssa AL6, GEN8, TM2, WC2
 Roberts, Clair TM10
 Roberts, Emerson AL6, GEN8, TM2, WC2
 Roberts, Gary AL2&6, GEN8, TM1-2, WC2
 Roberts, Greg AL6, GEN8, TM2, WC2
 Roberts, John AL6, GEN8, TM2, WC2
 Roberts, Katherine AL6, GEN8, TM2, WC2
 Roberts, Kent AL6, GEN8, TM2, WC2
 Roberts, Mark AL2&6, GEN8, TM1-2, WC2
 Roberts, Peter AL6, GEN8, TM2, WC2
 Robertson, Anne AL6, GEN8, TM2, WC2
 Robertson, Katherine AL6, GEN8, TM2, WC2
 Robertson, Lynne AL6, GEN8, TM2, WC2
 Robidoux, Melody AL6, GEN8, TM2, WC2
 Robinette, David AL6, GEN8, TM2, WC2
 Robins, Berklee AL6, GEN8, TM2, WC2
 Robins, Donald AL6, GEN8, TM2, WC2
 Robins, Jack AL6, GEN8, TM2, WC2
 Robins, Michael AL6, GEN8, TM2, WC2
 Robins, Tonya AL6, GEN8, TM2, WC2
 Robinson, Bina AL6, GEN8, TM2, WC2
 Robinson, Charles RR27, TM3
 Robinson, Colleen AL6, GEN8, TM2, WC2
 Robinson, Devin AL1, GEN13&16, RR27, TM3
 Robinson, E AL6, GEN11, RR1, TM1-2, WC2
 Robinson, Erin AL2, TM1
 Robinson, J Earl AL1, GEN13&16, RR27, TM3
 Robinson, Jared AL1, GEN13&16, RR27, TM3
 Robinson, Jill AL6, GEN8, TM2, WC2
 Robinson, Julie AL6, GEN8, TM2, WC2
 Robinson, Kate E AL6, GEN8, TM2, WC2
 Robinson, Melvin AL6, GEN8, TM2, WC2
 Robinson, Robert Bruce AL6, GEN8, TM2, WC2
 Robinson, Ron AL6, GEN8, TM2, WC2
 Robinson, Saliene AL6, GEN8, TM2, WC2
 Robinson, Stewart AL1, GEN13&16, RR27, TM3
 Robinson, Tammy AL2&6, GEN8, TM1-2, WC2
 Robinson, Wayne AL6, GEN8, TM2, WC2
 Robintree, Robin AL2, TM1
 Robles, Kathy AL6, GEN8, TM2, WC2
 Robson, Colleen AL2, TM1
 Rocco, Robert AL6, GEN8, TM2, WC2
 Rocha, Candace AL6, GEN8, TM2, WC2
 Roche, Peter AL6, GEN8, TM2, WC2
 Rocker, Carol AL6, GEN8, TM2, WC2
 Rockey, Phillip AL6, GEN8, TM2, WC2
 Rodd, David AL6, GEN8, TM2, WC2
 Rodda, Beth AL2, TM1
 Rodet, Zachary D AL1, GEN5&18, SO1, TM7
 Rodgers, Catherine AL6, GEN8, TM2, WC2
 Rodgers, Joseph AL6, GEN8, TM2, WC2
 Rodgers, Patricia AL6, GEN8, TM2, WC2
 Rodman, Melissa AL6, GEN8, TM2, WC2
 Rodrigue, Jim AL2 & 6, GEN8, TM1&2, WC2
 Rodriguez, John AL1, GEN13&16, RR27, TM3
 Rodriguez, Marisa AL2, TM1
 Rodriguez, Robert AL6, GEN8, TM2, WC2
 Roescher, Steve Soliz AL6, GEN8, TM2, WC2
 Roesner, Linda AL6, GEN8, TM2, WC2
 Roessner-Herman, Michaela AL6, GEN8, TM2, WC2
 Roetto, Paul AL6, GEN8, TM2, WC2
 Rogers, Celeste AL6, GEN8, TM2, WC2
 Rogers, Charles AL6, GEN8, TM2, WC2
 Rogers, Ken TM10
 Rogers, Richard CL2-3, GEN4&6, GM4, TM1&5
 Rohlfing, Jason AL6, GEN8, TM2, WC2
 Rohlk, Jeff AL6, GEN8, TM2, WC2
 Rohr, Linton AL6, GEN8, TM2, WC2
 Rohr, Vince AL6, GEN8, TM2, WC2
 Roka, Ruthann AL2&6, GEN8, TM1-2, WC2
 Roland, M Suzanne AL6, GEN8, TM2, WC2
 Rolla, Lea Ann AL6, GEN8, TM2, WC2
 Rollings, Jennifer AL6, GEN8, TM2, WC2
 Rollins, James AL6, GEN8, TM2, WC2
 Rolsky, Benji AL6, GEN8, TM2, WC2
 Roman, Barbara AL2&6, GEN8, TM1-2, WC2
 Romano, David AL6, GEN8, TM2, WC2
 Romano, Nick AL2&6, GEN8, TM1-2, WC2
 Romans, Jennifer AL6, GEN8, TM2, WC2
 Romero, Robert AL6, GEN8, TM2, WC2
 Romesburg, Denise AL6, GEN8, TM2, WC2
 Romine, Joann AL6, GEN8, TM2, WC2
 Romrell, Allen TM10
 Ronald, Anna AL1, GEN13&16, RR27, TM3
 Ronan, Mary AL6, GEN8, TM2, WC2
 Room, Laura AL6, GEN8, TM2, WC2
 Rooney, Diane AL6, GEN8, TM2, WC2
 Rooney, John AL6, GEN8, TM2, WC2
 Root, Jeffrey AL6, GEN8, TM2, WC2
 Rosales, Lisa AL2, TM1
 Rose, David TM11
 Rose, Pandora AL6, GEN8, TM2, WC2
 Rose, Rhonda AL6, GEN8, TM2, WC2
 Rose, Robert AL6, GEN8, TM2, WC2
 Rosen, Robert AL6, GEN8, TM2, WC2
 Rosen, William AL6, GEN8, TM2, WC2
 Rosenbaum, David AL6, GEN8, TM2, WC2
 Rosenbeck, Mary AL6, GEN8, TM2, WC2
 Rosenblatt, Suzanne AL6, GEN8, TM2, WC2
 Rosenblood, Jamie AL6, GEN8, TM2, WC2
 Rosenfeld, Cheryl AL6, GEN8, TM2, WC2
 Rosenfeld, Hope AL6, GEN8, TM2, WC2
 Rosenfield, Alice D AL6, GEN8, TM2, WC2
 Rosenkrantz, Stewart AL2, TM1
 Rosenstein, David AL6, GEN8, TM2, WC2
 Rosenstein, Richard & Carolyn AL6, GEN8, TM2, WC2
 Rosenthal, Bill AL6, GEN8, TM2, WC2
 Rosenthal, Rhonda AL6, GEN8, TM2, WC2
 Roske, Adam AL6, GEN8, TM2, WC2
 Rosner, Rick AL6, GEN8, TM2, WC2
 Ross, Angela AL6, GEN8, TM2, WC2
 Ross, D TM10
 Ross, Daniel AL2, TM1
 Ross, David AL6, GEN8, TM2, WC2
 Ross, Elizabeth AL6, GEN8, TM2, WC2
 Ross, Margaret AL6, GEN8, TM2, WC2
 Ross, Marie AL6, GEN8, TM2, WC2
 Ross, Mary AL6, GEN8, TM2, WC2
 Ross, Sylvia AL6, GEN8, TM2, WC2
 Rossi, John AL6, GEN8, TM2, WC2
 Rossi, Patricia AL6, GEN8, TM2, WC2
 Roth, Arlene AL6, GEN8, TM2, WC2
 Roth, Arnold AL2, TM1
 Roth, David AL6, GEN8, TM2, WC2
 Roth, Heather AL6, GEN8, TM2, WC2
 Rothchild-Tepper, Linda AL6, GEN8, TM2, WC2
 Rotholz, Abigail AL2, TM1
 Rothschilder, Linda AL6, GEN8, TM2, WC2
 Rothstein, Jamie AL6, GEN8, TM2, WC2
 Rothwell, Shelley AL2&6, GEN8, TM1-2, WC2
 Rothwell, Todd AL6, GEN8, TM2, WC2
 Rotter, Elizabeth AL6, GEN8, TM2, WC2
 Roundy, Lane AL1, GEN11 & 13, GM2 & 5, SD5, SO2, TM12 & 13, VM2, WC2, WS6
 Rousseau, Karline AL6, GEN8, TM2, WC2
 Rousselot, Patrick AL6, GEN8, TM2, WC2
 Rousu, Dwight AL6, GEN8, TM2, WC2
 Rout, Les AL6, GEN8, TM2, WC2
 Rowe, Carol AL6, GEN8, TM2, WC2
 Rowe, Gretchen AL6, GEN8, TM2, WC2
 Rowland, Carol AL6, GEN8, TM2, WC2
 Roy, Bobby AL6, GEN8, TM2, WC2
 Royal, Tim AL6, GEN8, TM2, WC2
 Royce-Wilder, Carol AL6, GEN8, TM2, WC2

Royer, Rich AL6, GEN8, TM2, WC2
 Ruberti, Tucker AL6, GEN8, TM2, WC2
 Rubi, Alicia AL6, GEN8, TM2, WC2
 Rubin, Bill AL6, GEN8, TM2, WC2
 Rubin, Linda AL2&6, GEN8, TM1-2, WC2
 Rubin, Marc AL6, GEN8, TM2, WC2
 Rubin, Michael AL6, GEN8, TM2, WC2
 Rubin, Robert AL6, GEN8, TM2, WC2
 Rubino, Karen AL6, GEN8, TM2, WC2
 Rubino, Matthew AL6, GEN8, TM2, WC2
 Ruby, Carol AL6, GEN8, TM2, WC2
 Ruch, Aixa AL6, GEN8, TM2, WC2
 Ruch, Dave AL6, GEN8, TM2, WC2
 Ruch, David AL6, GEN8, TM2, WC2
 Ruch, Elizabeth AL6, GEN8, TM2, WC2
 Ruch, Lisette AL6, GEN8, TM2, WC2
 Ruckdeschel, Jenny AL6, GEN8, TM2, WC2
 Ruckdeschel, Katy AL6, GEN8, TM2, WC2
 Rudder, J M AL6, GEN8, TM2, WC2
 Rudolph, Ana AL6, GEN8, TM2, WC2
 Rudolph, Stacey AL2, TM1
 Rudy, Sandra AL6, GEN8, TM2, WC2
 Ruelle, Julie AL6, GEN8, TM2, WC2
 Ruempolhamer, Robert AL6, GEN8, TM2, WC2
 Rueppel, Kathleen AL6, GEN8, TM2, WC2
 Ruiz, Ashley AL6, GEN8, TM2, WC2
 Ruiz, Gary AL6, GEN8, TM2, WC2
 Rule, Juliann AL6, GEN8, TM2, WC2
 Rundio, Jeffrey AL6, GEN8, TM2, WC2
 Runnels, Jack AL6, GEN8, TM2, WC2
 Ruopp, Kathy AL6, GEN8, TM2, WC2
 Rupert, Greg AL6, GEN8, TM2, WC2
 Rupp, Melinda AL1, SO1
 Rupp, Richard TM1
 Ruppert, Danny AL6, GEN8, TM2, WC2
 Ruppert, Karen AL6, GEN8, TM2, WC2
 Rups, Pamela AL6, GEN8, TM2, WC2
 Rurak, Wanda AL6, GEN8, TM2, WC2
 Rusch, Sandy AL6, GEN8, TM2, WC2
 Rush, Charlene AL2&6, GEN8, TM1-2, WC2
 Rush, Mark AL6, GEN8, TM2, WC2
 Rusk, Bill TM10
 Russ, Allen AL6, GEN8, TM2, WC2
 Russ, Lee AL6, GEN8, TM2, WC2
 Russell, Donna AL6, GEN8, TM2, WC2
 Russell, Laura AL6, GEN8, TM2, WC2
 Russo, Cara AL6, GEN8, TM2, WC2
 Russo, Cathy AL6, GEN8, TM2, WC2
 Russo, Robin AL6, GEN8, TM2, WC2
 Rust, Terry RR2, TM13
 Ruth, Anatasia AL6, GEN8, TM2, WC2
 Ruth, Phyllis AL6, GEN8, TM2, WC2
 Rutherford, Mark AL6, GEN8, TM2, WC2
 Rutherford, Megan AL6, GEN8, TM2, WC2
 Rutherford, Polly AL6, GEN8, TM2, WC2
 Rutkowski, Dennis AL2, TM1
 Rutledge, Thomas AL6, GEN8, TM2, WC2
 Rutledge, Tristen AL6, GEN8, TM2, WC2
 Ruvo, Dan AL6, GEN8, TM2, WC2
 Ryan, Cheri AL6, GEN8, TM2, WC2
 Ryan, Corey WF10
 Ryan, Janice AL6, GEN8, TM2, WC2
 Ryan, K AL6, GEN8, TM2, WC2
 Ryan, Leroy AL6, GEN8, TM2, WC2
 Ryan, Pamela AL2, TM1
 Ryder, Scot AL6, GEN8, TM2, WC2
 Rymer, Carlos AL2&6, GEN8, TM1-2, WC2
 Rynes, Michael AL6, GEN8, TM2, WC2
 Rynor, Alyse AL6, GEN8, TM2, WC2
 Rytina, Jenna AL6, GEN8, TM2, WC2
 Rzeszutek, Richard AL1, GEN5&18, SO1, TM7
 S, Stephanie AL6, GEN8, TM2, WC2
 Sabadie, Francisca AL6, GEN8, TM2, WC2
 Sabagh, Mohammed AL6, GEN8, TM2, WC2
 Sabetto, Nick AL6, GEN8, TM2, WC2
 Sable Ford, Jaree AL1, GEN5&18, SO1, TM7
 Sabochik, Katelyn AL6, GEN8, TM2, WC2
 Sachen-Ducommun, Lynelle AL6, GEN8, TM2, WC2
 Sadergaski, Bev AL6, GEN8, TM2, WC2
 Sadowski, Diane AL2, TM1
 Sadowski, Joan AL6, GEN8, TM2, WC2
 Sadowsky, Rick AL6, GEN8, TM2, WC2
 Saecker, John AL6, GEN8, TM2, WC2
 Saettone, Marina TM10
 Sage, Heather AL6, GEN8, TM1&2, WC2
 Sage, Peter AL6, GEN8, TM2, WC2
 Saggan, Laurie AL6, GEN8, TM2, WC2
 Sahni, Ramona AL6, GEN8, TM2, WC2
 Sailer, Randy GEN6
 Saint Pierre, Catherine AL6, GEN8, TM2, WC2
 Sajdak, Mary AL6, GEN8, TM2, WC2
 Sakoda, Fumiko AL2 & 6, GEN8, TM1-2, WC2
 Salamacha, Michael TM13
 Salamon, Mark AL6, GEN8, TM2, WC2
 Salazar, Donna AL6, GEN8, TM2, WC2
 Salazar, Frank AL6, GEN8, TM2, WC2
 Saldana, Melissa AL6, GEN8, TM2, WC2
 Salerno, Nicolette AL6, GEN8, TM2, WC2
 Salisbury, Chris AL6, GEN8, TM2, WC2
 Salisbury, John RR2, TM3
 Salisbury, Sharon AL6, GEN8, TM2, WC2
 Salisman, Jean AL6, GEN8, TM2, WC2
 Salkas, Jim AL6, GEN8, TM2, WC2
 Salmon, De SI AL6, GEN8, TM2, WC2
 Salmon, Jon AL6, GEN8, TM2, WC2
 Salner, George & Gwen AL2, TM1
 Salomon, Daniel AL6, GEN8, TM2, WC2
 Salsburg, Eric AL6, GEN8, TM2, WC2
 Salsburg, Michelle AL6, GEN8, TM2, WC2
 Salsbury, Deane AL1, GEN18, GEN5, TM7
 Salsman, Delores AL6, GEN8, TM2, WC2
 Saltzman, Barry AL6, GEN8, TM2, WC2
 Salvo, Andrea AL6, GEN8, TM2, WC2
 Salvo, Valli AL2, TM1
 Samek, Daniel AL6, GEN8, TM2, WC2
 Sammons, Susanna AL6, GEN8, TM2, WC2
 Samonski, Joan AL6, GEN8, TM2, WC2
 Samoyloff, Amanda AL2, TM1
 Samp, Cecelia AL6, GEN8, TM2, WC2
 Sampson, Sondra AL6, GEN8, TM2, WC2
 Sams, James & Donna AL6, GEN8, TM2, WC2
 Samuels, Harold A AL6, GEN8, TM2, WC2
 Samuelson, John AL6, GEN8, TM2, WC2
 Sanborn, Hugh AL6, GEN8, TM2, WC2
 Sanchez, Christina AL6, GEN8, TM2, WC2
 Sanchez, Luis AL6, GEN8, TM2, WC2
 Sancrant, Stefanie RR2, TM3
 Sancrant, Susan RR2, TM3
 Sancrant, Timothy RR2, TM3
 Sandberg, Scott AL1, GEN5&18, SO1, TM7
 Sandel, Oran AL6, GEN8, TM2, WC2
 Sander, Melanie AL6, GEN8, TM2, WC2
 Sanders, David AL2, TM1
 Sanders, Gary AL6, GEN8, TM2, WC2
 Sanders, Jeffrey AL6, GEN8, TM2, WC2
 Sanders, Judith AL6, GEN8, TM2, WC2
 Sanders, Richard AL6, GEN8, TM2, WC2
 Sanders, Stephen AL6, GEN8, TM2, WC2
 Sanders, Susan AL6, GEN8, TM2, WC2
 Sanderson, Charles AL6, GEN8, TM2, WC2
 Sanderson, Karen AL6, GEN8, TM2, WC2
 Sanderson, Rell AL6, GEN8, TM2, WC2
 Sandmire, Marvin TM10
 Sands, Kris AL6, GEN8, TM2, WC2
 Sands, Shari AL6, GEN8, TM2, WC2
 Sanfilippo, Valerie AL6, GEN8, TM2, WC2
 Santerre, Roger AL2&6, GEN8, TM1-2, WC2
 Santiago, Indira AL6, GEN8, TM2, WC2
 Santone, Deborah & Joe AL6, GEN8, TM2, WC2
 Santopietro, Michael AL6, GEN8, TM2, WC2
 Santora, Marc AL6, GEN8, TM2, WC2
 Santos, Saskia AL6, GEN8, TM2, WC2
 Sapers, Benjamin AL6, GEN8, TM2, WC2
 Saravanan, Bhavani AL6, GEN8, TM2, WC2
 Sarbi, A AL6, GEN8, TM2, WC2
 Sargent, Eva AL6, GEN8, TM2, WC2
 Sargent, Robert AL6, GEN8, TM2, WC2
 Sario, Terry AL6, GEN8, TM2, WC2
 Sarli, Leonardo AL6, GEN8, TM2, WC2
 Sarrells, Dw AL1, GEN13&16, RR27, TM3
 Sartoris, Elaine AL6, GEN8, TM2, WC2
 Sarver, Darlene AL6, GEN8, TM2, WC2
 Sasse, Julian AL6, GEN8, TM2, WC2
 Satrom, John AL6, GEN8, TM2, WC2
 Satterfield, John AL1, GEN13&16, RR27, TM3
 Saude, Debra AL6, GEN8, TM2, WC2
 Sauer, Roger AL6, GEN8, TM2, WC2
 Saunders, Andrea AL6, GEN8, TM2, WC2
 Saunders, Cecil Allen RR3
 Saunders, Susan AL6, GEN8, TM2, WC2
 Sausser, Chris AL6, GEN8, TM2, WC2
 Saveri, Elizabeth AL6, GEN8, TM2, WC2
 Savett, Adam AL6, GEN8, TM2, WC2
 Savino, Heather AL6, GEN8, TM2, WC2
 Savitch, Steve AL6, GEN8, TM2, WC2
 Savoye, Leigh AL6, GEN8, TM2, WC2
 Sawdon, Rosemarie AL6, GEN8, TM2, WC2
 Sawyer, Stan E AL1, GEN13&16, RR27, TM3
 Sawyer, Tracy AL6, GEN8, TM2, WC2
 Sawyer, Victor AL1, GEN13&16, RR27, TM3
 Sayago, Maria AL6, GEN8, TM2, WC2

- Sayers, Anne AL6, GEN8, TM2, WC2
 Saylor, Jack AL6, GEN8, TM2, WC2
 Scalzi, Francis AL6, GEN8, TM2, WC2
 Scaramuzzo, Shelley AL6, GEN8, TM2, WC2
 Scarpa, John AL6, GEN8, TM2, WC2
 Schabitzer, Diane AL6, GEN8, TM2, WC2
 Schacht, Maryann AL6, GEN8, TM2, WC2
 Schaefer, Robin AL6, GEN8, TM2, WC2
 Schaefer, Al AL6, GEN8, TM2, WC2
 Schaer, Maggie RR1, RR16, TM1, WF2
 Schafer, Corry AL6, GEN8, TM2, WC2
 Schafer, Helen AL6, GEN8, TM2, WC2
 Schaffer, Gabriel AL6, GEN8, TM2, WC2
 Schall, Donna AL6, GEN8, TM2, WC2
 Schaller, Steven AL6, GEN8, TM2, WC2
 Scharlack, Meyer AL6, GEN8, TM2, WC2
 Schatz, Bob AL6, GEN8, TM2, WC2
 Schatz, Yair AL2, TM1
 Schear, Tracy R AL1, GEN13&16, RR27, TM3
 Scheck, Susan AL6, GEN8, TM2, WC2
 Scheda, Rose AL6, GEN8, TM2, WC2
 Scheelings, Anita AL6, GEN8 & 11, RR1, TM1&2, WC2
 Scheelings, Bob AL6, GEN8, TM2, WC2
 Scheels, Joshua AL6, GEN8, TM2, WC2
 Scheffel, Frederick TM10
 Scheffert, Rick AL6, GEN8, TM2, WC2
 Scheib, Christan AL6, GEN8, TM2, WC2
 Scheid, Jennifer AL6, GEN8, TM2, WC2
 Schell, Sara AL6, GEN8, TM2, WC2
 Schenck, Judith AL6, GEN8, TM2, WC2
 Scher, Judith AL6, GEN8, TM2, WC2
 Scherer, Mary AL6, GEN8, TM2, WC2
 Scherl, Marvin AL6, GEN8, TM2, WC2
 Schermer, Linda AL6, GEN8, TM2, WC2
 Scheuerlein, Gary AL6, GEN8, TM2, WC2
 Schiavone, Dee AL6, GEN8, TM2, WC2
 Schielke, Paul AL6, GEN8, TM2, WC2
 Schilderout-Lloyd, Nicole AL6, GEN8, TM2, WC2
 Schildwachter, Audrey AL6, GEN8, TM2, WC2
 Schim, Andrew AL5
 Schklar, Andrea AL6, GEN8, TM2, WC2
 Schlacter, Judith AL2&6, GEN8, TM1-2, WC2
 Schleicher, Nathan AL6, GEN8, TM2, WC2
 Schlender, Paul AL6, GEN8, TM2, WC2
 Schlessinger, Susan AL6, GEN8, TM2, WC2
 Schliessman, Peter AL6, GEN8, TM2, WC2
 Schloss, Richard AL6, GEN8, TM2, WC2
 Schmidt, Arlene AL1, GEN13 & 16, RR27, TM3
 Schmidt, Arthur AL2, TM1
 Schmidt, Laurie AL6, GEN8, GM2 & 3, TM1 & 2, VM6, WC1 & 2
 Schmidt, Linda AL6, GEN8, TM2, WC2
 Schmiedtova, Barbara AL6, GEN8, TM2, WC2
 Schmiel, Karen AL6, GEN8, TM2, WC2
 Schmitt, Emily AL6, GEN8, TM2, WC2
 Schmitz, Gladys AL6, GEN8, TM2, WC2
 Schneider, Eric AL6, GEN8, TM2, WC2
 Schneider, George AL6, GEN8, TM2, WC2
 Schneider, Greg AL6, GEN8, TM2, WC2
 Schneider, Jeremy AL6, GEN8, TM2, WC2
 Schneider, Judith AL6, GEN8, TM2, WC2
 Schneider, Marilyn AL6, GEN8, TM2, WC2
 Schneider, Mark AL6, GEN8, TM2, WC2
 Schneider, Pat AL6, GEN8, TM2, WC2
 Schneider, Raymond & Marlene AL6, GEN8, TM2, WC2
 Schneider, Susan AL6, GEN8, TM2, WC2
 Schnelle, Robert AL6, GEN8, TM2, WC2
 Schneller, Paul AL6, GEN8, TM2, WC2
 Schnicke, Ursula AL6, GEN8, TM2, WC2
 Schochet, Gordon AL6, GEN8, TM2, WC2
 Schoedler, Randy AL6, GEN8, TM2, WC2
 Schoenberger, Murry AL6, GEN8, TM2, WC2
 Schoenweiss, Paul AL6, GEN8, TM2, WC2
 Scholing, Marshall AL6, GEN11, RR1, TM1-2, WC2
 Scholz, Ernest AL6, GEN8, TM2, WC2
 Schon, Anita AL6, GEN8, TM2, WC2
 Schoppman, Ira GM5, SD4, TM12, VM5
 Schoppman, Kevin SD4&6, TM7, VM5
 Schor, Beverly AL6, GEN8, TM2, WC2
 Schorling, Doug AL6, GEN8, TM2, WC2
 Schottel, Bruce AL6, GEN8, TM2, WC2
 Schottlaender, Sherri AL6, GEN8, TM2, WC2
 Schraft, Ray AL6, GEN8, TM2, WC2
 Schramm, Peggy AL6, GEN8, TM2, WC2
 Schreckengast, Tom AL6, GEN8, TM2, WC2
 Schreier, Marguerite AL6, GEN8, TM2, WC2
 Schreier, Peter AL6, GEN8, TM2, WC2
 Schreiner, Chris TM3
 Schreiner, Stephen AL6, GEN8, TM2, WC2
 Schroeder, Kurt AL6, GEN8, TM2, WC2
 Schroll, Churll TM10
 Schubert, Susanne AL6, GEN8, TM2, WC2
 Schucking, Hank AL1, GEN13&16, RR27, TM3
 Schuelke, Neva AL6, GEN8, MI1, TM2, WC1-2
 Schuessler, Betty AL6, GEN8, TM2, WC2
 Schuh, Richard AL6, GEN8, TM2, WC2
 Schulman, Nancy AL6, GEN8, TM2, WC2
 Schulman, Shani AL6, GEN8, TM2, WC2
 Schulte, Dawne AL6, GEN8, TM2, WC2
 Schultetus, Katherine AL2, TM1
 Schultetus, Kay AL6, GEN8, TM2, WC2
 Schultz, Arvin C RR4
 Schultz, Claire AL6, GEN8, TM2, WC2
 Schultz, Dale TM1
 Schultz, Don TM3
 Schultz, John AL6, GEN8, TM2, WC2
 Schultz, Judith AL6, GEN8, TM2, WC2
 Schultz, Melissa AL6, GEN8, TM2, WC2
 Schultz, Rebecca AL6, GEN8, TM2, WC2
 Schultz, Wm AL6, GEN8, TM2, WC2
 Schulz, Nancy AL6, GEN8, TM2, WC2
 Schumacher, Carl AL6, GEN8, TM2, WC2
 Schumacher, John AL6, GEN8, TM2, WC2
 Schuman, William AL6, GEN8, TM2, WC2
 Schumar, Christy AL6, GEN8, TM2, WC2
 Schupack, Melvyn AL6, GEN8, TM2, WC2
 Schuster, John AL6, GEN8, TM2, WC2
 Schutt, Paul AL6, GEN8, TM2, WC2
 Schutt, Whitney AL6, GEN8, TM2, WC2
 Schwager, Irving AL2, TM1
 Schwager, Kathy AL6, GEN8, TM2, WC2
 Schwartz, David AL6, GEN8, TM2, WC2
 Schwartz, Elaine AL6, GEN8, TM2, WC2
 Schwartz, Jami AL6, GEN8, TM2, WC2
 Schwartz, Nancy AL6, GEN8, TM2, WC2
 Schwartz, Robert AL6, GEN8, TM2, WC2
 Schwartz, Sam AL6, GEN8, TM2, WC2
 Schweitzer, Eric AL6, GEN8, TM2, WC2
 Schwenker, Tara AL6, GEN8, TM2, WC2
 Schwobel, Robert AL6, GEN8, TM2, WC2
 Seianna, Maria AL2&6, GEN8, TM1-2, WC2
 Selar, Deanna AL6, GEN8, TM2, WC2
 Scofield, Bruce AL6, GEN8, TM2, WC2
 Scofield, Robin AL6, GEN8, TM2, WC2
 Scola, Bob AL1, GEN18, GEN5, SO1, TM7
 Scott, Beverly AL6, GEN8, TM2, WC2
 Scott, Christopher AL6, GEN8, TM2, WC2
 Scott, Dorinda AL6, GEN8, TM2, WC2
 Scott, George AL6, GEN8, TM2, WC2
 Scott, Jeanie AL6, GEN8, TM2, WC2
 Scott, Joan AL6, GEN8, TM2, WC2
 Scott, John AL6, GEN8, TM2, WC2
 Scott, Julia AL6, GEN8, TM2, WC2
 Scott, Karyn GEN6
 Scott, Linda LR1, TM13
 Scott, Mike AL6, GEN8, TM2, WC2
 Scott, Rob LR1, TM13
 Scott, Susan AL6, GEN8, TM2, WC2
 Scott, Susan Hanway AL6, GEN8, TM2, WC2
 Scow, Cindy AL1, GEN5 & 18, SO1, TM7
 Scow, Matt AL1, GEN18, GEN5, SO1, TM7
 Scrivner, Sheldon AL6, GEN8, TM2, WC2
 Scull, Brian T AL6, GEN8, TM2, WC2
 Seager, Laura GEN17
 Seal, Cindi AL2, TM1
 Seaman, Richard AL2, TM1
 Searfos, Polly AL2&6, GEN8, TM1-2, WC2
 Searles-Wilson, Wendy AL6, GEN8, TM2, WC2
 Sears, Carol AL6, GEN8, TM2, WC2
 Seastone, Star AL6, GEN8, TM2, WC2
 Seawel, Carly AL6, GEN8, TM2, WC2
 Seawell, Steven AL6, GEN8, TM2, WC2
 Sebold, Howard AL6, GEN8, TM2, WC2
 Seegert, Frances AL6, GEN8, TM2, WC2
 Seegmiller, Phillip GM1, 2, & 4, TM12
 Sefton, John AL6, GEN8, TM2, WC2
 Segal, Evalyn AL6, GEN8, TM2, WC2
 Seiberling, Michael AL6, GEN8, TM2, WC2
 Seibold, Bill & Marilyn AL6, GEN8, TM10, TM2, WC2
 Seidel, Peter AL6, GEN8, TM2, WC2
 Seider, John AL2 & 6, GEN8, TM1-2, WC2
 Seifried, Linda AL6, GEN8, TM2, WC2
 Seiger, Barbara AL6, GEN8, TM2, WC2
 Seigneur, Cliff AL6, GEN8, TM2, WC2
 Seil, Frederick AL6, GEN8, TM2, WC2
 Seiler, Debbie AL6, GEN8, TM2, WC2

- Seiler, Sondra AL6, GEN8, TM2, WC2
 Sekelsky, Sandra AL6, GEN8, TM2, WC2
 Selesky, Laura A AL6, GEN8, TM2, WC2
 Self, Mary AL6, GEN8, TM2, WC2
 Selig, Kanti AL6, GEN8, TM2, WC2
 Sell, Sharron AL6, GEN8, TM2, WC2
 Sellers, Margaret AL6, GEN8, TM2, WC2
 Sellers, Meg AL6, GEN8, TM2, WC2
 Sellers, Traci AL1, GEN13&16, RR27, TM3
 Sellke, Robert AL6, GEN8, TM2, WC2
 Selnes, Carl AL6, GEN8, TM2, WC2
 Selthun, Pam RR1
 Seltzer, Robert AL2&6, GEN8, TM1-2, WC2
 Seman, George AL6, GEN8, TM2, WC2
 Semenec, Paul AL6, GEN8, TM2, WC2
 Semit, Jacqueline AL6, GEN8, TM2, WC2
 Semke, Gloria AL6, GEN8, TM2, WC2
 Semler, Charles AL6, GEN8, TM2, WC2
 Semmler, Bob AL6, GEN8, TM2, WC2
 Semsrott, Birgit AL6, GEN8, TM2, WC2
 Sendrowitz, Mitchell AL6, GEN8, TM2, WC2
 Senft, Greg AL6, GEN8, TM2, WC2
 Senneker, Janet AL6, GEN8, TM2, WC2
 Senuta, John AL6, GEN8, TM2, WC2
 Sepulveda, Christine AL6, GEN8, TM2, WC2
 Seraso, Laura AL6, GEN8, TM2, WC2
 Serco, Kenneth AL6, GEN8, TM2, WC2
 Serotta, Dorothy AL6, GEN8, TM2, WC2
 Serviss, Naomi AL6, GEN8, TM2, WC2
 Sesher, Gayla AL6, GEN8, TM2, WC2
 Sessine, Linda AL6, GEN8, TM2, WC2
 Seth, Barry AL6, GEN8, TM2, WC2
 Settle, Thomas AL6, GEN8, TM2, WC2
 Sevy, Patricia AL1, GEN13&16, RR27, TM3
 Sexton, John AL6, GEN8, TM2, WC2
 Sexton, Ronda AL2, TM1
 Seybold, John AL6, GEN8, TM2, WC2
 Seyfarth, Gordon AL6, GEN8, TM2, WC2
 Seyfried, William M Jr AL6, GEN8, TM2, WC2
 Seymour, Stephanie AL6, GEN8, TM2, WC2
 Shadrick, Roxann AL6, GEN8, TM2, WC2
 Shafer, Keith G TM10
 Shaffer, Helen AL6, GEN8, TM2, WC2
 Shaffer, Patricia AL6, GEN8, TM2, WC2
 Shafransky, Paula AL6, GEN8, TM2, WC2
 Shahan, Mira AL6, GEN8, TM2, WC2
 Shalat, Harriet AL2, TM1
 Shalda, Elise AL6, GEN8, TM2, WC2
 Shanabarger, Paul AL6, GEN8, TM2, WC2
 Shane-Wahl, Rebecca AL6, GEN8, TM2, WC2
 Shank, Barb AL6, GEN8, TM2, WC2
 Shankar, Navin AL6, GEN8, TM2, WC2
 Shanker, Srividhya AL6, GEN8, TM2, WC2
 Shannon, James AL6, GEN8, TM2, WC2
 Shannon, Jim AL6, GEN8, TM2, WC2
 Shannon, Nancy AL6, GEN8, TM2, WC2
 Shapas, Barbara AL6, GEN8, TM2, WC2
 Shapiro, Michael AL6, GEN8, TM2, WC2
 Sharp, C AL6, GEN8, TM2, WC2
 Sharp, Donna AL6, GEN8, TM2, WC2
 Sharp, Mary Lou AL1, GEN5&18, SO1, TM7
 Sharp, Stephen K AL6, GEN8, TM2, WC2
 Sharp, Will AL1, RR24, TM3
 Sharpe, Marke AL6, GEN8, TM2, WC2
 Shaskin, Patricia AL6, GEN8, TM2, WC2
 Shaver, Heather AL1, GEN13&16, RR27, TM3
 Shaver, Jason AL1, GEN13&16, RR27, TM3
 Shaver, John AL6, GEN8, TM2, WC2
 Shaw, Joe AL6, GEN8, TM2, WC2
 Shaw, Judith AL6, GEN8, TM2, WC2
 Shawvan, James AL6, GEN8, TM2, WC2
 Shea, Jamee AL6, GEN11, RR1, TM1-2, WC2
 Sheaff, Robin AL6, GEN8, TM2, WC2
 Sheahan, Maureen AL6, GEN8, TM2, WC2
 Shedd, Rebecca AL6, GEN8, TM2, WC2
 Sheehan, Matt TM10
 Sheehy, Robert AL6, GEN8, TM2, WC2
 Sheets, Sharon AL6, GEN8, TM2, WC2
 Sheets, Tamara AL6, GEN8, TM2, WC2
 Sheffield, Lucy AL6, GEN8, TM2, WC2
 Sheffield, Thomas AL6, GEN8, TM2, WC2
 Sheldon, Jean AL6, GEN8, TM2, WC2
 Sheldon, Sher AL6, GEN8, TM2, WC2
 Shellenberger, Matthew AL6, GEN8, TM2, WC2
 Shellendarge, Marylin AL1, GEN13&16, RR27, TM3
 Shelley, Carolyn B SD4-5, AL1, GEN16, GM1, 2 & 6, LR1-3 & 7, M11, TM12, VM4, WS6
 Shelley, Erga AL6, GEN8, TM2, WC2
 Shelley, Ian AL6, GEN8, TM2, WC2
 Shelley, Nancy AL6, GEN8, TM2, WC2
 Shelly, Jane AL6, GEN8, TM2, WC2
 Shel mire, Suzette AL6, GEN8, TM2, WC2
 Shelton, Brand AL6, GEN8, TM2, WC2
 Shelton, Charles AL6, GEN8, TM2, WC2
 Shelton, Donnie AL6, GEN8, TM2, WC2
 Shelton, Jammi AL6, GEN8, TM2, WC2
 Shelton, Jim AL6, GEN11, RR1, TM1-2, WC2
 Shelton, Mary AL2, TM1
 Shelton, Suzanne AL6, GEN8, TM2, WC2
 Shematek, Judith AL2&6, GEN8, TM1-2, WC2
 Sheppard, Hope AL6, GEN8, TM2, WC2
 Sheppard, Starr AL6, GEN8, TM2, WC2
 Sheridan, Leslie AL6, GEN8, TM2, WC2
 Sherk, Linda AL6, GEN8, TM2, WC2
 Sherling, Jeff AL6, GEN8, TM2, WC2
 Sherman, Philip AL1, GEN13&16, RR27, TM3
 Sherman, Rozalyn AL6, GEN8, TM2, WC2
 Shermock, Margaret AL6, GEN8, TM2, WC2
 Sherrard, Kathryn AL6, GEN8, TM2, WC2
 Sherrington, Colette AL6, GEN8, TM2, WC2
 Sherry, Thomas AL6, GEN8, TM2, WC2
 Sherwood, Lindsay AL6, GEN8, TM2, WC2
 Sherwood, Stacie-Lee AL6, GEN8, TM2, WC2
 Shevis, Aron AL6, GEN8, TM2, WC2
 Shientag-Betts, Beverly AL6, GEN8, TM2, WC2
 Shimberg, Matt TM14, WC2
 Shimizu, Michele AL6, GEN8, TM2, WC2
 Shin, Thomas AL6, GEN8, TM2, WC2
 Shinder, David AL6, GEN8, TM2, WC2
 Shinkle, Mark AL6, GEN8, TM2, WC2
 Shinn, Dorothy AL2, TM1
 Shipley, Betty AL6, GEN8, TM2, WC2
 Shippy, Jane AL6, GEN8, TM2, WC2
 Shires, Randolph AL6, GEN8, TM2, WC2
 Shively, Daniel AL6, GEN8, TM2, WC2
 Shoemaker, David AL6, GEN8, TM2, WC2
 Shoemaker, Dorea AL6, GEN8, TM2, WC2
 Shoemaker, Gary GEN6, GEN8
 Shogren, Matt AL6, GEN8, TM2, WC2
 Shohan, Doug AL2&6, GEN8, TM1-2, WC2
 Sholtz, Laura AL2, TM1
 Shore, Hazel AL6, GEN8, TM2, WC2
 Shorroock, Kate AL6, GEN8, TM2, WC2
 Short, Katie AL6, GEN8, TM2, WC2
 Shotland, Ben AL6, GEN8, TM2, WC2
 Shoulderblade, Magoo AL2, TM1
 Showers, Stephan AL1, GEN13&16, RR27, TM3
 Shpiller, Natasha AL6, GEN8, TM2, WC2
 Shrewsbury, George AL6, GEN8, TM2, WC2
 Shubert, Richard AL6, GEN8, TM2, WC2
 Shubnell, Ann AL6, GEN8, TM2, WC2
 Shukla, H AL2, AL6, GEN8, TM1-2, WC2
 Shulimson, Scott AL6, GEN8, TM2, WC2
 Shultz, Jamie AL6, GEN8, TM2, WC2
 Shuman, Robert AL6, GEN11, RR1, TM1&2, WC2
 Shumate, Charlene AL6, GEN8, TM2, WC2
 Shumway, Anne AL6, GEN8, TM2, WC2
 Sia, Tiffany AL6, GEN8, TM2, WC2
 Siano, Christian AL6, GEN8, TM2, WC2
 Sibley, Kathryn AL6, GEN8, TM2, WC2
 Sickel, Kimberly AL2, TM1
 Siegel, Charles AL6, GEN8, TM2, WC2
 Siegel, Howard AL6, GEN8, TM2, WC2
 Siegel, Louis O TM10
 Siegrist, Toni AL2, TM1
 Sienicki, Rebecca AL6, GEN8, TM2, WC2
 Siepker, Paul AL6, GEN8, TM2, WC2
 Sier, Mary AL6, GEN8, TM2, WC2
 Siewert, Rae Ann AL6, GEN8, TM2, WC2
 Sikes, Lewis AL6, GEN8, TM2, WC2
 Sikora, Patricia A AL6, GEN8, TM2, WC2
 Silberberg, Maja AL6, GEN8, TM2, WC2
 Silbert, Sue AL6, GEN8, TM2, WC2
 Siler, Barbara E AL6, GEN8, TM2, WC2
 Silgen, Douglas GEN6, RR1, TM1, TM3
 Sills, Colleen AL6, GEN8, TM2, WC2
 Silva, Adam AL6, GEN8, TM2, WC2
 Silver, Dan AL6, GEN8, TM2, WC2
 Silver, Margaret AL2&6, GEN8, TM1-2, WC2
 Silver, Ronald AL2&6, GEN8, TM1-2, WC2
 Silverman, Ruth AL6, GEN8, TM2, WC2

- Silverman, Seth AL2&6, GEN8, TM1-2, WC2
- Silverthorn, Carol AL6, GEN8, TM2, WC2
- Silvey, Michele AL6, GEN8, TM2, WC2
- Silvia, Laurie AL2, TM1
- Simemson, Elaine AL6, GEN8, TM2, WC2
- Siminski, William AL6, GEN8, TM2, WC2
- Simmons, Barre AL6, GEN8, TM2, WC2
- Simmons, Chris TM11
- Simmons, Cymone AL6, GEN8, TM2, WC2
- Simmons, Katharine AL6, GEN8, TM2, WC2
- Simmons, Kathryn AL6, GEN8, TM2, WC2
- Simmons, Paula AL6, GEN8, TM2, WC2
- Simmons, Sarah TM11
- Simmons, Steve AL2, TM1
- Simmons, Victoria AL6, GEN8, TM2, WC2
- Simmons, Vonda TM11
- Simms, Charles AL6, GEN8, TM2, WC2
- Simms, Grace AL6, GEN8, TM2, WC2
- Simms, Twik AL6, GEN8, TM2, WC2
- Simon, Philip AL2&6, GEN8, TM1-2, WC2
- Simon, Tomas AL2&6, GEN8, TM1-2, WC2
- Simons, Anita AL6, GEN8, TM2, WC2
- Simons, Sharon AL6, GEN8, TM2, WC2
- Simonsen, John AL6, GEN8, TM2, WC2
- Simpson, Ann AL6, GEN8, TM2, WC2
- Simpson, Jeanne AL6, GEN8, TM2, WC2
- Simpson, Jeff AL6, GEN8, TM2, WC2
- Simpson, Maryann AL6, GEN8, TM2, WC2
- Simpson, Patrick TM10
- Simpson, Ronald AL6, GEN8, TM2, WC2
- Simpson, Sally AL2&6, GEN8, TM1-2, WC2
- Sims, Dave AL6, GEN8, TM2, WC2
- Sims, Kate AL6, GEN8, TM2, WC2
- Simshauser, Venessa AL6, GEN8, TM2, WC2
- Sinciline, Darcie AL6, GEN8, TM2, WC2
- Sinclair, Michele AL6, GEN8, TM2, WC2
- Singdahlsen, Paul AL6, GEN8, TM2, WC2
- Singer, Barbara AL2&6, GEN8, TM1-2, WC2
- Singer, Kelsi AL6, GEN8, TM2, WC2
- Singleton, Antonia AL6, GEN8, TM2, WC2
- Singleton, John AL6, GEN8, TM2, WC2
- Singleton, Kari AL6, GEN8, TM2, WC2
- Sink, Dawn AL6, GEN8, TM2, WC2
- Siri, Patricia AL2&6, GEN8, TM1&2, WC2
- Sisk, Laura AL6, GEN8, TM2, WC2
- Sito, Betty AL6, GEN8, TM2, WC2
- Sitton, Ronald AL6, GEN8, TM2, WC2
- Skadden, Stuart AL6, GEN8, TM2, WC2
- Skaradzinski, Kerry AL6, GEN8, TM2, WC2
- Skarda, Angi AL6, GEN8, TM2, WC2
- Skeen, Marianne AL6, GEN8, TM2, WC2
- Skelton, Julie AL6, GEN8, TM2, WC2
- Skelton, S AL6, GEN8, TM2, WC2
- Skerry, Priscilla AL6, GEN8, TM2, WC2
- Skinner, Tawna AL6, GEN8, TM2, WC2
- Skloven, Lydia AL6, GEN8, TM2, WC2
- Skoglund, Chris AL6, GEN8, TM2, WC2
- Skolnick, Kate AL6, GEN8, TM2, WC2
- Skup, Debra AL6, GEN8, TM2, WC2
- Skye, Monica AL6, GEN8, TM2, WC2
- Slaback, Thomas L GEN6, TM1, WC2
- Slack, Debbie AL6, GEN8, TM2, WC2
- Slade, Suzanne AL6, GEN8, TM2, WC2
- Slagle, Steven AL6, GEN8, TM2, WC2
- Slawik, Hans J AL6, GEN8, TM2, WC2
- Slawson, Bob AL6, GEN8, TM2, WC2
- Slawson, Camly AL6, GEN8, TM2, WC2
- Slawson, Thomas AL6, GEN8, TM2, WC2
- Sleator, Richard AL6, GEN8, TM2, WC2
- Sleeper, Bonnie AL6, GEN8, TM2, WC2
- Sleeper, Stephen AL6, GEN8, TM2, WC2
- Slevc, Patricia AL6, GEN8, TM2, WC2
- Slezak, Mark AL4, WF9
- Slingerland, Theresa AL6, GEN8, TM2, WC2
- Sloan, Dan AL6, GEN8, TM2, WC2
- Sloan, Elaine AL6, GEN8, TM2, WC2
- Sloan, Michael AL6, GEN8, TM2, WC2
- Slocum, Joel & Deborah AL6, GEN8, TM2, WC2
- Slominski, Jeanne AL6, GEN8, TM2, WC2
- Sloneker, Sam AL6, GEN8, TM2, WC2
- Slusarski, Yvette AL6, GEN8, TM2, WC2
- Smale, Mary Ann AL6, GEN8, TM2, WC2
- Small, Casey AL6, GEN8, TM2, WC2
- Smartt, Howard AL6, GEN8, TM2, WC2
- Smelser, E Karsten AL6, GEN8, TM2, WC2
- Smeltzer, Judith AL6, GEN8, TM2, WC2
- Smiley, Peggy AL6, GEN8, TM2, WC2
- Smith, Adrian AL6, GEN8, TM2, WC2
- Smith, Alison AL6, GEN8, TM2, WC2
- Smith, Andrea AL1, GEN13&16, RR27, TM3
- Smith, Angela AL6, GEN8, TM2, WC2
- Smith, Ann Marie AL6, GEN8, TM2, WC2
- Smith, Art AL1, GEN13&16, RR27, TM3
- Smith, Barb AL6, GEN8, TM2, WC2
- Smith, Barry AL6, GEN8, TM2, WC2
- Smith, Beth AL6, GEN8, TM2, WC2
- Smith, Betty AL6, GEN8, TM2, WC2
- Smith, Beverly AL6, GEN8, TM2, WC2
- Smith, Brenda AL6, GEN8, TM2, WC2
- Smith, Brian AL6, GEN8, TM2, WC2
- Smith, Brian M AL6, GEN8, TM2, WC2
- Smith, Bryan AL6, GEN8, TM2, WC2
- Smith, Bryce AL6, GEN8, TM2, WC2
- Smith, Carl AL2, TM1
- Smith, Carr AL6, GEN8, TM2, WC2
- Smith, Chad TM3
- Smith, Chris AL6, GEN8, TM2, WC2
- Smith, Christy AL1, GEN13&16, RR27, TM3
- Smith, Cyndy AL6, GEN8, TM2, WC2
- Smith, David J TM10
- Smith, David L AL6, GEN8, TM2, WC2
- Smith, Deanna AL2&6, GEN8, TM1-2, WC2
- Smith, Deborah AL2&6, GEN8, TM1-2, WC2
- Smith, Derek AL6, GEN8, TM2, WC2
- Smith, Dia AL6, GEN8, TM2, WC2
- Smith, Diana AL6, GEN8, TM2, WC2
- Smith, Dona AL6, GEN8, TM2, WC2
- Smith, Dorothy AL6, GEN8, TM2, WC2
- Smith, Elizabeth AL6, GEN8, TM2, WC2
- Smith, Erin AL6, GEN8, TM2, WC2
- Smith, Gary AL6
- Smith, HB Doc AL5, GM2, RR10, TM14, VM1, 2, 5, 6 & 8, WC2, WF2
- Smith, Herman AL6, GEN8, TM2, WC2
- Smith, Holly AL6, GEN8, TM2, WC2
- Smith, Jai AL6, GEN8, TM2, WC2
- Smith, Jenalyn AL1, GEN5&18, SO1, TM7
- Smith, Judith AL6, GEN8, TM2, WC2
- Smith, Judy AL6, GEN8, TM2, WC2
- Smith, Karen M AL6, GEN8, TM2, WC2
- Smith, Karl AL6, GEN8, TM2, WC2
- Smith, Kelly AL6, GEN8, TM2, WC2
- Smith, Kerry AL6, GEN8, TM2, WC2
- Smith, Linda AL6, GEN8, TM2, WC2
- Smith, Lori AL6, GEN8, TM2, WC2
- Smith, Lorna AL6, GEN8, TM2, WC2
- Smith, Lucy AL6, GEN8, TM2, WC2
- Smith, Mary AL6, GEN8, TM2, WC2
- Smith, Mary Ellen AL6, GEN8, TM2, WC2
- Smith, Michele AL2&6, GEN8, TM1&2, WC2
- Smith, Nowell AL6, GEN8, TM2, WC2
- Smith, Patricia AL6, GEN8, TM2, WC2
- Smith, Patrick AL6, GEN8, TM2&10, WC2
- Smith, Phyllis AL6, GEN8, TM2, WC2
- Smith, Rhiannon AL6, GEN8, TM2, WC2
- Smith, Rikki GEN6
- Smith, Rob AL6, GEN11, RR1, TM1&2, WC2
- Smith, Robert AL6, GEN8, TM2, WC2
- Smith, Ron AL6, GEN8, TM2, WC2
- Smith, Rosemary AL2&6, GEN8, TM1&2, WC2
- Smith, S AL6, GEN8, TM2, WC2
- Smith, Sharon AL6, GEN8, TM2, WC2
- Smith, Stephen AL6, GEN8, TM2, WC2
- Smith, Suzanne AL6, GEN8, TM2, WC2
- Smith, Teresa AL6, GEN8, TM2, WC2
- Smith, Thad K AL1, GEN13&16, RR27, TM3
- Smith, Tim AL6, GEN8, TM2, WC2
- Smith, William J AL6, GEN8, TM2, WC2
- Smith-Hansgen, Sharon AL6, GEN8, TM2, WC2
- Smithies, Sally AL6, GEN8, TM2, WC2
- Smoak, Copley AL2&6, GEN8, TM1&2, WC2
- Smoke, Henry AL6, GEN8, TM2, WC2
- Smolev, Jyllian AL6, GEN8, TM2, WC2
- Smolinski, Barbara AL6, GEN8, TM2, WC2
- Smolinsky, Gerald AL6, GEN8, TM2, WC2
- Smoyer, Charles AL6, GEN8, TM2, WC2
- Snead, Phyllis AL2, TM1
- Sneed, Bob TM10
- Snider, Ronda AL6, GEN8, TM2, WC2
- Snipes, Jeff AL6, GEN8, TM2, WC2
- Snively, Chris AL6, GEN8, TM2, WC2
- Snoonian, Collette AL6, GEN8, TM2, WC2
- Snow, Edward AL6, GEN8, TM2, WC2
- Snowden, Patricia AL2&6, GEN8, TM1&2, WC2
- Snyder, Jessica AL6, GEN8, TM2, WC2
- Snyder, Jill AL6, GEN8, TM2, WC2

- Snyder, John A AL1, GEN5&18, SO1, TM7
 Snyder, Linda AL6, GEN8, TM2, WC2
 Snyder, Steve AL6, GEN8, TM2, WC2
 Snyder, William AL6, GEN8, TM2, WC2
 Sobanski, Sandy AL6, GEN8, TM2, WC2
 Sobel, Scott AL2&6, GEN8, TM1&2, WC2
 Sobkowiak, Michael AL6, GEN8, TM2, WC2
 Sody, Jerald AL6, GEN8, TM2, WC2
 Sohn, Jeremy AL6, GEN8, TM2, WC2
 Sohn, Michele AL6, GEN8, TM2, WC2
 Soiferman, Layah AL6, GEN8, TM2, WC2
 Sokol, Marianna AL6, GEN8, TM2, WC2
 Sokolow, Fred AL6, GEN8, TM2, WC2
 Soles, Ellen AL6, GEN8, TM2, WC2
 Soling, Chester P TM1
 Solley, James AL6, GEN8, TM2, WC2
 Solomon, Harlan AL6, GEN8, TM2, WC2
 Solvang, Mark AL6, GEN8, TM2, WC2
 Somalwar, Sunil AL6, GEN8, TM2, WC2
 Sommer, Catherine AL6, GEN8, TM2, WC2
 Sommer, Dobby AL6, GEN8, TM2, WC2
 Sommer, Timmi AL6, GEN8, TM2, WC2
 Sones, Steve AL6, GEN8, TM2, WC2
 Sonne, Liana AL6, GEN8, TM2, WC2
 Sonoquie, Mo AL6, GEN8, TM2, WC2
 Soper, Anita AL6, GEN8, TM2, WC2
 Soper, Lon AL6, GEN8, TM2, WC2
 Sorensen, David AL6, GEN8, TM2, WC2
 Sorenson, Norita GM2, RR1, TM3
 Soriel, B AL6, GEN8, TM2, WC2
 Sorill, Debbie AL1, GEN13&16, RR27, TM3
 Soroka, Cynthia AL2, TM1
 Soroka, George AL2, TM1
 Sorrell, Karen AL6, GEN8, TM2, WC2
 Sosa, Daniel AL6, GEN8, TM2, WC2
 Soskolne, Lise AL6, GEN8, TM2, WC2
 Sotire, Robin AL6, GEN8, TM2, WC2
 Souten, Susan TM10
 Souza, Frank AL2, TM1
 Sowle, Brian AL6, GEN11, RR1, TM1-2, WC2
 Soyama, Takuji AL6, GEN8, TM2, WC2
 Soyez, Janice AL6, GEN8, TM2, WC2
 Soza, Valerie AL6, GEN8, TM2, WC2
 Spadazzi, Frank AL6, GEN8, TM2, WC2
 Spalding, Esperanza AL6, GEN8, TM2, WC2
 Spangenberg, William AL6, GEN8, TM2, WC2
 Spangle, Jack GEN11, LR7, RR21, TM3, WF10
 Spangler, Jason AL6, GEN8, TM2, WC2
 Sparrow, Deb AL6, GEN11, RR1, TM1&2, WC2
 Spath, Kevin AL6, GEN8, TM2, WC2
 Spayne, Nikolas AL6, GEN8, TM2, WC2
 Spayts, R AL1 & 6, GEN8, SO1, TM2, WC2
 Spearman, Mary A AL6, GEN8, TM2, WC2
 Spears, Jonathan AL2, TM1
 Specht, Chris AL6, GEN8, TM2, WC2
 Spencer, Carol AL6, GEN8, TM2, WC2
 Spencer, Judith AL6, GEN8, TM2, WC2
 Spencer, Patrick AL6, GEN8, TM2, WC2
 Spencer, Thom AL6, GEN8, TM2, WC2
 Spendlove, Dixon AL1, GEN13&16, RR27, TM3
 Spendlove, Launa AL1, GEN13&16, RR27, TM3
 Spendlove, Todd AL1, GEN13&16, RR27, TM3
 Spendlove, Waldo AL1, GEN13&16, RR27, TM3
 Speranza, Marianne AL6, GEN8, TM2, WC2
 Sperling, Linda AL6, GEN8, TM2, WC2
 Sperry, Paul AL6, GEN8, TM2, WC2
 Spevak, Edward AL6, GEN8, TM2, WC2
 Spickler, Julie AL6, GEN8, TM2, WC2
 Spieler, Dave AL6, GEN8, TM2, WC2
 Spielman, Eric AL6, GEN8, TM2, WC2
 Spielvogel, Barry AL6, GEN8, TM2, WC2
 Spindler, Susan AL6, GEN8, TM2, WC2
 Spinney, Jane AL6, GEN8, TM2, WC2
 Spitler, Dusty AL6, GEN8, TM2, WC2
 Spokony, Irving AL2, TM1
 Sponza, Kayla AL6, GEN8, TM2, WC2
 Spoor, Dale AL6, GEN8, TM2, WC2
 Sporleder, Sue AL6, GEN8, TM2, WC2
 Spotts, Carleton AL6, GEN8, TM2, WC2
 Spradling, Richard AL6, GEN8, TM2, WC2
 Spreadborough, Allison AL6, GEN8, TM2, WC2
 Spreitler, James AL6, GEN8, TM2, WC2
 Springer, Judith AL6, GEN8, TM2, WC2
 Springfield-Verna, Karen AL6, GEN8, TM2, WC2
 Sprinkle, AL1, GEN13&16, RR27, TM3
 Sprinz, Steven TM10
 Sprycha, Ronald AL6, GEN8, TM2, WC2
 Squire, Julie AL6, GEN8, TM2, WC2
 Squires, Emma AL6, GEN8, TM2, WC2
 Srail, Kris AL6, GEN8, TM2, WC2
 St Djacz, Nikkolas AL6, GEN8, TM2, WC2
 St John, James AL6, GEN8, TM2, WC2
 St Pierre, Leslie AL6, GEN8, TM2, WC2
 Staab, Wayne GEN6, GM2, RR10, TM3, WC2
 Staats, Sarah AL6, GEN8, TM2, WC2
 Staatz, Elliot AL6, GEN8, TM2, WC2
 Stabiner, Elyse AL6, GEN8, TM2, WC2
 Stackman, Marshall AL6, GEN8, TM2, WC2
 Stacks, Michele AL2, TM1
 Stacy, Deborah AL6, GEN8, TM2, WC2
 Stadelmann, Anja AL6, GEN8, TM2, WC2
 Stadnik, George AL6, GEN8, TM2, WC2
 Stafford, Brooksby AL1, GEN5&18, SO1, TM7
 Stafford, Deborah AL6, GEN8, TM2, WC2
 Stafford, Gregory M TM10
 Stagliano, Bridgett AL6, GEN8, TM2, WC2
 Stagner, J L AL6, GEN8, TM2, WC2
 Stahelin, Sarah AL6, GEN8, TM2, WC2
 Stahl, Charlotte AL6, GEN8, TM2, WC2
 Stahl, Maria AL6, GEN8, TM2, WC2
 Stair, Judith AL6, GEN8, TM2, WC2
 Stalker, Susan AL6, GEN8, TM2, WC2
 Stallard, Carolyn AL6, GEN8, TM2, WC2
 Stallard, Constance AL6, GEN8, TM2, WC2
 Stallings, David AL6, GEN8, TM2, WC2
 Stalworth, Wayne AL6, GEN8, TM2, WC2
 Stambaugh, Paula AL6, GEN8, TM2, WC2
 Stambaugh, Ruth AL6, GEN8, TM2, WC2
 Stamm, Marvin AL6, GEN8, TM2, WC2
 Stamp, Barbara AL6, GEN8, TM2, WC2
 Standhardt, Patrick AL6, GEN8, TM2, WC2
 Standhart, Gary TM10
 Standridge, Marsha AL6, GEN8, TM2, WC2
 Stanford, Lynne AL6, GEN8, TM2, WC2
 Stanford, Susan AL6, GEN8, TM2, WC2
 Stanko, Bonnie AL6, GEN8, TM2, WC2
 Stansfield, Jack AL6, GEN8, TM2, WC2
 Stansfield, Lesley AL6, GEN8, TM2, WC2
 Stantejsky, Susan AL6, GEN8, TM2, WC2
 Stanton, Lisa AL6, GEN8, TM2, WC2
 Stanton, Staci AL6, GEN8, TM2, WC2
 Stanton, Sue AL6, GEN8, TM2, WC2
 Stanzione, Dawn AL6, GEN8, TM2, WC2
 Stapelberg, Thomas AL6, GEN8, TM2, WC2
 Stapleford, Alessandra AL6, GEN8, TM2, WC2
 Staples, Laura AL6, GEN8, TM2, WC2
 Stark, Claudia AL6, GEN8, TM2, WC2
 Stark, Johnnie AL6, GEN8, TM2, WC2
 Stark, Monica AL6, GEN8, TM2, WC2
 Stark, Robert AL2, TM1
 Stark, Thomas AL6, GEN8, TM2, WC2
 Starlin, Steven AL1, GEN13&16, RR27, TM3
 Start, Jeremy AL6, GEN8, TM2, WC2
 Start, Sherwin AL6, GEN8, TM2, WC2
 Starwynn, Darren AL6, GEN8, MI1, TM2, WC1-2
 Statman, Paul AL6, GEN8, TM2, WC2
 Stauber, Beth AL2, TM1
 Stayton, Lori AL6, GEN8, TM2, WC2
 Steck, Ernie AL6, GEN8, TM2, WC2
 Steele, Charlotte AL6, GEN8, TM2, WC2
 Steele, Delores AL6, GEN8, TM2, WC2
 Steele, Donna AL6, GEN8, TM2, WC2
 Steele, Kathleen AL6, GEN8, TM2, WC2
 Steele, Mary AL6, GEN8, TM2, WC2
 Steele, Suzanne AL6, GEN8, TM2, WC2
 Steensma, Monica AL6, GEN8, TM2, WC2
 Stefano, Courtney AL6, GEN8, TM2, WC2
 Steffek, K A AL6, GEN8, TM2, WC2
 Steffen, Barbara GEN6
 Steffen, Gene AL6, GEN8, TM2, WC2
 Steffes, Wayne AL2&6, GEN8, TM1-2, WC2
 Steffy, Susan AL6, GEN8, TM2, WC2
 Stehlik, Richard AL6, GEN8, TM2, WC2
 Stehmeier, Richard TM10
 Stein, Howard AL6, GEN8, TM2, WC2
 Stein, Paul AL2, TM1
 Steinberger, Joseph AL6, GEN8, TM2, WC2
 Steiner, John AL6, GEN8, TM2, WC2
 Steiner, Warren AL6, GEN8, TM2, WC2
 Steinert, Steven P GM2, TM1, VM6, WC2, WF4&7
 Steinhaus, Joanie AL6, GEN8, TM2, WC2

Steinman, Jesse AL6, GEN8, TM2, WC2
 Steitz, Martin AL6, GEN8, TM2, WC2
 Stellner, Richard AL6, GEN8, TM2, WC2
 Stenbjorn, Paul AL2, TM1
 Stennett, Barry AL6, GEN8, TM2, WC2
 Stepanski, Dusty AL2&6, GEN8, TM1-2, WC2
 Stepchin, Lorraine AL6, GEN8, TM2, WC2
 Stephen, Ashley AL6, GEN8, TM2, WC2
 Stephenson, Cindy TM3
 Stephenson, Jonathan AL2&6, GEN8, TM1-2, WC2
 Stephenson, Michael R AL1, GEN5&18, SO1, TM7
 Stephenson, Shirley AL6, GEN8, TM2, WC2
 Sterling, Denise AL6, GEN8, TM2, WC2
 Sterling, Margaret AL6, GEN8, TM2, WC2
 Stern, Linda AL6, GEN8, TM2, WC2
 Stern, Philip AL6, GEN8, TM2, WC2
 Stern, Rachael AL6, GEN8, TM2, WC2
 Stern, Robert AL6, GEN8, TM2, WC2
 Sterrenberg, Susan AL6, GEN8, TM2, WC2
 Steuter, Don AL2 & 6, GEN7, GM2, MI1, SD1-2, TM1
 Stevens, Daphne T AL6, GEN8, TM2, WC2
 Stevens, Jan AL6, GEN8, TM2, WC2
 Stevens, L A AL6, GEN8, TM2, WC2
 Stevens, Mitch AL6, GEN8, TM2, WC2
 Stevens, Russell AL2, TM1
 Stevens, Wendell AL6, GEN8, TM2, WC2
 Stevenson Jr, Bill TM10
 Stevenson, Nan AL6, GEN8, TM2, WC2
 Stevenson, Philip AL6, GEN8, TM2, WC2
 Stewart, B AL6, GEN8, TM2, WC2
 Stewart, Edward AL6, GEN8, TM2, WC2
 Stewart, Geraldine AL6, GEN8, TM2, WC2
 Stewart, Glenn R AL6, GEN8, TM2, WC2
 Stewart, Harry AL1, GEN13&16, RR27, TM3
 Stewart, Joretta AL1, GEN13&16, RR27, TM3
 Stewart, Keith AL1, GEN13&16, RR27, TM3
 Stewart, Richard AL6, GEN8, TM2, WC2
 Stewart, Ron T AL1, GEN5&18, SO1, TM7
 Stewart, Sally AL6, GEN8, TM2, WC2
 Stewart, Sharon AL6, GEN8, TM2, WC2
 Stewart, Steven AL6, GEN8, TM2, WC2
 Stewart, Thad C AL1, GEN5&18, SO1, TM7
 Stiegleiter, Stacy AL6, GEN8, TM2, WC2
 Stien, Paul AL6, GEN8, TM2, WC2
 Stika, Ronda L RR21
 Still, Holly AL6, GEN8, TM2, WC2
 Stinchcomb, Elizabeth AL6, GEN8, TM2, WC2
 Stinson, June AL6, GEN8, TM2, WC2
 Stirrup, Mary AL6, GEN8, TM2, WC2
 Stitzer, Alison L AL6, GEN8, TM2, WC2
 Stoek, Sandra AL6, GEN8, TM2, WC2
 Stocki, Jeff AL6, GEN8, TM2, WC2
 Stockinger, Jeff TM10
 Stockman, Jerald AL6, GEN8, TM2, WC2
 Stocks, Jackie AL6, GEN8, TM2, WC2
 Stoddard, Wade AL6, GEN8, TM2, WC2
 Stoehr, Craig AL6, GEN8, TM2, WC2
 Stoessell, Ronald AL6, GEN8, TM2, WC2
 Stokes, Bill AL6, GEN8, TM2, WC2
 Stokes, Donald AL6, GEN8, TM2, WC2
 Stoller, Amy AL6, GEN8, TM2, WC2
 Stoltenberg, John AL6, GEN8, TM2, WC2
 Stone, Angela AL6, GEN8, TM2, WC2
 Stone, Barbara Lundy AL6, GEN8, TM2, WC2
 Stone, Debra AL6, GEN8, TM2, WC2
 Stone, George T AL6, GEN8, TM2, WC2
 Stone, S Lee TM1
 Stone, William AL6, GEN8, TM2, WC2
 Stonebraker, Debra AL6, GEN8, TM2, WC2
 Stoner, Janet AL6, GEN8, TM2, WC2
 Storer, Susan AL6, GEN8, TM2, WC2
 Stosik-Moers, Ewa AL6, GEN8, TM2, WC2
 Stouder, Matt AL6, GEN8, TM2, WC2
 Stout, Jarolyn B & Collin AL4&6, CL2, GEN11&16, GM1-2, LR1, MI1, SD5, TE5, TM12, VM4&7, WS6
 Stout, Shari AL5
 Stout, Thomas AL5
 Stout, Walt TM10
 Stowe, Joyce AL6, GEN8, TM2, WC2
 Stowell, Richard AL6, GEN8, TM2, WC2
 Stpeter, Susan AL6, GEN8, TM2, WC2
 Strader, Dow AL2 & 6, GEN8, TM1-2, WC2
 Stradtman, George AL6, GEN8, TM2, WC2
 Strahlendorf, H K AL6, GEN8, TM2, WC2
 Strain, Mary AL6, GEN8, TM2, WC2
 Strait, Jamie AL6, GEN8, TM2, WC2
 Straley, Ken AL6, GEN8, TM2, WC2
 Stram, Veda AL2, TM1
 Strand, Melvin AL6, GEN8, TM2, WC2
 Strand, Nancy AL6, GEN8, TM2, WC2
 Strange, Elizabeth AL6, GEN8, TM2, WC2
 Stranger, Peter AL6, GEN8, TM2, WC2
 Strangstad, Lyn AL6, GEN8, TM2, WC2
 Strasser, Mark GEN6 & 8, SD2, TM1&3
 Strassner, Joe AL6, GEN8, TM2, WC2
 Stratford, S J AL6, GEN8, TM2, WC2
 Stratton, Terri AL6, GEN8, TM2, WC2
 Straus, Susan AL6, GEN8, TM2, WC2
 Strauss, Mark AL6, GEN8, TM2, WC2
 Strausser, Marie Louise AL6, GEN8, TM2, WC2
 Strawder-Bubala, Jill AL6, GEN8, TM2, WC2
 Strebeck, James AL6, GEN8, TM2, WC2
 Strebeck, Robert AL2&6, GEN8, TM1-2, WC2
 Streed, Jeff AL6, GEN8, TM2, WC2
 Street, Mark AL6, GEN8, TM2, WC2
 Streeter, Marjorie AL6, GEN8, TM2, WC2
 Stribling, Barbara AL6, GEN8, TM2, WC2
 Strickler, John AL6, GEN8, TM2, WC2
 Striegel, Chris AL6, GEN8, TM2, WC2
 Stringham, Frank TM10
 Strobel, Jeanine AL6, GEN8, TM2, WC2
 Strom, Carmi AL6, GEN8, TM2, WC2
 Strom, Rosemary AL6, GEN8, TM2, WC2
 Stromberg, Susan AL6, GEN8, TM2, WC2
 Stromberg, Warren AL6, GEN8, TM2, WC2
 Strong, Ann AL6, GEN8, TM2, WC2
 Stroup, Marylyn AL6, GEN8, TM2, WC2
 Struble, Sandra AL6, GEN8, TM2, WC2
 Strum, Cathy A AL6, GEN8, TM2, WC2
 Stuart, Julie AL6, GEN8, TM2, WC2
 Stuart, Michael AL6, GEN8, TM2, WC2
 Stubblefield, Adrian AL2, TM1
 Stubbs, Peggy AL2, TM1
 Stufflebeam, Judy AL2&6, GEN8, TM1&2, WC2
 Stulken, Vern AL6, GEN8, TM2, WC2
 Stull, Rita AL6, GEN8, TM2, WC2
 Stump, Robert AL6, GEN8, TM2, WC2
 Stumpp, Jesse AL6, GEN8, TM2, WC2
 Stupel, Sonja AL6, GEN8, TM2, WC2
 Sturtevant, Doreen AL6, GEN8, TM2, WC2
 Styron, Clara AL2
 Suarez, Moraima AL6, GEN8, TM2, WC2
 Sucidlo, B AL6, GEN8, TM2, WC2
 Sucidlo, Nan AL6, GEN8, TM2, WC2
 Suda, Mary AL6, GEN8, TM2, WC2
 Sudderth, Philip R AL2, TM1
 Sujecki, Paul AL6, GEN8, TM2, WC2
 Sulak, Dustin AL6, GEN8, TM2, WC2
 Sullivan, Brian W AL6, GEN8, TM2, WC2
 Sullivan, Diane AL6, GEN8, TM2, WC2
 Sullivan, Florence AL6, GEN8, TM2, WC2
 Sullivan, Lauren J AL6, GEN8, TM2, WC2
 Sullivan, Maggie AL6, GEN8, TM2, WC2
 Sullivan, Patricia AL6, GEN8, TM2, WC2
 Sullivan, Rob AL6, GEN8, TM2, WC2
 Sullivan, Sean AL6, GEN11, RR1, TM1-2, WC2
 Sullivan, Virginia AL6, GEN8, TM2, WC2
 Sullivan, Florence AL2, TM1
 Summers, Jan AL6, GEN8, TM2, WC2
 Summers, Janice AL6, GEN8, TM2, WC2
 Summers, Paula AL6, GEN8, TM2, WC2
 Sumrall, Amber AL6, GEN8, TM2, WC2
 Sumrall, Daniel AL6, GEN8, TM2, WC2
 Sun, Caroline AL6, GEN8, TM2, WC2
 Sunshine, Jane AL6, GEN8, TM2, WC2
 Surfus, Shirley L GM4
 Suski, Brennan AL6, GEN8, TM2, WC2
 Sutherland, Greg AL6, GEN8, TM2, WC2
 Sutherland, John AL6, GEN8, TM2, WC2
 Sutphin, Madelaine AL6, GEN8, TM2, WC2
 Sutton, Beverly AL6, GEN8, TM2, WC2
 Sutton, Brian K AL6, GEN8, TM2, WC2
 Sutton, Constance AL6, GEN8, TM2, WC2
 Sutton, Elynn AL6, GEN8, TM2, WC2
 Sutton, Harold AL1, GEN13&16, RR27, TM3
 Suzuki, Lorraine AL6, GEN8, TM2, WC2
 Suzuki, Mika AL6, GEN8, TM2, WC2
 Svekrie, Denise AL6, GEN8, TM2, WC2
 Swailes, Jon AL6, GEN8, TM2, WC2
 Swan, H AL6, GEN8, TM2, WC2
 Swan, Linda AL6, GEN8, TM2, WC2
 Swan, R AL6, GEN8, TM2, WC2
 Swaney, James AL6, GEN11
 Swanson, Cindy AL6, GEN8, TM2, WC2
 Swanson, Jodi AL2&6, GEN8, TM1-2, WC2
 Swanson, Marla AL6, GEN8, TM2, WC2

Swanson, Robin Rae AL6, GEN8, TM2, WC2
Swanson, Scott AL6, GEN8, TM2, WC2
Swanson, Terry B AL6, GEN8, TM2, WC2
Swapp, Bain AL1, GEN13 & 16, RR27, TM3
Swapp, Hattie AL1, GEN13&16, RR27, TM3
Swartwout, Dave TM10
Swartz, Cora M AL6, GEN8, TM2, WC2
Swartz, Lizeth AL2&6, GEN8, TM1&2, WC2
Swartz, Lloyd TM13
Swayze, Sandra AL2, TM1
Swearingen, Roberta AL6, GEN8, TM2, WC2
Sweat, Ken G AL6, GEN11, RR1, TM1-2, WC2
Sweel, Greg AL2, TM1
Sweeney, Ellen AL6, GEN8, TM1&2, WC2
Sweeney, Kathy AL6, GEN8, TM2, WC2
Sweet, Eddy AL6, GEN8, TM2, WC2
Sweet, Shelly AL6, GEN8, TM2, WC2
Swensen, Jonni AL6, GEN8, TM2, WC2
Swenson, Keith AL6, GEN8, TM2, WC2
Swenson, Lila AL6, GEN8, TM2, WC2
Swick, Kelli AL6, GEN8, TM2, WC2
Swigart, Anne AL6, GEN8, TM2, WC2
Swigert, Sheila AL2&6, GEN8, TM1-2, WC2
Swim, Rich AL6, GEN8, TM2, WC2
Swinehart, Wretha AL6, GEN8, TM2, WC2
Swinney, Douglas AL6, GEN8, TM2, WC2
Swolak, Peter AL6, GEN8, TM2, WC2
Swope, Tracy AL6, GEN8, TM2, WC2
Sword, Marie Isbrandt AL6, GEN8, TM2, WC2
Sygman, Wayne AL6, GEN8, TM2, WC2
Symes, Darcy Bell AL2, TM1
Sysum, Shirley AL6, GEN8, TM2, WC2
Szabo, Frank AL6, GEN8, TM2, WC2
Szczechkiewicz, Andrea AL6, GEN8, TM2, WC2
Szendroi, Annamaria AL6, GEN8, TM2, WC2
Szigeti, Cynthia AL6, GEN8, TM2, WC2
Szymanowski, Paul AL6, GEN8, TM2, WC2
Szymanski, Deb AL6, GEN8, TM2, WC2
Taaffe, Michael AL6, GEN8, TM2, WC2
Tabb, Roger AL6, GEN8, TM2, WC2
Tadder, Mark AL6, GEN8, TM2, WC2
Taft, Sarah AL6, GEN8, TM2, WC2
Tafulri, Peter AL6, GEN8, TM2, WC2
Tagg, Stephanie AL6, GEN8, TM2, WC2
Taira, Caron Allen AL6, GEN8, TM2, WC2
Tait, Brandon AL1, GEN13&16, RR27, TM3
Tait, Vern AL1, GEN13 & 16, RR27, TM3
Takatsch, Julie AL6, GEN8, TM2, WC2
Takelal, Grace AL6, GEN8, TM2, WC2
Takesian, Paul AL6, GEN8, TM2, WC2
Talarico, Jennifer AL6, GEN8, TM2, WC2
Talbot, Jerold D AL1, GEN5&18, SO1, TM7
Talbot, Kay L AL1, GEN5&18, SO1, TM7
Talbot, Terry AL6, GEN8, TM2, WC2
Talhouni, Kareem AL6, GEN8, TM2, WC2
Tallarico, Nancy AL1, GEN13&16, RR27, TM3
Tallmadge, Mike AL6, GEN8, TM2, WC2
Tambellini, Minda AL6, GEN8, TM2, WC2
Tamborlane, Alison AL6, GEN8, TM2, WC2
Tamburino, Jerry AL6, GEN8, TM2, WC2
Tan, Frances AL6, GEN8, TM2, WC2
Tanke, John AL6, GEN8, TM2, WC2
Tanner, Lauri AL6, GEN8, TM2, WC2
Tante, Carole AL2 & 6, GEN8, TM1-2, WC2
Tao, Kazuko AL6, GEN8, TM2, WC2
Taormina, Talma AL6, GEN8, TM2, WC2
Tappan, Deborah AL6, GEN8, TM2, WC2
Tarajkowski, Lila AL6, GEN8, TM2, WC2
Taranowski, Heath Ashli AL6, GEN8, TM2, WC2
Tardiff, Sandra AL6, GEN8, TM2, WC2
Tarletz, Dwayne AL2, TM1
Tart, Judy AL6, GEN8, TM2, WC2
Tashjian, Bidu AL6, GEN8, TM2, WC2
Tasoff, Jack AL2 & 6, GEN8, TM1&2, WC2
Tate, Pamela AL6, GEN8, TM2, WC2
Tattershall, Mike AL6, GEN8, TM2, WC2
Tatum, Ebecca AL2, TM1
Tatum, Elizabeth AL6, GEN8, TM2, WC2
Tatum, Nadine AL2, TM1
Taulman, Janine AL6, GEN8, TM2, WC2
Tauscheck, Steve AL6, GEN8, TM2, WC2
Tautkus, Stephanie AL6, GEN8, TM2, WC2
Tawa, Brigitte AL2&6, GEN8, TM1&2, WC2
Taylor, Debbie AL6, GEN8, TM2, WC2
Taylor, Diane AL6, GEN8, TM2, WC2
Taylor, F AL6, GEN8, TM2, WC2
Taylor, Grover AL6, GEN8, TM2, WC2
Taylor, Howard AL6, GEN8, TM2, WC2
Taylor, Jennifer AL6, GEN8, TM2, WC2
Taylor, Katrina AL6, GEN11, RR1, TM1&2, WC2
Taylor, Kevin TM3
Taylor, M Renee AL6, GEN8, TM2, WC2
Taylor, Marshall AL6, GEN8, TM2, WC2
Taylor, Martha AL6, GEN8, TM2, WC2
Taylor, Phil AL6, GEN8, TM2, WC2
Taylor, Scott AL6, GEN8, TM2, WC2
Taylor, Thomas AL6, GEN8, TM2, WC2
Taylor, Tim AL6, GEN8, TM2, WC2
Taylor, Tyra AL6, GEN8, TM2, WC2
Taylor, Victoria AL6, GEN8, TM2, WC2
Taylor-Kadonsky, Linda AL6, GEN8, TM2, WC2
Teach, Michael AL6, GEN8, TM2, WC2
Teachout, Candi AL6, GEN8, TM2, WC2
Teare, Dan AL6, GEN8, TM2, WC2
Teevan, John AL6, GEN8, TM2, WC2
Telepak, Robert J AL1, TM13, TM6, WC1
Telkamp, Pamela AL6, GEN8, TM2, WC2
Temple, R AL6, GEN8, TM2, WC2
Templin, Orletta AL6, GEN8, TM2, WC2
Tenenbaum, Kezia AL6, GEN8, TM2, WC2
Tennant, Lee AL6, GEN8, TM2, WC2
Teolis, Simon AL6, GEN8, TM2, WC2
Tepper, Carol TM1
Terbot, Turtle AL6, GEN8, TM2, WC2
Terradotter, Jan AL6, GEN8, TM2, WC2
Terrasi, Linda AL6, GEN8, TM2, WC2
Terrel, Billy AL1, GEN13 & 16, RR27, TM3
Terry, Derald T AL1, GEN5 & 18, SO1, TM7
Terry, Jacob D AL1, SO1
Terry, Marcia AL2, TM1
Tetrault, Leslie AL6, GEN8, TM2, WC2
Thacher, Al AL1, GEN13 & 16, RR27, TM3
Thacker, Cheryl AL6, GEN8, TM2, WC2
Tharp, Clint AL2, TM1
Thatcher, Don GEN6
Thayer, Chester AL6, GEN8, TM2, WC2
Thayer, Douglas AL6, GEN8, TM2, WC2
Thayer, Jane AL6, GEN8, TM2, WC2
Themelis, Karen AL6, GEN8, TM2, WC2
Therese, Maria AL6, GEN8, TM2, WC2
Therriault, Laurence AL6, GEN8, TM2, WC2
Thevegan, Jenny AL6, GEN8, TM2, WC2
Thickman, Karen AL6, GEN8, TM2, WC2
Thiel, Raymond AL6, GEN8, TM2, WC2
Thiele, B AL6, GEN8, TM2, WC2
Thilges, M A AL6, GEN8, TM2, WC2
Thiltgen, Steve AL6, GEN8, TM2, WC2
Tholl, J D AL6, GEN8, TM2, WC2
Thomas, Barbara A AL6, GEN8, TM2, WC2
Thomas, Benjamin AL6, GEN8, TM2, WC2
Thomas, Bob AL6, GEN8, TM2, WC2
Thomas, Charlotte AL6, GEN8, TM2, WC2
Thomas, Cheryl AL6, GEN8, TM2, WC2
Thomas, Christina AL6, GEN8, TM2, WC2
Thomas, Gary AL6, GEN8, TM2, WC2
Thomas, Georgette AL6, GEN8, TM2, WC2
Thomas, James AL6, GEN8, TM2, WC2
Thomas, Jo Ann AL6, GEN8, TM2, WC2
Thomas, Kathryn AL6, GEN8, TM2, WC2
Thomas, Kay AL6, GEN8, TM2, WC2
Thomas, Kimberley AL6, GEN8, TM2, WC2
Thomas, Linda AL6, GEN8, TM2, WC2
Thomas, Margaret AL6, GEN8, TM2, WC2
Thomas, Michelle M AL6, GEN8, TM2, WC2
Thomas, Pamala AL6, GEN8, TM2, WC2
Thomas, Randy AL6, GEN8, TM2, WC2
Thomas, Rebecca AL6, GEN8, TM2, WC2
Thomas, Rick AL6, GEN8, TM2, WC2
Thomas, Robert AL6, GEN8, TM2, WC2
Thomas, Sue AL6, GEN8, TM2, WC2
Thomas, Tracy AL6, GEN8, TM2, WC2
Thomason, Michael AL6, GEN8, TM2, WC2
Thompson, Linda AL6, GEN8, TM2, WC2
Thompsn Phd, Mark Iktomi AL6, GEN8, TM2, WC2
Thompson, Amber AL6, GEN8, TM2, WC2
Thompson, Brian AL6, GEN8, TM2, WC2
Thompson, Carol AL2&6, GEN8, TM1-2, WC2

Thompson, Caroline AL6, GEN8, TM2, WC2
Thompson, Cheryl AL6, GEN8, TM2, WC2
Thompson, Cyndi AL6, GEN8, TM2, WC2
Thompson, Dana AL6, GEN8, TM2, WC2
Thompson, David AL6, GEN8, TM2, WC2
Thompson, Diane AL6, GEN8, TM2, WC2
Thompson, Elizabeth AL6, GEN8, TM2, WC2
Thompson, Florence E AL6, GEN8, TM2, WC2
Thompson, Jerry TM10
Thompson, John AL6, GEN8, TM2, WC2
Thompson, Julie AL6, GEN8, TM2, WC2
Thompson, Karen AL6, GEN8, TM2, WC2
Thompson, Robert J TM3
Thomson, Arran AL2, TM1
Thomson, Ellen AL6, GEN8, TM2, WC2
Thomson, Wally AL1
Thorley, Doug AL6, GEN8, TM2, WC2
Thorn, Eva AL6, GEN8, TM2, WC2
Thorne, Eugene AL6, GEN8, TM2, WC2
Thornton, William C AL6, GEN8, GM3, M11, TM2, VM6, WC2, WR1
Thorpe, Kristina AL6, GEN8, TM2, WC2
Thraikill, James AL6, GEN8, TM2, WC2
Thrash, Ranny AL6, GEN8, TM2, WC2
Thrower, Alana AL6, GEN8, TM2, WC2
Thryft, Ann AL6, GEN8, TM2, WC2
Thu, Eric AL6, GEN8, TM2, WC2
Thulin, Mari M AL6, GEN8, TM2, WC2
Thum, Duncan AL6, GEN8, TM2, WC2
Thurman-Tate, Anne AL6, GEN8, TM2, WC2
Thurmond, Roberta AL2&6, GEN8, TM1-2, WC2
Turner, Clara AL6, GEN8, TM2, WC2
Tice, Janet AL6, GEN8, TM2, WC2
Tickman, Michael AL6, GEN8, TM2, WC2
Tidd, Chuck GEN6, GM2, RR21, TM3
Tidwell, Marion AL6, GEN8, TM2, WC2
Tietje, Kim AL6, GEN8, TM2, WC2
Tietzer, Daniel AL6, GEN8, TM2, WC2
Tiffany, Alexander AL6, GEN8, TM2, WC2
Tiffany, Cat AL6, GEN8, TM2, WC2
Tignanelli, Doreen AL6, GEN8, TM2, WC2
Tilbury, Karen AL6, GEN8, TM2, WC2
Tildes, Katherine AL2, TM1
Tiley, William D TM10
Tilley III, Merritt AL6, GEN8, TM2, WC2
Tilley, Kimberly AL6, GEN8, TM2, WC2
Tillman, Dana AL2, TM1
Timby, Laura AL6, GEN8, TM2, WC2
Timerman, Jules AL6, GEN8, TM2, WC2
Timko, Diane AL6, GEN8, TM2, WC2
Timmerman, Alan AL6, GEN8, TM2, WC2
Timmons, Karen AL6, GEN8, TM2, WC2
Timmons, Ryan AL1, GEN5&18, SO1, TM7
Tindall, Christine AL6, GEN8, TM2, WC2
Tindall-Gibson, Rosemary AL6, GEN8, TM2, WC2
Tindol, Lolly AL6, GEN8, TM2, WC2
Tiner, Sheila AL6, GEN8, TM2, WC2
Tingey, Elayne AL6, GEN8, TM2, WC2
Tipton, Bob AL2&6, GEN8, TM1&2, WC2
Titus, Lynnette AL6, GEN8, TM2, WC2
Tizard, Thomas AL6, GEN8, TM2, WC2
Tkatch, Susan AL6, GEN8, TM2, WC2
Tober, Theresa AL6, GEN8, TM2, WC2
Tobias, David AL6, GEN8, TM2, WC2
Tobin, Brenda AL6, GEN8, TM2, WC2
Tobin, Lori AL6, GEN8, TM2, WC2
Tobler, Dale TM3
Tobler, Phyris AL6, GEN8, TM2, WC2
Toczynski, Jim AL6, GEN8, TM2, WC2
Todaro, Tom AL6, GEN8, TM2, WC2
Todd, Christopher AL6, GEN8, TM2, WC2
Toil, Karen AL6, GEN8, TM2, WC2
Tola, Saret AL6, GEN8, TM2, WC2
Tolbert, Tonya AL6, GEN8, TM2, WC2
Tolle, Patrick AL6, GEN8, TM2, WC2
Tolliver, Barb AL6, GEN8, TM2, WC2
Tom, Mitchell AL1, GEN13&16, RR27, TM3
Tomasello, Patti AL6, GEN8, TM2, WC2
Tomlinson, Barbara AL6, GEN8, TM2, WC2
Tomlinson, Linda AL6, GEN8, TM2, WC2
Tomlinson, Michael AL2, TM1
Tompkins, Greg AL6, GEN8, TM2, WC2
Tomsky, Andy AL6, GEN8, TM2, WC2
Toner, Laurie AL6, GEN8, TM2, WC2
Toney, Kevin AL6, GEN8, TM2, WC2
Toomey, Deirdre AL6, GEN8, TM2, WC2
Toomey, Sheri AL6, GEN8, TM2, WC2
Torello, Sam AL6, GEN8, TM2, WC2
Torkelson, Laurie AL6, GEN8, TM2, WC2
Tornatore, James AL6, GEN8, TM2, WC2
Tornblom, Steve AL6, GEN8, TM2, WC2
Torrence, Paul F AL6, GEN8, TM2, WC2
Torres, Karrie AL6, GEN8, TM2, WC2
Torres, Susan AL6, GEN8, TM2, WC2
Torretta, Jeffrey AL6, GEN8, TM2, WC2
Tostenson, Kimberly AL2, TM1
Toth, Marianne AL6, GEN8, TM2, WC2
Totia, Elizabeth AL2, TM1
Toto, Michael AL6, GEN8, TM2, WC2
Tower, Steven AL6, GEN8, TM2, WC2
Towers, Terryann AL2, TM1
Towle, Kenneth AL2, TM1
Towles, Lee AL6, GEN8, TM2, WC2
Towne, Kimberly AL2, TM1
Townsend, Cherie AL6, GEN8, TM2, WC2
Townsend, Patricia AL6, GEN8, TM2, WC2
Townsend, Sara AL6, GEN8, TM2, WC2
Toycen, Robert AL6, GEN8, TM2, WC2
Tracy, Meghan AL6, GEN8, TM2, WC2
Tran, Thu Ha AL6, GEN8, TM2, WC2
Trapp, Gene R AL2&6, GEN8, TM1&2, WC2
Trapp, Jeff AL6, GEN8, TM2, WC2
Trapp, Jennifer AL6, GEN8, TM2, WC2
Traube, Brett GEN6
Traugott, Judith A AL2, TE3, TM1&2, WC2
Travaille, Connie AL6, GEN8, TM2, WC2
Traynor-Kaplan, Alexis AL6, GEN8, TM2, WC2
Trefry, Kathleen AL6, GEN8, TM2, WC2
Tremaine, Katie AL6, GEN8, TM2, WC2
Tremblay, Marcel TM10
Tremblay, Nancy AL6, GEN8, TM2, WC2
Trembly, Dennis AL6, GEN8, TM2, WC2
Trent, Juanita AL6, GEN8, TM2, WC2
Trent, Mason AL6, GEN8, TM2, WC2
Trepes, Karen AL2, TM1
Trieloff, Donn AL6, GEN8, TM2, WC2
Trigg, George L AL6, GEN8, TM2, WC2
Trimarco, Joseph AL6, GEN8, TM2, WC2
Trinkner, Clarence AL6, GEN8, TM2, WC2
Triplett, Tia AL2, TM1
Tripp, Lee AL6, GEN8, TM2, WC2
Troberman, Eileen AL6, GEN8, TM2, WC2
Troeh, Arnold AL6, GEN8, TM2, WC2
Troglin, Tammy AL6, GEN8, TM2, WC2
Troland, Mary AL6, GEN8, TM2, WC2
Tropp, Carolyn AL6, GEN8, TM2, WC2
Troup, Scott AL6, GEN8, TM2, WC2
Trowbridge, Robbie AL6, GEN8, TM2, WC2
Troy, Scott AL6, GEN8, TM2, WC2
Truax, Wayne AL6, GEN8, TM2, WC2
Trubow, Geoff AL6, GEN8, TM2, WC2
Trudeau, Christine AL6, GEN8, TM2, WC2
Trudeau, Joe AL6, GEN11, RR1, TM1&2, WC2
True, Mary AL6, GEN8, TM2, WC2
Truesdale, Cj AL6, GEN8, TM2, WC2
Trufan, Hal AL2 & 6, GEN8, TM1&2, WC2
Trump, Richard AL6, GEN8, TM2, WC2
Trunk, Joseph AL6, GEN8, TM2, WC2
Truschel, Ann-Louise AL6, GEN8, RR1, TM2, WC2
Truxel, Bess AL2&6, GEN8, TM1&2, WC2
Tsang, Sauwah AL6, GEN8, TM2, WC2
Tsu, Rachel AL6, GEN8, TM2, WC2
Tuason, Ronald AL2&6, GEN8, TM1-2, WC2
Tubman, Jeff AL6, GEN8, TM2, WC2
Tucker, Barbara AL6, GEN8, TM2, WC2
Tucker, Clare AL6, GEN8, TM2, WC2
Tucker, Debbie AL1, GEN5&18, SO1, TM7
Tucker, Greg AL6, GEN8, TM2, WC2
Tucker, Heather AL6, GEN8, TM2, WC2
Tucker, Madeline AL6, GEN8, TM2, WC2
Tucker, Meredith AL6, GEN8, TM2, WC2
Tucker, Robert TM1
Tucker, Thomas AL6, GEN8, TM2, WC2
Tucker, Veronica AL6, GEN8, TM2, WC2
Tuckman, Roy AL6, GEN8, TM2, WC2
Tudisco, Steve AL6, GEN8, TM2, WC2
Tuff, Dianne AL6, GEN8, TM2, WC2
Tuley, Trish AL6, GEN8, TM2, WC2
Tullo, William AL6, GEN8, TM2, WC2
Turano, Marie AL2, TM1
Turco, Vicki AL6, GEN8, TM2, WC2
Turek, Stephen AL6, GEN8, TM2, WC2
Turley, Lynda AL6, GEN8, TM2, WC2
Turman, Donna AL6, GEN8, TM2, WC2
Turman, Kyle J AL1, GEN13&16, RR27, TM3
Turner, Irene AL6, GEN8, TM2, WC2
Turner, Jeffrey AL6, GEN8, TM2, WC2
Turner, Kathleen KAL6, GEN8, TM2, WC2

- Turner, Kim AL6, GEN8, TM2, WC2
 Turner, Nannette AL1, GEN13&16, RR27, TM3
 Turnoy, David AL6, GEN8, TM2, WC2
 Turnquist, Martha AL6, GEN8, TM2, WC2
 Turpie, William TM10
 Tuttle Jr, Frederick AL6, GEN8, TM2, WC2
 Tuttle, Don AL6, GEN8, TM2, WC2
 Tweedale, Katherine AL2, TM1
 Twerdochlib, Orysia AL6, GEN8, TM2, WC2
 Twillman, Richard AL6, GEN8, TM2, WC2
 Twomey, Jay AL6, GEN8, TM2, WC2
 Tyers, Randall AL6, GEN8, TM2, WC2
 Tyler, Jess TM10
 Tyler, John AL6, GEN8, TM2, WC2
 Tyler, Laura AL6, GEN8, TM2, WC2
 Tyler, Steve AL6, GEN8, TM2, WC2
 Tyo, Stephanie AL6, GEN8, TM2, WC2
 Ubsdell, Kenneth AL6, GEN8, TM2, WC2
 Uelman, Neil AL6, GEN8, TM2, WC2
 Ugolik, Lori AL6, GEN8, TM2, WC2
 Ulan, Steve AL6, GEN8, TM2, WC2
 Ulmer, Gene AL6, GEN8, TM2, WC2
 Ulrey, Timothy AL6, GEN8, TM2, WC2
 Ulrich, Maggie AL6, GEN8, TM2, WC2
 Ulrich, Pamela AL6, GEN8, TM2, WC2
 Umile, Marc AL6, GEN8, TM2, WC2
 Underhill, Lowell AL6, GEN8, TM2, WC2
 Underwood, Kristin AL6, GEN8, TM2, WC2
 Underwood, William AL6, GEN8, TM2, WC2
 Ungar, Elizabeth AL6, GEN8, TM2, WC2
 Unger, Pamela M AL6, GEN8, TM2, WC2
 Unger, Tom TM10, WC2
 Unknown, AL1 & 4, GEN6, 13, & 16, GEN6, RR27, SO1, TM3 & 14
 Unknown, A AL1, SO1
 Unmacht, Jim AL5, GEN3 & 14, RR4, SD4, TM7, VM1, VR1, WC1
 Upchurch, Michelle AL6, GEN8, TM2, WC2
 Updike, Kelley AL2, TM1
 Uptain, Douglas AL6, GEN8, TM2, WC2
 Urban, Donna AL6, GEN8, TM2, WC2
 Urban, Paul AL6, GEN8, RR17, TM2&8, WC2
 Uribe, Sandra AL6, GEN8, TM2, WC2
 Urist, Daniel AL6, GEN8, TM2, WC2
 Usher, Kristin AL6, GEN8, TM2, WC2
 Vaaler, Jim GEN6, TM1, WC2
 Vaca, Susan AL6, GEN8, TM2, WC2
 Vacadez, Wayne A AL1
 Vaccaro, Gianna AL6, GEN8, TM2, WC2
 Vaj, Marcy AL6, GEN8, TM2, WC2
 Vajames, Carol AL6, GEN8, TM2, WC2
 Vakirtzis Konz, Katherine AL6, GEN8, TM2, WC2
 Valdez, Anne AL6, GEN8, TM2, WC2
 Valdez, Ariela AL6, GEN8, TM2, WC2
 Valdmane, Anita AL6, GEN8, TM2, WC2
 Valencia, Albert AL6, GEN8, TM2, WC2
 Valencia, Joshua AL6, GEN8, TM2, WC2
 Valentine, Joan AL6, GEN8, TM2, WC2
 Valentine, Lucius AL6, GEN8, TM2, WC2
 Valladares, Rene AL6, GEN8, TM2, WC2
 Vallone, Cheryl AL6, GEN8, TM2, WC2
 Valtri, Vivian AL6, GEN8, TM2, WC2
 Van Aken, Richard AL6, GEN8, TM2, WC2
 Van Davis, Barbara AL6, GEN8, TM2, WC2
 Van Davis, Jeffrey AL6, GEN8, TM2, WC2
 Van Der Meer, Valerie AL6, GEN8, TM2, WC2
 Van Der Voort, Suzanna AL2, TM1
 Van Dim, Russell AL1, GEN13&16, RR27, TM3
 Van Duren, Barbara AL6, GEN8, TM2, WC2
 Van Dusen, Sara AL6, GEN8, TM2, WC2
 Van Etveldt, Deborah AL6, GEN8, TM2, WC2
 Van Gundy, Dean AL6, GEN8, TM2, WC2
 Van Horn, Bill TM10
 Van Leunen, Alice AL2, TM1
 Van Manen, Dave AL6, GEN8, TM2, WC2
 Van Noord, Joel AL6, GEN8, TM2, WC2
 Van Zandt, Elizabeth AL6, GEN8, TM2, WC2
 Van Zee, Drew AL6, GEN8, TM2, WC2
 Vance, Paul AL6, GEN8, TM2, WC2
 Vanderbeek, Fred AL6, GEN8, TM2, WC2
 Vanderleelie, Roy AL6, GEN8, TM2, WC2
 Vandermast, David AL6, GEN8, TM2, WC2
 Vandermay, Lisa AL6, GEN8, TM2, WC2
 Vanderpool, Reba AL2, TM1
 Vandiver, Diane AL6, GEN8, TM2, WC2
 Vandiver, Steven M TM10
 Vanegeren, Laurie AL6, GEN8, TM2, WC2
 Vanek, Denis W AL6, GEN8, TM2, WC2
 Vangi, Eva AL6, GEN8, TM2, WC2
 Vangiessen, Pamela AL6, GEN8, TM2, WC2
 Vanicsek, Shirley AL1, GEN13&16, RR27, TM3
 Vann, Jim AL1, GEN13&16, RR27, SD2, TM3
 Vann, Katie AL2, TM1
 Vannice, Michael AL6, GEN8, TM2, WC2
 Vannier, Lyle AL6, GEN8, TM2, WC2
 Varga, John AL6, GEN8, TM2, WC2
 Varga, Norma AL6, GEN8, TM2, WC2
 Varian, Melissa AL6, GEN8, TM2, WC2
 Varner, Alex AL6, GEN8, TM2, WC2
 Varner-Munt, Sheri AL6, GEN8, TM2, WC2
 Varvas, Jason AL6, GEN8, TM2, WC2
 Vasquez, Leah AL6, GEN8, TM2, WC2
 Vasquez, Suzanna AL6, GEN8, TM2, WC2
 Vassilakidis, Marie Sophia AL6, GEN8, TM2, WC2
 Vassilakidis, Pat AL6, GEN8, TM2, WC2
 Vaughan, Stephen AL6, GEN8, TM2, WC2
 Vaughan, Vicki AL6, GEN8, TM2, WC2
 Vaughn, Carrie AL2, TM1
 Vaughn, Keith AL6, GEN8, TM2, WC2
 Vaughn, Theresa AL6, GEN8, TM2, WC2
 Vavrek, Joy AL6, GEN8, TM2, WC2
 Veal, Judy AL6, GEN8, TM2, WC2
 Vedvik, Gary AL6, GEN8, TM2, WC2
 Vega, Octavio AL6, GEN8, TM2, WC2
 Veillette, Sandra AL6, GEN8, TM2, WC2
 Velasco, Steve AL2&6, GEN8, TM1&2, WC2
 Velisek, Melinda AL6, GEN8, TM2, WC2
 Velsor, Stan AL6, GEN8, TM2, WC2
 Vendelin, Carmen AL6, GEN8, TM2, WC2
 Venezia, John AL6, GEN8, TM2, WC2
 Verbil, Benjamin AL6, GEN11, RR1, TM1-2, WC2
 Verin, John AL6, GEN8, TM2, WC2
 Vernier-Dolin, Martha AL6, GEN8, TM2, WC2
 Verplanke, Donald AL6, GEN8, TM2, WC2
 Verruni, Lauren AL2, TM1
 Vertrees, Gerald AL2, TM1
 Verweijen, Job AL6, GEN8, TM2, WC2
 Vesely, Sakura AL2&6, GEN8, TM1-2, WC2
 Vesper, Paul AL6, GEN8, TM2, WC2
 Vest, Christie AL6, GEN8, TM2, WC2
 Vest, Martha AL6, GEN8, TM2, WC2
 Vetere, Evelyn AL6, GEN8, TM2, WC2
 Vetter, Allison AL6, GEN8, TM2, WC2
 Vetter, Tracy AL6, GEN8, TM2, WC2
 Victor, Gloria AL6, GEN8, TM2, WC2
 Vieira-Daponte, Manuela AL2&6, GEN8, TM1-2, WC2
 Vigilante, Diane AL6, GEN8, TM2, WC2
 Viglia, Peter AL2&6, GEN8, TM1-2, WC2
 Villalobos, Cathy AL6, GEN8, TM2, WC2
 Villarreal, Marie AL2, TM1
 Villaume, Daniel AL6, GEN8, TM2, WC2
 Villavicencio, Alan AL6, GEN8, TM2, WC2
 Vincent, Joseph AL6, GEN8, TM2, WC2
 Vincent, Judith AL6, GEN8, TM2, WC2
 Vinegar, Jan AL6, GEN8, TM2, WC2
 Vingo, Patrick AL6, GEN8, TM2, WC2
 Vinson, John AL6, GEN8, TM2, WC2
 Virostko, David GEN6, RR1, RR10, TM3
 Visakowitz, Susan AL6, GEN8, TM2, WC2
 Visser, Ned AL1, GEN18, GEN5, SO1, TM7
 Vitek, Sandra AL6, GEN8, TM2, WC2
 Vitols, Andrew AL6, GEN8, TM2, WC2
 Viveros, Joy AL6, GEN8, TM2, WC2
 Vlach, Jeff AL6, GEN8, TM2, WC2
 Vogel, Kirk AL6, GEN8, TM2, WC2
 Vogel, Mark AL6, GEN8, TM2, WC2
 Vogeles, John AL6, GEN8, TM2, WC2
 Vogt, Emily AL6, GEN8, TM2, WC2
 Vogt, Gary AL6, GEN8, TM2, WC2
 Volmensky, Vitaly AL6, GEN8, TM2, WC2
 Volpe, William AL6, GEN8, TM2, WC2
 Von Schonfeld, Walter AL2, TM1
 Vonderheide, Blake AL6, GEN8, TM2, WC2
 Vonderplanitz, Aajonus AL2, TM1
 Voorhies, Bill AL2&6, GEN8, TM1&2, WC2
 Vorachek, William AL6, GEN8, TM2, WC2
 Vosti, Jessie TM1
 Vrastil, William R TM10
 Vreeland, Jacqueline AL2, TM1
 Vrobel, Renee AL6, GEN8, TM2, WC2
 Vroom, Dave TM10

Vullo, Thomas AL6, GEN8, RR1, TM2, WC2
 Wade, John AL6, GEN8, TM2, WC2
 Wade, Kaye S AL1, GEN5&18, SO1, TM7
 Wade, Lavar AL1, GEN5 & 18, SO1, TM7
 Wadhvani, Ravi AL6, GEN8, TM2, WC2
 Wadsworth, John AL6, GEN8, TM2, WC2
 Waetermans, Hygi AL6, GEN8, TM2, WC2
 Wager, Timothy AL6, GEN8, TM2, WC2
 Wagner, Amy AL6, GEN8, TM2, WC2
 Wagner, Carol AL2&6, GEN8, TM1-2, WC2
 Wagner, Dawn AL6, GEN8, TM2, WC2
 Wagner, Dean AL6, GEN8, TM2, WC2
 Wagner, Eric AL6, GEN8, TM2, WC2
 Wagner, G Blu AL6, GEN8, TM2, WC2
 Wagner, Jim AL2&6, GEN8, TM1-2, WC2
 Wagner, Michael AL2&6, GEN8, TM1-2, WC2
 Wagner, Robert AL6, GEN8, TM2, WC2
 Wagner, Sandra AL2, TM1
 Wagoner, Tammy AL6, GEN8, TM2, WC2
 Wahl, Tara AL6, GEN8, TM2, WC2
 Wahosi, Mare AL6, GEN8, TM2, WC2
 Wahr, Katie AL6, GEN8, TM2, WC2
 Wait, Ellen AL6, GEN8, TM2, WC2
 Waites, Lance AL1, GEN13&16, RR27, TM3
 Waits, Beth AL6, GEN8, TM2, WC2
 Wakefield, Marie AL6, GEN8, TM2, WC2
 Wakula, Wendy AL6, GEN8, TM2, WC2
 Walberg, Jeriene AL6, GEN8, TM2, WC2
 Walcott, Donna AL6, GEN8, TM2, WC2
 Wald, Susan AL6, GEN8, TM2, WC2
 Walden-Forrest, Karyn AL6, GEN8, TM2, WC2
 Waldman, Annamay AL6, GEN8, TM2, WC2
 Waldo, Richard J AL6, GEN8, TM2, WC2
 Waldrip, Robert TM10
 Waldron, Dorothy D AL1, GEN5&18, TM7
 Waldron, Robert Chip AL2, TM1
 Waldron, Suzanne AL6, GEN8, TM2, WC2
 Walker, Anne AL6, GEN8, TM2, WC2
 Walker, Betsy AL6, GEN8, TM2, WC2
 Walker, Brook AL2, TM1
 Walker, Cyril AL6, GEN8, TM2, WC2
 Walker, Douglas AL6, GEN8, TM2, WC2
 Walker, Elizabeth AL2, TM1
 Walker, Faith AL6, GEN8, GM3, M11, TM2, VM5, WC2
 Walker, Gary AL6, GEN8, TM2, WC2
 Walker, Jason Michael AL6, GEN8, TM2, WC2
 Walker, Jeanne AL6, GEN8, TM2, WC2
 Walker, Lynn AL6, GEN8, TM2, WC2
 Walker, Nancy AL6, GEN8, TM2, WC2
 Walker, Patricia AL6, GEN8, TM2, WC2
 Wall, James R AL2, TM1
 Wall, William SD4, SD6
 Wallace, Ken AL6, GEN8, TM2, WC2
 Wallace, Stephen AL6, GEN8, TM2, WC2
 Wallace, Veronica AL6, GEN8, TM2, WC2
 Wallen, Bob AL1, GEN11, 13&16, RR2&27, SD4, TM3-4
 Wallen, Martha AL1, GEN13&16, RR27, TM3
 Waller, Paul & Joan AL6, GEN8, TM2, WC2
 Wallington, Victoria AL6, GEN8, TM2, WC2
 Wallis, Andy AL6, GEN8, TM2, WC2
 Wallis, Dale AL1, GEN5 & 18, SO1, TM7
 Wallis, Jean AL6, GEN8, TM2, WC2
 Wally, Liz AL6, GEN8, TM2, WC2
 Walper, Brooke AL6, GEN8, TM2, WC2
 Walraven, William AL6, GEN8, TM2, WC2
 Walsh, Carolyn AL6, GEN8, TM2, WC2
 Walsh, Ricki AL6, GEN8, TM2, WC2
 Walsh, Valerie AL6, GEN8, TM2, WC2
 Walter, Christopher AL6, GEN8, TM2, WC2
 Walter, Shannon Daniels AL6, GEN8, TM2, WC2
 Walters, L AL2, TM1
 Walters, Wendy AL6, GEN8, TM2, WC2
 Walton, Charles AL6, GEN8, TM2, WC2
 Walton, Kenneth AL1, GEN5 & 18, SO1, TM7
 Walton, Peggy AL6, GEN8, TM2, WC2
 Walton, Wesley AL6, GEN8, TM2, WC2
 Waltzman, Ted TM10
 Wambach, Carl RR1, TM1
 Wamsley, Karen AL6, GEN8, TM2, WC2
 Wander, Wendy AL6, GEN8, TM2, WC2
 Wanderer, Ken AL6, GEN8, TM2, WC2
 Wang, Tk AL6, GEN8, TM2, WC2
 Ward, Aurelie AL6, GEN8, TM2, WC2
 Ward, Everett AL6, GEN8, TM2, WC2
 Ward, Jacqueline AL6, GEN8, TM2, WC2
 Ward, James S AL1, GEN13&16, RR27, TM3
 Ward, Joan AL6, GEN8, TM2, WC2
 Ward, Joy AL6, GEN8, TM2, WC2
 Ward, L Maev AL6, GEN8, TM2, WC2
 Ward, Richard AL6, GEN8, TM2, WC2
 Ward, Sheila AL6, GEN8, TM2, WC2
 Ward, Shirley J AL6, GEN8, TM2, WC2
 Ward, Traey AL6, GEN8, TM2, WC2
 Wardell, Shelly AL6, GEN8, TM2, WC2
 Wardlow, Tisha AL6, GEN8, TM2, WC2
 Ware, David AL5, GEN11, TM3, WF9
 Warenyaia, Dee AL6, GEN8, TM2, WC2
 Warfle, Jamee AL6, GEN8, TM2, WC2
 Waring, Dawn AL6, GEN8, TM2, WC2
 Wark, Jim RR1, TM10
 Warmbir, Ellsworth AL2, TM1
 Warner, Christina E AL6, GEN8, TM2, WC2
 Warner, Cindy AL2, TM1
 Warner, Darryl AL6, GEN8, TM2, WC2
 Warner, Dave AL6, GEN8, TM2, WC2
 Warner, Horace AL6, GEN8, TM2, WC2
 Warner, Lawrence AL2&6, GEN8, TM1-2, WC2
 Warner, Natacha AL6, GEN8, TM2, WC2
 Warner, Paula AL2, TM1
 Warren, Aaron AL6, GEN8, TM2, WC2
 Warren, Chris AL6, GEN8, TM2, WC2
 Warren, James AL6, GEN8, TM2, WC2
 Warren, Jan AL6, GEN8, TM2, WC2
 Warren, Linda AL6, GEN8, TM2, WC2
 Warren, Lynne AL1, GEN13&16, RR27, TM3
 Warren, Rachel AL6, GEN8, TM2, WC2
 Warren, Robert AL6, GEN8, TM2, WC2
 Warren, Roxanne AL6, GEN8, TM2, WC2
 Warshaw, Jane AL2, TM1
 Waskelis, Mike AL6, GEN8, TM2, WC2
 Wasman, Donna AL2, TM1
 Wassenhove, Colleen AL6, GEN8, TM2, WC2
 Wassenich, Tom AL6, GEN8, TM2, WC2
 Wasserman, Barbara AL6, GEN8, TM2, WC2
 Wasserman, David AL6, GEN8, TM2, WC2
 Wassilak, David AL6, GEN8, TM2, WC2
 Wasson, Christin AL2&6, GEN8, TM1-2, WC2
 Waters, Amanda AL1, GEN13&16, RR27, TM3
 Waters, J AL6, GEN8, TM2, WC2
 Waters, Janiece AL6, GEN8, TM2, WC2
 Waters, Michael D AL1, GEN13&16, RR27, TM3
 Waters, Wesley G AL4-6, GEN2, RR4 & 12, TM3, 6 & 10, WC3
 Wathen, Wayne AL6, GEN8, TM2, WC2
 Watkins, Dennis AL2, TM1
 Watkins, John AL6, GEN11, RR1, TM1-2, WC2
 Watkins, Judith AL6, GEN8, TM2, WC2
 Watkins, Steve AL2, TM1
 Watkins, Walter AL6, GEN8, TM2, WC2
 Watkins-Wagner, Summer AL6, GEN8, TM2, WC2
 Watrous, Frank AL6, GEN8, TM2, WC2
 Watson, Bill AL1, GEN13&16, RR27, TM3
 Watson, Claire AL2&6, GEN8, TM1-2, WC2
 Watson, Frank AL6, GEN8, TM2, WC2
 Watson, John AL1, GEN13&16, RR27, TM3
 Watson, Lorna AL1, GEN13&16, RR27, TM3
 Watson, Ron TM11
 Watson, Steve AL6, GEN8, TM2, WC2
 Watt, Mark AL6, GEN8, TM2, WC2
 Watters, Ann AL6, GEN8, TM2, WC2
 Watts, Carol AL6, GEN8, TM2, WC2
 Watts, Dave AL6, GEN8, TM2, WC2
 Watts, Harriet AL6, GEN8, TM2, WC2
 Watts, Shirley & Rodney AL6, GEN8, TM2, WC2
 Waugh, Dave AL6, GEN8, TM2, WC2
 Waugh, Marianne Ross AL2, TM1
 Wawrzyniak, Chad AL6, GEN8, TM2, WC2
 Waxman, Edward AL6, GEN8, TM2, WC2
 Way, David AL6, GEN8, TM2, WC2
 Wayne, Jerry AL6, GEN8, TM2, WC2
 Wead, Leslie AL6, GEN8, TM2, WC2
 Weare, Marcia AL6, GEN8, TM2, WC2
 Weatherman, John AL6, GEN8, TM2, WC2
 Weathers, Mary AL6, GEN8, TM2, WC2
 Weaver, Amy AL6, GEN8, TM2, WC2
 Weaver, Andrea AL6, GEN8, TM2, WC2
 Weaver, Carol AL6, GEN8, TM2, WC2
 Weaver, Craig M M11, TM2, WC2
 Weaver, Donna AL6, GEN8, TM2, WC2

Weaver, Jared AL1, GEN13&16, RR27, TM3
 Weaver, Larry AL1, GEN13&16, RR27, TM3
 Weaver, Torraine AL6, GEN8, TM2, WC2
 Webb, Jay AL1, SO1
 Webb, Julia AL6, GEN8, TM2, WC2
 Webb, Keith TM11
 Webb, Kendrick AL6, GEN8, TM2, WC2
 Webb, Mike AL6, GEN8, TM2, WC2
 Weber, Alecia AL6, GEN8, TM2, WC2
 Weber, Deborah AL6, GEN8, TM2, WC2
 Weber, John AL6, GEN8, TM2, WC2
 Weber, Marc AL6, GEN8, TM2, WC2
 Weber, Ron AL6, GEN8, TM2, WC2
 Weber, Ted AL6, GEN8, TM2, WC2
 Weber, Zorina AL6, GEN8, TM2, WC2
 Webster, Judith AL6, GEN8, TM2, WC2
 Webster, Karen AL6, GEN8, TM2, WC2
 Webster, Kaye AL6, GEN8, TM2, WC2
 Webster, Robert AL6, GEN8, TM2, WC2
 Wechsler, Susan AL6, GEN8, TM2, WC2
 Wedge, Gene AL6, GEN8, TM2, WC2
 Weed, Ardeth L AL6, GEN8, TM2, WC2
 Weeks, Cynthia AL6, GEN8, TM2, WC2
 Weeks, L Mark AL6, GEN8, TM2, WC2
 Weese, Zeb AL6, GEN8, TM2, WC2
 Wegemann, Paul AL6, GEN8, TM2, WC2
 Weggel, Bob AL2, TM1
 Wehler, John AL6, GEN8, TM2, WC2
 Weigel, Molly AL2, TM1
 Weil, Benjamin AL6, GEN8, TM2, WC2
 Weiland, Alex AL6, GEN8, TM2, WC2
 Weiland, Sherry AL2&6, GEN8, TM1-2, WC2
 Weinberg, Laurence AL6, GEN8, TM2, WC2
 Weiner, Maury AL6, GEN8, TM2, WC2
 Weinstein, Diane AL6, GEN8, TM2, WC2
 Weisberg, Laura AL6, GEN8, TM2, WC2
 Weisburd, Stana AL2, TM1
 Weishaar, Jennifer AL6, GEN8, TM2, WC2
 Weisman, Lauren AL6, GEN8, TM2, WC2
 Weisman, Sharon AL6, GEN8, TM2, WC2
 Weismann, Donna AL6, GEN8, TM2, WC2
 Weiss, Christopher AL6, GEN8, TM2, WC2
 Weiss, Dan AL6, GEN8, TM2, WC2
 Weiss, Katherine AL6, GEN8, TM2, WC2
 Weisskirk, Lynne AL6, GEN8, TM2, WC2
 Weissman, Marilyn AL2, TM1, WC2
 Weissman, Michael AL6, GEN8, TM2, WC2
 Weisz, Katalin AL6, GEN8, TM2, WC2
 Weitzel, Tim AL2, TM1
 Welch, Joanna F AL6, GEN8, TM2, WC2
 Welch, Mabel AL1, GEN18, GEN5, TM7
 Welch, Pat AL6, GEN8, TM2, WC2
 Welchner, M J AL6, GEN8, TM2, WC2
 Welke, Margaret AL2&6, GEN8, TM1-2, WC2
 Welker, Holly AL6, GEN8, TM2, WC2
 Welker, Michael AL6, GEN8, TM2, WC2
 Weller, Collin AL6, GEN11, RR1, TM1-2, WC2
 Wellman, Lisa AL6, GEN8, TM2, WC2
 Wellman, Sara AL6, GEN8, TM2, WC2
 Wells, Bonnie AL6, GEN8, TM2, WC2
 Wells, Caroline AL6, GEN8, TM2, WC2
 Wells, Casey AL6, GEN8, TM2, WC2
 Wells, David AL6, GEN8, TM2, WC2
 Wells, Donald AL6, GEN8, TM2, WC2
 Wells, Jay AL1, GEN18, GEN5, TM7
 Wells, Jordan AL6, GEN8, TM2, WC2
 Wells, Kimball AL2&6, GEN8, TM1-2, WC2
 Wells, Michelle AL6, GEN8, TM2, WC2
 Welms, James AL6, GEN8, TM2, WC2
 Welsko, Alexandra AL6, GEN8, TM2, WC2
 Welter, Richard AL6, GEN8, TM2, WC2
 Wemple, Mark AL6, GEN8, TM2, WC2
 Wendell, Norm AL6, GEN8, TM2, WC2
 Wendt, Christin AL6, GEN8, TM2, WC2
 Wendt, Diana AL2, TM1
 Weng, Michael AL6, GEN11, RR1, TM1-2, WC2
 Wentz, Lee AL6, GEN8, TM2, WC2
 Werner, Kirstyn AL2, TM1
 Wertnerberger, Laura AL6, GEN8, TM2, WC2
 Wertz, Nicole AL6, GEN8, TM2, WC2
 Weseott, Douglas AL6, GEN8, TM2, WC2
 Wesen, Brian AL6, GEN8, TM2, WC2
 Wesley, Immaculate AL6, GEN8, TM2, WC2
 Wessbecher, Marlies AL6, GEN8, TM2, WC2
 West, Anthony M RR1
 West, Barbara AL4, TM11, TM14, TM3
 West, Carolyn AL6, GEN8, TM2, WC2
 West, Claire GEN6
 West, Douglas AL6, GEN8, TM2, WC2
 West, Edwin AL2&6, GEN8, TM1&2, WC2
 West, Eric AL2, AL6, GEN8, TM1&2, WC2
 West, Lynn AL6, GEN8, TM2, WC2
 West, Patricia AL6, GEN8, TM2, WC2
 West, Rhonda AL6, GEN8, TM2, WC2
 West, Russel&Candice AL6, GEN8, TM2, WC2
 West, Vern RR2
 Wester, Melanie AL6, GEN8, TM2, WC2
 Westerhoff, John AL6, GEN8, TM2, WC2
 Westhoff, Cyndy AL6, GEN8, TM2, WC2
 Weston, Lori AL6, GEN8, TM2, WC2
 Westrate, Beatrice AL6, GEN8, TM2, WC2
 Wettengel, Thomas AL6, GEN8, TM2, WC2
 Wexstein, David AL6, GEN8, TM2, WC2
 Whalen, Shirley AL6, GEN8, TM2, WC2
 Whatley Jr, John E TM10
 Wheat, Elizabeth AL6, GEN8, TM2, WC2
 Wheeler, Jerry AL6, GEN8, TM2, WC2
 Wheeler, Jessica AL6, GEN8, TM2, WC2
 Wheelock, Michael AL6, GEN8, TM2, WC2
 Wherley, Michael AL6, GEN8, TM2, WC2
 Whetsone, Tony AL6, GEN8, TM2, WC2
 Whipple, Susan AL6, GEN8, TM2, WC2
 White, Ae AL6, GEN8, TM2, WC2
 White, Apryll AL6, GEN8, TM2, WC2
 White, Chuck AL6, GEN8, TM2, WC2
 White, Dale AL6, GEN8, TM2, WC2
 White, Fred GEN11
 White, Gayle AL6, GEN8, TM2, WC2
 White, Harry AL6, GEN8, TM2, WC2
 White, Hayden AL6, GEN8, TM2, WC2
 White, Jeffrey AL6, GEN8, TM2, WC2
 White, Joan AL6, GEN8, TM2, WC2
 White, John AL6, GEN8, TM2, WC2
 White, Justin AL6, GEN8, TM2, WC2
 White, Lois AL6, GEN8, TM2, WC2
 White, Lonnie AL6, GEN8, TM2, WC2
 White, Lynn AL6, GEN8, TM2, WC2
 White, Paul AL6, GEN8, TM2, WC2
 White, Sharlene AL6, GEN8, TM2, WC2
 White, Tiffany AL6, GEN8, TM2, WC2
 White, Tony GEN11, TM3
 Whitehawk, Lily AL6, GEN8, TM2, WC2
 Whitehead, Anna AL6, GEN8, TM2, WC2
 Whitehead, Boots AL6, GEN8, TM2, WC2
 Whitelock, Renee AL6, GEN8, TM2, WC2
 Whitley, Nancy AL6, GEN8, TM2, WC2
 Whitlock, Mark AL6, GEN8, TM2, WC2
 Whitman, Aimee AL6, GEN8, TM2, WC2
 Whitmer, Betty AL6, GEN8, TM2, WC2
 Whitney, Vernon AL2&6, GEN8, TM1-2, WC2
 Whittington, Dana AL6, GEN8, TM2, WC2
 Whyte, Juanita AL6, GEN8, TM2, WC2
 Wiberley, Pat AL6, GEN8, TM2, WC2
 Wiehar, Den Mark AL6, GEN8, TM2, WC2
 Widdison, Wade AL1, GEN5&18, SO1, TM7
 Widmer, Joyce AL6, GEN8, TM2, WC2
 Wiedel, Sarah AL6, GEN8, TM2, WC2
 Wiedel, Sean AL6, GEN8, TM2, WC2
 Wiedemann, Janna AL6, GEN8, TM2, WC2
 Wieland, Charles AL6, GEN8, TM2, WC2
 Wieland, Loren AL6, GEN8, TM2, WC2
 Wienand, Mark AL6, GEN8, TM2, WC2
 Wienbrauck, Joan AL6, GEN8, TM2, WC2
 Wiese, Ray AL6, GEN8, TM2, WC2
 Wieselmann, Corena AL6, GEN8, TM2, WC2
 Wigerman, Mary AL6, GEN8, TM2, WC2
 Wiggers, Ed AL6, GEN8, TM2, WC2
 Wight, Amy AL6, GEN8, TM2, WC2
 Wight, J AL6, GEN8, TM2, WC2
 Wikander, David AL6, GEN8, TM2, WC2
 Wikkiams, Sue AL2, TM1
 Wilber, Douglas AL6, GEN8, TM2, WC2
 Wilbur, Margaret AL6, GEN8, TM2, WC2
 Wilee, Rebekah AL2&6, GEN8, TM1-2, WC2
 Wilcoek, Reva AL1, GEN13&16, RR27, TM3
 Wileox, Cheri AL6, GEN8, TM2, WC2
 Wileox, David AL6, GEN8, TM2, WC2
 Wileox, Gail AL6, GEN8, TM2, WC2
 Wileox, James AL6, GEN8, TM2, WC2
 Wileox, Jill AL6, GEN8, TM2, WC2
 Wileox, Phyllis AL6, GEN8, TM2, WC2
 Wilder, Jenny AL6, GEN8, TM2, WC2
 Wilderman, Vicki AL6, GEN8, TM2, WC2
 Wildrick, David AL6, GEN8, TM2, WC2
 Wiley, Carol AL2&6, GEN8, TM1&2, WC2
 Wiley, Linda AL6, GEN8, TM2, WC2
 Wiley, Michael AL6, GEN8, TM2, WC2
 Wilgosz, Chuck AL6, GEN8, TM2, WC2
 Wilhelm, Janus AL6, GEN8, TM2, WC2
 Wilhelm, Richard AL6, GEN8, TM2, WC2
 Wilkens, Pat AL6, GEN8, TM2, WC2

Wilkerson, Sasha AL6, GEN8, TM2, WC2
 Wilkinson, Patricia AL6, GEN8, TM2, WC2
 Willard, Christa AL6, GEN8, TM2, WC2
 Willden, Sam AL1, GEN13&16, RR27, TM3
 Willems, Dan TM10
 Willets, Alison AL6, GEN8, TM2, WC2
 Willey, Janene AL6, GEN8, TM2, WC2
 Willey, Jessica AL6, GEN8, TM2, WC2
 Williammee, Tim AL6, GEN8, TM2, WC2
 Williams, Andrew AL6, GEN8, TM2, WC2
 Williams, Anne AL6, GEN8, TM2, WC2
 Williams, Betty AL2&6, GEN8, TM1-2, WC2
 Williams, Charlie AL6, GEN8, TM2, WC2
 Williams, Constance AL6, GEN8, TM2, WC2
 Williams, Danna AL2&6, GEN8, TM1-2, WC2
 Williams, Diane M AL6, GEN8, TM2, WC2
 Williams, Dina AL6, GEN8, TM2, WC2
 Williams, George AL6, GEN8, TM2, WC2
 Williams, Gilbert S AL6, GEN8, TM2, WC2
 Williams, Heather AL6, GEN8, TM2, WC2
 Williams, Holly AL6, GEN8, TM2, WC2
 Williams, Janet AL6, GEN8, TM2, WC2
 Williams, Jesse AL6, GEN8, TM2, WC2
 Williams, Kelli AL6, GEN8, TM2, WC2
 Williams, Kenny AL6, GEN8, TM2, WC2
 Williams, Laurie AL2, TM1
 Williams, Lora Marie AL6, GEN8, TM2, WC2
 Williams, Mark AL6, GEN8, TM2, WC2
 Williams, Martyn AL6, GEN8, TM2, WC2
 Williams, Midori AL6, GEN8, TM2, WC2
 Williams, Nicholas AL2&6, GEN8, TM1-2, WC2
 Williams, O Ray TM10
 Williams, Paul AL2 & 6, GEN8, TM1-2, WC2
 Williams, Philip N AL6, GEN8, TM2, WC2
 Williams, Richard AL6, GEN8, TM2, WC2
 Williams, Robin AL6, GEN8, TM2, WC2
 Williams, Roger AL6, GEN8, TM2, WC2
 Williams, S E AL6, GEN8, TM2, WC2
 Williams, Sarah AL6, GEN8, TM2, WC2
 Williams, Seanna AL6, GEN8, TM2, WC2
 Williams, Shelly AL6, GEN8, TM2, WC2
 Williams, Stacie AL6, GEN8, TM2, WC2
 Williams, Susan AL6, GEN11, RR1, TM1-2, WC2
 Williams, Ted AL6, GEN8, TM2, WC2
 Williams, Terrie AL2 & 6, GEN8, TM1-2, WC2
 Williams, Wayne AL6, GEN8, TM2, WC2
 Williamson, Ann AL6, GEN8, TM2, WC2
 Williamson, Brenda AL6, GEN8, TM2, WC2
 Williamson, Darcy AL2, TM1
 Williamson, Maria AL6, GEN8, TM2, WC2
 Williamson, Michael AL6, GEN8, TM2, WC2
 Williamson, Patrice AL6, GEN8, TM2, WC2
 Williamson, Sandra AL6, GEN8, TM2, WC2
 Williamson-Pecori, Beverly AL6, GEN8, TM2, WC2
 Williard, John AL6, GEN8, TM2, WC2
 Willis, Jennifer AL6, GEN8, TM2, WC2
 Willis, Paula AL6, GEN8, TM2, WC2
 Willis, Rochelle AL6, GEN8, TM2, WC2
 Willis, Stephanie AL6, GEN8, TM2, WC2
 Willmarth, Greg AL6, GEN8, TM2, WC2
 Willner, Dina AL6, GEN8, TM2, WC2
 Willoe, Joan AL6, GEN8, TM2, WC2
 Wilsnack, Jonathan AL6, GEN8, TM2, WC2
 Wilson, Amy AL6, GEN8, TM2, WC2
 Wilson, Andrea AL6, GEN8, TM2, WC2
 Wilson, Annmarie AL6, GEN8, TM2, WC2
 Wilson, Carole AL6, GEN8, TM2, WC2
 Wilson, Cynthia AL6, GEN8, TM2, WC2
 Wilson, Dianne AL6, GEN8, TM2, WC2
 Wilson, Dina AL6, GEN8, TM2, WC2
 Wilson, Dorothy AL6, GEN8, TM2, WC2
 Wilson, Elaine AL6, GEN8, TM2, WC2
 Wilson, Eric AL6, GEN8, TM2, WC2
 Wilson, Greg AL6, GEN8, TM2, WC2
 Wilson, James AL6, GEN8, TM2, WC2
 Wilson, Jeri AL6, GEN8, TM2, WC2
 Wilson, Jerry AL2&6, GEN8, TM1&2, WC2
 Wilson, Joyce AL6, GEN8, TM2, WC2
 Wilson, Kathy AL6, GEN8, TM2, WC2
 Wilson, Ken AL2, TM1
 Wilson, Kent AL6, GEN8, TM2, WC2
 Wilson, Kerry TM10
 Wilson, Lorraine AL6, GEN8, TM2, WC2
 Wilson, Michael AL6, GEN8, TM2, WC2
 Wilson, Mouna AL6, GEN8, TM2, WC2
 Wilson, Olive AL6, GEN8, TM2, WC2
 Wilson, Timothy AL6, GEN8, TM2, WC2
 Wilson, Todd AL6, GEN8, TM2, WC2
 Wilson, Wendy AL6, GEN8, TM2, WC2
 Wilson-Cazier, Paula AL6, GEN8, TM2, WC2
 Wimberley, Rebecca AL6, GEN8, TM2, WC2
 Winch, Walter AL6, GEN8, TM2, WC2
 Winchester, Stephanie AL6, GEN8, TM2, WC2
 Windberg, Thomas AL6, GEN8, TM2, WC2
 Winders, Dora AL2, TM1
 Windjue, Sara AL6, GEN8, TM2, WC2
 Winer, Diana AL6, GEN8, TM2, WC2
 Wing, Linda AL6, GEN8, TM2, WC2
 Wing, William AL2 & 6, GEN8, TM2, WC2
 Wingle, Dennis AL2, TM1
 Winick, Jeremy AL6, GEN8, TM2, WC2
 Winkel, Marguerite AL6, GEN8, TM2, WC2
 Winkle, Celeste AL6, GEN8, TM2, WC2
 Winkleman, Judy AL6, GEN8, TM2, WC2
 Winkler, Becky AL6, GEN8, TM2, WC2
 Winkler, Sheryl AL2, TM1
 Winn, Jeff GM2, RR2, TM3
 Winner, Sylvia AL6, GEN8, TM2, WC2
 Winnicki, Cate AL6, GEN8, TM2, WC2
 Winter, Amy AL6, GEN11, RR1, TM1-2, WC2
 Winter, Julice AL6, GEN6 & 8, TM1 & 2, WC2
 Winterbottom, C AL6, GEN8, TM2, WC2
 Winters, Edward AL6, GEN8, TM2, WC2
 Winters, Robert AL6, GEN8, TM2, WC2
 Wippler, Joyce AL6, GEN8, TM2, WC2
 Wirs, Tracy AL6, GEN8, TM2, WC2
 Wirth, Danielle AL6, GEN8, TM2, WC2
 Wiseman, Ann AL6, GEN8, TM2, WC2
 Wisham, Joella TM12, TM3
 Wishart, Chris TM10
 Wishart, Tiffany AL6, GEN8, TM2, WC2
 Wishner, Carl AL6, GEN8, TM2, WC2
 Witeck, Patrick AL6, GEN8, TM2, WC2
 Witherington, David AL6, GEN8, TM2, WC2
 Witlen, Sheryl AL6, GEN8, TM2, WC2
 Witte, John AL6, GEN8, TM2, WC2
 Wittebols, Nancy AL2, TM1
 Wittekind, Ray AL6, GEN8, TM2, WC2
 Witter, Leslie AL6, GEN8, TM2, WC2
 Wixom, Hartt GEN6, GEN7, GM2-3, WF2
 Wodinsky, Jessica AL6, GEN8, TM2, WC2
 Wohlbrandt, MaryAnn AL6, GEN8, TM2, WC2
 Woien, Sandra AL2, TM1
 Woiwode, Pete AL2&6, GEN8, TM1-2, WC2
 Wojciechowski, Stanley AL6, GEN8, TM2, WC2
 Wojtalik, Alan AL6, GEN8, TM2, WC2
 Wolcott, Michael AL6, GEN11, RR1, TM1-2, WC2
 Wold, Susan AL6, GEN8, TM2, WC2
 Wolf, Andrea AL6, GEN8, TM2, WC2
 Wolf, Andrew AL6, GEN8, TM2, WC2
 Wolf, Barry AL6, GEN8, TM2, WC2
 Wolf, Bernard AL6, GEN8, TM2, WC2
 Wolf, Cory TM10
 Wolf, Dave AL5, WF10
 Wolf, Deirdre AL6, GEN8, TM2, WC2
 Wolf, Jennifer AL6, GEN8, TM2, WC2
 Wolf, Linda AL6, GEN8, TM2, WC2
 Wolf, Lisa AL6, GEN8, TM2, WC2
 Wolf, Pauline AL6, GEN8, TM2, WC2
 Wolf, Peter AL6, GEN8, TM2, WC2
 Wolf, Rachel AL6, GEN8, TM2, WC2
 Wolf, Susan AL6, GEN8, TM2, WC2
 Wolf, Thunderr AL6, GEN8, TM2, WC2
 Wolfe, Ellen Stockdale AL6, GEN8, TM2, WC2
 Wolfe, Jody AL6, GEN8, TM2, WC2
 Wolfe, Kathleen AL6, GEN8, TM2, WC2
 Wolfe, Mark & Nancy AL6, GEN8, TM2, WC2
 Wolff, Robert AL1, GEN13&16, RR27, TM3
 Woll, Margaret AL6, GEN8, TM2, WC2
 Wolverton, Ben AL6, GEN8, TM2, WC2
 Womble, Jeffrey AL6, GEN8, TM2, WC2
 Won, Alexander AL6, GEN8, TM2, WC2
 Wong, Dana AL6, GEN8, TM2, WC2
 Wood, Donald W AL2, TM1
 Wood, Erik AL6, GEN8, TM2, WC2
 Wood, Gordon AL6, GEN8, TM2, WC2
 Wood, James AL2, TM1
 Wood, Jon AL6, GEN8, TM2, WC2
 Wood, Lyle AL6, GEN8, TM2, WC2
 Wood, Lynda AL6, GEN8, TM2, WC2
 Wood, Margaret H AL2, TM1
 Wood, Mary AL6, GEN8, TM2, WC2
 Wood, Sam AL6, GEN8, TM2, WC2

Wood, Sarah AL6, GEN8, TM2, WC2
Wood, Susan AL6, GEN8, TM2, WC2
Woodall, Larry TM10
Woodard, Bill AL5, GEN11, GM2
Woodard, Jason H AL6, GEN8, TM2, WC2
Woodard, Mary AL6, GEN8, TM2, WC2
Woodbridge, Michale AL6, GEN8, TM2, WC2
Woodcock, Angela AL2, TM1
Wooden, Shirley AL6, GEN8, TM2, WC2
Wood-Hull, Larry AL6, GEN8, TM2, WC2
Woodman, Jean AL6, GEN8, TM2, WC2
Woodruff, Evan AL6, GEN8, TM2, WC2
Woodry, Laura AL6, GEN8, TM2, WC2
Woods, David AL6, GEN8, TM2, WC2
Woods, Debbie AL6, GEN8, TM2, WC2
Woods, James AL6, GEN8, TM2, WC2
Woods, Joseph H AL1, GEN13&16, RR27, TM3
Woods, Terry AL6, GEN8, TM2, WC2
Woolf, Don AL6, GEN8, TM2, WC2
Woolley, Persia AL6, GEN8, TM2, WC2
Woomer, Joanna AL6, GEN8, TM2, WC2
Woorwood, Clark AL1, GEN13&16, RR27, TM3
Wootten, Tom AL6, GEN11, RR1, TM1-2, WC2
Worden, Susan AL6, GEN8, TM2, WC2
Worley, Doyle L AL6, GEN8, TM2, WC2
Worthen, Diana AL6, GEN8, TM2, WC2
Worthington, Lynne AL6, GEN8, TM2, WC2
Worthington, Will GEN6
Worthy, Crista AL6, GEN8, TM2, WC2
Wouk, Nina AL2, TM1
Wouters, Danny AL6, GEN8, TM2, WC2
Wrench, David TM10
Wright, Alan AL6, GEN8, TM2, WC2
Wright, Antone AL1, GEN13&16, RR27, TM3
Wright, Bob RR2
Wright, Christine AL6, GEN8, TM2, WC2
Wright, David AL6, GEN8, TM2, WC2
Wright, Jan AL6, GEN8, TM2, WC2
Wright, Jan Chism AL6, GEN8, TM2, WC2
Wright, Jean AL6, GEN8, TM2, WC2
Wright, Larry A Sr TM3
Wright, Melinda AL6, GEN8, TM2, WC2
Wright, Renee AL6, GEN8, TM2, WC2
Wright, Todd AL6, GEN8, TM2, WC2
Wright, Wendi AL6, GEN8, TM2, WC2
Wrobel, Jason AL6, GEN8, TM2, WC2
Wrolstad, James AL6, GEN8, TM2, WC2
Wu, Elaine AL6, GEN8, TM2, WC2
Wuebbels, Rosie AL6, GEN8, TM2, WC2
Wuerthner, George AL6, GEN8, TM2, WC2
Wuertz, Irma AL6, GEN8, TM2, WC2
Wurz, Steve AL6, GEN8, TM2, WC2
Wyatt, Allan AL2, TM1
Wye, Ida AL6, GEN8, TM2, WC2
Wyer, D AL2, TM1
Wyffels, Alissa AL6, GEN8, TM2, WC2
Wyke, Kimberly AL6, GEN8, TM2, WC2
Wylie, Carol AL6, GEN8, TM2, WC2
Wylie, Harold A SD2, TM1
Wyman, Laurel AL6, GEN8, TM2, WC2
Wynkoop, Laura AL6, GEN8, TM2, WC2
Wynn, A AL2, TM1
Wynn, Bobby AL2&6, GEN8, TM1-2, WC2
Wynn, Gareth AL6, GEN8, TM2, WC2
Wynn, Peggy AL6, GEN8, TM2, WC2
Wyss, Ben AL2, GEN6, TM2, WC2
X, Paula AL6, GEN8, TM2, WC2
Xavier, James AL6, GEN8, TM2, WC2
Yacalis, Nancy D. AL6, GEN8, TM2, WC2
Yacobucci, L AL6, GEN8, TM2, WC2
Yake, Bill AL6, GEN8, TM2, WC2
Yakel, Michelle AL2&6, GEN8, TM1-2, WC2
Yamagami, Akiko AL2, TM1
Yamagata, Susan AL6, GEN8, TM2, WC2
Yamashita, Fujiko AL6, GEN8, TM2, WC2
Yang, Jo-Shing AL6, GEN8, TM2, WC2
Yang, Yu-Mei AL6, GEN8, TM2, WC2
Yankel, Charles AL6, GEN8, TM2, WC2
Yanowitz, Joel AL6, GEN8, TM2, WC2
Yanskey, Kari GEN7, 11&18, GM1-4, RR24, VM3,5&7, WS3&9
Yarger, Andrea AL6, GEN8, TM2, WC2
Yates, Anthony AL6, GEN8, TM2, WC2
Yates, Joan AL6, GEN8, TM2, WC2
Yates, Pamela AL6, GEN8, TM2, WC2
Yeaton, Elinor AL6, GEN8, TM2, WC2
Yelverton, Bonnie AL6, GEN8, TM2, WC2
Yendell, Jane AL6, GEN8, TM2, WC2
Yeuell, Kay AL6, GEN8, TM2, WC2
Yewdall, Cindy AL6, GEN8, TM2, WC2
Ynclan, Jesse AL6, GEN8, TM2, WC2
Yoas, Craig AL6, GEN8, TM2, WC2
Yoder, Douglas AL1, GEN5&18, SO1, TM7
Yonan, Dianne AL6, GEN8, TM2, WC2
Yonker, Ashley AL6, GEN8, TM2, WC2
York, Janet AL6, GEN8, TM2, WC2
Yorty, Christine AL6, GEN8, TM2, WC2
Yoshida, Martha AL6, GEN8, TM2, WC2
Yost, Geoffrey AL6, GEN8, TM2, WC2
Yost, John GEN6
Younce, Kelly AL6, GEN8, TM2, WC2
Young, Andrea AL6, GEN8, TM2, WC2
Young, Betty AL6, GEN8, TM2, WC2
Young, Bill AL6, GEN8, TM2, WC2
Young, Billie AL6, GEN8, TM2, WC2
Young, Christina M TM10
Young, Daniel TM3
Young, Diane AL6, GEN8, TM2, WC2
Young, Geoffrey AL6, GEN8, TM2, WC2
Young, Ginger AL2, TM1
Young, Hugh AL6, GEN8, TM2, WC2
Young, Jane AL6, GEN8, TM2, WC2
Young, Jeremy TM1
Young, Linda AL6, GEN8, TM2, WC2
Young, Martha M AL6, GEN11, RR1, TM1-2, WC2
Young, Mary K AL6, GEN8, TM2, WC2
Young, Matthew AL6, GEN8, TM2, WC2
Young, Nancy AL6, GEN8, TM2, WC2
Young, Paul L TM3
Young, Robert AL6, GEN8, TM2, WC2
Young, Virginia AL6, GEN8, TM2, WC2
Yox, Larry AL6, GEN8, TM2, WC2
Yu, K AL6, GEN8, TM2, WC2
Yun, Diana AL6, GEN8, TM2, WC2
Yung, Jackie AL6, GEN8, TM2, WC2
Yurenka, Katrina AL6, GEN8, TM2, WC2
Zaber, Pamela AL6, GEN8, TM2, WC2
Zaborovsky, Julita AL2, TM1
Zabriski, Misty AL1, GEN13&16, RR27, TM3
Zaccaria, Nick AL1, GEN13&16, RR27, TM3
Zachary, Valerie AL2, TM1
Zack, Lauren AL6, GEN8, TM2, WC2
Zahller, Guy AL6, GEN8, TM2, WC2
Zahner, Glenda AL2, TM1
Zahner, Robert AL6, GEN8, TM2, WC2
Zahniser, Mathias AL6, GEN8, TM2, WC2
Zahnle, Debra AL6, GEN8, TM2, WC2
Zai, Robert III AL6, GEN8, TM2, WC2
Zaitlin, Linda AL6, GEN8, TM2, WC2
Zajac, David AL6, GEN8, TM2, WC2
Zajic, Daniel AL6, GEN8, TM2, WC2
Zakrzewaki, Paul AL6, GEN8, TM2, WC2
Zalewski, Kimberly AL2&6, GEN8, TM1-2, WC2
Zambie, David AL6, GEN8, TM2, WC2
Zapf, Ellen AL6, GEN8, TM2, WC2
Zappen, Peggy AL6, GEN8, TM2, WC2
Zarchin, Natalie AL6, GEN8, TM2, WC2
Zarchin, Paul AL6, GEN8, TM2, WC2
Zari, Eliseo III AL6, GEN8, TM2, WC2
Zarr, Mailie La AL6, GEN8, TM2, WC2
Zastrow, Sandra AL6, GEN8, TM2, WC2
Zawaski, Joseph AL6, GEN8, TM2, WC2
Zawisza, Jenny AL6, GEN8, TM2, WC2
Zaza, Sara AL6, GEN8, TM2, WC2
Zedolik, John AL6, GEN8, TM2, WC2
Zeifman, Lubov AL6, GEN8, TM2, WC2
Zeigler, Terri AL6, GEN8, TM2, WC2
Zeilenga, Jack AL6, GEN8, TM2, WC2
Zeisler, James AL6, GEN8, TM2, WC2
Zelasko, Sandy AL6, GEN8, TM2, WC2
Zeleny-Huber, Alycia AL6, GEN8, TM2, WC2
Zeller, Rudy AL6, GEN8, TM2, WC2
Zellers, Raleigh AL6, GEN8, TM2, WC2
Zellmer, Kevin AL6, GEN8, TM2, WC2
Zelter, Daniel AL6, GEN8, TM2, WC2
Zendel, Sherry AL6, GEN8, TM2, WC2
Zentura, AL6, GEN8, TM2, WC2
Zerzan, Paula AL6, GEN8, TM2, WC2
Zeveloff, L AL6, GEN8, TM2, WC2
Zevely, Carina AL6, GEN8, TM2, WC2
Zheutlin, Cathy AL6, GEN8, TM2, WC2
Zielke, Gunter TM10
Zierikzee, R AL6, GEN8, TM2, WC2
Ziff, Pete AL6, GEN8, TM2, WC2
Zillner, Joe AL2, TM1
Zimmer, Catherine AL6, GEN8, TM2, WC2
Zimmer, Thomas AL6, GEN8, TM2, WC2
Zimmerman, John AL6, GEN11, RR1, TM1-2, WC2
Zimmerman, Marian AL6, GEN8, TM2, WC2
Zimmerman, Mary Kathryn AL2, TM1
Zimmerman, Paulette AL6, GEN8, TM2, WC2

Zimny, Gloria AL2&6, GEN8, TM1&2, WC2
 Zink, Joseph AL6, GEN8, TM2, WC2
 Zinn, Robert AL6, GEN8, TM2, WC2
 Zinner, Katina AL2, TM1
 Zinns, Carolyn AL6, GEN8, TM2, WC2
 Zinsli, Gabriel AL2, AL5, TM1, WC2
 Ziomek, Karen AL6, GEN8, TM2, WC2
 Zipse, Meredith AL6, GEN8, TM2, WC2
 Zirpolo, Janna AL6, GEN8, TM2, WC2
 Zivney, Olivia AL6, GEN8, TM2, WC2
 Zobel, Conrad AL6, GEN8, TM2, WC2

Zoldak, Loretta AL2&6, GEN8, TM1-2, WC2
 Zoline, Patricia AL6, GEN8, TM2, WC2
 Zorn, Glen AL6, GEN8, TM2, WC2
 Zuber, Michael AL6, GEN8, TM2, WC2
 Zuelke, Paul D TM10
 Zuk, David AL6, GEN8, TM2, WC2
 Zumwalt, Darrell AL1, GEN13&16, RR27, TM3
 Zumwalt, Judy AL1, GEN13&16, RR27, TM3

Zumwalt, Robert AL1, GEN13&16, RR27, TM3
 Zumwalt, Wendy AL1, GEN13&16, RR27, TM3
 Zupanic, Gary AL5
 Zur, Roberta AL2, TM1
 Zurawskyj, Leonhard AL6, GEN8, TM2, WC2
 Zusne, Megan AL6, GEN8, TM2, WC2
 Zyla, Alison AL2&6, GEN8, TM1-2, WC2

RESPONSE TO PUBLIC COMMENTS

This section contains the public concerns expressed in the comments received from individuals, agencies, organizations, and groups during the comment period on the Draft Plan/DEIS. The public concerns were generated by grouping comments into broad categories expressing viewpoints and concerns relating what actions the public wants the BLM and/or NPS to take. In most cases, subconcerns were also generated providing the reason commenters requested the action stated in the public concern. Public concerns and associated subconcerns are organized by the ten issue and 19 categories discussed above (see page 5-7 above), and are followed by responses presented by the BLM and/or NPS.

ISSUE # 1: ACCESS (TRAVEL MANAGEMENT; TM)

Public Concern #1 (TM1)

An array of comments urged that the BLM should further restrict or limit motorized travel (especially off-highway vehicle (OHV use)) or reduce road density in the Planning Area (especially in the Monuments). They felt that the Preferred Alternative would result in too many open roads and areas open to OHV use, and provided reasons for limiting or restricting motorized travel.

Response: Road densities (the number of miles of routes per square mile of land) for the entire Planning Area, as well as each management unit, are quite low. In Parashant, under the Proposed Plan, the density of roads open to public motorized use would be 0.73 mile/square mile. In Vermilion, the Proposed Plan would manage a density of such public roads of 0.83 mile/square mile. In the Arizona Strip FO the actual route evaluation and designation process would be carried out within five years of the Records of Decision for this Plan. It is widely accepted that the Arizona Strip is one of the more remote areas in the lower 48 states. This reputation of remoteness, in spite of the existing route network (“limited travel corridors”), was strong rationale for creating the Monuments. The Proposed Plan proposes to close 17% of the existing route mileage to public motorized/mechanized use in these Monuments. It thus makes sense that the Plan, even at its outset, is going to do more to enhance the remote character of the area than current management. Additionally, the extensive use of adaptive management monitoring would further ensure that the Monument objects and values are protected into the future.

Networks in the Monuments were re-evaluated in light of public comments regarding Monument object protection and numerous route-specific comments. As a result, some potential route designations were changed, while others remained the same (See Public Concern #12 on page 5-99).

A. To protect Monument objects, the fragile environment, natural and cultural resources, remoteness and the sense of isolation, wildlife and their habitat, sensitive species, natural quiet, scenic beauty, air quality, soils, and adjacent wilderness areas and ACECs.

Response: All route evaluations took these factors, as well as many others, into account. Additionally, the Monument proclamations 1) state that the existing “limited travel corridors” (i.e., existing route networks consisting of roads, primitive roads and trails) and 2) imply that historic use levels of the travel corridors have contributed greatly to protecting Monument objects. Both proclamations state, *“Full of natural splendor and a sense of solitude, this area (Monument) remains remote and unspoiled, qualities that are essential to the protection of the scientific and historic resources it contains...The Monument also contains outstanding biological resources preserved by remoteness and limited travel corridors”* [emphasis added]. Therefore, the existing travel networks and their historic use have not degraded the quality of Monument objects; quite the opposite. The text above indicates that the existing travel network is “limited,” in other words not extensive, not dense, not containing many higher standard (paved) roads throughout, and so forth. It was the “limited travel network” and its historic use levels that literally preserved at least one category of Monument object (biological resources), if not all Monument objects, to such a degree that the areas were deemed “worthy” of Monument creation. So, while greater restrictions and limits on travel networks are not currently needed to provide basic protection for and preservation of Monument objects, such actions, when taken, could enhance the degree of protection against the potential for new impacts related to possible increased public use of the Monuments. The Proposed Plan’s travel network looked comprehensively at access needs and opportunities to proactively fortify the protection of Monument objects. In doing so, it would effectively provide added protection to Monument objects by a reduction of redundant and/or resource degrading routes and a shift to administrative uses only for some routes, while continuing to provide “limited travel corridors” for access critical to valid existing rights, vested rights, administrative needs, and public recreation. Monitoring of visitation fluctuations, recreation site impacts, etc., for routes potentially designated as MO, ML, and C would provide the data needed to determine if, when, where, and what potential impacts might begin to threaten Monument objects from increased use or abuse of the travel network.

Open OHV areas was a part of the specific comment that generated the concern statement. All Open OHV areas proposed in the Proposed Plan in the Arizona Strip FO were re-evaluated in light of public comments, additional resource data, and a reassessment of the recreation supply, demand, and niche for the Strip. As stated in the Proposed Plan, the Open OHV area near Fredonia was determined not to meet the needs and safety requirements for local users; would

not be compatible with community development to the east; and would not be compatible with the management of the ACEC. Additionally, it created a strong potential for impacting the adjacent Kaibab Paiute Reservation lands. Managers and specialists also assessed the “supply” of open OHV areas in the vicinity and determined that Coral Pink Sand Dunes and Sand Mountain Open OHV areas provide large, readily accessible open areas that produce excellent opportunities for a regional off-road, motor sports market. However, in re-evaluating the need for an Open OHV area near Fredonia, managers and specialists did determine that the character of a smaller tract of public lands just southeast of Fredonia, north of Highway 89-A, and south of the Woodhill Road would be conducive to producing high quality, opportunities for a local off-road, motor sports market, without undue potential for the impacts listed above. Therefore, a new Open OHV area location was proposed for the Proposed Plan as depicted on Map 2.19. Many of the same resource concerns were expressed for the St. George Basin Open OHV area proposal. As a result, a smaller Open OHV area (see Map 2.19) would be designated, primarily serving as a staging area for both year-round, general OHV recreation and for authorized competitive and organized events. The staging area would provide an essential and critically needed close-to-town focal point in the proposed St. George Basin Rural Park Recreation Management Zone (RMZ) for local and regional users to link with a variety of trails and roads for exploration, general recreation, and for events.

B. To save taxpayer's money or to not financially overburden government agencies by limiting or reducing the number/miles of roads to manage/maintain.

Response: Closing roads, limiting roads to administrative use, and maintaining those closures and limitations are also expensive. Likewise, restricting and limiting public uses requires more, not less, funding for signing and enforcement. Though a designated route system for the Strip may contain hundreds of routes and thousands of miles, not all routes require the same intensity or standard of maintenance. In fact, the majority of routes classified as “primitive roads” would require infrequent and extremely low intensity of maintenance.

C. To allow for more effective and efficient law enforcement.

Response: More restrictions or limits on visitors require more enforcement effort than scenarios in which visitors are provided information with which to make educated and appropriate choices. Closing and rehabilitating routes and/or limiting motorized uses only to administrative, not public use, would not necessarily be more effective or efficient with regard to law enforcement. Continual monitoring/patrol of closed and limited routes would be necessary to ensure that closures stay closed and that limited routes remain closed to general public use. A well-planned, signed, and mapped motorized transportation system that minimizes unneeded closures and limits would be more effective and efficient to manage from a law enforcement perspective.

D. To protect the area for future generations to enjoy.

Response: Current and future generations do and will depend on a well-managed motorized travel system to access both motorized and non-motorized recreation opportunities. The current networks of routes in both Monuments are, by virtue of language in the proclamations, considered so limited in nature that they were major factors in preserving the quality of the objects in those areas before they were Monuments (see A above). While existing route networks and their current use are not degrading Monument values, the potential always exists for inappropriate behavior, by even a few visitors, to impact such values. Merely restricting or limiting motorized use or reducing route density even more than it is (see Public Comment #1 above), does not necessarily ensure protection of valuable or sensitive resources.

E. To reduce the spread of wildfire, especially into desert tortoise habitat.

Response: Well-graded roads in tortoise habitat actually help reduce the spread of wildfire by creating wide breaks in the flammable grass and shrub fuels. Most fires in this habitat are due to lightning, not motorized vehicles or human uses associated with vehicular use.

Public Concern #2 (TM2)

A number of respondents urged the BLM to follow the Arizona Wilderness Coalition transportation proposal by keeping 191 miles of existing roads open in Vermilion and 630 miles of existing roads open in Parashant. The reasons were similar to those identified Public Concern #1 above:

A. To reduce adverse impacts to resources (see reasons for Public Concern #1 above)

B. To protect the values for which the Monuments were created.

Response: See response to Public Concern #1, A-E, above. Decisions in the Draft Plan/DEIS, including those for the Route Evaluation Tree (RET), were made using the best available information. Given that more than 95 percent of the cultural resources on the Arizona Strip are not yet recorded, and understanding that the costs of obtaining 100 percent inventory of these resources in the Planning Area are prohibitive; BLM will follow agency policy on Section 106 compliance for designating OHV routes and areas in land use plans. The BLM has determined the appropriate effort to identify historic properties in light of the overall beneficial effects of route designation on cultural resources, the extensive size of the planning areas for which the BLM makes OHV-use area and route designations, and BLM's continuing management responsibilities for designated areas and routes.

The BLM focuses cultural resource inventory efforts where route or area designation may cause adverse effects to historic properties, recognizing that potential effects of proposed designations differ according to the extent of anticipated change in OHV use. Where there is a reasonable expectation that a proposed designation will shift, concentrate, or expand travel into areas where

historic properties are likely to be adversely affected, the potential for adverse effects is considered.

Area and routes open to OHV use would be monitored for impacts to resources, and a cultural resource specialist would be included on the team responsible for developing and implementing the monitoring standards and process. The monitoring standards and process would take into consideration the intensity and type of OHV use, the density and sensitivity of cultural resources in the area, and the potential for adverse indirect and cumulative impacts, including route proliferation. When monitoring is proposed to assess potential effects from route or area designation, the decision record would make it clear which mitigation actions should be taken, and when they should be taken, in order to minimize additional environmental analysis required prior to implementation.

An accurate inventory of routes in Parashant and Vermilion was completed for this planning effort. Designation of these routes is based on this inventory. Designation will reduce illegal proliferation of OHV routes and unauthorized OHV activities that would otherwise impact cultural resources. It will assist BLM law enforcement officers in enforcing responsible OHV use by allowing them to cite violators who drive off the designated routes. Route inventory continues in the Arizona Strip FO, after which the route evaluation and designation process will be conducted within five years of the ROD, as described in Appendix 2.T.

Public Concern #3 (TM3)

In regards to the travel management system, many comments submitted expressed the desire to "keep it the way it is." Some of these comments included the means to keep things the same and some provided the means for doing so.

Response: The Proposed Plan comes close to "keeping it the way it is," while addressing issues regarding protection of Monument objects and other sensitive resources in need of proactive management.

A. By limiting road closures and travel restrictions.

Response: The Proposed Plan strives to maintain existing necessary and desired access, while limiting the number of road closures and travel restrictions to only those needed to achieve the desired future conditions (DFCs) for the multitude of resources, resource uses, and special designations.

B. By not over-signing and only lightly maintaining roads.

Response: The BLM/NPS desire to keep signing to the minimum needed to accomplish specific objectives. With the designation of routes comes the responsibility to manage routes, albeit for a wide variety of route types and maintenance intensities. With a designated system, every route would have a route number. Route markers would likely be required for all routes open to some

form of use, whether public or administrative. The BLM/NPS would seek to minimize excessive route marking, while striving to inform users about which routes are open, closed, or limited. Large directional signs would continue to be reserved for use on large, primary (collector, local) interconnecting, frequently maintained routes in the Rural and Backways Travel Management Areas (TMAs). The BLM/NPS would also heavily rely on user-friendly maps, in concert with road markers, to inform users; improving their ability to find and stay on the designated travel system. With the wide variety of route types that would be part of any designated trail and travel system, comes the need for a variety of construction and maintenance standards. The table at Appendix 2.S-3 clearly shows this variety of standards. Because 56 % of road mileage is considered primitive (i.e. resource roads), their maintenance intensities would likely be very low. Only 44% of BLM road mileage (including Interstate 15, state roads, county roads, and BLM routes) would likely receive moderate to high intensities of maintenance.

C. By not building major developments (campgrounds, visitor centers, other facilities).

Response: The Plan does not propose to build any visitor centers within the Monuments or the Arizona Strip FO. Any such facilities would be considered only in or near communities, and only as a collaborative effort. (See page 2-167, Alt. E.) The Plan would not specifically propose new campgrounds or other recreation facilities at this time. Such specific proposals, if they would be major investments, would only occur as implementation actions in specific RMZs, if they were deemed necessary for producing targeted recreation benefits. As currently proposed, some RMZs target benefits that may require major investments in large facilities. St. George Basin Rural Park RMZ may require facilities to manage staging areas for OHV general and competitive uses. In the Extensive Recreation Management Areas (ERMAs), major expenditures for facilities would not be planned, due to the custodial management approach to these areas. Even in ERMAs, low-level development could occur if needed in response to public safety, user conflict or resource protection, but major developments would not be authorized.

D. By opening Administrative Routes to all users.

Response: During the process of route evaluation and potential designation, a number of routes pointed strongly to a need for closure and rehabilitation due to a) route redundancy or b) proactive enhancement of existing protection of sensitive resources. However, in many cases, such routes also provide access to valid existing rights, vested rights, or administrative sites, facilities, or projects, and as such, most were potentially designated as Administrative Routes, open for motorized access by the appropriate administrative user(s). Closing such routes to general public use, then, would attempt, as much as possible, short of closing the route, to achieve proactive resource protection without infringing unduly on a valid right or administrative responsibility. While this is a change from the "way it is now," the Proposed Plan would continue to provide much of the existing public motorized access, while protecting the special resources and values.

E. To provide adequate access throughout the Arizona Strip for a variety of uses, including recreation, natural resource and management, ranch operations, as well as users (e.g., the elderly and handicapped, big game hunters and their guides)

Response: The Proposed Plan would provide adequate and even excellent access throughout the Strip for a variety of uses. Where route evaluations and potential designations are being made as part of this planning effort (Parashant, Vermilion), each and every route inventoried was evaluated for many factors, not the least of which was, consideration of the variety of uses and users that currently use or may need to use the route in the future. The DFC statements and the Specific DFCs for TMAs on page 2-197 to 2-199 clearly state the objective to plan and provide for travel management “comprehensively,” i.e., considering all types of users requiring access, not just recreation.

F. Because plants and wildlife have not been harmed from past use.

Response: At some 7,134 miles of routes averaging 15 feet wide, the total area impacted (plants, soils, and some wildlife) is some 12,966 acres. To say “past use,” i.e. presence and/or use of roads, has not “harmed” is not quite correct. However, the majority of routes existing today on the Strip have been in place for decades, so the current and future use of these routes has not generally created new impacts. Most newer routes created by users off-route, are found in the urban interface areas, and the trend continues. Off-route travel, especially repeated travel off-route, does impact plants and can impact wildlife. So, while the continued appropriate use of authorized routes would not typically create new impacts to plants and wildlife, off-route travel can. Keeping things “the way they are” would also not involve off-route use, as there have never been any authorized open OHV areas allowing such use. The current resource management plan (RMP; BLM 1992), outside several closed OHV areas, is predominantly limited to existing routes. Staying on existing routes then would help to “keep things the way they are.”

G. Because forcing motorized vehicles onto just a few roads would hinder most from enjoying the area, and actually be more damaging than dispersing users on more roads.

Response: The Proposed Plan would provide opportunities for wide dispersal of motorized uses. Most vehicle use is already occurring along the primary routes, so any “damage” should already be evident. In addition, most visitor use and enjoyment is occurring along the same “few” primary and secondary routes. It would be true that if 1 million acres were only accessible by perhaps only 3 routes, 10 miles each, more damage and less enjoyment would occur. However, the Proposed Plan would provide abundant access opportunities with a low potential for “damaging” due to more dispersed users.

H. Because the roads in the areas being addressed were built for a reason and unless the reason has gone away, the roads should stay open.

Response: True, many, if not most, roads were built to serve grazing, mining, wildlife management, or other purposes. However, especially in the urban interface areas, numerous routes have been created by users merely driving cross-country when such use has not been authorized. In almost all cases where route-by-route evaluations have been conducted during the planning effort, any route that provides access to a valid existing right; a vested right, such as a grazing facility; or a management facility/use has not been identified for closure. However, in numerous cases, due to other important resource concerns, routes may have been designated as administrative use only (i.e., open for the specific user that had the “reason”, but not open for the general motorized public; see Public Concern #3 D above, page 5-68). In some cases, the “reason” for a route to exist may still be valid, but new mandates for resource protection may take precedent over keeping the route open.

I. Because it is probable that more than 90 percent of the people who recreate in the Monuments use motorized vehicles, and closing any roads would deny such use.

Response: The Monuments, by comprehensive route inventory, are shown to have some 2,390 miles of existing routes. The Proposed Plan proposes to manage 1,781 miles of routes that would be open to general public motorized, seasonal or non-motorized use. Therefore, the routes proposed for closure or administrative uses only (435 miles) represent only an 18 percent potential reduction in available routes. In addition, most routes identified for closure are not the primary routes that “90 percent” of the visiting public uses to access recreation opportunities in the Monuments. The result is that recreation opportunities tied to motorized modes of travel in the Monuments would be negligibly affected by the designated travel system proposed in the Proposed Plan.

J. Because restricting access to federal lands is bordering on discrimination.

Response: In evaluating and designating individual routes, we took a careful, deliberate approach that reflects the need to provide for public access and legitimate uses while protecting important resource values. In some cases, this meant restricting use of individual routes in order to protect resources.

K. Because sportsmen groups and ranchers do much of the road/trail improvement work and thus need adequate access.

Response: The BLM/NPS are not aware of sportsmen groups that perform road/trail improvement work in the Planning Area. However, many ranchers do carry out road maintenance as part of the management of their grazing allotments; ensuring access to various facilities on an allotment. The Proposed Plan would not preclude motorized access for ranchers to facilities. In all cases where their facilities are located along routes that have been proposed as Open, their access is ensured. Moreover, in cases where, for resource protection purposes, certain routes are closed to public motorized use, if range facilities lie along such routes, continued access would be ensured. In the Monuments, the Proposed Plan would continue to

provide 84 percent of the motorized access that existed under the previous plan for ranchers—a loss of only 16 percent. For sportsmen groups in the Monuments, 74 percent of existing access would continue to be available, while 26 percent would be unavailable (14 percent administrative use only and 12 percent closed to all use.)

L. Because the management trend of motorized closures is not responsible to the public's needs for motorized access and recreation and is contrary to the multiple-use management directives specified by congress.

Response: The motorized closures proposed by the Proposed Plan would be responsive not only to the protection mandates of Congress, but also responsive to motorized recreation as well. Again, the Proposed Plan's route designations for the Monuments would continue to provide 74 percent of the public motorized access that existed under the previous plan—a loss of only 26 percent. See Appendix 2.T-4, 5 for various references that address laws that Congress also enacted that affect “multiple use.”

M. Because motorized recreation is a viable use of Public Lands.

Response: Motorized recreation activities are legitimate uses of the Public Lands. This is clearly demonstrated in the DFCs and the Specific DFCs for TMAs, with the exception of the Primitive TMA. The Proposed Plan reflects this legitimacy and it portrays a more proactive effort to target the benefits of motorized recreation experiences (e.g., many RMZs are aimed at producing high quality, sustainable motorized recreation activities).

N. Because the Arizona Strip was not meant to be like a State or National Park (e.g., Snow Canyon, Zion, Bryce) in terms of restricted travel.

Response: While the Planning Area is not a National or State Park, many designations and environmental laws require management that must, under certain circumstances, restrict many kinds of uses, sometimes including travel. See Chapter 1 for partial list of such laws.

O. Because the closure and restriction of existing routes that have been enjoyed by the public for a long period in history should not be closed or restricted without clear evidence of impairment or degradation.

Response: See response to Public Concern #3 A, F, H, J, L, and N, above.

Public Concern #4 (TM4)

A number of people commented on the Route Evaluation Process. Some indicated support for the process, while others had more specific issues or concerns about the process and, more specifically, about the use of Route Evaluation Tree (RET):

A. The route assessment rests largely on computerized numeric analyses that the public cannot examine, challenge on a technical basis, or even comprehend.

Response: The RET software assists in the systematic collection of statutorily required data that must be considered by the agency in its decision. The actual analysis is not done via the software or computer, but by agency staff and in the EIS. The RET process and the data which it helps to collect have been made available to the public in several formats (e.g. public meetings and in the DEIS) and at several different levels (e.g. the process has been described using flowcharts, short descriptions, and lengthy narrative text in the appendices). The data have been shared via WORD documents in Route Reports, in database formats, and visually via GIS produced maps. The RET Process is explained in Appendix 2.T. The diagram of the RET (step 17 of the entire 25 step process) is included within that Appendix. The Evaluation Tree is a flowchart whereby each question and response follows a specific path to potential designations that are based upon how the sequence of questions was answered.

The Evaluation Tree process is a planning and data-management tool that helps the public and agency staff to see route and landscape issues, benefits, uses, and concerns, while providing possible options for management decisions. The tool is flexible in that it can present different options reflective of new data, but those options are continually subject to feedback. The Evaluation Tree is not a statistical model that leads to certain outcomes nor does it use numerical analysis to lead to an outcome. The Evaluation Tree process was presented to the public during scoping meetings for the DEIS. Additionally, it was displayed at the public meetings during the comment period on the DEIS. During both sets of public meetings, which were held in several venues throughout the states of Arizona, Nevada, and Utah, agency personnel were available to address any questions, suggestions, or challenges that the public might have had regarding the Evaluation Tree process. Additionally, staff members were available to clarify and enhance the level of comprehension of the public of the process. Lastly, the public had the opportunity to review and carefully examine the detailed description of the Evaluation Tree process, as well as its database output in Appendix 2.T of the DEIS and provide any comment or questions related to the process.

B. The "RET" process does not demonstrate compliance with the requirements of Section 106 of the NHPA, especially for unauthorized roads, such as user created roads/routes that have never been evaluated.

Response: See response to Public Concern #5 G, page 5-79, BLM will follow agency policy on Section 106 compliance for designating routes in land use plans. The RET process was not meant to demonstrate compliance with the requirements of Section 106. The RET process assists staff with the collection of data and the consideration of that data for use in the EIS which would be used to help demonstrate compliance with NHPA. The narrative of the EIS is the place to demonstrate compliance. The Evaluation Tree process is not a substitute for NEPA analysis or Section 106 compliance requirements. Rather the Evaluation Tree serves as a tool to assist with planning and data collection by identifying information regarding Section 106 compliance.

The Evaluation Tree demonstrates consideration of pertinent statutes, but does not perform the analysis required to achieve compliance. The NEPA documentation (e.g., DEIS) and agency-to-agency consultations are the activities that lead to compliance. Additionally, the origin of a route may not always indicate whether the route should be open, limited, or closed. For example, the assumption is often made that many user-created roads/routes that have not been evaluated and/or are not part of a specific inventory were illegally established and unauthorized when, in fact, their creation may have been authorized under an Open Area designation or via a special use permit (e.g. grazing allotment permit, organized race permit, etc.). As a result, some user-made or other undefined routes may be determined to be appropriate, particularly as a replacement for a poor route, or in order to create appropriate travel loops. During a planning project, routes may be closed, recognized as officially open (or limited), or even proposed for new construction if it is determined that doing so would be appropriate under the statutory constraints and management goals and sideboards developed during the NEPA process. Amongst the various factors that are considered during route evaluation and designation, the protection of sensitive natural and cultural resources are given the highest consideration.

C. The decision tree does not seem to have actual data imbedded in it to actually make decision.

Response: The RET database does have imbedded in it some of the actual data that assisted in the evaluation and eventual decisions concerning route designation. Additional data was also considered during the route evaluation process. This data was brought forward by agency technical staff during the route evaluations meetings and was derived from a variety of sources, including, for example, their professional judgment and experience and the extensive agency GIS coverages. Due to the volume of information, not all of it was recorded in the RET software database. Additionally, much of this data was not recorded in the RET database because it was already stored in the agency GIS database. Additionally, the EIS includes additional supplemental data and some of the reasoning that was applied to actually making some of the decisions.

The Evaluation Tree is not a decision-making process. The decision on route designations can only be made by the appropriate manager within the agency and is based upon the recommendations made by the staff and analyzed in the NEPA documentation. The Evaluation Tree is a tool to organize data in a trackable, systematic, retrievable, analysis-ready format. The Evaluation Tree does not designate routes; the agency designated the routes. The Evaluation Tree evaluates routes based upon the data known to, or received by, the agency and inputs that data into a database through a series of questions pertaining to routes. Once the data has been collected and the questions have been answered, the Evaluation Tree provides a potential designation or range of potential designations to the agency staff for consideration. During the NEPA process, the agency staff will develop a range of alternatives as required by NEPA and, based upon the sideboards of each alternative, identify draft designations of routes. All final route designations will be identified by the agency staff, not the Evaluation Tree. The proposed

designations made by the agency staff will be recorded in a database developed for use with the Evaluation Tree process.

D. Justification on how each route contributes to preserving Monument Objects is not provided in the decision process.

Response: The RET process assists staff with the evaluation of routes and with the development of recommendation for route designations. The protection of Monument objects was discussed before the actual start of route evaluations and then repeatedly throughout the route evaluations themselves. As a result, the protection of Monument objects was always considered by staff as recommendations for route designations were made. Additionally, both before route evaluations began, as well as with the start of each new sub region, how each alternative might address the protection of Monument objects was discussed. For example in the Pakoon sub-region, where the Monument object, desert tortoise and its habitat, was recognized as a key concern, discussions amongst agency specialists did take place with regards to how each alternative on a landscape or cumulative scale might handle its protection. Additionally, as individual routes were being evaluated by agency staff, vocal reminders were continually given during the RET process about the need to take a “hard look” at maintaining, if not furthering the protection of Monument objects. The RET process does not make decisions. Only through the analysis contained within the NEPA document is a decision finally made. Justification of how route designations may or may not contribute to the preservation of Monument objects was specifically addressed within the NEPA document by analyzing the cumulative effects of each alternative’s route network on Monument objects. Also see response to Public Concern #1 A, page 5-63. This specific type of data analysis is performed during the NEPA process, not during the use of the data-gathering tool. However, because it is recognized that these and other similar issues may need to be addressed in the NEPA documentation, discussions of these issues and the effects of route designation on them are part of discussions occurring both before and during the actual evaluation of routes. The RET process has been designed to anticipate some of the data needed for NEPA analysis and, as a result, asks a variety of questions require knowledge of route specific information and of issues at a larger scale, or “landscape perspective” (e.g., migration corridors, route densities, issues, winter ranges, etc.). During the NEPA analysis phase, information collected by the Route Evaluation can be used to assist in assessing the overall impact of each route and/or each route network as proposed under each alternative.

E. Information in each route evaluation form that explains the basis for answering "yes" or "no" to the Evaluation Tree question on impacts on specially-protected resources and Monument Objects is not provided.

Response: The RET database does include some of the data that supports the basis for answering “yes” or “no” to the Evaluation Tree questions. The route evaluation forms that were filled out were not intended to be all-inclusive of discussion material and data that were brought forth during those discussions by agency staff. As mentioned above, discussions between agency staff took place for each individual route as it was evaluated. These individual route

discussions were in addition to those that were broader in scope or at a landscape perspective and that assisted in the preliminary consideration of some of the cumulative effects of route designation recommendations. The data, some of which was recorded on the route evaluation form, was brought forward by agency technical staff during the route evaluations meetings and was derived from a variety of sources, including extensive agency GIS coverages (approximately 150 different resource data themes), field log books and reports, as well as the staff's professional judgment and experience (e.g. many of the technical staff had spent much of their career on the Arizona Strip). Due to the extensive nature of information and discussions, it was not possible to record everything on the route evaluation forms or within the RET software database. Additionally, much of this data was not recorded in the RET database because it was already stored on coverages within the agency GIS database. Finally, the EIS provides additional data and narrative describing the reasoning for the recommended designations that ultimately help to create the recommended route network under each alternative. The Evaluation Tree is formatted as a flowchart with the topical questions designed to provoke thought and discussion related to numerous factors that must be considered during route evaluation and potential designation (i.e., commercial, administrative, and private property access; resource impacts; and public uses). The key concept of the Evaluation Tree is the specific items that are identified for each route, not whether or not the trigger question was answered "yes" or "no." The same level of evaluation could be performed without the "yes" / "no" questions because the same type of information would be gathered. During the route evaluation process, information about each area and the routes within an area was discussed. Additional information about the routes was identified on route sheets and that information is presented on the route reports in the DEIS.

F. The RET process places an inappropriate amount of weight on recreation opportunities and the public use access in determining whether to "open" roads, and not enough on the protection of cultural and historic resources.

Response: The RET process assists agency staff in the systematic consideration of the various statutes that have bearing on the formal designation of routes and route network. The RET process software also assists agency staff in the recordation of some of the data related to those statutes that were considered during the route evaluation process. The RET process or its software does not weight the data; however, the data is weighted by agency staff in accordance with the Plan's DFCs and the various management goals for each alternative (which are developed by agency staff). This weighting of different types of data (e.g. impacts on sensitive species, level of motorized recreational access, etc.) and its importance value within the framework of an alternative is determined by agency staff as each alternative is being developed. In accordance with NEPA, as part of the requirement of creating a reasonable range of alternatives, agency staff within the constraints of the various statutes and in accordance with the management goals of each alternative may weigh various factors (e.g. recreational access) differently. Agencies manage many resources, such as vegetation, wildlife habitat, recreation, and soils. Agencies also must comply with statutory requirements to address specific issues. Recreational use of the land by both non-motorized and motorized users is one of many

considerations examined during the route evaluation process, along with the need to manage various resources and to comply with statutory requirements. Following the questions in the Evaluation Tree in sequence does not imply one piece of information is more valuable than another. Rather, it provides a logical progression for information gathering for each route to avoid missing key information.

The “importance” value placed on each piece of data is provided by the range of alternatives developed as part of the land use planning process. Each alternative looks at the same data, but may address that piece of data in a different manner based upon the sideboards developed for the alternative. Once the route has been evaluated, each alternative “weights” those items that are of greater importance to the objectives of the alternatives as they deem correct. Additionally, knowing that a route is within a specific type of area (e.g. Wilderness, ACEC, ROS primitive, etc.) will affect all alternatives as those areas may have specific travel management directives that must be adhered to, thus leading each alternative to a specific designation (e.g. “Close”). Under the sideboards for one or more alternatives, it may be determined that a route should be closed when there are resource impacts identified. However, the Evaluation Tree continues to gather data as information regarding public uses (recreation) and route redundancy may be beneficial to agency staff in the planning process. If a route impacts a sensitive resource and the evaluation process of data collection immediately ends, then no data is gathered about recreational uses of the route. When the impact analysis under NEPA occurs, insufficient data would be in existence for adequately addresses the cumulative impacts to other areas that may result from displaced recreational use from each closed route. If data is assigned different importance levels too early in this process, it may cause us to lose an opportunity to collect all relevant data related to those routes and therefore prevent a complete evaluation of the cumulative effects of the actions proposed. We might also not see opportunities to mitigate or develop alternatives that might better resolve an issue. In this early stage, we may need to rely upon the professional judgment of certain agency resource specialists (e.g., future need for a route at it relates to a specific discipline), but to the extent possible, the data are not assigned different importance levels in the early stages. In the NEPA process, as criteria are developed for creating a range of alternatives, different factors may be assigned levels of importance based upon the management goals and thresholds of acceptable impact of that particular alternative. However, any alternative that is created has to meet the NEPA standard of being “reasonable” and therefore statutorily compliant. Competing interests have more common ground than is often realized, and we wish to collect neutral data on the routes before delving into the interests of those parties. The data need to be in place first to reveal solutions for dealing with conflicting interests, and for the parties involved, to better understand the complexities of any issue. The NEPA process requires the creation of a range of alternatives before developing the Preferred Alternative. It is within that range that impacts, benefits, uses, and concerns are assigned different importance levels based upon the sideboards developed for each alternative, (e.g., an alternative showing the relative greatest protection of resources and one showing the relative greatest opportunities for motorized vehicle access).

G. Route evaluation as part of future route network maintenance and management (re-evaluating routes in the future) [Comment Info ID 152, Letter ID 48, Comment No. 5; sub concern added by ARS from comment letters].

Response: Travel management planning would be further discussed as part of an implementation level planning process following the Record of Decision (ROD). Amongst other topics, the implementation plan would identify issues relating to route network modifications that may be required in the future and would include the identification of a process for re-evaluating routes as necessary.

Public Concern #5 (TM5)

Some people were concerned about the completeness and accuracy of the route inventory and expressed a desire to know when the route inventory for the remainder of the Arizona Strip would be completed.

Response: Route inventory was completed for 100 percent of Parashant and Vermilion. Inventory for remaining Arizona Strip FO lands is approaching completion with some 250 miles of remaining routes requiring field inventory. Any remaining inventory and data quality assurance efforts would be completed as soon as funding permits. Completion is targeted to occur in Fiscal Year 2007. As part of the ensuing route evaluation and designation process for the Arizona Strip FO lands, public involvement would include the opportunity to review and comment on the completeness and accuracy of the route inventory.

A. Implementing the Plan will be a problem due to the amount of un-inventoried area.

Response: Plan implementation would not rely on having all routes in the entire Planning Area inventoried and designated by the time the ROD would be signed. Knowing that completing all route inventory, evaluation, and potential designation would not be possible during the land use planning effort, it was decided to prioritize the Planning Area, beginning with the two Monuments. Route evaluations and potential designations for the remaining lands would proceed immediately following the ROD and meeting applicable requirements for following agency policy on Section 106 compliance for designating routes in land use plans. Priorities for evaluating and potentially designating sub-regions would be placed on Littlefield and the St. George Basin. One commenter was concerned that BLM would “not have route inventories complete until five years after the final plan is adopted.” The reference on page 1-21 of the DEIS actually states *that “those routes not able to be designated within the timeframes of the planning effort will, following inventory, go through an evaluation and designation process with public participation within five years of the signing of the ROD.”* Appendix 2.S-2 states that the transportation plan (developed primarily for designated routes) would also contain a schedule for completing route evaluation, public involvement, and a designation process for the sub-regions mentioned above. To clarify then, the route inventories would likely be complete in 2007. By BLM policy, the route evaluation and potential designations must be complete within 5 years of the ROD.

B. The Plan leaves no option to later close trails that were originally approved to be open.

Response: The commenter points out the deficiency and confusion of terms on page 2-196 of the DEIS which states, "Roads causing resource damage or with safety concerns could be rerouted and/or reclaimed," and on page 2-197, "Newly constructed (i.e., temporary) access would be reclaimed after termination of the specific need." Similarly for Parashant, page 2-197 of the DEIS states that, "Existing roads would be closed and rehabilitated where public or administrative needs cease to exist or where there would be unacceptable impacts to resources/Monument objects," and page 2-200 states, "...closed routes would be removed from the transportation plan." Each decision was clarified by using the more encompassing term "route," as the intent of each decision was to include all of the following "route" types: road, primitive road, and trail.

C. The Plan may not consider routes that are "on the ground" but not in the GIS database.

Response: The overall objective of the route designation process is to make decisions for all known routes. If GIS has missed a route and public comments reveal the oversight, then the route would be added to the inventory and a decision developed.

D. A thorough inventory of roads necessary to make informed decisions about which roads need to be closed has not been completed.

Response: See response to Public Concern #5 A, above. This would be true for Arizona Strip FO, but not true for the Monuments. However, route inventory is ongoing and expected to be completed for Arizona Strip FO sometime in 2007.

E. As route designation has not been completed for most of the Arizona Strip FO, it is not reasonable to complete a detailed transportation plan for the area.

Response: While detailed transportation plans for a sub-region or combinations of sub-regions would eventually follow route designations for Arizona Strip FO, a certain level of transportation facilities management needs to be in place for the interim period, including a map for public use. Managing the existing network until future designations are made requires a strategy. Pages 2-195, 196, 199, 200 in the DEIS provide the strategy. In addition to the items mentioned above, a section of each transportation plan would be dedicated to spelling out a planning sequence and a schedule for completing the Arizona Strip FO route evaluations and designations within five years of the ROD.

F. The more narrow routes as well as two-track are not recognized as part of the transportation network.

Response: Closer inspection of the planning maps, route reports, and mileage figures reveals that almost 5,000 miles of “primitive roads” and 70 miles of “single-track trails” are not only part of the route inventory, but many primitive roads would also be part of the designated transportation system for Parashant and Vermilion.

G. There is no evidence that the BLM made any effort to inventory each road for cultural resources.

Response: The route evaluation process for the Monuments made extensive use of existing cultural resource data where such data exists. By following agency policy, compliance with Section 106 for route designation would be conducted and would anticipate the nature and effects of route designations. BLM would focus cultural resource inventory efforts where route or area designation may cause adverse effects to historic properties, recognizing that potential effects of proposed designations differ according to the extent of anticipated change in OHV use. Where there is a reasonable expectation that a proposed designation would shift, concentrate or expand travel into areas where historic properties are likely to be adversely affected, the potential for adverse effects would be considered. Additionally, BLM/NPS would utilize the cultural survey data provided by Circa Consulting, Inc., in tandem with existing data, to help determine needed field inventory locations.

H. All existing routes are not included in the inventory and brought forward for designation due to concern for wilderness characteristics.

Response: The commenter’s main concern was that all routes inventoried in areas where identified wilderness characteristics would be maintained should also be designated as part of the designated travel system. The commenter did not want any routes in such areas closed based on the wilderness characteristics allocation. The commenter reminded the BLM/NPS that these areas could not be managed as if they were WSAs or for future wilderness designation. The commenter sees the possible limiting of some routes in these areas to administrative use only, or the possible closure of some routes as tantamount to BLM/NPS managing for de facto wilderness. The fact that the areas proposed for maintaining wilderness characteristics are roadless - totally without any existing road, primitive road, or trail - makes the concern somewhat moot. Finally, the management decision referenced on page 2-115 of the Draft Plan/DEIS is merely a reiteration of the OHV area designation found on page 2-189, which reveals that the vast majority of the Planning Area under the Proposed Plan would be “limited to designated roads and trails.”

Public Concern #6 (TM6)

Some people requested a clear or precise definition of a few words or phrases that relate to Travel Management:

A. Define "Administrative Use"

Response: This term has already been defined on page 1 of the Glossary in the DEIS.

B. Define "Primitive Road"

Response: This term has been added to page 22 of the Glossary in the DEIS.

C. Clearly define "reasonable" in the sentence on page 2-190, "in National Monuments and along national trails, motorized use would keep with the designated route with reasonable use of the shoulder..."

Response: The entire decision statement comes from IM AZ -2005-007, Attachment 1-4; statewide guidance from the Arizona State Director. The American Heritage Dictionary (1985) offers these definitions: "2. Governed by or in accordance with reason or sound thinking. 3. Within the bounds of common sense. 4. Not excessive or extreme, fair."

D. In regards to the allowancing for camping in "disturbed" areas, please clarify how "disturbed" may be interpreted.

Response: The decision referenced was modified to allow vehicle camping only in "...existing sites where previous camping use is evident." Therefore, the term "disturbed area" was deleted.

E. In regards to the allowance for motorized vehicle use on existing trails and roads, a clear definition of "trails" needs to be provided.

Response: This term has already been defined on page 29 of the Glossary in the DEIS.

F. The Physical Setting Characteristics for TMAs sound very much like Visual Resource Management (VRM) II - we suggest rewording such that VRM II language only be used in areas that are allocated for Specialized and Primitive TMAs.

Response: The Land Use Planning Handbook (H-1601-1), Appendix C, for Comprehensive Travel Management states that in delineating TMAs, among other factors, consider, "*setting characteristics that are to be maintained (including recreation opportunity system and VRM settings).*" As defined in the Specific DFCs for TMAs in Table 2.15 of the DEIS, physical setting components do contain direct references to the range of proposed VRM designations that would typically apply to each TMA; paraphrased from the Table 2.8, Visual Resources designations. While VRM designations would be applied to all acres in the Planning Area depicted in Table 2.8 of the DEIS (overlying TMAs and other allocations), the direct references to potential VRM designations in the DFCs for the TMAs are deleted for the sake of clarity.

G. It is unclear who "administrative public access" covers; "administrative use" is defined in the Glossary, but "administrative access" is not.

Response: A search of Chapters 1, 2, 3, and 4 revealed no use of the term "administrative public access." The term "administrative access" was used twice in the DEIS (2-186 and 2-187) to portray the concept of "access for administrative users." Because "administrative use" is defined in the Glossary (page 1) and "administrative access" is not, the two references have been reworded to say "access for administrative users" to clarify the content.

H. The definition of "road," "route," "trail," and "maintenance" in the glossary seemed aimed at creating a potentially impossible situation for any visitors seeking motorized recreation.

Response: Maintenance, a standard definition from IM AZ -2005-007, Attachment 1-5, actually contributes to BLM/NPS capability to manage for primitive roads that provide, among other activities, opportunities for enjoying various modes of motorized recreation. The definition recognizes the agencies' need, from an engineering and recreation perspective, to manage for a variety of maintenance intensities on routes that are important for diverse aspects of motorized recreation and remoteness. Road, route, primitive road, and trail are standard BLM definitions in the Glossary. They all provide and/or imply a spectrum of motorized modes as part of their definitions. Moreover, route is merely a term that encompasses roads, primitive roads, and trails (see Glossary).

I. A more precise definition of "access," "routes," and "roads" is necessary. The term "access" should be used to denote all types of access (both motorized and non-motorized). The words "motor vehicle" should be included whenever "access" refers to motor vehicle access.

Response: Road and primitive road are already defined in the Glossary in the DEIS. The term "route" is already defined by IM AZ -2005-007, Attachment 1-4 and is in the Glossary of the Draft Plan/DEIS. A review of the use of the term "access" in Table 2.15, Travel Management, Chapter 2, revealed that the term was used often, and often its use connoted different meanings, such as "travel mode", "travel", "entry", "entry portal", "use", "routes" or "access" merely added as an additional adjective. To clarify its use, a dictionary definition of "access" was added to the Glossary in the Proposed Plan/FEIS. Additionally, the Travel Management sections of the Proposed Plan/FEIS were edited, ensuring that the most appropriate terms (see above) are used within the context.

J. Include a consistent definition of "route" and "road," and revise the alternatives to only include routes that meet the definition of "road" (Road: as used herein (a linear route), a transportation facility used primarily by vehicles having four or more wheels, documented as such by the owner, and maintained for regular and continuous use. IM No. AZ-2004-021).

Response: With regard to “including a consistent definition of route and road”—see responses to Public Concern #6 H. and I, above. Assuming the commenter was also suggesting consistent use of the two terms, a review of the use of the terms “route” and “access” in the Travel Management sections was completed. To clarify use of the terms, the Travel Management sections were edited, ensuring the most appropriate term is used within the context. As for revising “alternatives to only include routes that meet the definition of road:” H-1601-1, Land Use Planning Handbook, Appendix C, page 18 states that BLM will, “Complete a defined travel management network (system of areas, roads and/or trails) during the development of the land use plan, to the extent practical.” With the recent inclusion of “primitive road” to the list of transportation system assets (existing assets were “road” and “trail”), planning for a travel management network, as described above, is now able to be more comprehensive in nature; taking into consideration the wide variety of existing and future travel needs and modes.

Public Concern #7 (TM7)

An array of comments was directed towards the impact analysis of Travel Management. Many felt that important data were missing and needed to be obtained, or that additional work was necessary to strengthen analysis of impacts relating to the travel management system:

A. Consider the disproportional adverse impacts the proposed action would have on motorized recreationists, mitigate the significant impacts due to the loss of motorized access and motorized recreational activities, consider the cumulative effect of motorized recreational closures and reduced access, and consider the displacement of visitors.

Response: Routes were carefully analyzed for their uses (e.g., administrative, commercial, private property access, and recreational), as well as for their potential or known impacts to sensitive resources (e.g., cultural resources, Monument objects and values, special status species and their habitat.) by a team of agency specialists utilizing the best information available. The Preferred Alternative’s proposal to close a number of motorized routes within the Planning Area was done only after a “hard look” or careful deliberative consideration was made at the potential impacts to all visitors, (including administrative, commercial, private property interests, and recreational). Because of this interdisciplinary effort, the resulting proposed preferred motorized route network provides necessary access for administrative, commercial, and private property interests, as well as a variety of route experiences, challenges, and destinations for motorized recreationists, while still protecting the Monument objects and values and other sensitive resources within the Planning Area. Given the various resource mandates to which the BLM must adhere, including the Monument proclamations, the motorized recreational public was not unreasonably impacted. Relative to other motorized users (including administrative staff, commercial operators, and private property owners) and other recreational interests that must drive to initiate their activity, (such as hikers, equestrians, picnickers, etc.), the motorized recreational public were not disproportionately impacted. Due to the careful consideration of the route evaluation team to ensure to the extent possible that the network of routes provided

reasonable access to various points of interest (e.g. campsites, scenic overlooks, staging areas, picnic areas, etc.) and provided for a range of recreational opportunities, few points of interest or recreational opportunities are no longer easily accessible by the public. Additionally, the variety of routes left open for motorized recreation affords the public numerous options for each of the various modes of motorized travel, as well as for the various levels of experience or technical challenge. This outcome of not significantly impacting motorized recreationists was largely the result of minimizing potential or known environmental impacts through the closure of routes that were assessed by the evaluation team as generally redundant or duplicative of other routes. These observations and conclusions are supported by available data, for example, 98% of the currently document primitive campsites are still available for access by the motorized public either year-round or seasonally. Also see response to Public Concern #3, M on page 5-71; #7, D, F, M below; #14, B on page 5-100; and Recreation Public Concern #66, #67, and #67 A, on pages 223, and 226.

B. Consider a wider range of impacts that roads and OHV use can have on resources (e.g., spreading invasive weeds, allowing vandals to access cultural sites, harming wildlife), and consider such impacts for the long term, cumulatively, and in face of the region's explosive population growth over the next 20 years.

Response: The possible impacts the commenter mentions are discussed in the appropriate sections, i.e., vegetation, cultural, wildlife. The Travel Management section of Chapter 4 analyzes the potential affects to travelers. A review of the "Methods and Assumptions" used to analyze impacts in the Travel Management section in the DEIS (4-292, 293) points to an analysis made from the perspective of "impacts to travelers." In other words, it looks at how the actions proposed in any part of the Plan would affect the opportunities for travelers (the public, recreationists, administrators, private inholders, etc.) to move into, within, or across the Planning Area. This overlaps some analysis in other sections (e.g., effects of travel decisions on AGFD administrative access may already be discussed in wildlife section). Additionally, the multidisciplinary team that evaluated the route system and involved in this planning document consisted of a variety of specialists, including range specialist actively involved with noxious weed control programs; local agency cultural specialists using sensitive data identifying not only known sites, but also modeled high probability polygons; and BLM and NPS wildlife specialists, with input from USFWS and AGFD specialists. This team not only considered known impacts, but also potential and cumulative impacts over the long term with the knowledge that this region's population growth is projected to "explode" over the next 20 years. Specifically, before and during the evaluation of individual routes, the multidisciplinary team held lengthy discussions regarding any known or potential concerns (e.g., specific special status species), impacts (e.g., harassment of specific species in specific areas during nesting or reproductive periods), or trends (e.g., increased incidence of commercial organized OHV tours originating from specific towns adjoining the Monuments and going to specific areas of the Monuments). These discussions illuminated landscape-level issues and assisted in the fine-tuning of landscape level goals, some of which were common to all alternatives and others that were alternative-specific. These discussions also served to assist the team with its consideration of the cumulative

effects of its actions in the next step of the process as individual routes were evaluated and designations recommended for each alternative. For example, the route evaluation team members and the planning team as a whole discussed how the “remote character” of Parashant (i.e., a Monument object) could be preserved into the future, especially in light of the population growth projects for the surrounding area. Many ideas were discussed and actually suggested on a route by route basis for protecting the remote character, including 1) closing specific routes to motorized use; 2) limiting type of motor vehicle user (e.g., motorized administrative use only), type of motor vehicle (e.g. OHV only), season of use (e.g. seasonal closure to motorized use during periods of high resource sensitivity), group size, or to permitted use only; and, 3) applying adaptive management monitoring. This latter technique allows fine-tuning of specific solutions for specific issues or areas, and enables management to be highly adaptable to changing and/or unforeseen circumstances. In the above example, dealing with protecting the remote character of the Monument, direct field monitoring (e.g. visitor surveys) could track visitor perceptions of the condition of “remote character” and, based upon pre-established thresholds enumerated in the forthcoming Implementation Plan, warrant changes in the management of the Monument. For example, depending upon the specific circumstances, any of the options of route closure or limitation discussed above could be placed upon the motorized use of routes.

C. Chapter 3 should acknowledge that existing routes reflect previous disturbance and their continued use is not new surface disturbance.

Response: Existing routes reflect a current condition from which changes are assessed. Chapter 3, Travel Management, was modified to add that the existing “network footprint” consists of “various existing route types.” Chapter 3 discusses the environmental baseline. The continued use of these existing routes and any associated disturbance is actually content for Chapter 4. While the routes themselves may not be new surface disturbance, continued use or changes in existing use levels could result in additional dust, noise, off-road impacts, social encounters, etc. These could be considered new impacts and are described in the appropriate Plan sections.

D. Map 3.35 should show that there would be organized, motorized recreational trail systems (e.g., High Desert Trail System).

Response: While the High Desert Trail System in Utah/Nevada has a conceptual/planning corridor, such a corridor through the AZ Strip has not yet been delineated or proposed in this Plan by supporters. A general concept for a trail that would connect Mesquite, Nevada to the Kanab, Utah vicinity, by crossing the northern portion of the Arizona Strip, has been discussed in planning meetings by supporters. Without specific details (such as location) to consider, a specific trail could not be evaluated as a land use plan-level decision. More practically, actual planning and delineation of such a trail on the public lands would be considered and carried out as an implementation action. As a non-existent trail, it would not be appropriate to show on Map 3.35, which currently shows existing recreation settings, key attraction sites, trails, Special Recreation Management Areas (SRMAs), and wilderness. The same would be true for several other conceptual trail systems (Hurricane OHV Trails, Kanab-Fredonia Trail System).

Consideration of specific routes would be more practically done during implementation of the RMP, especially during the route evaluation and potential designation process for sub-regions across the northern tier of the Arizona Strip FO. In Table 2.15 of the DEIS, under E.1.b., Potential Trail System Designations, the trails listed already exist and E.1.b., merely states their status and name. A High Desert Trail (or appropriately named AZ segment), as well as references to the Hurricane and Kanab-Fredonia proposals were added to “Other” with a status statement reflecting the trails as conceptual, but possible. This establishes the possibility of plan conformance for such trail proposals and allows for implementation planning if and when the proposals come. It does this without locking in a set of routes/trails that would not have undergone site-specific analysis and that may be determined, during later site-specific planning and evaluation, to not be the best routing for the proposed systems. Also, Table 2.15, II.B.1.a. allows for the development of new routes (roads and/or trails) under various circumstances. The DFCs and the reference under E.1.b. should set the stage for future evaluation and delineation of these kinds of trails.

E. Under existing conditions/Recreation Activities (p. 3-157), reference should be made to the Rhino Rally, Tri-State ATV Jamboree, exploration, and driving for pleasure.

Response: Page 3-146 in the overview section of recreation in the Planning Area of the DEIS states these uses more clearly and specifically. However, page 3-157 was lacking in several of the items listed in the comments. These were added in the FEIS, both the Recreation Activities section as generic activities, and to the Recreation Administration – Visitor Limits and Regulations; Permits and Fees section as specific references to these important competitive/organized event permitted activities.

F. Under Recreation Management - Resources, Signing, Facilities should include the potential for staging/parking areas, designated trail systems, and organized Jamboree rides.

Response: The commenter included this concern with other concerns under a heading of “Chapter 3, Affected Environment.” The substance of the statement would be more appropriately a Chapter 2, Alternatives concern and will be considered. The potential for “staging/parking areas” and other related facilities would be initially expressed in the physical setting description for the Rural TMA in Table 2.15 of the FEIS. In Table 2.14, I.,C.,1.,a., it is emphasized that “areas for signing and/or recreation facility placement in the Arizona Strip FO would be in the Rural and Backways TMAs.” Additionally, in several SRMA/RMZs, such facilities are possible. By checking the specific RMZ’s prescribed Physical Setting described in Table 2.14a (such as “Rural, with regard to remoteness and facilities”) and then by reading the description of that setting in Appendix 3.H-2, ROS for the Physical setting factor of “Facilities,” appropriate levels of potential facility development for the RMZ can be seen. For example, in the St. George Basin Rural Park RMZ, the niche would target the day-use adventure along structured travel systems and the Physical Setting prescription for Facilities would be SPM to Rural. A check of Appendix 3.H under Physical (Facilities) shows that for the RMZ, a variety of

facilities might be possible ranging from “maintained and marked trails, simple trailhead developments, improved signs, and very basic toilets” (SPM), to “Improved yet modest, rustic facilities such as restrooms, trails, and interpretive signs” (RN), to “Modern facilities such as group shelters, and occasional exhibits”(Rural). (Note that campgrounds were not included here because the target would be “day-use adventure.”) Based on the benefits, experiences and activities targeted, such facilities may be part of the overall implementation regime needed to produce the recreation opportunities needed to spin off the targeted benefits. Therefore, with regard to staging/parking areas and designated trail systems, the Proposed Plan already provides the basis or potential for considering such actions, in both the SRMAs and the ERMAs. However, major investments in facilities would only be considered in Destination or Community-type SRMAs. This does not preclude facilities from Undeveloped SRMAs or the ERMAs. It merely constrains such development in these areas to much lower levels of development. In ERMAs, such expenditures would need justification tied to one or more of the following: public safety, user conflict reduction, or resource protection efforts. See response to Public Concern #7 D above regarding designated trail systems. As for specific mention of “potential for organized Jamboree rides,” in at least two RMZs, organized/family events are listed among the primary activities and Social settings would allow for consideration of such uses. Also, see response to Public Concern #7 E above.

G. Table 3.30 (page 3-159) only lists 53 miles of single-track routes for the Arizona Strip FO - this number seems low considering that there are significantly more miles of single-track trail associated with the Rhino Rally alone.

Response: “Single-track” has a very specific definition from the data dictionary used by BLM, USFS, and Arizona State Land department: “Hiking, biking, or motorcycling trail. Can be up to one-half meter in width, not allowing OHVs or four-wheel-drive vehicles.” While the Rhino Rally has indeed, made use of many miles of routes, most of the routes or segments of routes used do not meet the width specified for “single-track” with regard to inventory. Racing, general public use by OHVs and larger vehicles, and multiple vehicle passing have tended to widen many single-track portions. Such segments, during inventory, were classed as “tertiary,” based on width. (*Tertiary Road Unpaved: Generally a two-track that may, or may not be usable by a two-wheel drive vehicle. No formal maintenance.*) While numerous Rhino Rally routes are in washes and/or are single-track, many more are higher standard roads (primary road unpaved and secondary road unpaved) as well as more primitive roads (tertiary road unpaved). Ongoing route inventory (in preparation for future route evaluation and potential designation) continues to locate and document routes that have been authorized for use in recent years for the Rhino Rally in the area of concern, some of which are single-track and hard to find. They have been added to the overall route inventory.

H. Consider impact of roads that remain open as they traverse boundaries of Monuments and national parks (e.g., Grand Canyon National Park).

Response: A closer look at the concern suggests that the commenter wanted the BLM/NPS to “minimize the number of roads (into the Monuments and adjacent national parks) to those that allow (for basic) access, (without degrading) cultural resources or wildlife territories/corridors.” Due to their special nature, the potential impacts of leaving routes open that traversed different management boundaries were afforded special attention in this planning process. The evaluation team that considered routes that traversed boundaries of Monuments and national parks (e.g., Lake Mead NRA, Grand Canyon National Park) was not only multidisciplinary, but also consisted of specialist from both the BLM and the NPS. The team assessed potential and known impacts of leaving those roads open that traversed the boundaries of the Monument and NPS administered lands. The information considered, was derived from the best available information and included a variety of sources, such as both NPS and BLM cartographic data, the NPS General Plan (e.g., DFCs, Management Goals and prescriptions, etc.), the Monument proclamations, input from the agency specialists themselves, as well as from other verifiable sources. This information was utilized both on a landscape scale and as well as specifically for individual routes and areas to the extent that such information was available. (See responses to Public Concern #1, page 5-63 and #5 G, page 5-79.)

I. Impacts to tortoises from the Transportation system needs further investigation.

Response: See Response to Public Concern #60 O on page 5-166 (TE#1).

J. Most data on off-road vehicle impacts relates specifically to competitive events and heavy use like what now occurs within open use or free play areas. These findings are of limited applicability to understand the effect of lighter travel in areas where traffic is legally restricted to designated routes.

Response: The planning team, to the extent practicable, used the best available information on the subject of OHV impacts to sensitive resources. Most published studies in the scientific literature on the effects of OHV impacts on wildlife, wildlife habitat and other sensitive resources have focused on areas with intensive or acute levels of OHV use. It is most likely that the reason for the focus of studies on acute or intense levels of OHV use is that the impacts from such use are much easier to discern and measure over a short period of time (i.e. a few months to a few years).

The less-intense impacts from OHV use found in Open areas, or impacts due to competitive events are probably not as well understood due to the additional difficulty of measuring such subtle, low-intensity chronic effects. Impacts of this nature require techniques of measurement that are more sensitive to discerning change than what are used in most typical field studies. Additionally, because impacts can be very subtle in nature and may not be easily identified in the short term, long-term studies, much longer than the typical field study (i.e. several years or decades vs. several months or a couple years) are required in order to collect accurate data. In spite of the lack of specific studies on the effects of low-level OHV use on sensitive resources, studies on the effects of intense or acute use when paired with other studies related to the subject

(e.g. animal behavior, properly functioning habitat studies, population biology, etc.) can be cautiously utilized with the professional judgment of experts in the field to help deduce probable impacts to sensitive resources from less intense levels of OHV use.

K. Conduct an impact study on the emotional and financial distress of all parties if you proceed with any road closures.

Response: Route evaluations in the Monuments considered many factors, including the need for public use of routes for recreation access. For instance, where two or more routes (possible redundancy) were considered to provide not only the same access, but also the same recreation experience, AND where proactive management for enhanced protection of Monument objects was needed, one or more of the redundant routes was proposed for either total closure or possibly access for administrative users only, if administrative issues were present. Many other combinations of factors affected the route-by-route evaluation and potential designation process. A review of the Preferred Alternative's potential route designations reveals that existing access opportunities for recreation travelers to virtually all commonly visited portions of the Monuments would remain intact. Additionally, in Chapter 4 Travel Management of the Draft Plan/DEIS (pages 4-292 - 293), the "impact study" analyzed changes to the travel system from the perspective of "impacts on travelers." In other words, how the actions proposed in any part of the Plan (especially route closures) affect the opportunities for travelers (public, recreation, administrative, private inholders, etc.) to move into, within, or across the Planning Area. In doing so, the gain or loss of access opportunities was considered. Any economic effects would be described in the Chapter 4 Impacts to Social and Economic Conditions.

L. Perform a traffic count on the access roads to the AZ Strip to gain hard data indicating the usage of the area.

Response: Traffic counters were placed on many of the primary access roads and maintained since 1988. While it is difficult to discern visitation versus administrative use of these roads based on the raw traffic counts, the "trend" with regard to road use is easily derived. A review of Chapter 3 in the DEIS revealed that this data had not been included. Therefore, Chapter 3 Travel Management was revised in the FEIS to depict the Average Daily Traffic (ADT) for several of the primary roads entering the Planning Area.

M. The BLM should adequately plan and provide for increased OHV opportunities, plan for designated trail systems, complete route inventories with proper public involvement before a "limited to designated routes" management plan, and designate existing routes within proposed ACECs or ACEC expansions with the implementation of the ACEC itself.

Response: See response to Recreation Public Concern #66, #67 D, pages 5-223 and 226, and #80, page 5-247. Also, see response to Public Concern #7 D, page 5-82, and #14 B, 5-100 concerning various RMZs for producing OHV opportunities and designated trail systems.

Finally, see response to Public Concern #5, page 5-77, for route inventories and response for Public Concern #5 A and E, pages 5-77 and 5-78 concerning the route designation process.

N. The document contains no nexus between the current condition and the management in each action alternative. For example, in Chapters 3 and 4, the public can discern no clear resource degradation issue requiring the reduction in recreational use.

Response: The concern assumes that proof of resource degradation is necessary before recreational use should be reduced, versus a proactive approach for reducing use to enhance protection of Monument objects. Relationships between the current condition (No Action Alternative) and the management in each action alternative are discussed under each resource or program area of the document in Chapters 3 and 4 of the DEIS. Reductions in recreation use via reductions in motorized route mileages were not only undertaken when there were clear resource degradation issues, but also undertaken when, in the judgment of resource specialists, such actions were needed to better ensure the long-term protection of Monument objects and values.

O. The citing of total acres available to OHV use while limiting use to designated roads within those areas is misleading. The actual area available for OHV recreational opportunity is the length of the trail, route, or road times the width of the trail, route, or road. Under that formula the land area available to OHV use is much less than indicated by the DEIS. The acreage beyond the travel surface of the length and width of the route is dedicated to non-motorized recreational opportunity – not OHV recreational opportunity. Only the total area of an open cross-country OHV area is accurate. That misrepresentation should be corrected.

Response: We agree that the Transportation System “footprint” or drivable area would be a very small percentage of the overall acreage available for actual motorized use in the Planning Area. Many commenters during both the Scoping and Draft Plan comment periods reflected the concern about the ability of motorized recreationists to view natural landscapes, beautiful scenery, broad vistas, wildlife, hunting, etc. and their need for motorized access to such resources. It thus follows that motorized access in the Planning Area involves the experience of viewing nature, landscapes, scenery, wildlife, etc. as one drives. While the motorized component is limited to a small acreage, the recreation experience involves the area seen from the roads. The natural area between the roads provides the overall enjoyment.

P. There should be a reference to the Black Rock Interchange to Highway 59.

Response: The sub-concern is derived from one commenter who proposed a toll road “to the Washington County Commission called the George Washington National Parkway, but they refused to put it on the agenda.” The Rural and Backways TMA DFC descriptions would provide for the possibility of future routes like this one. For example, the DFC for the Rural TMA states in part that it would, “...also facilitate linking existing and future regional travel corridors to local communities.” Likewise, the DFC for the Backways TMA states in part that it

would, "...also supply the primary travel system that would provide public entry from communities to the more remote and semi-primitive TMAs." The DFC for Transportation Facilities also provides for the possibility of new routes where they would, "...support achieving other resource management objectives identified in this Plan." The Management Action section states that new routes "would be the minimum necessary to achieve Plan provisions."

Q. The BLM should evaluate and document the route density of the various plans and regions.

Response: We believe that uniformly applying a target route density across the Planning Area is arbitrary and ineffective, particularly when the target is based on impact zones derived from studies from markedly dissimilar areas. Targets must be developed from the same or comparable areas, where road surface, traffic volume, and speeds are similar. In addition, population density of the species being evaluated should be similar. Target route densities also assume a uniform distribution of the species across the landscape, an assumption that is seldom met, particularly with species such as desert tortoise.

Using a target route density to designate the transportation system could lead to unnecessary route closures where little or no resource damage is occurring, where impacts are offset by the need for a firebreak, and where access is essential for fire suppression. In addition, target route densities assume that all roads have an equal affect on resources. As a result, target densities can be achieved by closing many small routes, while leaving more heavily traveled routes open. Often, it is those routes with higher use levels that lead to the greatest impacts to wildlife.

The Citizens' Proposal did not include the complete inventory of routes in desert tortoise habitat. As a result, additional routes exist that were not addressed in their analysis. The route designation process used for the Draft Plan/DEIS considered the impacts to sensitive resources, destination, proximity to other routes, and a number of other concerns on a route-by-route basis. We closed routes that were redundant, had no specific use or destination, or where unacceptable resource impacts were occurring. We limited many such routes to administrative uses only in order to continue to maintain access for fire suppression efforts. A few specific routes were either left open or were limited to administrative uses in order to serve as firebreaks. Utilizing the best available information, and to the extent practicable the BLM planning team considered the effects of route density upon the sensitive resources, Monument objects and values, and recreational experiences of visitors to the Planning Area. During the route evaluation process, agency specialists on the route evaluation teams discussed and considered the effects of route density on the subject(s) of their specialty (e.g. wildlife specialist: effects of route density (including route location, type and intensity of use) on tortoises, riparian areas, bats, antelope habitat, etc.; recreation specialist: effects of route density on recreational experience via utilization of assessment techniques such as ROS and VRM, etc.).

In addition to considering simple route density, the specialists on the route evaluation team also considered other related factors likely to have as great, if not a greater effect on sensitive

resources, including the type and season of route use, but also the intensity of use and the location of the route relative to the sensitive resource.

R. There are a number of missing routes on the maps.

Response: The comment is not specific. See response to Public Concern #12, page 5-99, for related comments concerning specific routes.

S. The agencies should develop an estimate for the expected level of motorized use on routes across the Monuments, acknowledging reasonably foreseeable increases in use, and consider this estimate in all impact analysis, in order to comply with NEPA's requirement to consider direct, indirect, and cumulative (including reasonably foreseeable future) environmental impacts.

Response: We do have traffic counter data. In the VRM Chapter 4 section of the DEIS, data from several counters were used to project traffic counts out 20 years to assess impacts to visual resources. This is difficult to do reliably as total counters versus individual counters provide much different trends. Interestingly, the trend does not necessarily involve increased use (i.e., use does not always increase each year). (See Chapter 3, Travel Management for traffic counter data.)

T. The BLM should use spatial analysis (GIS) techniques and the latest wildlife data, research, and scientific literature to evaluate the impacts of the route system in each alternative.

Response: We agree that spatial analysis is a valuable tool in evaluating the impacts of the transportation system. However, use of spatial analysis assumes an adequate knowledge of impacts associated with specific route densities. Studies of effects of routes on various wildlife species have been conducted, but most focus on paved roads with high traffic volume at high speed. Few studies of this type are applicable to the Arizona Strip. While we agree that many wildlife species would benefit from the presence of fewer routes in the area, we do not currently have the data necessary to make a definitive determination of the specific advantages and disadvantages of one route density over another. What we were able to determine based on current available information were the types of impacts that could be expected within specific geographic areas on the Arizona Strip. We also identified specific routes through sensitive habitats that were leading to direct and indirect effects to wildlife and other resources. We used this information in assessing the individual merits of specific routes, weighing impacts against uses, to designate which routes should remain open and which should be closed. We stand by the route designation process we used. We will continue to evaluate all applicable information about the impacts of routes on wildlife and other sensitive resources. Since individual route designations are implementation level decisions, additional closures could be made in the future if monitoring indicates unacceptable levels of change to the environment. See response to Public Concern #7 Q above.

U. The BLM should eliminate the questionable claim that roads help stop vandalism, and should instead adopt the expert opinion that motorized access routes do contribute to the degradation of cultural resources.

Response: See response to Public Concerns #22, on page 5-278, and #112 J, on page 5-182.

V. Management Actions associated with Trails and Travel management (page 2-89 and page 2-91 in the DEIS) should reflect the September 8, 2005, decision of the 10th Circuit Court of Appeals (Southern Utah Wilderness Alliance v. BLM and San Juan County, Utah, Tyler Lewis, Kane County Utah and Garfield County Utah, Nos. 04-4071 & 04-4073) in that BLM's scope relative to managing roads that existed prior to October 21, 1976, may be limited.

Response: BLM's proposed management actions associated with travel management were made in accordance with the most recent case law concerning the interpretation of RS2477, including the above-stated decision. In consideration of this case and others, the BLM planning team recognized that its role in managing roads that existed prior to October 21, 1976 may be limited, especially as it relates to RS2477. As cited in the aforementioned case, "Such limitations apply not as a matter of federal law, but as an expression of the authority of the state to govern its own acceptance of rights-of-way" (i.e. claims under RS2477). The 10th Circuit Decision goes on to elaborate in footnotes on page 57 that "some states might wish to impose a higher standard for acceptance of the grant than is required under federal law." The Decision then cites *Tucson Consol. Copper Co. v. Reese*, 100 P. 777, 778 (Arizona Territory 1909) as an example that defines the mechanism for RS 2477 claims. This example stipulates that all roads are required to "be located and recorded by authority of the [county] board of supervisors [after a] petition of 10 or more resident taxpayers within the county" before such roads can be considered "public highways" under R.S. 2477.

This case and the higher thresholds that it establishes for RS2477 claims in Arizona helps to explain why in Arizona relative to Utah (for example) that there are so few RS2477 claims. Nonetheless, RS2477 claims do exist in Arizona, and where such claims were known to exist on "highways" within the specific geographic scope of this planning effort, those RS2477 claims were appropriately considered and addressed in accordance with the most recent and relevant case law on the subject.

W. Travel corridors on all NPS lands bordering the Planning Area should be restricted to existing routes established by the GCNRA GMP (1979), as is suggested for the Parashant management action.

Response: The comment requests a management action that would take place outside the Planning Area boundary and the authority of this current Plan. The Parashant action that generated the request, applies only to that portion of Lake Mead NRA that is within Parashant; it does not apply to the remainder of Lake Mead NRA or any of Grand Canyon National Park or

GCNRA, as they are not part of this planning effort. To respond positively to the comment, statements regarding the GCNRA GMP routes were inserted in Chapter 3 Affected Environment of the FEIS to portray the static nature of the Grand Canyon National Park travel network as it relates to neighboring network within the Planning Area.

X. If current route networks are to be closed, specific remaining available routes should be provided.

Response: Under the Proposed Plan, closing route “networks” is not proposed. In Parashant and Vermilion, only 10 and 20 percent, respectively, of existing routes are proposed for closure. Nine percent in Parashant and 11 percent in Vermilion could be limited to administrative use only. This would leave 76 percent of existing routes in Parashant and 66 percent in Vermilion open to public use. In no case would the cumulative closures constitute closing an entire network. The Proposed Plan proposes to retain and provide a diverse and widespread network of routes that serve a variety of needs.

Y. There should be a reference to the proposed High Desert Trail System under Potential Trail System Designations of Table 2.15.

Response: See response to Public Concern #7 D on page 5-84.

Public Concern #8 (TM8)

A few comments related to the need to further manage dispersed camping, such as restricting motorized access to some camping areas and being consistent with other agencies in regards to the total distance visitors can travel off road to camp.

A. The "pull off" road limit should be extended to 150' in compliance with AZ State Land Department regulations.

Response: The 100’ “pull off” is derived from Arizona State Director Guidance found in IM No. AZ-2005-007, Attachment 1-4. It reflects coordination with Arizona State Lands and the USFS at the statewide level. All BLM planning efforts in Arizona are required to use the guidance and the specific wording.

B. Establish a consistent distance between BLM and USFS for vehicles to travel off designated routes for dispersed camping in order to facilitate user compliance and agency enforcement.

Response: See response to Public Concern #8 A above. The IM establishes the pull-off distance for a variety of uses in non-Monument areas, however, in Monuments and National Trails, only the shoulder and immediate roadside may be used for motor vehicle parking. Within

the Planning Area, this decision would also be applied to areas designated as ACECs (2-191). Management regarding camping is found in the Recreation section.

C. Pull-off zone should be no less than the planned allocation of 100 feet from centerline as 100 feet is barely adequate for the various reasons people pull off the road.

Response: See Response to Public Concern #8 A and B above concerning National Monument/National Trail/ACEC areas. The plan decision for non-National Monument/National Trail/ACEC areas states that one may pull off a designated route up to 100'. This applies to routes that make up a transportation system. Many short spur routes go off primitive roads to existing campsites. The Proposed Plan would make these types of spur routes part of the transportation system. Therefore, pulling off the spur up to 100 feet (outside National Monuments/National Trails/ACECs) would be allowed. That would essentially provide a 200' diameter circle at the end of any such spur for pull-off opportunities for camping, etc., which would provide countless opportunities for selecting a secluded camp or picnic site well away from the larger, primary routes.

D. Allowing travel up to 300 feet off a designated route, both roads and trails, is an absolutely necessary opportunity for reasonable use of the area by the public.

Response: See response to Public Concern #9 A – C below. Where campsites have been inventoried in both Monuments, the majority were found to be less than 50 feet from the route used to access the site.

Public Concern #9 (TM9)

A few people expressed concerns about accessing the Arizona Strip by aircraft:

A. Airstrips should be left open.

Response: Many comments generated several common concerns with regard to backcountry airstrips as an asset; backcountry or recreation aviation as a legitimate recreation activity; small aircraft aviation as a legitimate travel mode; and backcountry aviation and its perceived effect on soundscapes. Most commenter believed BLM/NPS was going to actively close backcountry airstrips. The likely source of the concern stems from a statement in Chapter 2-79 in the DEIS, regarding special status species, "Unauthorized airstrips or dumpsites in special status species habitat would be given the highest priority for removal and cleanup actions" [Emphasis added]. This decision was carried forward from the biological opinion on the 1998 RMP amendment. The intent of the decision was to prioritize illegal and unauthorized sites for cleanup that pose a hazard to special status species or their habitats. While we continue to support cleanup of hazardous sites and those that pose a threat to special status species, airstrips do not pose the same threats to special status species that dumpsites do. For this reason, airstrips have been removed from this decision in the FEIS.

In addition, concern was generated from several actions in Chapter 2-126 in the DEIS regarding management of “authorized” airstrips and no authorization of “public airstrips” on NPS lands. However, a search of the remainder of Chapter 2 of the DEIS revealed no other references to airstrips and no decisions to close any airstrips. Only 12 references to airstrips were made in Chapter 3: 1 in the Water section; 7 in the soundscapes section; and 4 in the section on Lands and Realty. Reevaluation of the issue resulted in numerous changes in the Proposed Plan/FEIS in Chapters 1, 2, and 3 with regard to backcountry aviation. The Lands and Realty sections were modified to reflect a more accurate portrayal of airstrips as assets. The Recreation sections included backcountry or recreation aviation as another of the many appropriate recreation activities that agencies would allow. The Travel Management section includes small aircraft aviation as another legitimate mode of travel for enjoying opportunities for use of the public lands. References that are more accurate were added to the Soundscapes section and potential effects of aircraft noise to soundscapes were reevaluated. Finally, the reference to remove airstrips in special status species habitat on page 2-79 of the DEIS was modified. It now reflects the new decision stated in the Lands and Realty section concerning the requirement that full public notice and consultation with local and State government officials and the Federal Aviation Administration (FAA) would be carried out prior to any proposed closure of a backcountry airstrip.

B. The information-gathering phase tends to lump airstrips into an illegal dump site category.

Response: The comment references Appendix 2.T-7, which is explaining the RET Process. Nowhere, in the paragraph quoted does the explanation of information gathering and issue development even mention airstrip or backcountry aircraft use/access, much less place it on par with illegal dumpsites. That reference relates to special status species and is found on 2-79 and is explained in the response to Public Concern #9A above.

Public Concern #74 (TM10)

A number of comments were directed towards the need to keep backcountry airstrips open and recognize aviation as a legitimate form of access.

A. Because volunteer groups/the aviation community can and do much of the sanctioned maintenance that is required.

B. Because airstrips act as "trail heads" that do not cause any resource damage to access, with flying being one of the least destructive/low impact means to access remote sections of the Arizona Strip District for recreation and management purposes, including providing access for the handicapped and elderly.

- C. *Because travel by small airplanes in the Arizona Strip District represent one of the earliest legacies of aviation in the Southwest*
- D. *Because backcountry airstrips take almost no money to maintain (in rustic condition).*
- E. *Because backcountry airstrips are important for emergency landing, search and rescue operations, fire fighting, and for homeland security.*
- F. *Because without the availability of "legal" airstrips, there would be more off-field/off-runway landings at much greater risks to life and property.*
- G. *Because there has never been any credible liability problem for the BLM arising from recreational aviation (if so, please provide a comprehensive analysis showing the number of lawsuits arising from aircraft accidents on public lands and their outcomes).*
- H. *Because pilots and aircraft are under the most stringent restrictions and regulations in terms of insurance, licensing, experience, physical health, drugs and alcohol, than any other recreational group and thus are less of a safety risk.*
- I. *Because scientific studies has shown that noise from aircraft over-flight has minimal impact to wildlife, specifically bighorn sheep, ungulates, and raptors, with animals quickly resuming normal activities within a few seconds following over-flight.*
- J. *Because pilots are legitimate users of public lands who have the right to access as other users, and thus should not be singled out and restricted compared to other recreational users.*
- K. *Because there have been enough airstrip closures and increased restrictions on use of airspace, especially in light of increased use over the past few years.*
- L. *Because area airstrips are important to the economic development of the communities they serve.*
- M. *Because there is a wealth of information on how to "handle" backcountry airstrips (Internet addresses were provided).*

Response: No BLM backcountry airstrips are to be closed through this Plan. No authorized airstrips occur on NPS lands in Parashant. The soundscapes section in Chapter 3 on the Draft Plan/DEIS (page 3-100 and 101) states the fact that motorized vehicles intrude on the natural sound environment; no assessment of their impacts are stated or implied. Natural quiet and natural sounds are resource values in the Monuments, wilderness, and portions of the Planning Areas managed to maintain wilderness characteristics as related in the DFCs in Table 2.9. See response to Public Concern #9 A, page 5-94.

Public Concern #10 (TM11)

A number of people expressed concern over restrictions placed on OHVs for accessing the Arizona Strip, voiced their desire for continued OHV access on existing roads and not ban unlicensed OHVs, and provided reasons why such access is important:

A. Because there are not enough off-road opportunities in the surrounding region and additional ones would benefit the local economy.

Response: It is unclear as to whether the commenter is referring to “off-road” as “cross-country travel” or “Open OHV areas,” versus the comment as a possible reference to “off-highway vehicle” uses on back roads and trails. If the comment refers to the latter, then the Proposed Plan provides a great many such opportunities. (See response to Public Concern #2 on page 5-66 and Public Concern #67, page 5-226.) If the former is the case, then Sand Mountain, Coral Pink Sand Dunes, Little Sahara, Red Mountain northeast of St. George, and northeast Las Vegas all provide larger Open OHV areas capable of serving regional needs. The Arizona Strip FO proposes two, smaller Open OHV areas aimed at serving very specific, local needs for St. George, Utah and Fredonia, Arizona.

B. Because the vast majority of OHV users are responsible and conscientious users and should not be banned from future use of our public lands due to a handful of violators.

Response: The Proposed Plan would not ban current or future OHV users from public lands. There are existing special areas where motorized uses in general are not permitted due to sensitive or protected resources and that protection is mandated. Nevertheless, under the current RMP, motorized vehicle use in the majority of the Planning Area is limited to existing roads and trails. This designation does not allow driving motorized vehicles off the existing route system. We, too, believe that the majority of OHV users (and other users of the public lands) are “responsible and conscientious users” and as such, the Proposed Plan would strive to balance the need to protect sensitive resources and the need provide a variety of public and administrative travel needs.

Public Concern #11 (TM12)

A number of comments concerned ranchers and their need to access or maintain facilities and to operate their livestock grazing permit in an economically viable manner.

A. The application of "adequate but limited" motorized access to serve existing and future access needs in primitive TMAs may restrict ranching operations (e.g., access to water supply).

Response: The excerpt quoted by the commenter comes from the objective for the Primitive TMA, which is an aspect of the larger DFC for this allocation. Closer inspection of 1) the definition for “administrative use” in the Glossary; 2) the consideration of permitted commercial use as “administrative” in conducting the route-by-route evaluation and potential designation; 3) the many route evaluation reports that list ranching as one of several uses allowed on routes potentially designated as “Mitigate Limit”; and, 4) the following two decisions from Table 2.15, Travel Management: Common to all Planning Areas in the Draft Plan/DEIS (page 2-190), “*Use of potential administrative routes would be subject to the terms of an appropriate authorization instrument, such as right-of-way (ROW), permit, lease, maintenance agreement, or transportation plan that specifies the authorized administrative user, routes, destinations, potential frequencies, and acceptable intensities maintenance*” and, for Parashant (page 2-191) “*Routes designated for motorized/mechanized vehicle use by administrative users only would allow only the minimum motorized or mechanized use necessary for the administration of the area or the exercise of the right or permitted use,*” reveals that “adequate but limited” would not prohibit the access necessary to perform normal operations and conduct major repairs for ranching operations. Our response to Public Concern #3 D (page 5-68) explains the rationale for many potential “Mitigate Limit” route designations.

B. Many ranchers are dependent on the use of the 4-wheelers to check water, fix fences, and handle cattle.

Response: The Draft Plan/DEIS states on page 2-190, “All vehicular travel in the Monuments would be allowed only on designated routes. For the purpose of protecting the objects identified in the proclamations, no areas would be authorized for cross-country, off-road vehicular use except for authorized administrative and emergency purposes.” Also on page, 2-191 it states, “All cross-country (off-transportation system) motorized or mechanized travel would be prohibited, with the following exceptions... Minimum necessary for the exercise of a valid existing right or authorized use.” Ranchers and other permit holders would be authorized for off-route, administrative use through their permit stipulations. In the case of ranching operations, it is understood that use other than on specific routes will be necessary to conduct ranching-related activities. This use would be identified in the respective Allotment Management Plans (AMPs) and/or grazing permit and would vary in restrictiveness, depending on whether the use is in designated wilderness, an ACEC, one of the Monuments, or in the field office area. The process to identify these needs will be fully coordinated with the affected permittee.

C. Ranchers should be authorized through their AMP and/or have the opportunity to apply for a special-use-permit for the continued use of OHVs in running their ranching operations.

Response: See response to Public Concern #11 A and B above.

D. Consideration needs to be given to ranchers in the AZ Strip where the route evaluation has not yet been completed. Such ranchers need access to their allotments on BLM lands or their ranching operations are compromised.

Response: See response to Public Concern #11 A and B above.

E. Each permittee should be consulted before any road closure takes place on their allotment as many roads lead to range improvement projects (not identified as doing so on the Travel Management Map).

F. There is some concern that vehicles would be allowed back into specific area that would adversely affect ranchers.

G. Ranchers should be given special leeway to go off road through the Plan; the Plan should specifically state that ranchers could drive off road to run their ranching operations (e.g., repair fences and pipelines, maintain corrals and ponds, etc.)

Response: See response to Public Concern #11 A and B above.

H. Specify that Administrative roads and other Administrative uses include ranchers.

Response: See response to Public Concern #11 A and B above.

Public Concern #12 (TM13)

A number of comments were directed towards the status of specific numbered or named roads for a variety of reasons (i.e. for recreation, ranching, to access private property, for fire management, to protect resources). Some wanted these roads to remain open, some wanted them to be closed, while others wanted specific restrictions added or removed.

Response: Each specific potential route designation for which specific comment(s) were received was reconsidered by managers and specialists. Some potential designations were changed in the Proposed Plan as a result of the comment rationale, while others remained unchanged from the original Preferred Alternative. See maps for the revised route evaluation reports for each route on the CD accompanying this Proposed Plan/FEIS, or the individual route revision sheets for Parashant and Vermilion routes on file at the Arizona Strip District Office.

Public Concern #13 (TM14)

Some people urged the BLM to conduct a balanced approach by protecting resources and providing adequate access. These respondents are generally in agreement with the Preferred Alternative and feel that while a number or redundant roads or those adversely affecting resources should be closed, while, at the same time, adequate access should also be allowed.

A. Closing some roads would protect wildlife while leaving others open that allow access to maintain water sources is also important.

Response: We agree with the need for a balanced approach. We believe that the route designation process we used provided an adequate balance between resource use needs and anticipated impacts. In some cases, roads were left open to benefit wildlife resources by providing firebreaks and access to fire-prone habitats.

B. The BLM needs to work to manage roads to avoid resource damage while still providing for citizen access.

Response: See response to Public Concerns #3 and #4, pages 5-67 and 71.

C. Roads providing basic access are necessary for public enjoyment of the area but roads that are either duplicative or are not sustainable without inordinate maintenance effort need to be closed and rehabilitated.

Response: This was done as part of the Route Evaluation Process ©. See response to Public Concern #4, on page 5-71.

Public Concern #14 (TM15)

A number of people voiced the need for additional management actions or mitigation measures to address the impacts from OHV use or the reduction of OHV use that would result in displaced recreationists who would have to go somewhere else to recreate.

A. All roads in the Monuments should be designated "MO" – open to motorized/mechanized travel by the public, but having special mitigating measure designed to ensure Monument objects or sensitive or important resources are protected.

Response: MO was applied to any route that had the potential to impact Monument objects and/or other sensitive resources. Those routes designated as "O" or "L," were not believed potentially impact objects/sensitive resources.

B. Implement mitigation plans to compensate for excessive amount of past motorized closure. These would include new motorized opportunities to offset the cumulative loss of motorized recreational opportunities that motorized recreationists have suffered in the region and would mitigate for displaced use.

Response: Various RMZs in several SRMAs have a focus for maintaining and/or enhancing opportunities for recreation activities tied to motorized and mechanized transportation modes. The closure of 10 percent of existing routes in Parashant and 20 percent in Vermilion —most of

which represent routes that either duplicate a nearby route or which directly impact a protected resource/value—would be a minor to negligible impact to the availability of motorized routes across the Planning Area. Very few routes have been closed during the life of the existing land use plan. In fact, some 60 miles of new routes have been created, primarily by authorized activities, secondarily, as user-created ways.

C. The planning team should look for management alternatives that provide for mitigation instead of closure.

Response: During the route evaluation process for Parashant, Vermilion, and the Littlefield area, each route was carefully considered, taking into account all available information. Based on the emphasis of each plan alternative, a potential designation was applied. In many cases, Monument objects and/or sensitive resources were believed to be at enough risk to warrant road closure. Recreation access was always considered, but did not always take precedent over other sensitive resources. When these conditions and the absence of other valid existing or vested rights were present, the route was proposed for closure to maintain or enhance Monument objects and/or sensitive resource conditions and to prevent future degradation of those values. In most cases, if the current condition of such resources was deemed good and the potential risk for future degradation low, then such routes typically were proposed as “MO” or “ML.” Bottom line is that the “Mitigation” option or potential was considered for every route prior to any conclusion that leads to a closure decision. The possibility for mitigation is the “second level green box” in the Evaluation Tree.

D. The Proposed Plan should mitigate the loss in value to private property due to restricted access.

Response: Access to private property has not been eliminated in any instance for the private landowner. Public access to and/or across private lands may, in some instances, have been restricted for resource reasons or route redundancy, but in no case has access to private lands across public land been completely removed.

E. If the agencies propose to rely on mitigation to justify keeping routes open that could cause resource impacts, they must propose appropriate mitigation and at a sufficient detail to ensure that environmental consequences have been fairly evaluated, as mandated by NEPA. If the agency proposes monitoring, it must propose a detailed monitoring plan, and justify that the proposal is realistic and doable given foreseeable expectations for budget and staff.

Response: Route reports for each route evaluated/designated contains the initial information concerning “appropriate mitigation” for MO and ML routes. As described in Appendix 2.T, mitigation, in most cases, begins with ‘monitoring’ to determine if actual physical mitigation would be needed. Because the evaluation process deemed that “the continued use” of routes that were assigned designations of MO, ML had the “potential” (not a “history”) of impacting certain

special/sensitive resources, site-specific, physical mitigation was not appropriate. In most cases, monitoring would point, in time, to the need for site-specific mitigation measures. Implementing specific measures could then range from signing, to limiting use, to physically mitigating a site, to closing a route. Monitoring programs and protocols would be instituted that would provide appropriate and adequate indicators of conditions and the data needed to evaluate trends in conditions. Negative trends would generally initiate closer investigation to determine cause agents. Management responses would then be tailored to site-specific and/or landscape-level remedies, whichever is appropriate based on the data. In this way, environmental consequences can be readily evaluated and considered as part of any given management response. A monitoring strategy would be produced as part of producing the ROD/Approved Plan. This document would then guide any more detailed development and implementation of monitoring programs. As with all monitoring programs, efficiency, reproducibility, effectiveness in portraying conditions, and cost would all be criteria for establishing new monitoring protocols. The selection of key indicators and specific sites for monitoring would ensure both cost effective and resource appropriate monitoring.

F. Manage roads by paving and treating to minimize dust.

Response: The responsibility to pave or not pave or treat Mohave County roads lies with that county. Generally, the county has not chosen to pave or treat their roads, due to the cost. The cost of paving and other treatments has been cost prohibitive for BLM roads as well. In addition, because the Strip has been and would be managed for its remote values, large scale paving of roads would not conform with many of the DFCs proposed in the Plan. While several BLM routes have been treated with enzymes and/or magnesium chloride to reduce dust, the treatments are expensive to maintain over time. The application of gravel on several higher traffic BLM roads has helped, but not significantly reduced dust. As traffic on primary BLM routes increases and as funding is made available for such projects, chemical treatments would be considered.

Public Concern #15 (TM16)

The BLM needs to exclude all ADOT roads from management prescriptions as ADOT is responsible for these roads.

Response: Appendix 2.S-3 does show federal and state routes in the Route Construction and Maintenance Standards table. It does acknowledge under "Comments" that the State of Arizona is responsible for management/maintenance of such routes. While such routes are listed in the table, the purpose of the table is to provide a context for the public to view the various types of roads, levels of and responsibilities for maintenance, and the like. It does not presume to prescribe federal and state road standards; instead, it attempts to portray the variety of standards. Any route designations involving state-managed roads (such as I-15) were shown in the Plan merely to verify to the public that such routes are needed as part of a regional/local context. See Chapter 1 that specifies all management allocations, prescriptions, and decisions in this Proposed Plan apply only to BLM and NPS administration within the Planning Area.

Public Concern #16 (TM17)

Motor vehicle laws and enforcement activities by rangers on the Arizona Strip should be similar between the BLM and NPS. This includes the requirement for "street legal" vehicles (i.e., licensing of OHVs).

Response: Vehicle requirements derive from State of Arizona law, not from the BLM. Enforcement activities also vary by agency due to different agency-guiding laws, regulations, and policies. Changing these laws, regulations, and policies are outside the scope of this Plan.

ISSUE # 2: SPECIAL DESIGNATIONS (WILDERNESS, WILD AND SCENIC RIVERS, RESOURCE CONSERVATION AREAS: SD)**Public Concern #133 (SD1)**

A number of respondents had some general comments or questions, or asked for clarification relating to special designations.

A. Why are no Resource Conservation Areas (RCAs) being proposed for the non-Monument land? (Also relates to Public Concern #140 B on page 5-108.)

Response: Three RCAs were designated in the 1992 Arizona Strip RMP to recognize areas with special values that needed protection: Mt. Trumbull, Parashant, and the Canyons and Plateaus of the Paria. All three of these areas are now completely encompassed by the Monuments on the Arizona Strip, confirming that these were, indeed, special areas. The RCA designation is not a current BLM designation as directed by the BLM Land Use Planning Handbook (2005). Areas with special values that need management attention outside the Monuments are now within ACECs in the Proposed Plan.

B. Special Designations create more problems that managers can responsibly take care of. The land should be left open for multiple use.

Response: With the exception of the ACECs, changing the existing special designations for wilderness, NPS proposed wilderness, wild and scenic river suitability, and the Old Spanish National Historic Trail is not discretionary in the land use Plan. The proposed ACEC special designations respond to Congressional and other agency mandates with regard to the protection of sensitive resources. A variety of other uses would continue to be allowed, albeit somewhat constrained, in these areas.

C. In chapter 2-198, Table 2.15, how far is "adjacent" in the statement, "New permanent routes would not be constructed adjacent to or within designated wilderness"?

Response: In reviewing the potential decisions related to the concern raised by the commenter, the BLM determined that the decision was not needed. Management criteria for the consideration of new route construction within Parashant, as stated in several other decisions, is considered sufficient for minimizing impacts to wilderness or NPS proposed wilderness. Therefore, the decision in question was dropped in the Proposed Plan/FEIS.

D. On page 2-201, Table 16, Special Area Designations, emergency and administrative purposes could be clarified in a "Common to All Planning Areas" section directly under this heading.

Response: This is an AGFD concern that has been addressed. See response to Public Concern #69 C, on page 5-235.

E. The Lake Mead NRA utilized a dated wilderness plan for their contribution to this process that was inadequate and did not compliment the BLM effort.

Response: On page 1-24, the Draft Plan/DEIS clearly states that the 1979 Lake Mead wilderness proposal is the decision of record regarding potential wilderness lands on the NPS-portion of Parashant. As such, approximately 91 percent of the NPS lands on Parashant are classed as potential wilderness, which under NPS Management Policies (2001) are managed to protect those qualities until Congress makes a final decision. Only Congress can establish wilderness on federal lands. Congress did not choose to designate these lands when nearby BLM wilderness was designated in 1984. Because most of the NPS lands are classed as potential wilderness and their use has not changed dramatically, the land's qualification as wilderness was not re-evaluated. However, some 5,574 acres have also been identified as existing in essentially natural condition where opportunities for solitude and unconfined recreation may be outstanding. These lands would be managed to maintain wilderness characteristics through NPS backcountry management policies.

F. The term "wilderness setback" is used, but not defined.

Response: The term "wilderness setback" was added to the Glossary and refers to the width of the road corridors that are "cherry stemmed" within the NPS-proposed wilderness lands. The setback is 100 feet from the centerline (either side) of the NPS-transportation system road. This effectively creates a 200-foot wide corridor with the road in the center. The corridor is not proposed for wilderness designation. The lands beyond the 100 foot off road centerline are part of the NPS proposed wilderness lands.

G. In Table 2.3 D. Implementation Decisions, Ponderosa Pine Ecological Zone, Parashant (b.) Mt. Trumbull Wilderness PIPO restoration, please indicate that these are single entry proposals for any given section of the Mt. Trumbull Wilderness. Furthermore, test whether fire alone is satisfactory for mortality and fuel reduction, and the feasibility of using cross cut hand saws.

Response: Restoration treatments are proposed in the Mt. Trumbull Wilderness to reduce the threat of catastrophic fire, which is not considered a natural occurrence in healthy ponderosa pine ecosystems. In designated wilderness, minimum tool analysis would be used to determine what tools and methods would be used. Only actions that would enhance wilderness values and have the least impact would be permitted. It is anticipated that use of mechanical tools would be necessary for the initial restoration treatments because of the likelihood of a prescribed burn getting out of control. Subsequent treatments for the mechanically treated areas would primarily be prescribed fire and eventually allowing natural fires to burn and play their natural role. Use of mechanical tools would be kept at a minimum, only being used when wilderness values are threatened.

H. Alternatives D and E include: "using the minimum requirement standard for BLM wilderness areas and NPS proposed wilderness, the best mix of chemical, biological, or mechanical means, with fire and natural processes, would be determined in order to restore ecological functions and structure in wilderness." Both chemical and mechanic means are problematic and should be deferred to a later, specific Environmental Assessment (EA).

Response: We agree that specific projects proposing to use any method or combination of methods and means to accomplish ecological restoration in wilderness areas would require site-specific NEPA analysis, including the evaluation and determination of the "minimum tools, equipment, and/or structures necessary to accomplish the objective successfully, safely, and economically." That same analysis would ensure that, "the chosen tools, equipment, or structures would be the ones that least degrade wilderness values temporarily or permanently." The Plan proposes no such site-specific projects at this time. Rather than initiate a site-specific project, the plan decision in question would contribute to establishing a framework within which a minimum tool analysis would be done if and when site-specific projects are proposed. The decision was modified in the Proposed Plan/FEIS to clarify the minimum tool reference and add "manual" methods to the mix.

I. Discussions about wilderness management should apply not only to designated BLM and proposed NPS lands within the Planning area, but also to the boundary with Grand Canyon National Park wilderness.

Response: We agree that NPS proposed wilderness in Grand Canyon National Park should be discussed in context with wilderness issues in the Planning Area. However, because plan decisions are only applicable to BLM/NPS lands within the Planning Area, discussions of NPS proposed wilderness in Grand Canyon National Park would be limited to Chapter 3 and 4 only. The Proposed Plan/FEIS was revised to reflect this.

J. The Plan would have been improved if the NPS had not used a wilderness plan published in 1979 as a basis for their Parashant planning effort.

Response: See response to Public Concern #133 E above.

K. In Table 2.16 (page 2-203 of the Draft Plan/DEIS), Motorized and Mechanized Uses, Common to all Planning Areas, is there a plan to remove Indian artifacts, how far back in history are items going to be removed to, and where are they going to be stored?

Response: BLM policy requires inventories of areas where historic properties are likely to be adversely affected before the designation can take effect. This would include the OHV Open Areas and areas along designated routes. At that time, provisions of Section 106 of the NHPA (36 CFR 800) would be followed. Under the NHPA, a site must normally be at least 50-years old and have at least one of the criteria for inclusion on the National Register of Historic Places (NRHP). A site does not have to be listed on the NRHP in order to be protected under the law. If it qualifies for listing, then it is protected. Under the provisions of the Archaeological Resources Protection Act (ARPA), a site must be at least 100 years old to fall under the protection of that law, which contains criminal and civil provisions for prosecuting anyone who damages, destroys, or vandalizes a site.

Most of the mitigation for any NRHP-listed sites or NRHP-eligible sites found during inventories is avoidance, simply because it is much cheaper than excavating or investigating the site further. If a site were to be excavated such that artifacts were recovered, they would be the property of the federal government and must then be adequately curated at a repository that meets the provisions of 36 CFR 79, meaning that they have adequate records management, humidity and temperature control (if necessary), and adequate storage facilities.

Public Concerns #134 (SD2)

There were a number of general comments regarding the designation and management of Wilderness Areas. Some of these were directed at the creation of new wilderness areas while others dealt with the management of existing wilderness areas.

A. There should be more wilderness areas than proposed.

Response: We believe that a clear legal and policy difference between the designation of “statutory wilderness;” identification of “WSAs;” and the identification of “areas where wilderness characteristics would be maintained” has been made in the Draft Plan/DEIS in Chapter 1, pages 1-23 - 24; Chapter 2, Table 2.10, Wilderness Characteristics; and in Appendix 3.D. The critical fact is that agencies do not designate wilderness, only Congress possesses that authority. Additionally, the BLM currently has no legal basis for identifying new WSAs. Thus, the Plan would neither presume to propose new wilderness areas or WSAs, nor presume to designate them. However, the Proposed Plan would provide added emphasis to some areas by maintaining “wilderness characteristics” on about 287,853 acres in the Planning Area that are not part of the statutory wildernesses designated by Congress. These are not “wilderness areas”

(therefore, they are not managed under the Wilderness Act) and they are not “WSAs” (therefore, they are not managed under any “interim management” policy or “nonimpairment” criteria tied to the Wilderness Act). They are identified using criteria provided in IM No. 2003-274 and IM No. 2003-275, Change 1, which are based in the Federal Land Policy and Management Act (FLPMA), not the Wilderness Act. Table 2.10, Wilderness Characteristics, in the Draft Plan/DEIS states the Preferred Alternative’s DFCs, as well as the management actions and allowable uses for these areas, which, generally, would be far less stringent than designated wilderness area or WSA management.

B. There are already enough restrictions on land use. No more wilderness areas should be created.

Response: See response to Public Concern #134 A on previous page.

C. Chaining and bulldozing are not acceptable restoration practices in Wilderness Areas.

Response: Under no alternative does the Plan propose chaining and/or bulldozing in wilderness areas for restoration purposes. However, to clarify that the 3rd wilderness goal on page 2-201 in the Draft Plan/DEIS applies to any potential surface-disturbing action that may be proposed in wilderness areas, the restoration actions were modified to include a more definitive minimum tool statement.

D. The Arizona Strip FO, Vermillion, and Parashant should be recommended for wilderness designation.

Response: See response to Public Concern #134 A above.

E. There is lack of scientific data in the document and the creation of Wilderness Areas cannot be justified.

Response: The Plan does not propose to create wilderness areas. It does propose to maintain wilderness characteristics on about 287,853 acres in various areas. The process for evaluating and identifying these areas is described in detail in Appendix 3.D. Also, see response to Public Concern #134 A above.

F. Mt. Logan was heavily disturbed in the past and may be a better candidate to test Wilderness Restoration Action than the areas proposed in the Draft Plan/DEIS.

Response: Mt. Logan Wilderness was logged historically. It was also pre-commercially thinned a few years prior to wilderness designation. It presents different problems than Mt. Trumbull, which has never been logged or thinned. Prescribed fire has been used to help restore Mt. Logan Wilderness. We have learned from this project and similar restoration efforts in the west that prescribed fire in dense ponderosa pine forests, if not controlled, will end up killing most of the

old growth trees, which is contrary to our objectives. Where there is high tree density, ladder fuels and deep duff, it is nearly impossible to save the old growth trees when prescribed fire is the only restoration tool used.

G. In Wilderness, B. Management Actions., 1.(a) Common to All Planning Areas, add a bullet point that states: "Lands could be restored where the BLM or NPS has demonstrated areas are outside the range of natural variability and on a trajectory of degradation."

Response: The section referred to is actually in the Designated Wilderness section, Table 2.16, not the Wilderness Characteristics section in Chapter 2. The specified management action would consider trends and conditions before lands in a Designated Wilderness Area were restored.

Public Concerns #140 (SD3)

There were a couple of general comments regarding special designations.

A. Do not create any more wilderness in the Arizona Strip.

Response: See response to Public Concern #134 A above.

B. Revoke RCA designations in the Monuments. The Monument provides adequate protection.

Response: See response to Public Concern #133 A, on page 5-103.

Public Concern #135 (WR1)

There were a few comments on relating to the designation and management of wild and scenic rivers in the Planning Area.

A. The Plan proposes to manage the Virgin River as though it was designated a wild and scenic river, but the river does not meet eligibility requirements.

Response: The Plan does not propose to manage Virgin River as if it were "designated as a wild and scenic river." The Plan merely carries forward the findings of eligibility, potential classifications, suitability, and interim management decided in both the Arizona Strip RMP (BLM 1992) and the Arizona Statewide Wild and Scenic Legislative EIS (BLM 1994a). Notably, the Proposed Plan brings forward from the previous efforts mentioned, the "recommendation for designation as a Study River under Section 5(a) of the Wild and Scenic Rivers Act (PL 90-542)."

The Arizona Statewide Wild and Scenic Legislative EIS (BLM 1994a) investigated possible wild and scenic rivers designation for the Paria River and the potential impacts management under that designation might have. The potential management portrayed for the Virgin River only reflects the potential impacts of interim management, not potential designation management. The LEIS recommended that Congress designate the Virgin River as a "study river" under Section 5(a) of the Wild and Scenic Rivers Act (PL 90-542), along with portions of the river in Nevada and Utah. While it is somewhat confusing, a closer look at Table 2.16, II Wild and Scenic Rivers, shows these differences between the Paria River (in Vermilion) and the Virgin River (in Arizona Strip FO).

B. Kanab Creek and a ¼-mile wide corridor have been found eligible as a wild and scenic river. Mineral development could be an issue if proposed for the cliffs on the west side of the creek.

Response: The USFS portion of Kanab Creek may have recently been found eligible as a WSR. However, the BLM portion of the creek was studied and found non-eligible in 1993, as part of resolving an RMP protest. The eligibility re-evaluation did find the 21 miles of Kanab Creek on public lands between the Kaibab Paiute Reservation and the North Kaibab Ranger District to meet free-flowing river criteria. However, re-evaluation also determined that this segment of Kanab Creek contained no outstandingly remarkable values among the six resource values were evaluated. Chapter 3, Special Designations, Wild & Scenic Rivers, was modified in the Proposed Plan/FEIS to include mention of the previous Kanab Creek eligibility findings.

C. A study should be undertaken to determine the eligibility of Kanab Creek as a Wild and Scenic River.

Response: See Response to Public Concern #135 B above.

D. In chapter 2-206. II.C, Management Actions, Actions to achieve, Arizona Strip FO (Table 2.16-Special Area Designations), it should be noted that 25 miles of the Virgin River passes through Arizona. An appropriate Arizona agency should be included in the study effort.

Response: Study River designation is a Congressional action. If Congress designates the Virgin River as a study river, the study process would include coordination with a variety of federal, state, and local agencies, as well as the public.

ISSUE # 3A: PROTECTION OF RESOURCES: AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACEC, SD)***Public Concern #136 (SD4)***

There were some general questions, clarifications, and comments regarding ACECs in the draft plan.

A. What impact will ACEC's have on allowing later projects?

Response. ACEC designations do not necessarily preclude any projects. Future projects in ACECs would be developed and placed following site specific analysis. In ACECs, the emphasis would be on protecting the values identified in each ACEC. Proposed Management Actions specific to each ACEC are listed in Table 2.16.

B. The area for special status plants has doubled.

Response. The Proposed ACECs for special status plant protection in the Proposed Plan/FEIS reflect more recent inventory information on the actual location of special status plants on the ground. Changes in size, location, and configuration of existing ACECs and the proposed new ACECs to protect special status plants were made as a result of this new information.

C. Why doesn't the RMP ban all uranium mining?

Response. See response to Public Concern #110 A on page 5-259.

D. There is too much land being set aside as ACEC's.

Response. Specific natural and cultural resource inventories on the ground actually determined each ACEC location and boundaries.

E. Soundscapes should have an NPS monitoring component and threshold.

Response. See response to Public Concern #123 on page 5-298.

F. For a number of the proposed ACECs, there are specific inadequacies in BLM's determination of their status and of the management prescriptions needed to protect the areas' special values, in accordance with applicable law and guidance.

Response. ACEC designations highlight areas where special management attention is needed to protect important natural or cultural resources. BLM relied on existing and new information to determine whether the identified relevant and important resources were sufficient to warrant protection. Changes in sizes, location, and boundaries of the proposed ACECs in this FEIS from

the existing RMP for the Arizona Strip relied on the best information available and the most current inventories for cultural and plant and animal special status species. If special management, as detailed in the Management Actions in Table 2.16 were necessary to protect these resources or would assist in protecting these resources, then ACEC designation was proposed. If current management provided sufficient protection of resources, then ACEC designation was not recommended.

G. The proposed 13,146 acre Kanab Creek ACEC proposed to preserve unoccupied SW Flycatcher habitat along with riparian, cultural and scenic values looks suspiciously like defacto wilderness management.

Response. Kanab Creek ACEC is proposed to protect cultural, Southwestern Willow Flycatcher (SWIFL) habitat, riparian, scenic, and wilderness characteristics values. The boundaries of the ACEC were determined by the canyon itself which encompassed riparian resources, endangered bird habitat, cultural resources in conjunction with the water and canyon walls, and canyon scenery. This boundary also encompassed areas with opportunities for primitive recreation and solitude as well as naturalness, which are wilderness characteristics. Wilderness characteristics and scenic values were not used to determine the boundaries of this ACEC but coincided with the boundaries proposed to protect cultural, SWIFL, and riparian values.

H. ACECs should not be overlain by other restrictive management such as Visual Resource Management levels 1 and 2 in order to further mimic wilderness management at the expense of traditional multiple use and sustained yield management.

Response. All BLM lands have layers of varying kinds of management and resource allocations, not just ACECs. VRM designations cover all acres of the Planning Area. VRM designations are also one form of special management to protect relevant and important resource values.

I. There is no documented need to add more ACEC's. They are in contradiction to multiple use mandates.

Response. Multiple use can still occur within ACECs. The areas are open to mineral entry and many uses can occur in these areas. Designation of ACECs serves to highlight protection of natural or cultural values, it does not prohibit other uses unless those uses are impacting the resource the ACEC was designated to protect.

J. Close ACECs established for listed species or cultural resources from oil/gas/mining developments.

Response. ACECs are not withdrawn from mineral entry. See response to Public Concern #60 E, page 5-168.

K. Heavily limit/prohibit OHV use in ACECs.

Response. The RET process will be conducted on the Arizona Strip FO within 5 years following the RODs for this EIS. No off-route travel is presently allowed in ACECs and would not be allowed in the future.

L. Simply calling something an ACEC is not enough. BLM must accordingly manage the areas.

Response. By designating an area as an ACEC, it will remind land managers and public land users that critical resources require protection in these areas. Special management prescriptions, as detailed in Chapter 2, will provide specific actions or restrictions to protect these resources.

M. The Site Steward program for all ACECs with cultural value is good.

Response. We will continue to work closely with Arizona Strip Site Stewards to protect cultural resources, particularly in the ACECs.

N. ACECs should not interfere with livestock grazing.

Response. Livestock grazing is allowed in most ACECs on the Arizona Strip, unless restrictions are necessary to protect specific resources, such as Desert Tortoise

O. Regarding Special Area Designations, it would provide for easier understanding if the document were structured such that you didn't have to flip between sections and pages to understand the big picture of management for a particular designation.

Response. All of the pertinent decisions for ACECs are located in Table 2.16, Special Designations. All of the Chapter 2 Alternative Maps for the Proposed Plan (Alternative E) are now behind the decision table they apply to.

P. Define DWMA in the glossary.

Response. Desert Wildlife Management Area (DWMA) is now defined in the glossary.

Q. ACEC access exceptions should be made for emergency and administrative purposes.

Response. Emergency access and the minimum access necessary to administer the areas applies across the entire Arizona Strip FO.

R. ACECs will close too many areas to those who enjoy the scenery.

Response. ACECs are not closed to the public. Motorized and mechanized access can still occur on existing routes until the RET process is completed for the Arizona Strip FO within the next five years. At that time, motorized and mechanized access would remain on designated routes. Non-motorized access such as hiking, backpacking, walking, or horseback riding remains in these areas.

S. The plan creates too many unnecessary ACECs.

Response. See responses to Public Concern #136 B, F, and G above and Public Concern # 138 K below.

T. Any adopted alternative should contain language for the construction of new trails or routes, especially for ATV travel, where new routes would lead to a reduction in impacts to resources, provide significant improvements in safety for those traveling on ATVs, or where adequate routes for the level of ATV traffic are not available.

Response. See the Travel Management section of Chapter 2 for decisions covering this.

U. An ACEC, by proclamation, would circumvent attainment of ecological condition objectives and rangeland health goals.

Response. An ACEC does not preclude opportunities for attaining ecological condition objectives and rangeland health goals, so long as the resources identified for protection in the ACEC are maintained.

V. Why didn't the idea for special cultural resource protection on these 3 allotments (?) surface during the Standards and Guides process.

Response. Cultural resource protection is not dependent on the Standards and Guides process. It is required by law and policy. Information on cultural resources was provided for every allotment under review during the Standards and Guides process on the Arizona Strip.

Public Concern #137 (SD5)

There were a number of comments regarding the relationship between ACEC's and wildlife/vegetation in the draft plan.

A. Why is the Siler Pincushion ACEC being expanded? It is not necessary.

Response. ACECs containing Siler Pincushion habitat, which include Johnson Spring, Lost Spring Mountain, Moonshine Ridge, and Shinarump ACECs, were expanded and/or relocated in order to protect currently known and inventoried populations of these endangered plants.

B. There is no need to increase areas to protect Desert Tortoises and Flycatchers. There is enough protected area already.

Response. Designation of areas to protect special status species will help the agencies and the public to protect these species. ACECs serve as reminders and highlight important areas so that important species can be preserved. In some cases, special management and designations such as ACECs serve to protect a species sufficiently so that it is not listed as endangered by the USFWS or aid in its recovery, if it is a listed species.

C. The Draft Plan/DEIS should include the reasons why ACECs for certain species are proposed to be reduced or deleted in the various alternatives, and what reductions might mean for the species.

Response. See Table 2.16 in Chapter 2 for the additional information. In some cases, ACEC designation was no longer necessary because the areas are now within a National Monument so that protection is provided by Monument designation. In other ACECs, reconfigurations or boundary changes and sizes reflect more current information on the specific locations of threatened and endangered plant and animal species or cultural resources. Most of the existing ACECs were expanded and some new ones were added in this Plan.

D. New permanent roads should not be constructed in the Desert Tortoise critical habitat in Parashant Monument, as identified on Map 3.20 and the Pakoon critical habitat area should be more consistent with Alternative B (Map 2.11).

Response. New roads in ACECs would be authorized on a temporary basis only or when they are beneficial for relevant resources (such as providing needed access to conservation work).

E. BLM should not reduce the Virgin River Corridor ACEC in the preferred alternative as it is necessary for the benefit of Desert Tortoises and many endangered species.

Response. The boundaries of the Virgin River Corridor ACEC were modified to include only the 100-year floodplain in this Proposed Plan. This ACEC is now only for the protection of endangered fish, riparian, cultural, and scenic values. The Virgin Slope ACEC boundaries were modified to protect Desert Tortoise.

F. Bighorn sheep need more care than ACEC designation affords.

Response. The Bighorn Sheep population on the Arizona Strip is healthy enough that Arizona Game and Fish Department uses them to augment other Bighorn Sheep populations in Arizona.

G. 13,000 acres is too much area for Flycatchers, as they have not been documented in the area.

Response. The Kanab Creek ACEC is proposed to protect cultural, riparian, scenic and wilderness characteristics values as well as SWIFL habitat. Even though Kanab Creek is presently unoccupied by SWIFL, it is potential habitat and its protection may contribute to recovery of this species.

H. The Desert Tortoise Conservation measures included in Appendix E provide at DT-2.B that the DWMAs/ACECs be "closed to material sales;" and at DT-2.K that existing material sites be "closed to authorizations or renewal" are draconian.

Response. ACECs remain open to locatable and leasable minerals. New mineral material sites would not be authorized in ACECs and existing material sites would be evaluated and closed if they are impacting significant resources. The only presently authorized mineral material site near an ACEC is at the southwestern edge of Moonshine Ridge ACEC. The boundaries of this ACEC were reconfigured in this Proposed Plan so that they are outside of the existing material site to the east, south and west. Further expansion of this material site to the south, east, or west would not be authorized.

I. No Alternative provides effective long-term protection of mule deer. BLM should designate the proposed Kaibab-Paunsaugunt Wildlife Corridor ACEC as an Outstanding Natural Area in the preferred alternative.

Response. Protection of wildlife is provided by other management actions or designations other than ACECs or they are outside the scope of this EIS. Some of the most significant impacts to wildlife occur as a result of motorized/mechanized use. Protection of wildlife on the Arizona Strip is a consideration during the RET. Most mule deer mortality in the region occurs in relation to high speed roads such as Highway 89 in Utah and 89A in Arizona, with the highest frequency of deer mortality due to vehicular collision within the Grand Staircase-Escalante National Monument. The Arizona Strip BLM and NPS will continue to work closely with the Grand Staircase-Escalante National Monument, AGFD, ADOT, and other agencies to insure consideration of wildlife for future projects and in looking at ways in which mule deer mortality can be reduced. Land in this area would also be retained under Federal administration.

J. There should not be ACEC areas for Big Horn Sheep. They are not endangered.

Response. The Hurricane Cliffs ACEC for the protection of Bighorn Sheep, proposed under Alternative B in the Draft Plan/DEIS, is not proposed as a designation in the Proposed Plan.

K. The Lone Butte ACEC should fall into the same category as the Twist Hills, Clayhole and Buckskin proposed ACECs that were "found not to require special management beyond

what was already provided..." The Jones cycladenia is recorded as being located on two south facing slopes in sections 4 & 5, in an area that is not disturbed by livestock (no trampling or crushing threat) or any OHV travel and the area has no archeological sites.

Response. The Lone Butte ACEC has been reduced in size because reconnaissance for cultural resources in April of 2006 found no large or unusual sites or dense cultural occupations on BLM-administered lands. Therefore, the ACEC is no longer designated to protect cultural values because federal laws adequately protect the resources, special management was not considered necessary. It would be designated only for the protection of Jones cycladenia.

L. There is no justification for the Clayhole ACEC. The Fick pincushion cactus is not listed as Threatened or Endangered.

Response. The Clayhole ACEC would not be designated in the Proposed Plan.

Public Concern #138 (SD6)

There were a number of comments regarding the relationship between ACEC's and specific areas.

A. Grand Gulch should not be included in the DWMA. Rather, it should be managed for recreational purposes.

Response. A DWMA is not designated by BLM, but by the USFWS and because of this is outside the scope (decision space) of this Plan.

B. BLM's failure to consider the creation of the House Rock ACEC violates NEPA and the spirit of the public participation process.

Response. A recommendation for a new House Rock ACEC, as well as other ACEC recommendations made by the public, was considered during the planning process. Relevant and important values must be present in ACECs and management prescriptions, as described in LUPs, should help to protect these values. Consideration regarding whether special management attention would help protect identified resources was given. Management under existing laws and policies and Monument protection was considered sufficient for the resources identified in the House Rock Valley ACEC proposal which were native grasses, chisel-toothed kangaroo rat, Brady pincushion cactus, pronghorn antelope, California Condor and other raptors.

C. BLM should not reduce the Virgin River Corridor ACEC in the preferred alternative as it is necessary for the benefit of water quality and quantity in the Virgin River.

Response. Reduction of the Virgin River Corridor ACEC was a result of realigning the boundaries of this ACEC and nearby Virgin Slope ACEC so that Virgin River fishes were protected in the Virgin River Corridor ACEC and Desert Tortoise in the Virgin Slope ACEC. Water quantity and quality in the Virgin River is critical for survival of the Virgin River fishes; woundfin minnow, Virgin River chub, and Virgin spinedace.

D. The plan should designate ACEC's in 100,000 acres in House Rock Valley, 60,000 Acres in Yellowstone Mesa, and 120,000 acres of the Kaibab-Paunsaugunt for mule deer & pronghorn.

E. Designate additional ACECs, such as the Lime Kiln/Hachet Canyon and Grey Points ACEC.

Response. See response to Public Concern #138 B and 137 I above. Careful consideration was given to internal and external information for new or expanded/changed ACECs. The resources must meet the relevance and importance criteria. Then, if special management provided by ACECs were considered necessary to protect relevant and important values, then ACECs were proposed or the boundaries and/or locations were changed. Cultural and special status plant species distributions to be protected in Moonshine Ridge ACEC were carefully evaluated. Those areas containing critical habitat or significant cultural resources were covered in the expanded boundaries of Moonshine Ridge ACEC. Lime Kiln/Hatchett Canyon and Grey Points ACECs were recommended as ACECs in the Draft Plan/EIS but additional analysis resulted in not recommending them for ACEC designation in the Proposed Plan/FEIS because the values in them could be protected under other allocations or management.

F. Designate the Marble Canyon ACEC boundary as indicated under Alternative D instead of E, for protection of an endangered cactus, raptors, and scenic values.

Response. Reduction in size of the Marble Canyon ACEC boundary, as indicated under Alternative D, would not protect Brady pincushion habitat. Boundaries of this ACEC encompass presently known habitat for this endangered species. Special management is necessary for survival of this species.

G. Why there is a proposed reduction in the overall acreage of the Marble Canyon ACEC from Alternative A, the no action alternative, compared to Alternative E?

Response. Reduction of the size of Marble Canyon ACEC under Alternative E, as compared to Alternative A, is because of a reconfiguration of the boundary of the ACEC based on known habitat of Brady pincushion cactus at that time. Since release of the Draft Plan/DEIS additional inventories and field verification have resulted in the present proposal of the ACEC under the Proposed Plan. This proposal recommends a larger acreage for this ACEC than under Alternative A.

H. The plan should create the Lone Butte ACEC, the Black Knolls ACEC, the Twist Hills ACEC, the Clayhole ACEC, the Buckskin ACEC, and the Coyote Valley ACEC.

Response. See response to Public Concern # 137 K and #138 B, D-E above.

I. In the Moonshine Ridge ACEC, Sec. 23, Sec. 24, and Sec. 26 T39N R6W should be dropped from the proposed 9231 acres. There is no evidence of siler cactus and cultural values are no more prominent in these sections than any other typical section on the Arizona Strip.

Response. Siler pincushion cactus habitat covers most of these three sections, which is why the Moonshine Ridge ACEC was expanded to include this area in the Proposed Plan.

J. The Lost Spring Mountain ACEC in alternatives B and E is larger than necessary to protect the resources of concern.

Response. The Lost Spring Mountain ACEC boundaries as proposed in the Proposed Plan do not encompass the entire Siler pincushion cactus habitat surrounding the mesa. It does protect a significant portion of this habitat, however, which will benefit from the special management provided by the ACEC designation.

K. Alternative D should be the chosen alternative for the Moonshine Ridge and Kanab Creek ACECs.

Response. Careful consideration was given to the boundaries and locations of all proposed ACECs. The Proposed Plan represents the best proposal given current information by staff to protect relevant and important resources with the special management prescribed in Chapter 2.

L. Portions of the proposed High Desert Trail System necessary to connect Mesquite, Nevada with Fredonia, Arizona would be adversely affected by these ACECs without specific guarantees that routes would be designated.

Response. A new decision since the Draft Plan/DEIS can be found in Table 2.15, Travel Management, providing for future consideration of new trail/road systems, such as the High Desert Trail. Site specific consideration would be necessary to insure that protection of resources or uses would not be compromised, wherever such a trail/road system is proposed. During the next 5 years, the RET process will be completed for this portion of the Planning Area. This public process will provide opportunities for consideration of such trail/road systems in the Arizona Strip FO on designated roads and trails.

M. Many areas proposed as ACEC's could be reduced in size.

Response. See response to Public Concern #138 K above.

N. Please exclude the existing I-15 easement in The Black Knolls ACEC from ACEC prescriptions.

Response. The Proposed Black Knolls ACEC is northwest and outside of the I-15 ROW easement.

O. What happens if populations move towards Ft. Pearce?

Response. If current growth rates continue in the St. George Basin, then development and population will move closer to Ft. Pearce, Black Knolls and Little Black Mountain ACECs. As this occurs, measures may need to be taken to further protect the relevant and important resources the ACECs would protect. These measures could include fencing and increased monitoring. ACECs would remain under federal administration but state and private lands in the area could be, and probably would be, developed in the future.

P. The Kanab Creek ACEC should be 13,146 acres.

Response. See response to Public Concern #138 K above.

Q. Spreader dikes, check dams, and gabions were proposed in the Glazier Dam AMP to improve watershed conditions. The Lost Spring Mountain ACEC expansion would prevent these projects.

Response. If spreader dikes, check dams, and gabions are proposed where significant cultural sites or threatened and endangered plants and animals exist, then these types of projects would not be authorized on such locations, whether or not they are located in an ACEC. Federal laws, such as the NHPA, NEPA, and ESA, would not allow significant impacts to cultural or natural resources without mitigation. The typical mitigation for projects of like these is to relocate the project so that the resources are not affected.

R. The proposed Shinarump ACEC specifies that existing water developments be moved off the 3 allotments and prohibits new water developments. Eliminating water within the allotments will concentrate livestock around fewer water points, leading to utilization problems.

Response. The proposed management prescriptions for Ft. Pearce, Johnson Springs, Kanab Creek, Lost Spring Mountain, Moonshine Ridge, and Shinarump ACECs call for consideration of removal of existing corrals or water developments. The proposed Shinarump ACEC does not contain corrals or water developments. A new decision since the Draft Plan/DEIS in Table 2.16 provides for consideration of proposed waters or other developments on a site specific basis.

ISSUE # 3B: PROTECTION OF RESOURCES: AIR, WATER AND SOILS (WS)***Public Concern #43 (WS1)***

There were a number of comments regarding air quality management in the Plan.

A. Mines (including haul roads) and other developments and prescribed burns should not impact the visibility or soundscapes in Grand Canyon National Park.

Response: At this time, there is no mining adjacent to the Grand Canyon National Park. There are two inactive underground uranium mines 3.5 and 6.5 miles north of the park. Prevailing winds would blow dust away from the park. Truck noise would be mostly inaudible inside the park.

Prescribed burns are part of the resource management process, even inside the Park. Burns in the Planning Area are conducted when prevailing winds are blowing away from the Park.

B. BLM should make the area a Class I Air Shed.

Response: Class I federal airsheds, for specific areas, were federally mandated by Congress in the Clean Air Act. They included international parks and certain national parks and wilderness areas. It would take an act of Congress to declare other areas Class I.

Public Concern #44 (WS2)

There were some comments expressing concerns and needed clarifications or alterations in the document regarding water resource management, monitoring, protection, and restoration strategies and implementation. These comments were primarily concerned management actions.

A. Regarding Chapter 2, page 2-22 (II.B. Management Actions, Table 2.1-Water Management), ongoing maintenance activities and future roadway projects may occasionally require occupancy /or development within a floodplain. Language indicating that if occupancy or development were necessary, mitigation measures would be developed with the appropriate agencies.

Response: Mitigation measures are always part of the approval process for allowing activities to occur on public lands. The following has been added to the Table 2.1-Water Management in the Proposed Plan/FEIS, "If development or occupancy is necessary, impacts would be mitigated through consulting and permitting with appropriate agencies."

B. DFCs in Table 2.1 and 2.4 (pages 2-22 and 2-63) appear to make any future water development on Arizona Strip public lands almost impossible.

Response: New or increased water developments must be justifiable and evaluated concerning impacts to other resources. Since most waters have already been developed, this should be an uncommon problem.

C. The Draft Plan/DEIS, particularly Chapter 2, page 2-22, does not discuss developed springs or seeps and how ecological functions and processes would be managed at these sites.

Response: Developed springs are subject to existing state water filings and their authorized water diversions. After such, any water remaining at the site may be used for other purposes. The BLM prefers that excess water remain onsite for wildlife, recreation, and riparian functions. The FEIS differentiates between important riparian areas based on size and extent of riparian vegetation, presence of special status species, and other criteria. The Vegetation Management tables in Chapter 2 propose DFCs and management actions designed to maintain or enhance riparian areas. Rangeland health assessments include an evaluation of riparian springs and seeps and are the venue used to determine whether ecological processes are intact and functioning. Specific actions necessary to restore riparian conditions are implementation level decisions and would be included in activity plans (Habitat Management Plans (HMPs), AMPs, restoration plans, etc.).

Public Concern #45 (WS3)

Some comments requested specific alterations or clarifications to the document regarding water management in general.

A. Rangeland Standards and Guidelines, Management Actions, on page 2- 37 do not differentiate between riparian areas and “priority” riparian areas. The action should be revised to read, “all riparian area would be maintained or improved.”

Response: We chose to differentiate priority riparian areas to identify for the public those areas where future restoration efforts would be focused. Riparian springs and seeps not specifically included on the list could still be treated where necessary to meet DFCs.

B. Statements such as, “Flowing water systems would provide continuous flowing water to associated riparian vegetative cover, where possible,” should clearly identify whether this includes managing systems under natural geological and hydrologic conditions or only where existing management actions allow.

Response: Where the source is not developed, management under natural geological and hydrological conditions is possible. Developed springs are subject to existing state water filings and their authorized water diversions. After such, any water remaining at the site may be used for other purposes.

C. Of the 32 priority riparian areas listed in Table 3.8 of the DRMP/DEIS, nearly half have not yet been rated, which raises questions regarding how the priority system is ranked and how determinations regarding ongoing impacts can be made.

Response: Riparian functionality is assessed during rangeland health evaluations. Standard 2 addresses riparian systems. Determinations would be made at the time the allotment, where the riparian area occurs, is assessed.

D. Page 3-40, Table 3.8 should include all riparian areas in the Planning Area.

Response: See response to Public Concern #45 C above.

E. The Draft Plan/DEIS does not address livestock grazing in riparian areas in the Vegetation sections (pages 4-59 and 4-82).

Response: Grazing in riparian areas is addressed in the proposed management alternatives (Chapter 2) under the section describing rangeland health evaluations. Standard 2 addresses riparian systems. Determinations would be made at the time the allotment, where the riparian occurs, is assessed. Recommended changes in grazing systems would be made following a determination that the riparian system was functioning at risk or non-functional and livestock use is the cause. Changes in grazing management would be incorporated into the allotment management plan during the permit renewal stage.

F. Chapter 2, pages 2-3 and 2-4, should note that piping water into a trough or pipeline destroys ecological processes and functions.

Response: We agree that developing and piping waters away from springs and seeps can have a negative ecological impact. However, most such developments on the Arizona Strip have been developed for decades and are managed by permittees as base water on grazing allotments. BLM does hold many water rights on these sites. Chapter 2 includes direction to file for and acquire water rights where possible. Management of these sites is accomplished by conducting a riparian functionality assessment during rangeland health evaluations. Standard 2 addresses riparian systems. Recommended changes in grazing systems would be made following a determination that the riparian system was functioning at risk or non-functional and livestock use is the cause. Changes in grazing management would be incorporated into the allotment management plan during the permit renewal stage.

G. On page 2-18, Riparian Resources should be separated from the Vegetation and Fire and Fuels Management resource program as described in this Draft Plan/DEIS.

Response: Riparian ecosystems are a unique vegetative community and a separate ecological zone. As such, DFCs and management actions are presented with those of other ecological zones.

Public Concern #46 (WS4)

Some comments requested specific alterations or clarifications to the document regarding water management at specific locations.

A. Alternative E should be revised to read, "Grazing and all associated facilities in the Cane Spring Pasture of the Mud and Can allotment would be managed so the riparian resources are in or moving towards proper functioning condition," as Cane Springs is considered a priority riparian area in Table 3.8 of the Draft Plan/DEIS.

Response: Recommended changes in grazing systems would be made following a determination that the riparian system was functioning at risk or non-functional and livestock use is the cause. Changes in grazing management would be incorporated into the allotment management plan during the permit renewal stage.

Public Concern #47 (WS5)

There were some general comments regarding the water section as a whole.

A. The BLM analysis of environmental impacts of livestock grazing is inadequate and should be revised.

Response: Soil, water, and air quality problems related to compaction, erosion, trampling, hydrogeologic alterations, dust, etc., are covered in the Proposed Plan/FEIS (See Chapter 4 for Impacts to Air, Water, and Soils and Chapter 3, Affected Environment for the same resources). Fencing of high value areas such as springs, riparian areas, and restored mountain meadows are obvious mitigating factors for grazing impacts. Information that is more detailed will be gathered in future watershed assessments as proposed, subject to funding and watershed staffing.

B. BLM should include a preferred alternative that addresses the fact that over 93 percent of piping within priority riparian areas is at risk or already destroyed.

Response: Maintenance of existing projects, including range improvements, is provided for in the Proposed Plan/FEIS. Maintenance may occur following completion of NEPA documents. We refer the commenter to the livestock grazing section in Chapters 2, 3, and 4.

C. Management should consider the restoration of springs that will result in benefits to listed species.

Response: We agree. Management of riparian areas already includes objectives for benefits to listed species. We refer the commenter to the riparian birds section of Table 2.5.

D. A strategic plan for water resource management and restoration across the Planning Area should be developed and implemented.

Response: The RMP provides basic information for setting up such a plan in the future. A more detailed plan is possible, as funding and watershed staffing permits.

E. BLM should use a more widely applicable set of criteria for prioritizing, monitoring, and identifying management actions for riparian areas.

Response: The riparian functionality assessment discussed in the Proposed Plan/FEIS is used throughout BLM offices nationwide. This process is described in detail in several technical references. In addition, the Arizona Standards for Rangeland Health incorporate this functionality assessment as a component of Standard 2.

Public Concern #48 (WS6)

There were a few comments regarding filing for water rights. Some of these were concerned with the legality of BLM filing for water rights, while others were concerned about the impact on livestock.

A. Will the management action of applying for water rights on available water sources for wildlife, recreation and livestock uses change once the new BLM grazing regulations are adopted?

Response: At the time of writing the Proposed Plan/FEIS, the new BLM grazing regulations have just been finalized, but it is not anticipated that there will be significant changes on the intent of the management action. Water would have to be available for application under either the old regulations or the current regulations. Most waters have existing filings on them and any use acquired by BLM would be limited to that which is available above the certificated use. The grazing regulations do not apply to filings for wildlife and recreation and these will continue to be filed on, as appropriate.

B. Where possible, in accordance with State law, that BLM should obtain all possible water rights on the Arizona Strip that would benefit listed and other species.

Response: BLM instream flow applications on the Virgin River and Beaver Dam Wash are currently being processed by the Arizona Department of Water Resources. This will benefit listed fish and other species. BLM does file for wildlife as opportunities arise.

C. Chapter 2 (particularly 2-22 Water Management Actions) does not acknowledge that it is against State Law for the BLM to own private water rights, other than in small amounts for administrative purposes only. Furthermore, BLM cannot show beneficial use.

Response: Under state law, BLM can and does own water rights for beneficial purposes other than administrative sites. BLM can and does show beneficial uses for wildlife, recreation, and in some cases livestock, on various water sources.

D. Chapter 2, page 2-22 (Water Management Actions) states that the BLM would file for water rights in accordance with state of Arizona water laws on available sources, but most water sources are all ready filed and deeded.

Response: BLM would file for appropriate water rights, if they become available.

E. If BLM files on all available water, grazing permits will be rendered useless; water rights for ranching should be protected.

Response: Water rights for ranching purposes are protected by state law.

Public Concern #49 (WS7)

There were some comments regarding the DFCs of soils in the area. Some supported the plans in the EIS, while some asked for minor revisions/clarifications.

A. A number of criteria derived from existing datasets should be used to determine appropriate thresholds, including parent material, soil stability, landform, and landscape context, when determining the best slope threshold for surface water runoff minimization.

Response: This has been done already via the data sets in soil surveys and other field assessments and interpretations. The “greater than 15 percent slope” statement in Table 2.1 of the Draft Plan/DEIS has been deleted because mitigation of project impacts also considers moderate to slight runoff and erosion potentials of lesser slopes, not just severe potentials. Such evaluations need to be site specific and should not be generalized.

B. A more quantitative, scientifically rigorous approach to defining soil management priorities through the S&G process should be employed and region-wide soil monitoring protocols should be established.

Response: The S&G process is almost completed for the Arizona Strip District. It points out areas that need more detailed and scientific soil and watershed condition assessments. Other priorities are determined by specialists in the watershed program based upon soil and water

values. Monitoring protocols are set on specific needs of priority watershed areas. This will be considered as much as future budgets and watershed positions allow.

C. What is the level of maintenance required to ensure existing treatment areas continue to meet erosion control objectives?

Response: This is unknown at this time as untreated areas with moderate to severe erosion problems have priority. There is a need to inventory and assess existing treatment areas as much as future budgets and watershed staffing will allow.

D. Restrictions on roads to decrease erosion are necessary.

Response: The road over Black Rock Mountain is closed in the winter due to erosion problems. Other roads may be evaluated on a site-specific basis.

Public Concern #50 (WS8)

There was a comment concerning soil management in general.

A. The beauty of the area was primarily caused by erosion, so why would you attempt to prevent it?

Response: Geologic erosion of rock formations over millions of years is quite different from the accelerated (man-caused) erosion of once-stable soils in the last 150 years. Much of the recent soil erosion has been traced to roads, trails, compaction and past over-grazing (see BLM Grazing EISs of 1979). The BLM wants to prevent accelerated soil erosion for the same reasons that farmers do. Soils are habitat for most of the area plants, holding water and nutrients for grasses, brush, and trees. They are important for carbon sequestration and aquifer recharge. Erosion causes sedimentation of reservoirs and degraded water quality. Some of the most productive soils are threatened by high erosion rates and are losing their capability to support much vegetation. Others are in danger of being eliminated by gully systems. Eroding soils are not beautiful as they represent dying ecosystems, degraded watersheds, and sometimes misuse of the resources. Wildland soils are finite and non-renewable resources that have taken thousands of years to form and develop. Once they are eroded away, they will be gone forever.

Public Concern #51 (WS9)

There were some comments regarding the treatment of biological soil crusts in the document.

A. Cryptobiotic crusts should not be included in bare ground coverage estimates in an area.

Response: The crusts are excellent ground cover and are not considered to be bare ground in scientific soil stability and condition assessments. They are a sign of soil surface stability and good health.

B. The BLM cannot meet its DFCs unless livestock grazing is heavily reduced, as livestock destroys biological crusts.

Response: All soils are not equal and vary in crust associations and susceptibility to disturbance. Since the BLM has replaced historic, uncontrolled livestock grazing by controlled and managed grazing, it is believed that the stocking rates and livestock densities are such that little impact is occurring to soil crusts. Under this scenario, healing has been observed away from livestock water sources. More information needs to be gathered in specific areas to show if this is still occurring and if impact areas around new waters are increasing or decreasing. This can be accomplished with the implementation of the Standards for Rangeland Health.

C. Biological soil crusts should also be incorporated into Chapter 2, page 2-28, Table 2.3, Vegetation DFCs, of the Draft Plan/DEIS where soil productivity has been reduced due to removal of soil organic matter, biological soil crusts, or active erosion and where vegetative or biological soil crust cover is inadequate to prevent soil erosion.

Response: The percent of potential cover, by biological crusts, needs to be incorporated into each range site description just as estimates of other covers are. This would need to be coordinated with the response to Public Concern #51 B above. Because of its importance to both soil and water quality, this concept has been placed into Soil DFCs, in Chapter 2, Table 2.1 and Vegetation DFCs, Table 2.3, of the Proposed Plan/FEIS.

ISSUE # 3C: PROTECTION OF RESOURCES: GEOLOGY AND PALEONTOLOGY (GL)

Public Concern #52 (GL1)

There were a few comments regarding Geology and Paleontology in general.

A. Support is expressed for the treatment of geological and paleontological resources in the document.

Response: Thank you for your comment. Geology and paleontology are important resources and deserve to be treated accordingly.

B. Management should more actively survey, classify, and inventory paleontological resources in the Monument.

Response: Future surveying, classification, and inventorying of paleontological resources is committed to in Chapter 2 of this Proposed Plan/FEIS (See Table 2.2). Areas would be classified according to their potential to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils according to their Paleontological Sensitivity Classes.

C. Chapter 2, pages 2-25 and 2-26 states that, "Geological and paleontological Monument objects would be protected. These may include all vertebrate or uncommon invertebrate fossils or localities and relevant and highly visible geological features and formations." However, management must protect all geological and paleontological resources, regardless of how visible they are.

Response: This is true, and only negligible or minor impacts to these resources are anticipated. Vertebrate or uncommon invertebrate fossils or localities and relevant and highly visible geological features and formations have higher resource values than common invertebrate fossils and geologic feature with low visibility and therefore are emphasized in the Proposed Plan/FEIS.

D. One Comment restated limits for collecting petrified wood, but offered no opinion.

Response: The limits for collecting petrified wood are set according to the regulations at 43 CFR 3622.

ISSUE # 3D: PROTECTION OF RESOURCES: VEGETATION AND FIRE FUELS MANAGEMENT (VM)

Public Concern # 95 (VM1)

There were a number of comments requesting various clarifications or changes regarding the vegetation management section of the document. One commenter specifically requested clarification that documentation will include models that project future ecosystem conditions under each proposed scenario for ecosystem restoration.

Response: All ecosystem restoration projects will continue to include adaptive management practices that allow managers to incorporate lessons learned into future treatments. Models have been used by both the BLM and cooperating agencies to help guide best management practices (BMPs) and utilize the best science available when developing restoration projects. Restoration projects within Parashant are authorized in conjunction with science-based research that, if appropriate, utilizes modeling. See Table 2.3, Vegetation and Restoration Treatments, in the Proposed Plan/FEIS.

In order to ensure that project impacts do not impair Monument values and to provide our public interests with sufficient information to understand the project and its anticipated effects, we comply with NEPA for all treatment activities.

Public Concern #96 (VM2)

There were a few general comments regarding the section on vegetation management in the document.

A. There were a number of comments regarding the treatment of livestock/livestock grazing in the vegetation section. One specific concern was that cattle grazing reduces undergrowth and reduces the fuel for wildfires.

Response: Due to the remoteness of many fuel reduction and restoration treatments, much of the residual biomass created from the thinning prescriptions is un-merchantable. In order to remove the un-merchantable material, it is necessary to burn it. All biomass generated from fuels reduction and restoration treatments is offered as commercial and public fuelwood before burning takes place. Prescribed burning is used to re-introduce an important evolutionary disturbance agent for the purposes of restoration and clears the forest floor of debris for the purposes of fuel reduction.

Numerous variables affect wildfire occurrence and intensity. Grazing use by livestock could have some influence on the amount, continuity, and structure of fine fuels, depending on the timing and intensity of use. The vast majority of the Planning Area is designated as available to livestock grazing and, therefore, would lend itself to the use of livestock as one of many tools available in dealing with wildfire and other resource issues. The areas identified to be unavailable to grazing are mainly areas in critical desert tortoise habitat, the Paria Canyon, and on the NPS portion of Parashant. The areas in Paria Canyon and the pinion-juniper forest of the NPS portion of Parashant have historically had very low instances of wildfire. Most of the areas unavailable to grazing in the critical tortoise habitat have not burned previously and will be monitored to evaluate fire occurrence as well as other resource related issues to compare against those of areas that are grazed.

B. Ranchers should be authorized to cut fence posts to repair fences and corrals.

Response: The BLM may authorize limited harvest of posts and/or poles for administration use, which includes by livestock grazing permittees. The sale, collection, or use of vegetative material would require a permit. See Table 2.3, Sale or Use of Vegetation Products. Interested parties would need to check with the BLM office concerning specific locations, stipulations, fees, and other requirements.

C. Logging should not be allowed on Mt. Trumbull; such treasures should be protected, not logged.

Response: Restoration is currently experimental and only applied on smaller project areas, not entire ecosystems. In addition, full restoration treatment has been and will continue to utilize new information and adaptive management.

Public Concern #97 (VM3)

There were a number of comments regarding the inclusion of/coordination with other organizations for vegetation management.

A. Both the Kaibab National Forest and the Arizona Strip District have approved fire use plans. Both plans should be used to provide direction to coordinate planning, decision-making, and management of naturally ignited fires that occur in proximity of our common boundaries.

Response: As of the publication of this Proposed Plan/FEIS, the Arizona Strip District does not have a fire use plan. We agree that cooperation with the Kaibab National Forest as well as cooperation with other agencies bordering the Arizona Strip District will be essential as we develop and implement a fire use plan.

Public Concern #98 (VM4)

There were a number of comments regarding the treatment of livestock/livestock grazing in the vegetation section.

A. Cattle grazing is of great benefit in controlling undergrowth and reduces the fuel for wildfires. Too much emphasis is placed on burning in this Plan with no consideration for reasonable use of other resources, such as cattle grazing or harvesting of wood, which can benefit the local economy.

Response: Livestock can reduce the risk of wildland fire by consuming and trampling fuels. However, some hazardous fuels loads (e.g., pine needle litter and dense shrubs) are not reduced by livestock grazing. Returning fire where it played a historic role in the maintenance and function of an ecological zone can restore ecological functions such as nutrient cycling. In many instances, grazing can perpetuate the long-term problem of catastrophic wildfire while regulating a seasonal or short-term factor of understory fuels. The Proposed Plan has provisions for harvesting wood in the Arizona Strip FO, which is closest to the local communities.

B. The BLM did not adequately address the issue of livestock grazing increasing the risk of catastrophic wildfires.

Response: The Proposed Plan strives to manage livestock grazing in such a manner that natural processes will function normally and desired plant community objectives are attained. In general, the desired plant communities contain the plant species that are identified by the applicable

ecological site guide for the area. Livestock use levels are limited and monitored for compliance so that plant vigor is not altered or reduced. That being said, livestock grazing should have minimal influence on the fire frequency and intensity. Grazing management practices adhere to the *Arizona Standards for Rangeland Health and Guidelines for Grazing Administration* (BLM 1997). Guideline 3-4 of this policy states, "Intensity, season, and frequency of use, and distribution of grazing use should provide for growth and reproduction of those plant species needed to reach desired plant community objectives."

C. Cattle grazing reduces undergrowth and reduces the fuel for wildfires.

Response: Livestock can reduce the risk of wildland fire by consuming and trampling fuels. However, some hazardous fuels loads (e.g., pine needle litter and dense shrubs) are not reduced by livestock grazing. Returning fire where it played a historic role in the maintenance and function of an ecological zone can restore ecological functions such as nutrient cycling.

Public Concern #99 (VM5)

There were a number of comments regarding the implementation of mechanical and chemical treatments, or the use of re-seeding, in the area. Some comments were directed at habitat restoration, while others were concerned with the use of treatments as a means of fire control.

A. Mechanical and chemical treatments should be allowed in order to maintain previous chainings and seeding and to control sagebrush and pinyon/juniper.

Response: Restoration and vegetation treatments would be authorized where protection of sensitive resources is ensured. Priority areas for restoration or vegetative treatment projects would be defined by ecological zone and major vegetation type and based on the following criteria (See Table 2.3 and Appendix 2.C for potential methods and tools):

- To increase indigenous rare or uncommon species;
- Where soil productivity has been reduced due to removal of soil organic matter or active erosion;
- Where vegetative cover is inadequate to prevent soil erosion;
- To improve habitat conditions for wildlife and/or special status species;
- To restore degraded, drought-stricken, weed infested, or otherwise unhealthy areas;
- To maintain previously treated areas;
- To achieve objectives; and
- To meet activity plan objectives.

On NPS lands, individual restoration plans would be developed to meet DFCs, NPS Vital Signs standards and related ecological objectives. Mitigation measures would be implemented for reducing impacts such as soil erosion or non-native plant encroachment, and minimum requirements analysis would be used in proposed wilderness and areas managed to maintain wilderness characteristics.

Treatment methods and tools appropriate to the management unit and protection of Monument objects could be authorized to achieve DFCs, Standards for Rangeland Health, or Vital Sign standards. Treatment methods could include, but are not limited to mechanical, chemical, biological and fire, or any combination thereof. Vegetation treatments and uses would be monitored as part of an adaptive management process. Seed priming and other enhancement techniques could be used to increase germination rates. Treatments would be designed so that they do not encourage an increase in any invasive species. Minimum requirement analysis would be used in BLM designated wilderness, NPS proposed wilderness, and on areas managed to maintain wilderness characteristics. On NPS lands, chaining and other methods that cause substantial surface disturbance would not be permitted.

B. Can the BLM accurately project acres of treatment for 20 years?

Response: The potential acres treated found in Table 2 of the Draft Plan/DEIS are provided so the reader has an understanding of the order of magnitude of potential treatments. The acres are based on past trends of acres treated, degraded ecosystems, and projected budgets. The acreage numbers are in addition to what has already been treated.

C. When reseeding an area, native seeding is better but suitable non-native seeding may need to be considered in large areas.

Response: On BLM land, the use and perpetuation of native species would be emphasized. However, when restoring or rehabilitating disturbed or degraded rangelands, non-intrusive, non-native plant species are appropriate for use where native species (in accordance with Guideline 3-1 from the Arizona Standards and Guides process):

- are not available,
- are not economically feasible,
- cannot achieve ecological objectives as well as non-native species, and/or
- cannot compete with already established non-native species.

D. Fire conditions in the area are not severe enough to warrant the use of heavy equipment in wilderness areas.

Response: We estimate that only 15 percent of ponderosa pine stands in the Planning Area are within historic fire regime and vegetative conditions (see Table 3.11), supporting the need for extensive treatments. DFCs listed in Table 2.10 describe the vision for wilderness. Table 2.3 section d. addresses prescribed fire and fire use within designated and proposed wilderness areas. Alternatives B-E state that the selection of vegetation treatment methods in these areas would be consistent with minimum tool requirements and non-impairment standards. Table 2.10 section c. states that restoration, vegetation treatments, and other surface disturbing actions could be authorized in areas to maintain wilderness characteristics to achieve DFCs (alternatives B-E). For the Monuments, Alternatives C and E state that fire would be used consistently with the

DFCs of areas managed for wilderness characteristics. Because fire use and prescribed fire are included in the array of tools available for restoration and vegetation treatments, the Impacts from Vegetation Management sections in Chapter 4 include fire use and prescribed fire under the umbrella of restoration. This corresponds to the restoration decisions that specifically list the types of vegetation treatments available under each alternative.

E. Outside the Wilderness, all appropriate tools should be considered.

Response: We emphasize that not every tool is appropriate in all situations. Use of some tools could result in unacceptable surface disturbance and adverse affects to special status species, cultural sites, or other resource values. For example, experience has shown that using mechanical methods in desert tortoise habitat can lead to injury or mortality of individual tortoise. For this reason, the BLM and NPS have included guidelines for selecting treatment methods that reflect the best available scientific knowledge. These guidelines are intended to assist managers in selecting tools with minimum impacts to Monument objects and sensitive resources. We agree that no tools should be excluded from consideration and have built flexibility into the DEIS and FEIS.

F. Can the BLM accurately project areas of treatment for 20 years? Chapter 2-48 is not clear why Alternatives D and E both have 200,000 acres of sagebrush habitat treated. Shouldn't E be less (i.e. more in line with Alternative C)?

Response: The treatment acreages presented in the DEIS under Alternative D represent approximately 10 percent more than the maximum amount of habitat restoration work that the BLM and/or NPS could reasonably hope to accomplish with optimum funding and personnel over the life of the RMP. These values were estimated to disclose to the public the maximum area of treatment that could occur within each ecological zone and as a basis for analysis of effects to the environment in Chapter 4. Because funding is always a constraining factor, we do not believe that any of the target thresholds would be reached over the life of this Plan. Setting targets slightly beyond our maximum capabilities allows us the flexibility to use new, more efficient methods for treatment should they become available in the future.

Many areas on the Arizona Strip have dense stands of sagebrush with little or no understory. The lack of diversity, particularly in the understory, means that these habitats are not ideal for wildlife or watershed. Conducting treatments to reduce sagebrush densities in these areas would benefit both wildlife and livestock. As a result, we have increased treatment acreage thresholds in the FEIS with the intent of increasing larger areas.

G. The Monuments need more protection from bulldozers and chainsaws. The Covington "pre-settlement" or "full restoration" model is unworkable in these areas.

Response: The management actions and tools used on a particular project would be constrained by the requirement to protect Monument values and to compliment the land use plan allocations and their associated objectives. For example, in designated wilderness, minimum tool analysis

would be completed before a decision was made on any land treatment. Tools and actions would also be constrained by VRM designations, recreation management zones, and TMAs. For information on Monument proclamations and how these are used to shape the development of the Proposed Plan/FEIS, please refer to Chapter 1, Purpose, Significance, and Mission Statements.

The Mt. Trumbull ponderosa pine restoration project began in 1996; it encompassed about 5,100 acres, 1,400 of which was a control area. Restoration approaches began with a treatment prescription provided by Northern Arizona University (primarily Dr. Covington). The prescription was designed to restore the forest to pre-settlement conditions. Adaptive management was an integral part of the restoration plan. Changes to the treatments have been made through out the restoration process to reflect new knowledge and understanding. One of the major objectives of the restoration work was to add to the scientific knowledge of ecological restoration. A constant effort has been and continues to be made to stay abreast of new studies and scientific information. Initial treatments of the 3,700 acres have been completed or are partially completed.

Restoration work beyond the initial 3,700 acres would incorporate the best science available and be conducted within the framework of the land use plan. The details of specific treatments would be evaluated in site-specific environmental analysis where the public would be given opportunity to comment and hopefully improve the actions taken. These site-specific proposals would outline in detail DFCs and specific land treatments to obtain these conditions.

Public Concern #100 (VM6)

A number of comments were primarily concerned with fire management.

A. There is not enough discussion of the connection between fire (both controlled and wild) and invasive species (particularly invasive grasses). More data/analysis is required.

Response: We agree that the potential for spreading invasive annual grasses should be evaluated for fire and fuels management actions. Ecological zone descriptions in Chapter 3 of the Draft Plan/DEIS address the role of invasive annual grasses in several ecological zones. Invasive plant species are also addressed in the DFCs, Desired Plant Community Objectives, and Vegetative and Restoration Treatments sections of Table 2.3. The Fire Management Plan provides more detailed and site-specific direction for fire and fuels management in the Planning Area than this Proposed Plan/FEIS. Several of the specific recommendations in this comment are addressed in the Fire Management Plan. We believe this level of detail is more appropriate for the Fire Management Plan.

B. In chapter 2-38, Table 2.3 states, "On BLM lands, based on total acres burned by wildland fires from 1984-2003, no wildland fires are anticipated during the 20-year life

of the Plan. The second sentence states, "Because this ecological zone contains flammable fuels, wildland fires may occur during the life of the Plan." These two sentences are contradictory.

Response: We decided that compiling historic fire data from 1984-2003 was the best way to anticipate the acreage of fires that will burn during the life of this Plan. We realize this could prove to be an over or under estimation of what ultimately burns. No wildland fires were reported in the Riparian Ecological Zone within the Monuments during the period analyzed. Therefore, we do not predict that any acres will burn during the life of the Plan. However, we acknowledge that wildland fires could occur as flammable materials exist in these areas.

C. It is difficult to evaluate the designation of different fire use zones without a map that delineates each of these areas.

Response: Areas allocated as Wildland Fire Use and Non Wildland Fire Use are delineated in Map 3.15, Wildland Fire Use Allocations, in the Draft Plan/DEIS.

D. The use of heavy equipment for fire management is contrary to the Wilderness Act.

Response: Restoration, vegetation treatments, and surface disturbing actions could be authorized to achieve DFCs in wilderness areas. Alternatives B-E state that the selection of vegetation treatment methods in these areas would be consistent with minimum tool requirements and non-impairment standards. Minimum impact suppression tactics (MIST) would be used to manage fire (see Tables 2.3, 2.10, and 2.16 in the Draft Plan/DEIS).

E. All proposed actions contain no discussion of environmental impacts to wilderness characteristics from fire and fuels treatments, and no alternative in the Environmental Impacts to Wilderness Characteristics section mentions fire and fuels management.

Response: Because fire use and prescribed fire are included in the array of tools available for restoration and vegetation treatments, the Impacts from Vegetation Management sections in Chapter 4 include fire use and prescribed fire under the umbrella of restoration. This corresponds to the restoration decisions, which specifically list the types of vegetation treatments available under each alternative.

F. Fire is not an effective tool for improving sagebrush habitat.

Response: While we agree that fire is generally less effective for managing sagebrush habitats than some other methods, in specific circumstances, fire can be used to successfully treat sagebrush habitats. Objectives may determine the methods used to accomplish them. We included fire as an optional treatment method for specific situations where fire would be a more effective and/or economical approach. Our preferred method for increasing understory diversity

in sagebrush habitats is the application of chemical herbicides, which reduce the shrub component and release the native understory from competition.

Public Concern #101 (VM7)

There were a number of comments regarding the collection of seeds, firewood, and native species in the Planning Area.

A. People should be allowed to collect firewood.

Response: Recreational collection of dead and down wood for campfire use is allowed in the Planning Area where fires are allowed (e.g., not in the Paria Fee Area or when fire restrictions are in place). Cutting of firewood for commercial or personal use off-site would only be allowed in the Arizona Strip FO, under a permit in specifically identified wood harvest areas.

Public Concern #102 (VM8)

A number of comments concerned invasive species management.

A. The list on page 3-34 includes restricted noxious weeds, but what about other invasive plant species that are not currently listed?

Response: The species on the list include those that are known to occur in the Planning Area. We will update the list and provide appropriate treatment as new invasives are found.

B. The use of equipment from outside the Planning Area is required to be cleaned prior to and after use. Who will police this and is it practical? A cleaning station would need to be set up.

Response: The cleaning before arrival can be completed at the contractor's yard, a commercial wash, or air can be used to blow the equipment clean. The contracting officer can then check the equipment. While this technique is not foolproof, it is a start.

C. Minimize the spread of invasive weeds. A proactive plan to prevent introduction of new invasive species should be a high priority.

Response: We have a very proactive weed program that uses an integrated approach of which education is a major part and is the best tool to prevent introductions.

D. What is the rationale for using prescribed fire to control large patches of invasive plants in the Paria River area?

Response: Burning would be used to remove large, woody species such as salt cedar and Russian olive. This would cause the shrubs to re-sprout, which would then be chemically treated. This method takes less chemical to treat the same area. In addition, if a “cut-stump” method were used, the cut material would be burned to assure that re-sprouting would not occur if the material would get wet or washed away during periods of high water.

E. On page 2-27, DFC Common to all Alternatives, include a bullet about BMPs to minimize future invasive exotic plant infestations when fires are used to achieve other resource objectives.

Response: This is a standard operating procedure (SOP) and will thus be carried out where appropriate. There is thus no need to include it into the Proposed Plan/FEIS.

F. Only weed-free materials should be used for any purpose.

Response: See response to Public Concern #107J on page 5-217.

G. Page 2-46 of the Draft Plan/DEIS states that you would, “Allow fire to naturally reduce annual weed densities.” This suggests that fire will naturally decrease red brome density, which is quite the opposite.

Response: Necessary corrections have been made to Alternative A in the Proposed Plan/DEIS.

H. Weed-free materials are too costly.

Response: Weed-free materials are only slightly more costly in the short term; however, in the long term, it is much more cost-effective and better for the ecosystem to use weed-free materials than to treat the resultant weeds.

I. Invasive species control is not possible due to the vastness of the area.

Response: Because of our proactive weed program with its educational component, we have and can continue to make a large difference.

J. Targeted removal of tree-of-heaven, tamarisk, and other invasive exotic plants should be allowed if proper survey protocols are followed.

Response: See implementation decisions in the riparian portion of the Vegetation Management section in Chapter 2 and Appendix 2.C.

ISSUE # 3E: FISH AND WILDLIFE (WF)***Public Concern #53 (WF1)***

There were a number of comments requesting various clarifications or changes regarding the wildlife and special status species sections in the document.

A. The term functional-at-risk (FAR) should be clarified throughout the Draft Plan/DEIS. There is a difference in management priorities between FAR with a downward trend and FAR with an upward trend.

Response: We agree that the term functional-at-risk requires clarification and have included it in the glossary of the Proposed Plan/FEIS. While we agree that non-functional areas are often difficult to rehabilitate, excluding any such areas in the DEIS or FEIS implies that we would not address them as priority areas. Differentiating between areas with an upward trend and those with downward trend implies that many such areas have been or would be identified and would therefore require prioritization for treatment. In reality, most riparian areas in the Planning Area are in proper functioning condition. Those riparian areas that are assessed as FAR in rangeland health evaluations would receive immediate management attention that would include recommendations for appropriate actions based on trend. Therefore, differentiating between upward and downward trend is not necessary at the land use plan level and would only add needless complexity to the document. We believe that the priorities for treating riparian areas are appropriate as written.

B. Include the BLM definition of Proper Functioning Condition.

Response: We agree that the term proper functioning condition requires clarification and have included it in the glossary of the Proposed Plan/FEIS.

C. The acronym DWMA is used in Ch. 2, p 2-85 before it is spelled out in 2-86 and should be included in the glossary.

Response: We have changed the Proposed Plan/FEIS to ensure the first usage of acronyms are spelled out. We have also included Desert Wildlife Management Area (DWMA) in the glossary.

D. What is the difference between a DWMA and a Wildlife Habitat Area (WHA)? This distinction should also be made in the glossary

Response: DWMA's were identified by the USFWS in the 1994 Desert Tortoise (Mojave Population) Recovery Plan as geographic areas to be managed for the survival and recovery of Mojave desert tortoise. The Service recommended that land managers designate ACECs within the DWMA's and identified higher levels of management protection for desert tortoise within these areas. There are two DWMA's on the Arizona Strip (Beaver Dam Slope and Gold Butte –

Pakoon) with four ACECs: Beaver Dam Slope, Virgin Slope, Virgin River, and Pakoon. Under the Proposed Plan, the Pakoon ACEC would be revoked. In its place, the Pakoon WHA would be allocated with many of the same management prescriptions for desert tortoise provided in the Pakoon ACEC. Functionally, DWMA's are similar to WHAs. Generally, special designations, such as DWMA's and ACECs, provide more focused management and therefore, more protection than land use allocations such as WHAs. However, in Parashant, Monument designation increased the level of protection for desert tortoise beyond what was provided by the Pakoon ACEC, particularly for minerals management and lands and realty actions. As a result, the ACEC was redundant and BLM proposed to revoke it. Under the 1998 RMP, the Pakoon ACEC served as a boundary between two different management schemes for desert tortoise habitat: inside the ACEC and outside. The primary difference was that areas inside the ACEC were unavailable for grazing. Under the Proposed Plan, the WHA would include all desert tortoise habitats in Parashant. Management of the WHA would be similar to that of the former Pakoon ACEC, but rather than a universal grazing prescription, individual allotments are identified as available or unavailable. While these grazing prescriptions are generally similar to what was included in the 1998 RMP, this approach gives BLM greater flexibility in managing the unique and sensitive values of the Mojave Desert.

E. Is the Grand Gulch Mine area a "special status species habitat?"

Response: The Grand Gulch Mine area includes habitat for several special status bat species.

F. In Chapter 2, page 2-79, what does "highest priority for removal" mean?

Response: The decision with the phrase "highest priority for removal" was carried forward from the biological opinion on the 1998 RMP amendment. The intent of the decision was to prioritize illegal and unauthorized sites for cleanup that pose a hazard to special status species or their habitats. While we continue to support cleanup of hazardous sites and those that pose a threat to special status species, "unauthorized" airstrips are not illegal. Airstrips do not pose the same threats to special status species that dumpsites do. For this reason, airstrips have been removed from this decision in the Proposed Plan/FEIS.

G. Chapter 2-62, Table 2 should be changed to reflect the fact that hunting is legal on NPS lands, whereas collecting wildlife parts is not.

Response: We agree and have made the recommended wording changes in the Proposed Plan/FEIS. AGFD was present during all phases of the route designation process and had input on all such decisions. Coordination with AGFD on route designation and closure issues will continue in the future.

H. Chapter 2, page 2-63, Table 2, Fish and Wildlife, Wildlife Transplants and Augmentations, should read, "Species that may be reintroduced, transplanted, or augmented include, but aren't limited to, the following: pronghorn antelope, mule

deer...” rather than, “Species that may be reintroduced, transplanted, or augmented include pronghorn antelope, mule deer...”

Response: We agree and have made the recommended wording changes in the Proposed Plan/FEIS.

I. There is detail for BLM lands, but no specific information for NPS lands, in the table on page 2-67.

Response: We agree. Where the text of a particular decision differs between BLM and NPS lands, additional detail has been provided in the Proposed Plan/FEIS to clarify these differences in management. Both agencies have worked to ensure that, wherever possible, management actions should be the same on BLM and NPS lands within Parashant. Additional clarification will also be provided in the implementation plan for the Monument.

J. All potential administrative actions should have information about inventory and monitoring.

Response: We agree and have made the requested change in the Proposed Plan/FEIS.

K. In contrast to Chapter 2, page 2-61, species and habitat should not always be given priority in conflict resolution.

Response: Identification of priority wildlife species is a requirement for BLM land use plans. By definition, priority species are given greater consideration in making land management decisions. Identification as a priority species does not mean that other resource uses and/or values would be ignored.

L. The name of Animal Damage Control (ADC), used throughout the document, was changed to Wildlife Services in 1997.

Response: We agree and have changed the Proposed Plan/FEIS to reference Animal and Plant Health Inspection Service (APHIS) - Wildlife Services.

M. The inclusion of “Animal Damage Control” as an issue may stem from its inclusion in previous BLM documents which the DEIS plans to supersede. However, legal and cooperative relationships have changed to the point where the inclusion of wildlife damage management as an issue is no longer justified.

Response: We agree. Language that reflects the interrelationships between APHIS-Wildlife Services, AGFD, BLM, and NPS has been incorporated into the Proposed Plan/FEIS at the end of Chapter 2.

N. APHIS-Wildlife Services is responsible for NEPA compliance on wildlife damage management projects they conduct. Wildlife damage management may also be conducted by the State of Arizona or their designee, consistent with the creation of the National Monuments.

Response: We agree. Language that reflects the interrelationships between APHIS-Wildlife Services, AGFD, BLM, and NPS has been incorporated into the FEIS at the end of Chapter 2.

O. Chapter 2, page 2-74 should specify that there would be no hunting or trapping on NPS lands.

Response: Hunting continues to be a valid recreational activity on NPS lands within the Monument. No changes to the Proposed Plan/FEIS were made based on this comment.

P. In Table 2.4, the statement that the maintenance of existing waters would take priority over new construction is problematic. These actions are distinctly separate as the concept of maintenance (operation) is ongoing and new construction should be in fulfillment of the AGFD's strategic plan.

Response: We agree and have changed the wording in the Proposed Plan/FEIS in response to this comment. The revised wording now indicates that maintenance of existing waters "generally" would take priority over construction of new waters. The intent is to direct the use of limited funding and manpower resources toward ensuring most existing waters are functioning before developing new waters. We assume that existing waters were constructed where they are because biologists identified their location as a high priority for water. We also assume that waters not yet built were given a lower overall priority. This approach is consistent with cooperatively developed HMPs.

Q. In Table 2.5BVC., the word "promote" should be replaced with "encourage" in the statement about the use of lead ammunition.

Response: We agree and have changed the Proposed Plan/FEIS to reflect this comment.

R. The categories of effect or impact as analyzed for NEPA do not necessarily match or translate easily to the various levels of effect to listed species considered under the Endangered Species Act (ESA).

Response: The categories of impact discussed in Chapter 4 of the DEIS differ in terminology, scope, and extent from the determination of effects to listed species or critical habitat used in a biological assessment. These differences stem from differences in required elements between NEPA and ESA documents.

S. Regarding page 4-136, Animal (re)introductions could affect listed species in ways other than just having the new species in a particular area, and further analysis is required before (re)introductions occur.

Response: In general, wildlife reintroductions, augmentations, or captures would not be authorized where doing so would lead to adverse affects to listed species, including special status plants. In the unlikely event that such activities were proposed in an area where adverse affects would occur, stipulations would be implemented to reduce or eliminate theses affects. For this reason, we stand by the conclusion presented in Chapter 4 of the Draft Plan/DEIS.

T. Because GCNRA must also develop action plans, remove Lake Mead NRA to broaden scope of intent to include all associated NPS lands and their tiered documents.

Response: We agree and have changed the Proposed Plan/FEIS to reflect this comment.

U. Several measures for various species state a goal of managing for large contiguous area of listed species habitat. This goal and objective should not be construed to mean that smaller and less contiguous areas of listed species habitat are not important for these species recovery or survival.

Response: Most or all of the goals referred to in this comment were adopted directly from conservation measures in the 2004 Land Use Plan Amendment for Fire and Fuels. We believe that managing for large blocks of contiguous habitat is an appropriate goal and that adopting this goal in no way diminishes our capacity to manage smaller and less contiguous areas.

V. Clarify the meaning of "to the extent possible" on page 2-76, Special Status Species DFCs.

Response: The phrase "to the extent possible" refers to those situations that are beyond the manager's control, beyond the scope of the Plan, and/or beyond BLM's authority. Proposed actions that conflict with other resource uses would generally be within the scope of the manager's authority. Assuming the proposed action is physically and financially feasible, the manager would make a decision based on the framework outlined in the Proposed Plan/FEIS.

W. Unoccupied areas (such as Kanab Creek) should not be managed as occupied areas.

Response: In accordance with the Southwestern Willow Flycatcher Recovery Plan, the biological opinion for the 1998 RMP amendment, and the Arizona BLM action plan for managing Southwestern Willow Flycatcher habitat, riparian areas that are suitable for occupancy by Flycatchers are to be managed to maintain those characteristics that make the area suitable. The Southwestern Willow Flycatcher Recovery Plan provides guidelines that allow conservative grazing actions to occur in Flycatcher habitat. For both suitable unoccupied and potential (restorable) unoccupied habitats, the guidelines recommend that no grazing be authorized during

the growing season. The BLM and NPS are committed to managing Southwestern Willow Flycatcher habitat in accordance with policies and regulations, so that they remain suitable.

X. The Draft Plan/DEIS should state that listed species can be collected only for legitimate and permitted scientific purposes.

Response: The BLM and NPS have no authority to issue permits for the collection of listed species. It is the responsibility of the USFWS and AGFD to determine the legitimacy of requests for collection of such species. Once the proper collection permits are authorized by these agencies, the BLM and NPS would determine the need to issue a research permit for conducting these activities on public lands within the Planning Area.

Y. Compliance with existing BLM livestock grazing guidance criteria should be included in the Draft Plan/DEIS as a conservation measure regarding livestock grazing and listed and special status species.

Response: We agree and have changed the Proposed Plan/FEIS to reflect this comment.

Z. Airstrips should not be equated with dumpsites in areas given the highest priority for cleanup.

Response: This decision was carried forward from the biological opinion on the 1998 RMP amendment. The intent of the decision was to prioritize illegal and unauthorized sites for cleanup that pose a hazard to special status species or their habitats. While we continue to support cleanup of hazardous sites and those that pose a threat to special status species, airstrips do not pose the same threats to special status species that dumpsites do. For this reason, airstrips have been removed from this decision in the Proposed Plan/FEIS.

AA. Category III Desert Habitat outside of ACECs/DWMAs should be designated for retention.

Response: In general, all special status species habitat would be retained in federal ownership. In accordance with policy, BLM is to retain all of the higher density tortoise habitat lands in federal ownership (formerly called Category I and II). These higher quality areas are all within the boundaries of the Beaver Dam Slope or Virgin Slope ACECs. However, rapid growth in the Littlefield area has led to development on three or more sides of some parcels of low-density (formerly called Category III) tortoise habitat. These parcels are very difficult for BLM to manage effectively. Depending upon the type of development, many of the resource values previously present on this land have been or will be lost. Public lands in Clark and Lincoln Counties in Nevada, and Washington County, Utah, are experiencing similar growth. As a result, public land sales have occurred or will occur in the future in these areas. We believe that the best long-term approach to resource management in the Littlefield area is to focus future community growth towards parcels that are difficult to manage and where resource damage has previously

occurred. The majority of these areas are between the I-15 freeway and the Virgin River. Tortoise densities between these impassable barriers are very low, with little or no immigration from outside areas. Focusing growth and development in specific low-density areas emphasizes BLM's intent to give highest priority for management to higher density lands within the ACECs. Some of these parcels would be made available for disposal under the Recreation and Public Purposes Act (R&PP) while others would be available for competitive sale. Under the R&PP option, BLM would only authorize disposal for public purposes, such as schools, libraries, and other community based developments. This would allow BLM a wider range of mitigation options. Both types of disposal would allow BLM to collect compensation monies that could be applied to habitat improvement projects for desert tortoise. For these reasons, BLM has decided to identify these particular parcels of low-density tortoise habitat as available for disposal under the FEIS.

BB. On page 129, "relocation" of an individual listed species due to impacts from project activities should be acknowledged to be an adverse effect in itself.

Response: We agree that actions that force a listed species to relocate could lead to additional impacts to the species. However, the determination that impacts from vegetation management actions would be negligible is also based on the fact that no Mexican spotted owls have ever been detected on the Arizona Strip despite many years of surveys, that suitable roosting habitat is uncommon, and that there are few locations where known prey species are consistently available as a reliable food source. We stand by the conclusion presented in Chapter 4 of the Draft Plan/DEIS.

Public Concern #54 (WF2)

There were a few general comments regarding the section on wildlife and special status species in the document.

A. Biodiversity should be protected.

Response: We agree that biodiversity should be protected. We believe that the DFCs and management actions provide for the necessary protection, and where necessary, the restoration of healthy and diverse ecosystems.

B. Restore the structure, function and composition of the ecosystems of the Strip.

Response: We believe that the DFCs and management actions provide for the necessary protection, and where necessary, the restoration of healthy and diverse ecosystems. Where rangeland health assessments indicate that desired plant community objectives are not being met, restoration treatments could be authorized to move the system towards attaining ecological objectives.

C. Big game animals may also need to be reduced.

Response: We agree that there may be occasions when big game wildlife populations may need to be reduced. The BLM and NPS rely upon habitat monitoring studies to determine when habitat conditions decline to the extent that enhancement or restoration is necessary. When the cause for declining habitat conditions is deemed to be overuse by wildlife, actions taken would be cooperative efforts with AGFD. Any reductions in wildlife numbers on BLM lands would be the responsibility of AGFD.

D. It is important that none of the proposed actions limit or prevent aerial or ground wildlife survey activities.

Response: We agree and believe that nothing in the Proposed Plan/FEIS would limit or preclude wildlife surveys from occurring in the Planning Area. These actions are conducted at the discretion of AGFD, and in some cases, APHIS-Wildlife Services.

E. Regular wildlife habitat restoration projects should be scheduled and implemented.

Response: We agree. The Draft Plan/DEIS specifies a variety of restoration and treatment actions that may be authorized in the Planning Area. Site-specific wildlife habitat restoration projects are described in implementation level documents such as HMPs.

F. When did we start using tax money to build nests for wildlife?

Response: Both federal and state monies are used to conduct a wide variety of habitat improvement projects, including nest structures.

G. Kaibab/Paunsaugunt Grand Staircase areas need to have fences removed wherever possible.

Response: Most fences that exist on BLM lands are necessary to manage livestock use. For those areas of the Kaibab/Paunsaugunt deer herd managed on BLM lands within the Planning Area, fences would be modified to meet BLM standards, where there is an identified problem with wildlife passage. Prioritization of needed modifications would be in coordination with AGFD. Fences not necessary for the control of livestock could be removed under the provisions of the Draft Plan/DEIS. While the BLM would like to see such fence modifications implemented as soon as possible, there are no specific time frames for compliance discussed in the Draft Plan/DEIS.

H. If it is necessary to restrict the number of visitors on the Arizona Strip, hunters who have drawn big game tags should still be given access.

Response: The BLM and NPS would work in close cooperation with AGFD to minimize or resolve resource conflicts. Where overuse by recreationists would lead to use restrictions, provisions would be made for those with valid existing permits.

I. There should be a scientific basis considered before re-introduction of endangered species.

Response: We agree. Reintroductions, transplants, and augmentations of special status species would be conducted to maintain current populations, distributions, and genetic diversity, to conserve or recover listed species, and/or to restore or enhance native populations, diversity, or distributions. Such actions would only be conducted if consistent with current biological opinions, recovery plans, and/or conservation strategies. These documents include the best available scientific information. The Proposed Plan/FEIS was updated to include this specific wording.

J. More substantial resources should be used for monitoring special status species across the Strip, which could involve partnerships with universities, other science-based organizations, and groups with science-based approaches as well.

Response: We agree. The BLM and NPS continue to seek partnerships with universities, state and federal agencies, and other science-based organizations in designing and implementing monitoring on the Arizona Strip. Unfortunately, funding allocated for monitoring is generally less than what is required to do an adequate job.

Public Concern #55 (WF3)

There were a number of comments that agreed or disagreed with the treatment of wildlife throughout the Draft Plan/DEIS. Some gave reasons why or requested adaptation of a specific Alternative.

A. None of the five issues or two management concerns enumerated focus on wildlife. As a result, the alternatives proposed are inadequate and unacceptable.

Response: The issues addressed in this Plan were provided by the public during the initial scoping phase of plan development. Management concerns include a statement about protection of Monument objects, including a high diversity of biological resources. We disagree that these issues do not adequately consider the interests of wildlife. We also disagree that the interests of mountain lions, bighorn sheep, desert tortoises, and other species have not been adequately analyzed. We are uncertain as to what the commenter means by lack of analysis of the critical importance of predator/prey relationships. Each of the species, groups of species, and all available habitats mentioned by the commenter have been considered. Each has DFC statements that indicate what our vision for the future is in terms of population, status, health, and habitat quantity and quality. Each species or group of species includes a broad framework of

management actions, special designations, and restrictions on uses to achieve these DFCs. We believe that existing wildlife corridors are maintained or enhanced through implementation of plan decisions. The anticipated impacts of implementation of other plan decisions on species or groups are addressed in Chapter 4 of the Draft Plan/DEIS. Actions analyzed include vegetation management, recreation, mineral development, route designation, lands and realty actions, and livestock grazing. We do not understand what types of decisions and/or analysis the commenter is seeking. We stand by our assessment that the Proposed Plan/FEIS includes several alternatives that focus "on wildlife and necessary habitat."

B. The Preferred Alternative does not adequately protect wildlife as it allows too much grazing.

Response: Livestock grazing can reduce available wildlife forage and cover and may lead to long-term changes in vegetative communities and fire regimes. Livestock grazing also promotes development of water sources in arid areas, making previously unusable habitat available to wildlife. Wildlife forage and cover needs are taken into consideration when establishing stocking rates for livestock. Site potential and carrying capacity is also accounted for. We believe that stocking rates are balance with ecological systems. The Arizona Standards for Rangeland Health are used in assessing whether grazing is causing habitat degradation for wildlife and other resource values.

C. Current wildlife management practices are adequate (Alternative A).

Response: Thank you. We believe that alternatives B through E provided additional clarification of specific wildlife management decisions, including protection of habitat connectivity corridors, implementation of habitat improvement projects, and augmentations of existing populations.

D. The effects analysis in the DEIS is inadequate, providing only generalities and assumptions regarding special status species, rather than clear directions and baseline data.

Response: The Draft Plan/DEIS provides a general discussion of effects to wildlife and special status species. The land use plan establishes the framework for decision making within the Planning Area, describing the types of actions that could be implemented in the future. Site-specific proposals describing where and how such actions would occur are deferred to implementation level plans. The analysis provided in Chapter 4 of the Draft Plan/DEIS includes sufficient detail to determine whether such actions could or should be authorized in the future without significant environmental impacts. The more rigorous discussion of effects to special status species requested by the commenter is included in site-specific NEPA analysis and the biological assessment for ESA Section 7 consultation on the land use plan. The commenter used habitat requirements for northern goshawk as an example. Chapter 3 of the Draft Plan/DEIS provided sufficient detail about northern goshawk that the commenter noted that nests have been

found in areas proposed for treatment. Chapter 4 includes a discussion of potential effects to northern goshawks and other special status species from vegetation and restoration treatment projects. Effects include disturbance of breeding, feeding, and sheltering activities; temporary or permanent loss of habitat or components; increased habitat fragmentation; increased susceptibility to predation; forced emigration; and/or direct injury or mortality. We believe that additional information in the Draft Plan/DEIS about the Northern goshawk's preference for late seral condition would not have contributed any new or previously undisclosed effects to the species. Again, this information is more appropriate in site-specific NEPA analysis at the time the actions are proposed. The commenter also discussed a lack of detail about current conditions, presumably referring to current population numbers and trends. BLM manages wildlife habitat. It is the responsibility of AGFD to manage wildlife numbers. As a result, our primary focus is to ensure that sufficient habitat is available for the survival and recovery of the species. We assume that the public understands that these species are imperiled by virtue of their special status. The DFCs and management actions proposed in the Plan are designed to be consistent with recovery of these species. While it might be helpful to the public to specifically identify how many individual animals might be affected by each project, it is virtually impossible to provide that information, even in cases where site-specific detail about the scope and extent of the action is provided. Once more, rigorous environmental analysis of effects to special status species can be found in site specific NEPA and in biological assessments prepared for ESA Section 7 consultation.

Public Concern #56 (WF4)

There were a number of comments asking for clarifications or alterations in the document regarding policies related to a variety of specific wildlife species (other than those listed in Public Concern # 57-62 below).

A The current population of American bison is likely closer to 160-200, not 80-135 as listed on page 3-64.

Response: We agree and have changed the Proposed Plan/FEIS to reflect these numbers.

B. Mountain lions and long-tailed weasels are not common enough in Vermillion to be listed as priority special status species in Table 2.4IXB.

Response: We agree that long-tailed weasels are not a common resident within Vermilion. However, the identification of priority wildlife species applies to all three planning areas. As such, the BLM and NPS would manage for the vegetative composition and diversity that would be suitable for the species identified. As a result, the action is still appropriate. We disagree that mountain lions are not common in Vermilion.

C. As stated in Chapter 2, cottontail habitat can be maintained, monitored and improved; however, harvest cannot. There are no mechanisms in place to monitor harvest.

Response: We agree and have changed the Proposed Plan/FEIS to reflect this.

D. In the section on Wildlife Habitat, the proposed stipulations for protection of wildlife habitat also permit exceptions and off-site mitigation without sufficient conditions. There is no standard articulated for determining that there will not be an adverse effect on wildlife species of special concern.

Response: At the time an action is proposed, the BLM makes a determination about the anticipated impacts of implementing that action on wildlife species present in the area. Standards used to make this determination are provided by NEPA, FLPMA, and ESA and in the regulations administering these acts. Conservation measures for special status species provide additional stipulations to be applied in habitats for these species. These stipulations are designed to minimize or eliminate the effects of the action on the species. The DEIS and FEIS include a list of generic stipulations/conservation measures as guidelines for common activities. We believe that writing standards and stipulations that would eliminate all possible adverse effects to wildlife is unnecessary and impractical for a RMP. Doing so would virtually eliminate many valid uses of public lands. Instead, we defer development of site-specific stipulations to the NEPA analysis at the time the action is proposed. This allows us to develop more practical and site-specific measures to reduce or eliminate impacts.

E. The proposed stipulations for mule deer crucial summer habitat and winter range (ASFO 13 and 14), bighorn sheep habitat (ASFO 15), and pronghorn habitat (ASFO 17) contain an option that off-site mitigation "may be required when un-reclaimed disturbance caused by activity totals more than ten acres in two years." However, there are no specific requirements for how mitigation will be conducted or how it will be determined to be successful for all aspects of mitigation.

Response: As indicated in the stipulations, the off-site mitigation would include seeding or planting vegetation favorable to the species and must be established within five years after project completion. Revegetation must be with species palatable to deer, pronghorn, or bighorn sheep (as appropriate) and would be deemed successful when seedlings are established and tending towards the density that existed before the surface was disturbed. Vegetation studies would be made in similar habitats in the vicinity to determine what densities are appropriate for considering the revegetation project successful. Other aspects of the revegetation would be determined by site-specific analysis.

F. Chapter 2-74, table 2.4 states that self-sustaining populations of Merriam's turkeys would be established in all habitat areas. Does that mean that turkeys would be re-established on Black Rock?

Response: Reintroduction of Merriam's turkey on Black Rock would be consistent with decisions in the Draft Plan/DEIS. As a result, this action could be authorized following environmental review. Chukar partridge are an introduced species in Arizona. Concern has been expressed that chukars could compete directly with native quail. As a result, the decision was made not to authorize augmentations of existing populations on the Arizona Strip.

G. Arizona should improve non-waterfowl species rather than migratory birds.

Response: Habitat improvement funds within the BLM are allocated on a state-by-state and office-by-office basis. Because waterfowl numbers are generally low on the Arizona Strip, we have implemented very few habitat improvement projects exclusively for these species. Instead, improvements of pond, reservoir, and lake habitats on the Arizona Strip are designed to benefit a wide variety of aquatic and shore birds.

H. Current data suggests that the Citizens' Route proposal would provide stronger protection for Mountain Lions.

I. Roads affect Mountain Lion populations by decreasing the quality of habitat through fragmentation.

Response: We agree that mountain lions would likely benefit from fewer routes. However, we believe that not all routes have equal effects on wildlife. Routes that pass through remote and densely vegetated habitats are more likely to be used by wildlife than those that pass through open areas with sparse vegetation. The availability of prey species and location and configuration of cover play greater roles in determining the distribution and preferred use areas of most wildlife species than does route density and abundance. This is particularly apparent in urban areas such as Tucson, AZ, and southern California, where mountain lions routinely cross paved highways to enter suburban landscapes and prey on domestic animals. Applying route density targets uniformly across wildlife habitat implies that all habitat is suitable and is equally usable to wildlife in the area. BLM and NPS used a route designation process, closing those routes that were redundant, had no specific use or destination, or that were causing documented impacts to wildlife or other resources. While the resulting route designation proposal did not meet the target densities provided by the commenter, BLM and NPS believe that essential wildlife habitats and travel corridors would continue to be maintained under the DEIS. In addition, the DEIS provides mechanisms that help the agencies determine when adverse effects are occurring to resources. The AGFD has indicated that mountain lion populations on the Arizona Strip are low to moderate in number and stable. They believe this is because mountain lion numbers are more closely tied to the availability of large ungulate prey species than disturbance factors such as routes. AGFD has indicated that the most effective means for providing protection for mountain lions is to increase mule deer numbers. The BLM shares this view. The DEIS includes numerous management actions to increase mule deer populations that would ultimately benefit mountain lion populations as well.

J. Increasing the height of cover in small-scale antelope fawning areas will concentrate fawns and increase predation.

Response: Biologists from the BLM and AGFD have consistently identified high levels of predation on pronghorn fawns. Habitat evaluations suggest that this is due to the lack of adequate fawning cover. Specifically, shrub height and density are too low to provide sufficient cover for fawns to avoid detection by predators. As result, the BLM and AGFD have included desired plant community objectives that specify shrub densities at least 20 percent of the composition by weight and at least 15 inches tall (20-24 inches is optimal). We will consider the commenter's concerns for large treatment areas at the time site-specific projects are proposed.

K. The Draft Plan/EIS states that a population of relict leopard frogs was recently found in a privately owned spring adjacent to the Virgin River at Littlefield, Arizona and that population is still in existence (page 3-78). However, this population has been extirpated.

Response: We agree and have changed the Proposed Plan/FEIS to reflect these comments.

L. The Relict Leopard Frog section should include a measure to adopt and implement the July 2005 Final Conservation Agreement and Rangewide Conservation Assessment and Strategy for the Relict Leopard Frog.

Response: The Draft Plan/DEIS incorporates all applicable DFCs and management actions for the relict leopard frog contained within the referenced conservation strategy.

M. Throughout the DEIS, references are made about the Spotted Owl and other endangered or threatened species based on available habitat. However, Arizona courts have established that we cannot manage for a species solely on the premises that there is suitable habitat.

Response: Section 7 of the ESA requires federal agencies to review their actions to ensure that no action authorized, funded, or carried out is likely to jeopardize the continued existence of a listed species. The ESA also requires federal agencies to utilize their authorities to carry out programs for the conservation of endangered and threatened species. The BLM and NPS are also bound by policy to ensure that our actions are consistent with recovery plans for listed species. The BLM and NPS have the responsibility to manage habitat that is suitable for a listed species so that those characteristics that make it suitable are not degraded. Authorized actions that would allow the habitat to be sufficiently altered so that it could no longer be used by the species would be inconsistent with the ESA and the agencies' policies. We believe that the DFCs and management actions included in the Draft Plan/DEIS provide adequate direction to ensure that suitable habitat for listed species is maintained. We believe the commenter incorrectly summarized the intent of the Arizona Cattle Grower's court decision. That decision held that an incidental take statement could not be authorized for habitat documented to be unoccupied. We

agree that much of the habitat in Kanab Creek has low potential to support Mexican spotted owls (MSOs). However, these areas have been identified by a computer habitat modeling system as having the potential to support MSO nesting. The model specifies that such areas should be validated, but does not provide any details about how this should be accomplished. As a result, the BLM continues to conduct surveys for MSOs in these areas in order to determine occupancy. To date, no MSOs have been detected. Until a method for validating the model is agreed upon with the USFWS, the BLM and NPS must continue to survey and manage these areas as suitable habitat. In addition, the ESA and BLM manuals specifically require us to manage proactively for listed and proposed species. Specifically, this means that areas identified as suitable habitat for a species should be maintained in suitable condition, regardless of whether or not the species has been found there.

N. A measure similar to the conservation measures to conduct surveys for Southwestern Willow Flycatcher and Yuma Clapper Rail included in the Appendix should be included for all species.

Response: We agree and have changed the wording in the Proposed Plan/FEIS in response to this comment. We also point out that conducting surveys for special status species is policy and does not need to be reinforced by land use plan decisions.

O. Several activities proposed in the DEIS could negatively affect Spotted Owl populations by having an impact on potential nesting, roosting, and foraging habitat.

Response: We agree that some areas of potential MSO nesting sites have been insufficiently surveyed to date to infer absence. We also agree that some actions that could be authorized under the Draft Plan/DEIS may affect potential nesting, roosting, or foraging habitat. These actions are being addressed through Section 7 consultation with the USFWS in the Proposed Plan/FEIS. Future, site-specific actions would also be addressed through ESA consultation and NEPA analysis. Survey information would be provided whenever practical.

P. No Mexican Spotted Owl habitat was actually surveyed using current survey protocols.

Response: Surveys for Mexican spotted owls were previously completed in several areas in accordance with the protocols in use at the time. Protocols have since changed. The BLM and NPS intend to continue to survey in accordance with current protocols those areas identified as potential MSO nesting habitat.

Public Concern #57 (WF5)

There were a number of comments asking for clarifications or alterations in the document regarding policies related to pronghorns.

A. In chapter 2, the final statement concerning pronghorns is too restrictive. It should read, "...at the heard unit area," which means that pronghorn population composed of 1 to several herds could receive predator management in the area they normally occupy, as pronghorn are not evenly distributed over the Planning Area.

Response: We agree and have changed the Proposed Plan/FEIS to reflect this comment.

B. Pronghorns cannot be used as an indicator species for vegetation management, as there are other forces working against the pronghorn such as hunting & predation.

Response: We disagree. Various factors such as climate, predation, drought, and wildfire are constantly affecting wildlife species distributions. The occurrence of abiotic factors that may be a contributor in population declines does not necessarily negate use the species as an indicator of habitat quality. Pronghorn were chosen as an indicator species because they are a large, easily visible herbivore whose population numbers and trend are monitored regularly by AGFD. Their forage needs include a mixture of grass, forbs, and shrubs. In addition, tall shrubs are beneficial for fawning cover. We disagree that pronghorn numbers are declining throughout the Arizona Strip. Population numbers have been stable to increasing, despite extensive drought.

C. Grazing in pronghorn habitat should be restricted to levels that will not adversely impact the species.

Response: Grazing continues to be a valid existing use of public lands in the Planning Area. The DEIS and FEIS include DFCs and management actions that would minimize adverse effects on wildlife species. The Arizona Standards for Rangeland Health and the Guidelines for grazing administration provide a process for assessing the impacts of current grazing management on wildlife populations and habitat. Where it is determined that any particular grazing allotment is not meeting the standards and guidelines, modifications and adjustments are made to livestock grazing practices.

D. There should be no road access within 0.25 miles of pronghorn habitat.

Response: The DEIS includes management actions that will minimize unnecessary fencing in pronghorn habitat and maintain livestock grazing that are in balance with other resources.

E. Fencing should be limited in pronghorn habitat.

Response: We agree that pronghorns are strongly affected by the presence of fences in their habitat. The Draft Plan/DEIS includes management actions that will minimize unnecessary fencing in pronghorn habitat.

Public Concern #58 (WF6)

There were a number of comments asking for clarifications or alterations in the document regarding policies related to Mule deer.

A. Current data suggests that the Citizens' Route proposal would provide stronger protection for mule deer.

Response: We agree that mule deer would likely benefit from fewer routes. However, we believe that not all routes have equal effects on wildlife. Routes that pass through remote and densely vegetated habitats are more likely to be used by wildlife than those that pass through open areas with sparse vegetation. The availability of prey species and location and configuration of cover play greater roles in determining the distribution and preferred use areas of most wildlife species than does route density and abundance. Applying route density targets uniformly across wildlife habitat implies that all habitat is suitable and is equally usable to wildlife in the area. The BLM and NPS used a route designation process, closing those routes that were redundant, had no specific use or destination, or that were causing documented impacts to wildlife or other resources. While the resulting route designation proposal did not meet the target densities provided by the commenter, the BLM and NPS believe that essential wildlife habitats and travel corridors would continue to be maintained under the Draft Plan/DEIS. In addition, the Draft Plan/DEIS provides mechanisms that help the agencies determine when adverse effects are occurring to resources.

B. There should be more water catchments and habitat restoration projects to create better habitat for mule deer and legislation or regulation that prevent these actions should not be adopted.

Response: We agree. Management actions such as the construction and maintenance of wildlife water catchments could be authorized within the framework of the Draft Plan/DEIS. Site-specific actions would require NEPA analysis. We are also concerned about mule deer numbers. We believe that there are many other causes for low mule deer numbers, including drought. Mule deer numbers are currently stable to slowly increasing.

C. There should be no road access within 0.25 miles of mule deer habitat.

Response: See response to Public Concern #58A above.

Public Concern #59 (WF7)

There were a number of comments asking for clarifications or alterations in the document regarding policies related to bighorn sheep.

A. Additional studies should be undertaken to locate critical desert bighorn lambing areas or other special use areas within the five desert bighorn WHAs.

Response: We agree that bighorn lambing areas are an important resource and that additional studies are necessary to identify specific locations. The Draft Plan/DEIS provided various options for protecting lambing areas from human disturbance. Several alternatives were included within the Draft Plan/DEIS that proposed ACECs within bighorn sheep habitat. However, bighorn are not considered a regionally significant species. As a result, the proposed ACEC did not meet the relevance and importance criteria and was not selected for inclusion in the Preferred Alternative. In addition, most bighorn habitat areas are within designated wilderness and receive increased protection.

B. Limiting the grazing to nine miles from native bighorn sheep populations is inadequate as Bighorn rams will often move 20 miles or more and return to their same herds.

Response: We agree with the commenter's concern for bighorn sheep and the potential threat of disease from interactions with domestic sheep and goats. The nine-mile limitation is a BLM standard described in the Bureau's rangewide plan for management of wild sheep. The BLM and NPS believe that restrictions on grazing livestock other than cattle and horses are sufficient to minimize the potential threat to bighorn sheep.

C. The intensive management required by bighorns in the Desert Bighorn Management Plan could be compromised by the fact that almost all bighorn territory is overlaid as MWC.

Response: The DEIS includes decisions that would allow for authorization of new and supplemental releases of bighorn sheep in habitat areas on the Arizona Strip. Nothing in the Draft Plan/DEIS would preclude or restrict management actions for bighorn in areas managed to maintain wilderness characteristics. Also, see response to Public Concern #121 A on page 5-202.

D. A WHA for bighorn sheep should be created for Hack Canyon and Grama Canyon, or these areas should be added to the Lower Creek WHA.

Response: The Hack and Grama Canyon areas are already included within the Kanab Creek bighorn sheep habitat area.

E. Due to the various prescriptions and allocations for recreation management zones, there is an obvious disconnect in the ability of the Draft Plan/DEIS satisfactorily to answer specific questions regarding allowable uses and management action prescriptions or to evaluate adequately a very wide array of associated impacts on bighorns.

Response: The commenter incorrectly assumes that identification of a recreation management zone automatically results in recreation receiving greater consideration in making decisions concerning allowable uses in desert bighorn habitat. Rather, the recreation management zones provide a decision framework and guidance for BLM managers to consider when making a determination of allowable uses. This is designed to ensure that uses within a specific area are compatible. Most recreation management zones in bighorn habitat include guidance that focus on maintaining the primitive and remote characteristics of these areas. As a result, a proposal to build an informational kiosk or a staging area for OHV events would be considered incompatible with both the recreation management zone and bighorn sheep needs. While we recognize that some conflicts may still exist, we have attempted to make management guidance for recreation management zones and management of other resources as consistent as possible.

F. There should be no road access within 0.25 miles of bighorn habitat.

G. The Citizens' route proposal provides stronger protection than the Preferred Alternative, but both route systems are likely to affect relatively small portions of bighorn sheep habitat within the Monuments.

Response: We agree that the route designation proposal in the Draft Plan/DEIS is likely to affect only a relatively small portion of desert bighorn sheep habitat. We agree that desert bighorn sheep are among the most susceptible species to the effects of human disturbance. Very few routes pass through the remote and rugged habitat occupied by desert bighorn sheep on the Arizona Strip. The BLM and NPS believe that essential wildlife habitats and travel corridors would continue to be maintained under the route designation in the Draft Plan/DEIS. In addition, the Draft Plan/DEIS provides mechanisms that help the agencies determine when adverse affects are occurring to resources. Also, see response to Public Concern #58A above.

Public Concern #63 (WF8)

There were a number of comments asking for clarifications or alterations in the document regarding predator control policies.

A. Chapter 2, page 2-64, Table 2.4, states that, "General predator control activities for the protection of livestock will not be permitted on GCNRA lands." However, if predator activities are documented identifying an individual animal or limited number of individual animals, a specific control action may be authorized by GCNRA and according to interagency agreements.

Response: We acknowledge that GCNRA policies for animal damage control actions apply to lands within the GCNRA. If predator activities are documented identifying an individual animal or limited number of individual animals, a specific control action may be authorized by GCNRA

and according to their interagency agreement. GCNRA would conduct the necessary coordination with APHIS and NEPA documentation.

B. The critical importance of predator/prey relationships, impacts on predators, and other focal species have not been adequately analyzed in the Draft Plan/DEIS. As a result, the Draft Plan/DEIS is unacceptable.

Response: The issues addressed in this Plan were provided by the public during the initial scoping phase of plan development. Management concerns include a statement about protection of Monument objects, including a high diversity of biological resources. We disagree that these issues do not adequately consider the interests of wildlife. We also disagree that the interests of mountain lions, bighorn sheep, desert tortoises, and other species have not been adequately analyzed. We are uncertain as to what the commenter means by lack of analysis of the critical importance of predator/prey relationships. Each of the species mentioned, groups of species, and all available habitats have been considered. Each has DFC statements that indicate what our vision for the future is in terms of population, status, health, and habitat quantity and quality. Each species or group of species includes a broad framework of management actions, special designations, and restrictions on uses to achieve these DFCs. We believe that existing wildlife corridors are maintained or enhanced through implementation of plan decisions. The anticipated impacts of implementation of other plan decisions on species or groups are addressed in Chapter 4. Actions analyzed include vegetation management, recreation, mineral development, route designation, lands and realty actions, and livestock grazing. We do not understand what types of decisions and/or analysis the commenter is seeking. We stand by our assessment that the Proposed Plan/FEIS includes several alternatives that focus "on wildlife and necessary habitat." We are unable to address this further.

C. Predator control should continue in all areas as necessary; reduction in predator control adversely impacts some species.

Response: We agree. Predator control is the responsibility of APHIS-Wildlife Services. These actions would continue to occur within the decision framework of the Proposed Plan/FEIS.

D. Table 2.4Bd needs to be rewritten to reflect the fact that predator control on a landscape level is not practical.

Response: See response to Public Concern #63 N below.

E. More road closures will result in a lack of effective predator control.

Response: We recognize that access is crucial to successful predator control efforts. We continue to be committed to providing necessary access throughout the Planning Area while minimizing redundant routes and reducing or eliminating resource damage associated with access.

F. In Table 2.4, the statement about predator/prey populations is ambiguous and should be removed.

Response: We agree and have clarified the wording in the Proposed Plan/FEIS. See also response to Public Concern #63 N below.

G. On page 2-75, Table 2.4, there is no mention of the possibility of the aerial gunning of predators, especially coyotes!

Response: Predator control is the responsibility of APHIS-Wildlife Services and AGFD. The choice of tools used is not discussed in the DEIS or FEIS because this decision is made by the responsible agency in accordance with an existing memorandum of understanding. Currently, aerial gunning of coyotes is a tool that these agencies could use. The BLM and NPS can encourage application of specific conservation measures for special status species as long as the specific measures do not violate the terms of MOUs with APHIS-Wildlife Services. Many such conservation measures are already in place, including encouraging the use of non-lead ammunition in California Condor habitat.

H. Targeting individual predators rather than populations is restrictive and may be impossible to implement. Stating that predator management will be time/area specific to minimize impacts on adjacent predator populations would be more relevant.

Response: The decision to target offending predators was brought forward from interim management guidance for BLM National Monuments. We agree that this requirement is neither practical nor effective. As a result, the Proposed Plan/FEIS has been changed to remove the offending animal requirement. We also acknowledge that balancing predator and prey populations is not a measurable goal. In situations where predator - prey relationship were clearly out of balance, potential solutions would be discussed with APHIS-Wildlife Services, AGFD, and other affected interests. Since this is consistent with standard operating procedures, the DFC for balancing predator and prey numbers has been deleted from the Proposed Plan/FEIS.

Introduced species such as Merriam's turkey, Kaibab squirrel, and chukars are not considered invasive exotics. Therefore, predator control measures would not apply to these species.

I. Regarding Chapter 1, pages 1-6 and 1-7, depending on the definition of sustainable, sustainable ranching operations and sustainable populations of predators are in conflict in both Parashant and Vermilion.

Response: While we agree that these statements may be in conflict, they are not mutually exclusive. Both represent DFC statements for the Planning Area. Portions of the DFC statements for balancing predator and prey populations have been removed from the Proposed Plan/FEIS.

J. The inclusion of predator control in the Draft Plan/DEIS specifically in relation to APHIS-Wildlife Services is in violation of the 1995 MOU between the BLM and APHIS-Wildlife Services.

Response: We agree that the inclusion of the Animal Damage Control section in the DEIS is misleading, implying BLM would somehow authorize APHIS-Wildlife Services to conduct animal damage and predator control actions in the Planning Area. This was intended to be a statement of fact, not a decision. As such, we have revised the language and incorporated it into Chapter 1 of the Proposed Plan/FEIS. Also, see response to Public Concern #63 H above. We stand by our analysis of the effects of animal damage control measures on wildlife. While APHIS-Wildlife Services uses a variety of non-lethal methods, those that rely on lethal management are impacts that must be disclosed in the Plan. Similarly, low-level flights over the Planning Area, for whatever purpose, have the potential to disturb wildlife. We do not believe that this statement requires a literature citation.

K. Proactive control should also be authorized to enhance threatened and unstable wildlife populations, not just planned transplants.

Response: See responses to Public Concerns #63 G and H above.

L. Any predator control planned for the project area should include only those methods that will not result in injury or death of listed and other species.

Response: We agree. See responses to Public Concerns #63 G and H above.

M. On page 2-64, What is the threshold / trigger for the control of individual predators?

Response: See response to Public Concern #63 H above.

N. We suggest the removal of the statements that reference predator populations as being in balance with mule deer, as these statements are too restrictive to be placed in a federal planning document and statutory authority is vested in AGFD.

Response: We agree that balancing predator and prey populations is not a measurable goal. This DFC statement has been replaced in the Proposed Plan/FEIS with a modified version of the statement provided by the commenter. We acknowledge that balancing predator and prey populations is not a measurable goal. In situations where predator - prey relationship were clearly out of balance, potential solutions would be discussed with APHIS-Wildlife Services, AGFD, and other affected interests. Since this is consistent with standard operating procedures, the DFC for balancing predator and prey numbers has been deleted from the FEIS. We have also revised the statement regarding being consistent with the AGFD Strategic Plan and have moved it to the section describing management actions that apply to all wildlife species.

Public Concern #64 (WF9)

There were a number of comments regarding the inclusion of other organizations in wildlife and wildlife habitat management.

A. The BLM should coordinate with and allow access to organizations who provide habitat improvement, particularly the AGFD.

Response: We agree. We believe that nothing in the DEIS or FEIS would interfere with or preclude access to wildlife habitat improvement projects.

B. Wildlife conservation organizations such as the Arizona Deer Association (ADA), Mule Deer Foundation (MDF), and Arizona Desert Bighorn Sheep Society (ADBSS) should be allowed to help protect and enhance the wildlife and habitat through its use of on the ground projects in these newly created Monuments.

Response: We agree. We believe that nothing in the DEIS or FEIS would interfere with or preclude access to wildlife habitat improvement projects.

C. All Alternatives restrict the ability of groups such as the ADA and the MDF to protect and enhance wildlife habitat.

Response: We disagree. We believe that nothing in the Plan would prevent groups from conducting wildlife habitat enhancement projects on the Arizona Strip, including the maintenance or construction of wildlife waters. Wildlife water developments may be constructed under the decision framework of the FEIS, assuming NEPA analysis and conformance with other plan decisions. Site-specific locations for installation of wildlife water developments is addressed at the activity plan level, in this case HMPs. Vegetation management could also be conducted. Selection of the specific method used to conduct vegetation treatments would be analyzed in an environmental assessment, either within the activity plan, at the time of the project proposal, or both. Within areas managed for wilderness characteristics and designated wilderness areas, special consideration would be given to maintaining and/or enhancing existing values. Considerations could include modifications to the design and/or location of the project, tools used for construction, and access. VRM Class I or II would not prevent the maintenance or construction of wildlife habitat improvement projects. BLM continues to enlist the support of wildlife conservation organizations and seeks partnerships with these groups to identify and implement wildlife habitat improvement projects.

D. Additional language should be incorporated into the document that specifies coordination between ADOT, Federal Highway Administration (FHWA), and the BLM to discuss any BLM proposed fencing modifications (including funding) on ADOT easements.

Response: We have modified the referenced fencing decisions in the Proposed Plan/FEIS to exclude those along roadways. Coordination with FHWA and ADOT is standard operating procedure. As such, the requested language would not be a decision and has incorporated within Chapter 1 of the Proposed Plan/FEIS.

E. The USFWS, Arizona Ecological Services Office requests participation in the development of HMPs, conservation measures, and cumulative impact analysis regarding species.

Response: We assume that the commenter is requesting to be a party to the development of HMPs for wildlife species and habitats within the Planning Area. We agree and have changed the Proposed Plan/FEIS to include the USFWS in HMP development.

F. BLM should share species status information with other agencies if populations are stable or improving, or have achieved a degree of recovery.

Response: We agree and continue to share all information collected concerning the status and trend of special status species. This is standard operating procedure and does not require modification of existing plan decisions.

G. The "Management Goals, Objectives, and Action" section for each species should include an item that states that if any apparent conflict in policy or direction arises, the issue will be brought to the attention of the Arizona Ecological Services Office for interpretation and resolution.

Response: We disagree with the need for a statement regarding conflicts in policy or direction. The ESA provides a regulatory process for ensuring that actions authorized by the BLM and/or NPS do not jeopardize listed species. In addition, several decisions are included within the Draft Plan/DEIS that address resource conflict resolution for special status species, regardless of whether there is a federal nexus. The wording recommended by the commenter is vague and duplicates existing plan decisions. We have added USFWS's name to the list of those whom which we would coordinate.

H. Restricting season of use and number of visitors, and/or implementing recreational closures in the Pakoona DWMA/WHA may have adverse effects to permitted wildlife recreational activities. There should be close coordination between AGFD and BLM before implementing such restrictions to ensure reasonable and fair access to this area.

Response: We agree. Close coordination between the BLM and AGFD has been and continues to be a priority in the Planning Area.

Public Concern #65 (WF10)

There were a number of comments regarding the development of resources related to wildlife and special status species. The majority of these were directed at the development of water resources.

A. Does Table 3.8 in the Draft Plan/DEIS include all springs and seeps in the Planning Area?

Response: Table 3.8 does not include a complete list of all springs and seeps in the Planning Area, only those that are considered priority riparian areas as defined in the Draft Plan/DEIS.

B. There are no criteria in the Standards and Guidelines policy for there being a minimum distance to an adjacent riparian area in order for a riparian area to be maintained or improved.

Response: The commenter seems to be making the assumption that if a site were not listed in Table 3.8 as a priority riparian area, then no effort would be expended to maintain or enhance existing conditions. Based on the definition of priority riparian areas provided in the Draft Plan/DEIS, virtually any wet area would qualify. The 0.5-acre threshold for consideration as an important riparian area does not necessarily exclude any springs or seeps. The presence of riparian vegetation would allow for virtually all such springs and seeps to be included. The presence of saturated soil, riparian vegetation, and/or the isolated nature of a particular wet area would elevate a particular area to priority status. However, even if the site was not considered on the list of priority riparian areas, a wide variety of restoration or vegetation treatment actions could be authorized under the decision framework of the Proposed Plan/FEIS. Our intent was to identify the larger and more pervasive riparian areas in order to prioritize limited resources and funding for any necessary restoration efforts. We agree that all springs and seeps, regardless of size, are to be addressed in Rangeland Health Evaluations.

C. Table 2.4IBc should read, "...may not be restricted...", rather than "...should not be restricted...."

Response: We have been unable to locate the section in the document referred to by the commenter.

D. More water sources for wildlife should be developed or existing water needs to be maintained.

Response: Wildlife water developments may be constructed under the decision framework of the Proposed Plan/FEIS, assuming NEPA analysis and compliance with other plan decisions. Site-specific locations for installation of wildlife water developments is addressed at the activity plan level, in this case HMPs. Vegetation management could also be conducted. Selection of the

specific method used to conduct vegetation treatments would be analyzed in an environmental assessment, either within the activity plan, at the time of the project proposal, or both.

The DEIS allows for maintenance of existing waters, both on BLM and NPS lands. The statement regarding prioritizing maintenance of existing waters over construction of new projects has been modified by adding the word "generally." This decision emphasizes the need to keep water developments in functional condition and reflects the idea that highest priority waters have already been constructed. New developments would generally be considered a lower priority, but this does not preclude their development. Older existing waters in poor condition are routinely evaluated to determine if moving the project would provide better water distribution, resolve resource conflicts, and would be cost effective.

We agree with the need to maintain existing water developments in the Planning Area. Nothing in the Draft Plan/DEIS would preclude maintenance of these projects. We appreciate ranchers, interest groups, hunters, and others who actively assist in maintenance of water developments on the Arizona Strip.

E. Cattle ranchers, hunters, and others ensure water tanks are useful for both livestock and wildlife. Preventing access to these areas will adversely affect wildlife.

Response: We agree. Wildlife water developments may be constructed and maintained under the decision framework of the Proposed Plan/FEIS. We believe that nothing in the Proposed Plan/FEIS would preclude these actions from continuing. Development of water sources, including those for wildlife and/or livestock use, continues to be a valid use of public lands. Restoring and/or reseeding areas where vegetation has been removed is also a valid use that is allowed under the Draft Plan/DEIS. We appreciate the efforts of ranchers and special interest groups in maintaining water development projects.

F. There is no analysis of the impacts of building additional wildlife water catchments or of continuing the use of existing water catchments in the lands managed by the NPS and BLM.

Response: We believe that nothing in the Plan would prevent the maintenance or construction of wildlife waters in the Planning Area, including within areas managed for wilderness characteristics and designated wilderness areas. In areas such as these, special consideration would be given to maintaining and/or enhancing the values. Considerations could include modifications to the design and/or location of the project, tools used for construction, and access.

We refer the commenter to page 4-101 in the Draft Plan/DEIS for a discussion of the direct, indirect, and cumulative effects of construction of wildlife water developments. The Draft Plan/DEIS provides a decision framework that includes provisions for water developments and estimates that as many as 20 new wildlife waters and 40 acres of habitat loss could occur. However, the Plan does not identify where such waters would be constructed within the Planning

Area. Site-specific catchment locations would be necessary for the type of detailed analysis requested by the commenter. This analysis would be presented in environmental assessments for implementation or activity plans (e.g. HMPs, species-specific plans, etc.). We agree that there are some potential impacts to wildlife resources from installing water developments in previously unwatered areas. Rosenstock et al. (2004) and others from the AGFD have evaluated the effects of wildlife water developments on wildlife. They concluded that wildlife waters did not necessarily result in increases in local wildlife populations, waters were used by non-target as well as target species, predation levels at water sources was typically no higher than in adjacent areas, water quality was not a concern, and that use of the new water source typically did not result in vegetative habitat degradation. Wildlife drownings are a concern in both developed and undeveloped waters. Tuttle (2005) documented effects to bats were higher where water levels were well below the rim; where boards, wires, or other obstructions were present; and where escape ramps were not present. These hazards are specific design modifications that can be incorporated to minimize or eliminate drowning risks. Most wildlife management agencies, including AGFD, have incorporated such features into wildlife water development plans. For many years, it has been assumed that water developments were undesirable in desert tortoise habitat since these waters serve as an attractant to predators and increase the risk of drowning. However, recent studies indicate that drought may have a much more significant detrimental effect on tortoise than previously suspected. As a result, biologists are experimenting with new water development designs that reduce or minimize the attraction of predators and virtually eliminate drowning risk. We believe that construction of new waters continues to be a valuable tool in managing for healthy and diverse wildlife communities. We continue to support proposals from AGFD for the installation, construction, and maintenance of wildlife water developments on the Arizona Strip.

G. In chapter 2, page 2-63, the BLM proposes to build additional waters, but does propose to give priority to maintaining the existing waters with no analysis of potential impacts.

Response: See response to Public Concern #65 F above.

H. There is no definition, criteria, or guidelines as to what types of Habitat Enhancement Work Projects will be allowed and what types will be banned.

Response: Wildlife water catchments may be constructed within any management unit, assuming NEPA analysis and compliance with other plan decisions. Site specific locations for installation of wildlife water developments is addressed at the activity plan level, in this case HMPs. Management units provide land managers with an overall perspective of how an area should be managed in the future. They do not specifically allow for or prohibit specific types of developments.

We agree that there is a need to provide for wildlife habitat enhancement projects. The DEIS specifically allows for habitat enhancement projects, but discusses only water developments and

vegetation treatment projects in detail. Other types of projects, though not specifically identified, would not be precluded. Site-specific project proposals would be included in future HMPs and analyzed in subsequent NEPA and ESA consultations as appropriate.

I. The restriction on new water developments on NPS lands should be eliminated.

Response: NPS Management Policies allow ecological restoration to benefit native species and natural systems and processes. Developed water sources support an unnatural distribution of some species, possibly to the detriment of others and potentially sustain higher populations of benefited species beyond the natural range of population variability. NPS Management Policies does not permit artificial manipulation of habitat to increase numbers of harvested species above the natural range in population levels.

J. Rather than stating that the maintenance of existing water resources will take precedence over creation of new water resources, the Plan should state that they may take precedence.

Response: The Draft Plan/DEIS allows for maintenance of existing waters, both on BLM and NPS lands. The statement regarding prioritizing maintenance of existing waters over construction of new projects has been modified by adding the word "generally." This decision emphasizes the need to keep water developments in functional condition and reflects the idea that highest priority waters have already been constructed. New developments would generally be considered a lower priority, but this does not preclude their development. Older existing waters in poor condition are routinely evaluated to determine if moving the project would provide better water distribution, resolve resource conflicts, and would be cost effective.

K. In the wildlife sections in chapter 2, page 2-66, clarify whether installed water sources would be across all of the management units. It reads as though there should be differentiation between community, corridors, back roads, and outback.

Response: Wildlife water catchments may be constructed within any management unit, assuming NEPA analysis and compliance with other plan decisions. Site-specific locations for installation of wildlife water developments is addressed at the activity plan level, in this case HMPs. Management units provide land managers with an overall perspective of how an area should be managed in the future. They do not specifically allow for or prohibit specific types of developments.

L. Areas that are labeled VRM Class I & II should be re-examined with more emphasis placed on access as it relates to future projects that may be beneficial or critical to wildlife and to the Strip's ecosystem as a whole.

Response: We agree that it is important to ensure water sources continue to be adequate in quantity, quality, functionality, and reliability. We believe that nothing in the Plan would prevent

the installation of new wildlife waters in the Planning Area, including within areas managed for wilderness characteristics and designated wilderness areas. In areas such as these, special consideration would be given to maintaining and/or enhancing the values. Considerations could include modifications to the design and/or location of the project, tools used for construction, and access. The AGFD and BLM currently maintain more than 12 wildlife water catchments without road access. Project maintenance is more challenging and requires advance planning, but completion of inspection and repairs at these sites is often enhanced by using aircraft, rather than compromised. Water hauling at these remote sites is also accomplished by helicopter. We agree that access to the Planning Area is vitally important. We believe that the route designation process used to identify and classify routes was effective in maintaining access while closing routes that are redundant, do lead to a destination area, or are impacting sensitive resources.

M. Accessibility of all waters by livestock that results in effects to listed and other species should be modified to exclude use by livestock.

Response: Modification or removal of waters in special status species habitats continues to be a management option under the Proposed Plan/FEIS. However, we believe that arbitrarily removing all such waters without an analysis of the specific threats posed to the species in specific areas is unnecessarily restrictive and may be counterproductive in achieving other resource management goals. In addition, there are other available tools to reduce or eliminate threats to special status species. The BLM would rely on this method only as a last resort where no other reasonable solution exists.

By definition, a water that is accessible to livestock is not a wildlife water. Some cooperative developments exist that provide water for both livestock and wildlife, though these sites typically include a separate, fenced wildlife drinker. Adverse effects to special status species directly or indirectly resulting from use of water developments would be addressed during the Rangeland Health Evaluations conducted at individual allotments. The need for fencing, modification, or removal of such waters continues to be a management option under the Proposed Plan/FEIS. We believe that moving waters without an analysis of the specific threats posed to special status species in the area is unnecessarily restrictive and may be counterproductive in achieving other resource management goals. In addition, there are other available tools to reduce or eliminate threats to special status species. BLM would rely on this method only as a last resort where no other reasonable solution exists.

ISSUE #3F: SPECIAL STATUS SPECIES (TE)

Public Concern #60 (TE1)

There were a number of comments asking for clarifications or alterations in the document regarding policies related to the desert tortoise.

A. The habitat connectivity information [for desert tortoise] in Chapter 2, page 2-86 is good.

Response: Thank you. Habitat connectivity for wildlife species was one of many considerations in the route designation process.

B. The BLM failed to connect the recovery of the desert tortoise with livestock grazing, even though there is sufficient evidence to show the adverse impacts of livestock grazing on tortoise populations.

Response: As described in Chapter 4 of the Draft Plan/DEIS, livestock grazing has been identified as one of many threats to the species in the desert tortoise (Mojave population) Recovery Plan. By policy, the BLM is directed to ensure planning is consistent with recovery plans for listed species. The recovery plan outlines a number of threats but does not rank these threats or provide an indication of which threats might be more important in the decline of desert tortoise. The recovery plan also indicates that threats from grazing occur where livestock use is excessive. The BLM continues to document use levels and habitat conditions using rangeland health evaluations. Key vegetative species on allotments with desert tortoise have been in late seral or potential natural community for more than a decade, despite many years of pervasive drought. The BLM believes that grazing is a minor threat to desert tortoise in comparison with loss and fragmentation of habitat, drought, disease, invasion of exotic annual grasses, and loss of habitat due to wildfire. However, grazing may be a contributing stressor that, in combination with other threats, may reduce the ability of the species to rebound. We believe that an evaluation and ranking of threats to the species, as well as an evaluation of the effectiveness of various management actions implemented for this species must be undertaken and documented in the recovery plan. Towards that end, the Proposed Plan/FEIS includes proposals to continue to authorize low to moderate levels of grazing in desert tortoise habitats under close monitoring, consistent with the recovery plan. Documenting changes in habitat conditions under various grazing regimes is essential to determining if this is an effective method for reducing threats and promoting recovery of desert tortoise. The BLM intends to provide this information to the Desert Tortoise Recovery Office (DTRO) in support of revision of the recovery plan.

C. The desert tortoise section is confusing and it is difficult to determine what management frameworks actually are.

Response: The special status species section in Chapter 2 of the Draft Plan/DEIS includes a wide variety of decisions including those required by land use planning handbooks, proactive measures from recovery plans and conservation strategies, restrictions on allowable uses from biological opinions and other sources, and conservation measures for fire suppression. Placing these decisions in a readable format was very challenging. The Proposed Plan/FEIS includes several changes in structure and format of the decisions that we hope will be less confusing.

D. There is lack of scientific data on desert tortoise populations, indicating that the BLM and NPS did not adequately evaluate impacts of the alternatives on the species.

Response: We acknowledge that the Draft Plan/DEIS fails to cite much of the literature used in the analysis. This has been corrected in the Proposed Plan/FEIS. The available literature was thoroughly reviewed, but most was not cited in the Draft Plan/DEIS since most studies included study plots or had sample sizes too small to support conclusions on population densities and trends. Interpretation of study plot data and extrapolation of this information over larger areas is not an exact science and has been criticized in the literature. A draft report of the line distance sampling studies was released by the DTRO in March of 2006, three months after the Draft Plan/DEIS had been released. The report states that the Northeastern Mojave Recovery Unit, which includes the Planning Area, has the lowest population densities for desert tortoise of all of the recovery units. Densities vary from year to year and from site to site within the Beaver Dam and the Gold Butte-Pakoon DWMAs, but generally range between 0.3 and 5.0 tortoise / km² (0.8 - 13.0 / mi²). Despite low numbers, the DTRO report indicates that the populations are stable. In all other recovery units, desert tortoise numbers were reportedly declining, despite removal of livestock grazing. The DTRO concluded that the declines in other recovery units were due primarily to the effects of extended, severe drought. In addition, the report includes a brief description of the difficulties associated with estimating tortoise densities based on small sample size in highly variable habitats. Based on this new information, we have revised the Proposed Plan/FEIS to include more baseline data and vegetation monitoring studies from allotments with desert tortoise habitat.

Chapters 3 and 4 of the Proposed Plan/FEIS have also been modified to include a discussion of vegetation studies at key areas on allotments in desert tortoise habitat. These studies indicate that vegetation in these areas has been and continues to remain at or near potential natural community, despite severe drought conditions. Authorization of winter only grazing in 1995 grazing management decisions and in the biological opinion on the 1998 Mojave RMP amendment were based on the late seral condition of these allotments. Because these allotments are at or near potential natural community, improvement in habitat conditions is essentially impossible. However, the monitoring data indicates that vegetative conditions are stable and continue to provide adequate forage for desert tortoise. In addition, the Arizona Strip is one of the few remaining areas of public lands in desert tortoise habitat where livestock grazing is authorized. We believe this makes the Arizona Strip one of the few places within the range of desert tortoise where it is possible to study and evaluate the effects of various grazing management systems including winter only, yearlong, and no grazing. We stand behind our decision to continue to authorize conservative grazing in specific areas within desert tortoise habitat in order to evaluate the effects of previously implemented management actions.

E. In order to make the protection of the critical desert tortoise habitat and the related ACEC designation meaningful, it is imperative that the agency more strictly limit, preferably prohibiting, oil and gas development activities.

Response: A withdrawal to mineral entry was included in both Monument proclamations. Parashant has slightly less than half of the desert tortoise habitat within the Planning Area (45%) and is now closed to mineral entry, including oil and gas development (fluid mineral leasing). The remaining tortoise habitat is within the Arizona Strip FO in an area considered to have low potential for fluid mineral resources. The vast majority of these lands are within the desert tortoise ACECs where no new roads would be authorized. The stipulations for authorization of oil and gas drilling activities were developed from the biological assessment from the 1998 RMP amendment. These stipulations have been brought forward into the Proposed Plan/FEIS. In the 1998 RMP amendment, the BLM proposed these stipulations in consultation with the USFWS under section 7 of the ESA. In most cases, oil and gas drilling would not be authorized within desert tortoise habitat. This is the No Surface Occupancy (NSO) stipulation. However, the NSO stipulation could be waived where one of the five conditions was met. Conditions 1 and 3 represent cases where the BLM determines that the proposed action would have no effect on desert tortoise or their critical habitat. Conditions 2 and 4 are cases where the BLM determines that the proposed action is not likely to adversely affect the species or its critical habitat and receives written concurrence from the USFWS. Condition 5 is where the BLM determines that the action is likely to adversely affect the species or its critical habitat. While this procedure may seem loosely defined to the commenter, this is the process for section 7 consultation under the ESA as defined under the Act and the Code of Federal Regulations (CFR). Section 7 of the ESA requires federal agencies to make a determination of the effects to listed species and critical habitat from any project they authorize, fund, or carry out. While we agree that the best situation would be where no affects would occur to the species, there are occasions where affects are unavoidable. In such cases, section 7 consultation is used to minimize effects and limit take of the species. BLM believes that possibility of future oil and gas leasing within the desert tortoise ACECs is very low. Where such actions are proposed, the BLM will review the proposal and make a determination of effects. Where the proposed action may affect a listed species or its critical habitat, BLM will consult with the USFWS under section 7 of the ESA. The BLM will continue to make every effort to minimize or eliminate effects to listed species or their critical habitat while minimizing restrictions on allowable uses of public lands.

F. It should be made clear that all permits for handling and moving desert tortoises would be obtained when necessary.

Response: This conservation measure was taken directly from the 1998 RMP biological opinion. Obtaining all necessary permits for handling is not only standard operating procedure, it is required by law. Language indicating that the BLM and NPS would comply with applicable federal and state laws is already included within Chapter 1 of the Draft Plan/DEIS.

G. The grazing allotments in the Tassi and Pakoon area that were closed in the 1998 Plan Amendment should be evaluated as to the effects of closure on changes in vegetative composition and tortoise numbers.

Response: We agree that an evaluation of the changes in habitat conditions and tortoise numbers for allotments is appropriate. This would likely occur in conjunction with a rangeland health evaluation. Such studies are implementation level, rather than land use plan level, decisions. As such, it is not necessary to include such decisions in the RMP for these evaluations. Proposed changes in season of use of specific allotments are also not land use plan level decisions and may be made at any time under the authority of the grazing regulations. Any such changes would require consultation with the USFWS under section 7 of the ESA. See also response to Public Concern #60 B above.

H. The rest-rotation grazing management system formerly applied within the Beaver Dam Slope Allotment should be reinstated under an EMZ, so that spring grazing under a system can be properly compared in terms of both vegetation and tortoise reactions over a long period of time.

Response: We agree that it is appropriate to study the effectiveness of changes in grazing management systems on the desert tortoise populations to determine if, and under what conditions, grazing is compatible with tortoise recovery. The Proposed Plan/FEIS includes decisions that would continue to implement this level of monitoring. Under the Proposed Plan/FEIS, the Beaver Dam Slope Allotment would continue to be available for grazing between October 15 and March 15. This allotment includes higher quality habitat for desert tortoise (former Category 1 and 2). The northern portions of the Pakoon Allotment would be available for grazing later in the spring. This area is mostly low quality tortoise habitat (former Category 3). We stand behind our decision to continue to authorize conservative grazing in specific areas within desert tortoise habitat in order to evaluate the effects of previously implemented management actions.

I. Conservation Measure at DT-2.T should be modified to allow installation of guzzlers that would permit tortoise ingress and egress.

Response: We agree and have made the recommended change in the Proposed Plan/FEIS.

J. The Draft Plan/DEIS fails to include a clear and specific assessment of what problems, if any, are associated with desert tortoises and habitat within the Planning Area.

Response: See response to Public Concern #60 D above.

K. Desert tortoise management actions are specifically presented in the Draft Plan/DEIS under Section D of Table 2.5 (at page 2-87 et seq.), and also repeated and augmented in Appendix 2.E, in Section 2.1.1 (at page 2.E-5 et seq.). These should be consolidated in the Proposed Plan/FEIS to assure greater simplicity and consistency between the two presentations.

Response: We agree that the separate list of conservation measures in Appendix 2.E. is somewhat confusing. Rather than combine the entire Appendix with Chapter 2, we decided to retain only restrictions on allowable uses (stipulations) within the Appendix. We also moved stipulations currently in Chapter 2 to the revised Appendix 2.E. Goals and management actions from the Appendix have been moved to Chapter 2 and placed under the appropriate heading. Refer to changes in the Proposed Plan/FEIS.

L. The Draft Plan/DEIS should discuss the impacts of the proposed 45 percent of the current annual growth utilization threshold on key forage species in desert tortoise habitat.

Response: We agree and have changed the wording in the Proposed Plan/FEIS in response to this comment. We have included a discussion of the effects of the 45 percent utilization level as well as the effects of winter only and other seasonal restrictions on desert tortoise recovery. Use levels were discussed in the 1992 and 1998 RMP and amendment respectively, and were evaluated in consultation with the USFWS. Use thresholds outside of desert tortoise habitat are set at 50 percent of current year annual growth, as described in the Draft Plan/DEIS. Changes in use thresholds for specific allotments may be authorized at any time under the grazing regulations.

M. If livestock grazing must be conducted in desert tortoise habitat, utilization should be limited to levels that will maintain or improve forage and cover for the species, which may not occur at 45 percent utilization.

Response: The BLM continues to document use levels and habitat conditions using rangeland health evaluations. Key vegetative species on allotments with desert tortoise have been in late seral or potential natural community for more than a decade, despite many years of pervasive drought. The BLM believes that grazing is a minor threat to desert tortoise in comparison with loss and fragmentation of habitat, drought, disease, invasion of exotic annual grasses, and loss of habitat due to wildfire. However, grazing may be a contributing stressor that, in combination with other threats, may reduce the ability of the species to rebound. We believe that an evaluation and ranking of threats to the species, as well as an evaluation of the effectiveness of various management actions implemented for this species must be undertaken and documented in the recovery plan. Towards that end, the Proposed Plan/FEIS includes proposals to continue to authorize low to moderate levels of grazing in desert tortoise habitats on an experimental basis, consistent with the recovery plan. Documenting changes in habitat conditions under various grazing regimes is essential to determining if this is an effective method for reducing threats and promoting recovery of desert tortoise. The BLM intends to provide this information to the DTRO in support of revision of the recovery plan.

N. The draft should include recent surveys of the impact that grazing has on the turtle environment as it presents no evidence that grazing has a negative impact on populations.

Response: We agree that studies such as those described by the commenter would be valuable in assessing the effectiveness of various management actions designed at reducing threats to listed species or critical habitat. See response to Public Concern #60 B above.

O. The Draft Plan/DEIS did not fully consider several important effects roads could have on desert tortoise survival including access by humans to tortoise habitat facilitated by roads and other motorized routes. As a result, the Draft Plan/DEIS is inadequate.

Response: We agree that the Draft Plan/DEIS provided only a cursory discussion of the direct and indirect effects of routes on desert tortoise. The commenter included a number of literature citations that discuss the effects of roads in tortoise habitat. While it is clear that roads through their habitat may lead to adverse affects to desert tortoise, we re-emphasize that the effects of roads on wildlife vary with road surface, traffic speed and volume, and density of the species. The majority of studies cited by the commenter were conducted in areas adjacent to high-speed paved roads with high traffic volume. Most of these studies were in areas of high-density tortoise habitat. Few studies even addressed dirt roads. In contrast, desert tortoise habitat on the Arizona Strip is characterized by single-width dirt roads with maximum safe travel speeds of 35 mph. Public use of most of these routes is fewer than 10 vehicles per day (see response to Public Concerns #7 C, 7 I, and 7 L), with most use during the inactive season. Desert tortoise densities are lower in the Planning Area than anywhere else in the range of the species. We believe that it is inappropriate to assume that the zone of impact to desert tortoise derived from a study of a 4-lane, 65 mph paved highway in California is the same as that of a one-lane dirt road in the Pakoan Basin.

The commenter indicated that the DEIS analysis is inadequate because it did not fully consider affects associated with increased human access to the habitat facilitated by routes. The commenter indicates that roads through desert tortoise habitat provide a conduit for invasive plant species, increase unlawful collection of tortoise, increase intentional or unintentional injury of animals from human handling, restrict tortoise movements and fragment habitat, reduce forage where soils are compacted, and increase predation. We limited our discussion of these potential effects to generalities primarily because we lack detailed study information that would allow us to quantify the level of impact occurring.

Recreational use of desert tortoise habitat in the Planning Area is limited to the tortoise inactive season and the spring months. After mid-May, these areas are generally too hot for most visitors. Camping and other recreational uses are rare, particularly in the warm summer months. Within the Monument and the desert tortoise ACECs, pulling off the road to camp is not allowed. Use of OHVs in the habitat is very limited except in the area surrounding Mesquite and Littlefield.

We have little or no information regarding the levels of illegal handling and collection of desert tortoise. We suspect that the level is quite low because law enforcement personnel have not reported any such incidents, but we have no studies to support this. Similarly, use of vehicles off

designated routes continues to be prohibited. We have little or no information about the level of raven predation on desert tortoise, either on or away from routes.

We acknowledge that we have not done systematic surveys for tortoise carcasses along roadways through the habitat, but anecdotal evidence indicates that the incidence of collisions is very low.

A far more serious threat occurs in the Planning Area from loss of native Mojave Desert habitat from wildfires. Cheatgrass and red brome are pervasive throughout desert tortoise habitat. Conversion of perennial vegetation to these invasive annual grasses has resulted in an increase in fire severity and frequency. A 600-acre fire can lead to immediate death of one to ten individuals depending upon tortoise densities in the area. In 2005, over 36,000 acres of desert tortoise habitat burned in wildfires on the Arizona Strip. In many cases, roads through tortoise habitat are valuable firebreaks. The commenter maintains that there is no scientific basis for this conclusion and that roads contribute to fires. However, virtually all fires recorded in desert tortoise habitat in the past two years have been the result of lightning strikes. Large blocks of habitat are lost during wildfires because of the inability of ground crews to access the fire. Roads are often used as staging areas for backfires used to stop fires. There are no reports of fires caused by recreational or permitted uses within the habitat.

We considered these effects in our route-by-route evaluation of roads through the habitat of this species. Through the route designation process, we identified specific routes where direct and indirect impacts were occurring to desert tortoise or their habitat. We closed routes that were redundant, had no specific use or destination, or where unacceptable resource impacts were occurring. We limited many such routes to administrative uses only in order to continue to maintain access for fire suppression efforts. A few specific routes were either left open or were limited to administrative uses in order to serve as firebreaks. Those routes that were left open were specifically identified because they pose minimal threats to sensitive resources such as desert tortoise, are the only route to a specific destination, provide access for fire suppression, and/or are a firebreak.

We disagree that an adequate EIS is impossible without the BLM conducting a thorough scientific analysis, including modeling, that considers the relative contributions of all important road effects on tortoise population recovery. No such study exists for any other area within the range of the species. However, the Proposed Plan/FEIS has been modified to include a broader discussion of the effects of roads on desert tortoise.

P. The Draft Plan/DEIS did not fully consider several important effects roads could have on Desert tortoise survival including access by humans to tortoise habitat facilitated by roads and other motorized routes. As a result, the Citizen's Route Proposal should be adopted.

Response: See response to Public Concern #60 O above. We believe that uniformly applying a target route density across desert tortoise habitat in the Planning Area is arbitrary and ineffective,

particularly when the target is based on impact zones derived from studies from markedly different areas. Using a target route density to designate the transportation system could lead to unnecessary route closures where little or no resource damage is occurring, where impacts are offset by the need for a firebreak, and where access is essential for fire suppression. In addition, target route densities assume that all roads have an equal affect on resources. As a result, target densities can be achieved by closing many small routes, while leaving open more heavily traveled routes. Often, it is those routes that with higher use levels that lead to the greatest impacts to wildlife.

The Citizens' Proposal did not include the complete inventory of routes in desert tortoise habitat. As a result, additional routes exist that were not addressed in their analysis. The route designation process used for the Draft Plan/DEIS considered the impacts to sensitive resources, destination, proximity to other routes, and a number of other concerns on a route by route basis. We closed routes that were redundant, had no specific use or destination, or where unacceptable resource impacts were occurring. We limited many such routes to administrative uses only in order to continue to maintain access for fire suppression efforts. A few specific routes were either left open or were limited to administrative uses in order to serve as firebreaks.

Q. The Virgin River ACEC is for the protection of both Virgin River fishes and desert tortoise, according to the No Action Alternative. If this ACEC is changing to just include native fish, it should be clarified for Alternatives B – E.

Response: We agree that this decision was confusing. Because the boundaries of the Virgin River Corridor ACEC identified in Alternative A followed section lines, some upland areas with desert tortoise habitat were included. As a result, management for the ACEC included decisions for the protection of desert tortoise, similar to those for the adjacent Beaver Dam Slope and Virgin Slope ACECs. In an effort to make management of these areas more efficient, BLM proposed in the Draft Plan/DEIS to adjust the boundaries so that the Virgin River Corridor ACEC followed the 100-year floodplain. This aligned the ACEC boundary with designated critical habitat for Southwestern Willow Flycatcher and Virgin River fishes. Only upland habitats outside of the 100-year floodplain were excluded from the ACEC. Any areas of excluded upland considered suitable for desert tortoise were incorporated into either the Beaver Dam Slope or Virgin Slope ACECs, as appropriate. This designation was included in the desert tortoise section because the decision as written in Alternative A applied to desert tortoise, Southwest Willow Flycatchers, and endangered fishes. Refer to the Proposed Plan/FEIS for revised wording for this decision.

Public Concern #61 (TE2)

There were a number of comments asking for clarifications or alterations in the document regarding policies related to the Southwestern Willow Flycatcher.

A. Why are areas being managed for Southwestern Willow Flycatcher when no members of the species have been identified?

Response: In accordance with the Southwestern Willow Flycatcher recovery plan, the 1998 RMP biological opinion, and the Arizona BLM action plan for managing Flycatcher habitat, riparian areas that are suitable for occupancy by Flycatchers are to be managed to maintain those characteristics that make the area suitable. We are committed to maintaining the suitability of these habitat areas in accordance with policies and regulations, regardless of whether Southwestern Willow Flycatchers occupy the area or not.

B. The amount of area being considered for habitat of the Southwestern Willow Flycatcher should be limited to canyon areas with water.

Response: The USFWS was responsible for designating critical habitat for Southwestern Willow Flycatchers. That process was completely independent of this land use planning effort. The presence of critical habitat within an area proposed for treatment requires an additional determination of adverse affect to the primary constituent elements listed in the federal register notice describing the designation. However, those areas that do not contain the primary constituent elements are not considered critical habitat.

C. Chapter 2-98,. V.C.a., Southwestern Willow Flycatcher, Table 2.5, states, "Suitable Flycatcher habitat would be managed so that its suitable characteristics are not eliminated or degraded." As road projects may occasionally require use of Southwestern Willow Flycatcher habitat, this should indicate that Section 7 consultation with the USFWS would be initiated if degradation of habitat were necessary for roadway modifications.

Response: This conservation measure was taken directly from the biological opinion for the 1998 RMP amendment. We agree that roadway projects may occasionally require encroachment into suitable Flycatcher habitat and that this could reduce habitat suitability and/or lead to adverse affects. We disagree with the need to modify the decision to specify that consultation would occur if habitat degradation occurs. Under section 7 of the ESA, we are obligated to review all our actions to ensure we are not jeopardizing the continued existence of the species. Actions that could lead to adverse affects would be consulted on. Modifying this decision to read as the commenter requested would require that we state that we would comply with the ESA. This is included in Chapter 1. Similarly, every other decision in the document that could lead to affects to listed species would also need to be modified.

D. The DEIS proposes to restrict livestock grazing in Southwestern Willow Flycatcher suitable habitat during the growing season. The BLM should carefully assess its authority to restrict livestock grazing in areas that may be suitable habitat that are currently not occupied, may have never been occupied, and may never be occupied by Flycatchers.

Response: The restrictions on grazing are recommendations from the Southwestern Willow Flycatcher recovery plan and terms and conditions from the 1998 RMP biological opinion. By policy, actions authorized by the BLM must be consistent with recovery plans. Terms and conditions from biological opinions are mandatory and if not implemented would require reinitiating consultation. We refer the commenter to the riparian portion of the Vegetation Management section in Chapter 2. The implementation decisions provided include a number of proposals to treat invasive exotics including tamarisk and Russian olive. However, any proposal to treat potential or suitable Southwestern Willow Flycatcher habitat must account for anticipated changes to habitat suitability for Flycatchers.

E. Different grazing utilization levels are given in the table on pages 2-219-2-220 (35 percent in Southwestern Willow Flycatcher habitat on page 2-219, and 30 percent on page 2-220) and should be clarified.

Response: We agree. The Draft Plan/DEIS included different grazing utilization levels in the Special Status Species, Livestock Grazing, and Special Area Designations sections of the Plan. We have clarified these decisions and made them all the same in the Proposed Plan/FEIS.

Public Concern #62 (TE3)

There were a number of comments asking for clarifications or alterations in the document regarding policies related to the California Condor.

A. The California Condor was allowed to be re-introduced into the Arizona Strip as an experimental, non-essential population, which means that they cannot be listed as a Special Status Species.

Response: We support the California Condor reintroduction efforts. The federal register notice describing the 10(j) designation (Vol. 61, No. 201) states that "The (U.S. Fish and Wildlife) Service does not foresee that any ongoing or future land, water, or air will be restricted due to this reintroduction project." They reached this conclusion for a variety of reasons, including that "existing land management is compatible with Condors." The federal register notice provided that "take" (ESA definition) that is non-negligent and incidental to an otherwise lawful activity is not prohibited. Therefore, authorized activities that could result in take of a California Condor within the 10(j) area, such as construction activities, road maintenance, and livestock grazing, would not be considered a violation of section 9 of the ESA, provided the take was non-negligent and incidental to an otherwise lawful act. Any such take that occurs must still be reported to the USFWS. In addition, the USFWS signed an agreement with the Coalition of County and Local Governments, specifying that current and future land, water, or air uses and activities should not be restricted due to the designation of the nonessential experimental population, and/or the presence or potential presence of California Condors. While the BLM and NPS were not signatories to this agreement, it is our intent to continue to honor its precepts. For the public, this

means that the BLM and NPS would still review actions that we authorize, fund, or carry out to determine if adverse effects to California Condors could result from a proposed action. We would advise the project applicant of any mitigation or stipulations that could help reduce anticipated take, but these would not be mandatory. Conservation measures in Appendix 2.E. of the DEIS and FEIS includes our proposed mitigation and stipulations. Where the action is to be conducted by the BLM and/or NPS, these conservation measures would be mandatory. All other applicants would be advised of the conservation measures and voluntary compliance would be requested. The agencies would still be required to consult or conference under section 7 of the ESA where the action was likely to adversely affect condors. The purpose of the conference or consultation on actions that could literally never lead to a jeopardy biological opinion, would be to determine if there are specific measures that could be taken to reduce or eliminate the effects of the action on condors. In addition, to the requirement to consult on actions within the 10(j) area, there are portions of the action area north of I-15 that are outside of the 10j area. Condors outside of the 10j area are considered endangered species and all section 7 requirements are required. For these reasons, we must continue to treat California Condors as a special status species.

B. On Page 138, effects to condors could also include direct human-condor interactions resulting from their attraction to human activity.

Response: We agree and have changed the wording in the Proposed Plan/FEIS in response to this comment.

C. Protecting the California Condor is a must and they cannot thrive in areas which are not wild.

Response: We agree that protecting the California Condors is vitally important. We believe that the Draft Plan/DEIS provides the necessary protections for the resources that concerns the commenter. The intent of management actions proposed in the Draft Plan/DEIS was to maintain the wild characteristic of areas within the Planning Area where it currently exists. We also point out that California Condors are increasing in numbers in southern California and at the south rim of the Grand Canyon, areas with significant human visitation.

D. To ensure maximum protection of condors, the measures for "authorized or permitted members of the public" should require BLM authorization, rather than encourage it.

Response: We support the California Condor reintroduction efforts. The federal register notice describing the 10(j) designation (Vol. 61, No. 201) states that "The (U.S. Fish and Wildlife) Service does not foresee that any ongoing or future land, water, or air will be restricted due to this reintroduction project." They reached this conclusion for a variety of reasons, including that "existing land management is compatible with condors." The federal register notice provided that "take" (ESA definition) that is non-negligent and incidental to an otherwise lawful activity is not prohibited. Therefore, authorized activities that could result in take of a California Condor within

the 10(j) area, such as construction activities, road maintenance, and livestock grazing, would not be considered a violation of section 9 of the ESA, provided the take was non-negligent and incidental to an otherwise lawful act. Any such take that occurs must still be reported to the USFWS. In addition, USFWS signed an agreement with the Coalition of County and Local Governments, specifying that current and future land, water, or air uses and activities should not be restricted due to the designation of the nonessential experimental population, and/or the presence or potential presence of California Condors. While the BLM and NPS were not signatories to this agreement, it is our intent to continue to honor its precepts. For the public, this means that BLM and NPS would still review actions that we authorize, fund, or carry out to determine if adverse affects to California Condors could result from a proposed action. We would advise the project applicant of any mitigation or stipulations that could help reduce anticipated take, but these would not be mandatory. Conservation measures in Appendix 2.E. of the DEIS and FEIS includes our proposed mitigation and stipulations. Where the action is to be conducted by the BLM and/or NPS, these conservation measures would be mandatory. All other applicants would be advised of the conservation measures and voluntary compliance would be requested. The intent of the conservation measures is to inform the public that these birds should not be hazed or harassed from a project area, except by someone trained and permitted to do so. We continue to encourage voluntary cooperation in accordance with the federal register notice for the 10(j) population.

E. Chapter 2-95 states that the BLM and NPS would promote the use of non-lead ammunition. However, it should state that they promote the voluntary use of non-lead ammunition.

Response: We agree and have made the requested change in the Proposed Plan/FEIS.

Public Concern #103 (TE4)

There were a number of general comments requesting various clarifications or changes regarding the special status species section of the document.

A. On page 4- 122, the categories of effect or impact as analyzed for NEPA do not necessarily match or translate easily to the various levels of effect to listed species considered under the ESA.

Response: The categories of impact discussed in Chapter 4 of the Draft Plan/DEIS differ in terminology, scope, and extent from the determination of effects to listed species or critical habitat used in a biological assessment. These differences stem from differences in required elements between NEPA and ESA documents.

B. Since impacts to species are described in a general manner, it appears that, even with the conservation measures included in the Draft Plan/DEIS, a number of proposed action activities may adversely affect listed species.

Response: We agree that some of the proposed actions in the DEIS and FEIS may lead to adverse effects to listed species and/or their critical habitat. These effects are addressed in detail in the biological assessment for section 7 consultation under the ESA on the land use plan. Additional conservation measures have been, and will continue to be developed to minimize impacts to listed species.

C. The "Management Goals, Objectives, and Actions" section for each species should include a commitment that Recovery Plan direction, and any other relevant Service policy, will be adopted and implemented for each particular listed species.

Response: We agree. The BLM and NPS policies state that agency actions should be consistent with approved recovery plans. Decisions similar to those requested by the commenter appear throughout Table 2.5. This language has been modified in the Proposed Plan/FEIS to be an action decision. We disagree with the need for a statement regarding developing decisions that commit to implementing USFWS policy.

D. Have there been surveys for the special status plants listed in Chapter 3, page 3-80 within Vermilion?

Response: Special status plant surveys have been conducted throughout the Planning Area. Welsh's milkweed occurs in Vermilion, as shown in Table 3.15 of the Draft Plan/DEIS. In addition, a 3-acre patch of Brady pincushion cactus has been found in the Monument. In addition, surveys a few scattered individuals of Paradine plains cactus have been located on the west side of the Monument. Rare plant surveys are ongoing in Parashant.

Public Concern #104 (TE5)

There were a few comments specifically related to Brady's Pincushion, Siler Pincushion, and Jones Cycladenia.

A. There has been no petition to delist the Siler Pincushion (page 84).

Response: This statement was removed from the Proposed Plan/FEIS.

B. There is at least one area along Highway 89A where Brady pincushion cactus could be affected by vehicular traffic (including drainage maintenance and other highway maintenance activities). No new special use permits (filmmakers, etc.) should be given.

Response: We have added this as a potential threat to the species in Chapter 4. Special use permits are evaluated on a case-by-case basis. Where effects to listed species may occur, the BLM and NPS consult with USFWS under section 7 of the ESA. We will continue to use this process to evaluate the effects of proposed actions on listed species. In addition, the area

described along U.S. 89A has been modified and the size of the pullout area has been reduced. Large boulders now restrict vehicles from portions of the pullout where Brady pincushion cactus grows.

C. Regarding chapter 3, page 3-84, are the additional studies recommended in 2001 for the Brady pincushion being conducted in Marble Canyon area? If so, that should be stated and it should be clear that Alt E is in line with the 2001 opinion.

Response: The additional studies recommended in the 2001 Kane Ranch biological opinion are being implemented. This information, although important to the conservation of the species, is not vital for the EIS. Information about consistency with previous biological opinions is found in the biological assessment for consultation on the Proposed Plan/FEIS.

D. It would be in the best interest of the Jones cycladenia to fence in the area of concern, rather than name the entire 1900 acres as an ACEC.

Response: We agree that ACEC designation sometimes has the negative effect of increasing visitation at a particular site. We also agree that the habitat of Jones' cycladenia is fairly well protected already. However, ACEC designation affords additional protection by requiring a plan of operations for mineral development. Recent interest in mineral exploration in this portion of the Arizona Strip suggests that the additional protection is a positive benefit. Fencing is expensive and, in this case, unnecessary due to the remote area and steep terrain at the site.

ISSUE # 3G: PROTECTION OF RESOURCES; CULTURAL RESOURCES (CL)

Public Concern #112 (CL1)

There were a number of comments requesting various clarifications or changes regarding the cultural resources section of the document.

A. In Chapter 2, page 2-238, Impacts to Cultural Resources, Alternative A (and thus all alternatives), Trails/Travel: Rather than just giving a rating that includes vandalism, suggest rewording to say increased vulnerability of sites to vandalism and recreational access.

Response: Good suggestion. We made the appropriate changes to the Summary of Impacts table in Chapter 2 of the Proposed Plan/FEIS.

B. Volume I, page 2-238, Summary of Impacts, Impacts to Cultural Resources, a designation should be added for impacts from livestock and ranching.

Response: The Summary of Impacts table captures only moderate or major impacts. Impacts from livestock grazing to cultural resources are minor or negligible under all alternatives and are thus not included in the table.

C. There are several statements (e.g., pp 3-88, 3-93, 3-94) suggesting that the only "scientific investigations" in the Monuments are those comprising data recovery projects. Intensive Class III surveys are the most common type of archaeological investigations.

Response: We agree and made the suggested changes in the Proposed Plan/FEIS. Sometimes information from Class III intensive inventories is the only kind of information available, particularly on the Arizona Strip. Used in conjunction with excavated data, inventories contain useful information.

D. In Chapter 3, page 3-88, under the primary threats paragraph, effects from erosion exacerbated by trailing and vegetation loss from grazing or recreation should be included (the text already exists in 4-154).

Response: Thanks for the suggestion. We made the suggested changes to Chapter 3.

E. Chapter 4, page 4-154 should include a Section 106 summary and how it has been incorporated into the NEPA process.

Response: Thanks for the suggestion. We made the suggested changes to Chapter 4.

F. A section should be added for Vermilion stating that the BLM would conduct a Class I inventory on Monument lands, followed by the development of a cultural RMP.

Response: A Class I overview for Vermilion was completed in conjunction with one completed for the Grand Staircase-Escalante National Monument. Arizona Strip FO staff became aware of the Class I inventory only after the Draft Plan/DEIS was released to the public. Work has been initiated on a partnership between the Arizona Strip District, Kaibab National Forest, Grand Canyon National Park, and Coconino County to attract university and graduate student research in the eastern portion of the Arizona Strip, including Vermilion and House Rock Valley.

G. The RMP should include a statement that the BLM will prioritize listing the Paria Plateau Archaeological District on the NRHP.

Response: See Table 2.7, Cultural Resource Decisions, in the Proposed Plan/FEIS. Sites or districts eligible for listing on the NRHP could be nominated, depending on future budget and staff constraints. Sites eligible for protection under NHPA do not need to be listed on the NRHP to receive full protection under the law.

H. How will the continued existence of many miles of roads impact cultural sites as use of the Monument increases?

Response: See response to Public Concern #2 on page 5-66.

I. On page 3-90 is the statement, "many Navajos took refuge in the isolated, hidden canyons of northern Arizona to avoid being taken to Oklahoma." The vast majority of captured Navajos were taken to Fort Sumner in New Mexico.

Response: The suggested correction was made in the Proposed Plan/FEIS.

J. Chapter 2-101, DFC for Archeological and Historical Resources, 4th bullet: Since road access increases site vulnerability, it should be indicated that survey along all roads would be a priority under this DFC.

Response: See response to #22. In addition, road access does not necessarily increase site vulnerability. In all ARPA cases on the Arizona Strip, the vandals created new roads in order to access areas not accessible via roads. Looters and vandals prefer to operate in areas where they are not likely to be observed. While road access can increase site damage, it also allows Site Stewards and law enforcement personnel to observe and deter looting and vandalism.

K. Are ranch structures allowed to be maintained for use as historic resources?

Response: Yes

L. Clarify what employee needs would go with additional sites allocated to public use.

Response: Sites allocated for public use are placed on visitor maps and there may be field trips to them. If natural or cultural impacts were occurring to these sites, then the agency would look at mitigation to stop the deterioration and destruction. This mitigation may take the form of additional site documentation, stabilization, construction of trails or viewing platforms, or any other measure that would protect the site. Interpretation of the site could also occur and may include brochures, kiosks, or signs. The BLM and NPS would attempt to find partners to assist in patrolling, interpreting, protecting, or mitigating site damage. Both agencies would be limited by staff and funding on what could actually be accomplished at the site. Partners could assist with patrolling, recording, funding, or mitigation of any impacts.

Public Concern #113 (CL2)

There were a number of general comments regarding the section on cultural resources in the document.

A. Cultural resources should be protected!

Response: We agree and are doing all we can to protect cultural resources, including ACEC designations, use of Site Stewards and volunteers, working with cooperating agencies and groups, and educating the public about protecting cultural resources.

B. The BLM does not have the resources to adequately protect cultural resources, so access should be reduced.

Response: Reducing access in order to protect resources is not the easy solution it may appear to be. Closing existing access requires physical measures on the ground (barriers, signs, reclaiming routes, etc.) and continual patrolling and enforcement. Funding would be problematic as the cost of managing thousands of miles of closed routes on 3 million acres of land would be exorbitant. We will follow agency policy in order to mitigate impacts to cultural resources related to access. Solely reducing access would not stop impacts to cultural resources.

All agencies do the best they can, given their mission, staffing, and funding to comply with all state or federal law or protect all natural cultural resource they are charged with protected. BLM and NPS staff and management are committed to doing all they can to protect cultural resources. They also rely on some very committed volunteers to help in many ways. The Arizona Strip District has the largest group of Arizona Site Stewards in the state; over 100 of them patrol, monitor, locate, and record sites for the agency. The BLM also has programs to help in educating the public and making them aware of cultural resources and of protecting them. BLM programs, such as Adventures in the Past and local Arizona Archaeology Month activities, help BLM staff in highlighting cultural resources and making the public more aware of activities that might damage them.

C. Livestock grazing is the primary threat to cultural resources and should be restricted/eliminated.

Response: Livestock grazing is not the primary threat to cultural resources; it is one among several threats. More damage to cultural resources occurs due to community growth, vandalism, and illegal OHV traffic. When livestock grazing (or any other activity) is determined to impact cultural resources, actions are taken to stop the impacts. For instance, fences have been placed around fragile painted rock art sites in the Planning Area to stop livestock damage. Impacts to cultural resources are also considered during the Standard and Guides process of evaluating each livestock grazing allotment. Finally, natural erosion over the past thousands of years has caused more impacts to cultural resources than livestock grazing has over the past 150 years.

D. In light of the various proposed alternative transportation plans in the Draft Plan/DEIS and limited funding and personnel resources, additional systematic inventory in the future should be oriented toward identifying cultural resources along routes that will most likely remain open.

Response: The Arizona Strip District will follow agency policy for inventorying cultural resources where adverse affects are likely to occur.

E. Inventories of cultural resources have already been done and no more are needed.

Response: Only about 3 percent of the entire Planning Area has been inventoried for cultural resources. Section 110 of the NHPA requires the BLM and NPS to identify and evaluate historic properties under their jurisdiction, and Section 106 of the NHPA requires the BLM and NPS to identify historic properties prior to approving or undertaking any action that might affect them. The primary means of identifying historic properties is through field inventory.

Public Concern #114 (CL3)

A number of comments expressed concern with a lack of sufficient data or violations of legal requirements in the cultural resources section of the document.

A. The assertion that closing roads would result in more expensive cultural resource studies (page 4-163 and elsewhere) should not be a driving issue. In the statement of purpose, the Draft Plan/DEIS (pages 1-8 and 1-11) cites the Monument proclamation as stating, "To retain for scientific inquiry, long-term preservation, and public use and enjoyment for present and future generations," and it is a fact that isolation is the best means of preservation.

Response: See response to Public Concern #2 on page 5-66. And, while we agree that closing roads will reduce damage to sites caused by some visitors, it will also allow looters to operate unobserved and inhibit monitoring by Site Stewards and law enforcement personnel.

B. The Draft Plan/DEIS fails to present adequate data or empirical information to support its conclusions/management policies.

Response: The comment does not provide any information or data to support this allegation.

C. The logic in the Methods and Assumptions section (page 4-155) that all but major impacts constitute no effect or no adverse effect is questionable and conflicts with the letter and spirit of Section 106.

Response: We agree that generalizing in this manner confuses compliance with NHPA and NEPA. The references to Section 106 in our descriptions of impact levels are deleted.

D. The BLM fails to provide information about specific cultural resources and did not perform adequate, scientific surveys, nor establish adequate baseline data. As a result, analysis of direct, indirect, and cumulative impacts associated with particular activities,

particularly access and roads, are inadequate and in violation of NEPA/NHPA directives.

Response: Both NHPA and NEPA are procedural laws requiring federal agencies to examine their actions. This Plan uses the best available information in assessing impacts on cultural and natural resources. Complete inventories of cultural resources are not required under NEPA. We will follow the laws and regulations provided to protect cultural resources in the future (See also response to Public Concern #2 on page 5-66).

E. Analysis of data collected by previous inventories allows for some predictive modeling, but there are significant gaps in the data both spatially and temporally that produce biased results.

Response: This is true. Since only 3 percent of the Planning Area has been intensively inventoried for cultural resources, the available information is biased towards the few locations where data exists on the location, extent, age, and type of cultural resources on the Arizona Strip. Future inventories and research will add to our knowledge of these critical resources.

F. In accordance with BLM's obligations under FLPMA and other relevant laws applying to the designated trails, the agency's intent to impose restrictions on activities along historic and recreation trails should be clearly stated and there should not be exceptions.

Response: See response to Public Concern #2 on page 5-66.

G. The Monument proclamations specifically mention the importance of the cultural and archaeological resources, yet the Draft Plan/EIS does not call for any Monument-specific actions that reach beyond the Arizona Strip FO lands.

Response: In addition to vandalism, some of the greatest threats to cultural resources on federally-administered lands are land tenure changes and mining-related activities. Land tenure changes allow lands to become private. Federal lands transferred into private ownership lose the protection of federal historic preservation laws. Mining-related activities can damage cultural resources by surface disturbance at mine locations and from road construction necessary for exploration and development. Neither land tenure changes nor mining will occur on the Monuments. Monument designation also provides more opportunities to develop partnerships with private, state and Federal entities to inventory, conduct research, and protect cultural resources.

Public Concern #115 (CL4)

There were a number of comments related to proposed cultural management policies at specific sites or in specific areas.

A. Has the BLM made any effort to have the Grand Gulch Mine listed on the NRHP?

Response: No, the Grand Gulch Mine has not been listed on the NRHP. The mine itself is on private property.

B. Are Grand Gulch Mine, Pine Well Ranch, Lower Kent Ranch, and Oak Grove Cabin eligible for listing on the NRHP, and would they be nominated?

Response: All of those sites are eligible for listing on the NRHP and have recently been recorded in detail and received site assessments. There are no plans currently to list these sites on the NRHP; however, the sites do not need to be listed in order to receive full protection under the law. The only sites in the Planning Area listed on the NRHP are Waring Ranch (Parashant) and Antelope Cave (Arizona Strip FO).

C. West Bench Pueblo should continue to be used as a public site, but it is critical that the road be moved off the site and the actions identified in the RMP be completed within one year of the Final RMP.

Response: We agree. However, re-routing the road from the site will require detailed site-specific planning and analysis. The BLM will work to move the road away from the site as soon as possible.

Public Concern #139 (CL5)

There were a few comments regarding the National Historic Trails section of the document.

A. Pipe Spring National Monument would like to cooperate on including areas related to the Old Spanish National Historic Trail (NHT) and the Honeymoon Trail.

Response: The current CMP effort for Old Spanish NHT is being carried out by a BLM/NPS planning team and already includes Pipe Spring and the AZ Strip FO as contributors. Any local project-level work conducted as part of plan implementation, for either Old Spanish NHT or Honeymoon Trail, would involve coordination with a number of adjacent federal and state agencies in the process of development and review. Pipe Springs National Monument would be considered an important cooperator in such projects

B. The interim management plan of the Old Spanish NHT is acceptable until the Comprehensive Management Plan/EIS for the Old Spanish NHT is completed.

Response: We appreciate your comment.

ISSUE # 3H: PROTECTION OF RESOURCES; VISUAL RESOURCES (VR)***Public Concern #118 (VR1)***

There were a number of comments requesting various clarifications or changes regarding VRM as addressed in the document.

A. The VRM designations are unclear.

Response: VRM designations are required by the Land Use Planning Handbook. Appendix 2.L in the Draft Plan/DEIS explains the management of visual resources and the process used for arriving at designations. Further clarity of the overall process was added to Appendix 2.L in the Proposed Plan/FEIS, including more detail and available references concerning the contrast rating process. Additionally, a number of modifications to Table 2.8, Visual Resources, were made in the Proposed Plan/FEIS, especially under “Allowable Uses,” in an effort to clarify the intent of potential management of visual values.

B. It is unclear how VRM and wilderness characteristics areas, or other primitive allocations/designations are overlaid and how this will affect the on the ground management of these areas.

Response: Appendix 2.L explains how VRM classes were developed using the visual resources inventory as a basis as well as the following criteria:

- 1) Consider the overall management emphasis intended for each alternative;
- 2) Recognize all applicable special area designations and all land use allocations and delineations as VRM classifications are applied;
- 3) Assure that other management activities and land uses being provided for in a specific area may be achieved within the VRM Class objective being set, consistent with special area designations and land use allocations;
- 4) Use the least restrictive class that still achieves objectives to attain DFCs.

Criteria #2 above addresses the concern with regard to areas where wilderness characteristics would be maintained, or “other primitive allocations/designations.” Appendix 2.L-2 to 2.L-5 in the Proposed Plan/FEIS provides a very specific listing of these allocations/designations that contributed to the potential VRM designations. As for the affect VRM designations may have on ongoing management practices, either within the special area designations and elsewhere in the Planning Area, again, Appendix 2.L fully explains the process involved where surface disturbing projects or activities would be proposed. A key concept to be clear about is that visual resources management is not meant to be used as a method to preclude all other resource development. Rather, it incorporates visual design considerations into the planning of surface disturbing projects to assist management in the minimizing potential visual impacts while achieving the intent of the project. It does mean that the visual values must be considered and those considerations documented in the decision-making process, and that if resource development/extraction is approved, a reasonable attempt must be made to meet the VRM

objectives for the area in question and to minimize the visual impacts of the proposal. Also, see Response to Public Concern #118 A above.

C. The proposed stipulation for VRM Class II areas (AS FO 32) requires that changes to landscapes or vegetation from oil and gas activities "shall be done very subtly," and that changes "should not attract attention." In order for this stipulation to be a meaningful tool for protecting scenic values, in accordance with BLM's obligations under FLPMA, the restrictions must be clarified to provide more specific criteria for "not attract attention."

Response: The stated concern refers to potential oil and gas stipulation, #ASFO 32, at Appendix 2.I-8. Upon further consideration of the potential stipulation in question, as well as #ASFO 33, we believe these stipulations are redundant to management direction provided in Table 2.8, Visual Resources, and Appendix 2.L. and are therefore, deleted from Appendix 2.I. Because visual design considerations would differ from project to project, due to the variety of site-specific factors unique to each project proposal, meaningful standard stipulations would be difficult to develop or apply. Potential VRM designations in the Plan would provide the objectives against which each oil and gas exploration and/or development proposal would be measured during the project design and environmental analysis process. Critical to this effort would be either 1) the use of the contrast rating process (explained in Appendix 2.L) for projects in highly sensitive areas, high impact projects, or for other projects where it would appear to be the most effective design or assessment tool, or 2) the inclusion of a brief narrative visual assessment for all other projects which require an environmental analysis. In other words, meaningful, site-specific measures to minimize impacts to visual values are developed during the design and analysis stage. And, for certain projects, the contrast rating process is what provides more specific criteria for estimating whether or not VRM objectives are met.

D. The acreage of 19,973 for Class I (very low) and 76,821 for Class II (low) should be represented in the Preferred Alternative and captured in the following statement: "Any changes to the characteristic landscape must be very low on 19,973 acres, low on 76,821 acres, could be moderate on 0 acres and high on 0 acres as indicated on Map 2.45."

Response: The commenter is requesting that Alternative B be selected as the Proposed Plan for VRM designations; to coincide with the commenter's request that Alternative B also be selected as the Proposed Plan for areas where wilderness characteristics would be maintained. The differences in Class I VRM potential designations between alternatives are generated by several factors. Designated wilderness (in this case, the Paria Canyon-Vermilion Cliffs Wilderness) would be designated VRM Class I under all alternatives. For the area of concern for the commenter, this accounts for the total 89,825 acres of VRM Class I in Alternatives A, D, and E. Planning guidance issued in December, 2004 (IM No. AZ-2005-007, Attachment 1-7) stated, "The Class II objectives of "retain existing landscape character," "change to the characteristic landscape should be low," and "should not attract the attention of the casual observer" would by and large provide the desired maintenance of existing wilderness characteristics where a

wilderness characteristics allocation is considered. Setting VRM Class objectives that would make it difficult to achieve management activities or uses identified elsewhere within each plan alternative must be avoided in the planning process. The least restrictive class that still achieves objectives to attain DFCs should be applied.” The same guidance reiterated that planners “Apply VRM Class I to designated wilderness areas.” To comply with statewide policy, the VRM Class II designation was applied to most areas where wilderness characteristics would be maintained in the Proposed Plan, while in several of these areas, VRM Class III would be applied. The “50 acres” of VRM Class I in Table 2.10, Wilderness Characteristics mentioned by the commenter represented a GIS reporting error. To sum up, Alternative E is the Proposed Plan for this area for VRM designations. Within the Proposed Plan, per BLM statewide guidance mentioned above, VRM Class I would only be designated in existing wilderness areas, and, for NPS proposed wilderness.

E. How will potential conflicts between Wildlife Habitat Management (WHM), Wilderness Characteristics, and VRM be resolved? How are these overlaid?

Response: See response to Public Concern #118 B above and Public Concern #67 B, page 5-228.

F. On page 2-108, A. DFCs Common to all Planning Areas, What is the meaning of “existing cultural landscape?”

Response: “Cultural landscapes” refers to existing facilities, projects, and improvements and the current visual contrast or “footprint” they impart on the landscape. In Table 2.8 of the Draft Plan/DEIS, Visual Resources, the DFC statement that uses the term is intended to convey the concept that the existing infrastructure of fences, corrals, water developments, etc., that are scattered across the public lands for various purposes, would generally remain intact. It also suggests that visual resource objective would primarily apply to new project design/development, not existing projects, facilities, or improvements. However, as the first potential management action now states, “*To the extent opportunities are practicable, extreme visual contrast created by past management practices or human activities would be minimized.*” This merely points out the possibility of restoration project work in cases of extreme visual contrast from past activities in when it is practicable. Basic criteria for “practicality” could include;

- 1) Location (would the site be in an area with high visual sensitivity and in a foreground/middleground distance zone as mapped in the visual resource inventory?)
- 2) Feasibility (would it be physically possible to achieve a desired level of restoration success, as measured by use of the contrast rating process?)
- 3) Cost (would the cost be reasonable and is funding available?).

Based on the commenter’s concern, Table 2.8 was reevaluated and changes were made to it in Proposed Plan/FEIS to clarify terms (cultural landscape) and restoration of existing visual contrast (management actions).

G. The VRM contrast rating process should be explained within the document and a note explaining where this can be found included in this section on page 2-210.

Response: Changes made in Chapter 2 and in Appendix 2.L of the Proposed Plan/FEIS.

Public Concern #119 (VR2)

There were a number of comments regarding VRM as addressed in the document.

A. VRM criteria will prove to be an impediment to most future (or current) land management practices. (It may be more appropriate to classify all Class I and IIs as Class III until a better site-specific inventory conducted through the NEPA process can be completed).

Response: Regarding the concern of “impediment to most future (or current) land management practices,” See response to Public Concern #118, B (page 5-187) and response to Public Concern #67 B (page 5-228). With regard to changing Class I and II VRM potential designations in the Proposed Plan to Class III “until a better site specific inventory conducted through the NEPA process can be completed,” the distinction between land-use plan decisions (designating VRM Classes for the Planning Area) and implementation decisions (incorporating site-specific visual design considerations into on-the-ground project proposals) is very clear in the agency manuals and handbooks for managing visual resources. The commenter appears to suggest that implementation-level assessments for projects be used to drive the establishment of VRM Class I and II designations after the ROD for the Plan is signed. Such a procedure is not founded in established policy as VRM class designations must be made in the land use planning process (not in subsequent project-specific plans unless they are done as land use plan amendments). Appendix 2.L and several management actions have been significantly modified in the Proposed Plan/FEIS to clarify how VRM classes were potentially designated and how VRM objectives are used in day-to-day management activities.

B. VRM I language should only be used to describe congressionally designated wilderness, and should be removed from the wilderness characteristics section.

Response: Planning guidance issued in December 2004 (IM No. AZ-2005-007, Attachment 1-7) stated:

The Class II objectives of ‘retain existing landscape character,’ ‘change to the characteristic landscape should be low,’ and ‘should not attract the attention of the casual observer’ would by and large provide the desired maintenance of existing wilderness characteristics where a wilderness characteristics allocation is considered. Setting VRM Class objectives that would make it difficult to achieve management activities or uses identified elsewhere within each plan alternative must be avoided in the planning process. The least restrictive class that still achieves objectives to attain DFCs should be applied.

The same guidance reiterated that planners “*Apply VRM Class I to designated wilderness areas.*” To comply with statewide policy, the VRM Class II designation was applied to most areas where wilderness characteristics would be maintained in the Proposed Plan, while in several of these areas, VRM Class III would be applied. The mention of VRM Class I desired outcome language in Table 2.10, Wilderness Characteristics, of the Draft Plan/DEIS mentioned by the commenter, represented a GIS reporting error. Therefore, references in Alternative E to VRM I objectives for areas that would be maintained for Wilderness Characteristics were removed in the Proposed Plan/FEIS.

C. More land should be designated as VRM Class I or II.

Response: The concern is vague and a review of specific comments attributed to this concern did not produce any greater specificity. See Response to Public Concern #119 B above. The Preferred Alternative potentially designates VRM Class I in designated wilderness areas only. Based on public comment and reevaluation by the planning team, potential VRM Class II designations were increased in House Rock Valley and in the central and eastern portions of Parashant in the Proposed Plan/FEIS.

D. In section D., Administrative Actions, in addition to the language stated for “Common to all Planning Areas,” the following should be stated: “Activities that would cause adverse long-term impacts to the important visual resources in Hurricane Rim, Diamond Butte, Moccasin Mountain, Grama and Kanab Creeks would be prohibited or mitigated to the extent practicable.”

Response: The commenter suggested including the language of Alternative A (page 2-110) of the Draft Plan/DEIS be used for all alternatives. While the language of Alternative A is very specific to several geographic areas, the essential actionable core of the Alternative A decision is to prohibit or mitigate unacceptable visual contrast that may be created by activities in those specific areas. The language for Alternatives B through E was revised in the Proposed Plan/FEIS reflects the more accurate portrayal of the need to minimize the potential visual impacts of “*all new surface-disturbing projects or activities, regardless of size or potential impact*” throughout the Planning Area, not just in selected locations.

Public Concern #120 (VR3)

There were a few comments regarding the section on Night Skies and light pollution in the document.

A. The section on Night Skies needs more discussion of management practices for lighting.

Response: Based on public comment and reevaluation by the planning team, Night Sky sections of Visual Resources in both Chapter 2 and 3 were modified in the Proposed Plan/FEIS to reflect the need for more clarity and consistency across the Planning Area.

B. The Arizona Strip FO should have the same wording as Parashant and Vermilion in regards to Night Sky Management Actions, as light pollution travels long distances and a single bad light can impact a the visual scene of a large area.

Response: See response to Public Concern #120 A above.

C. The document does not discuss the connection between light pollution and ecological disturbance.

Response: See response to Public Concern #120 A above. In addition, brief reference is made in the Chapter 3, Visual Resources section of the Proposed Plan/FEIS concerning a possible affect to nocturnal animals. Any other discussion of ecological impacts of outdoor artificial light emissions would be found in Chapter 4 under the resource affected, such as Fish and Wildlife, Special Status Species, etc.

D. Night skies are presented only as a visual resource. However, they should also be tied to wilderness since they considered a wilderness character under the category "high degree of naturalness."

Response: Within the BLM land-use planning framework, the discussion of "night sky" conditions is most appropriately placed in Visual Resources. While visitor experience opportunities and certain forms of flora and fauna may benefit from "dark night skies," especially in designated wilderness areas, NPS proposed wilderness, and in areas where wilderness characteristics may be maintained, listing "dark night skies," as a component of either "wilderness character" or "areas with wilderness characteristics" may be inappropriate. The meaning of "wilderness character" and "wilderness characteristics" is founded in established law and policy (the Wilderness Act for the former and IM No. 2003-174 and IM No. 2003-175, Change 1 for the latter). While night sky conditions could conceivably be considered a "supplemental value" with regard to wilderness character for statutory wilderness, such a value should have been listed in the wilderness inventory that preceded designation and/or within the enabling legislation that created the statutory designation. In both inventory and legislation for the wilderness areas within the Planning Area, "dark night skies" were not listed as supplemental values, therefore, it would not be appropriate to have night skies as a wilderness character component in this Plan. Similarly, but not the same as wilderness character, policy guidance for "areas with wilderness characteristics" make no provision for "dark night skies" to be considered an attribute of naturalness. IM No. 2003-275, Change 1, Attachment 1, defines Naturalness as

Lands and resources exhibit a high degree of naturalness when affected primarily by the forces of nature and where the imprint of human activity is substantially unnoticeable. BLM has authority to inventory, assess, and/or monitor the

attributes of the lands and resources on public lands, which, taken together, are an indication of an area's naturalness. These attributes may include the presence or absence of roads and trails, fences and other improvements; the nature and extent of landscape modifications; the presence of native vegetation communities; and the connectivity of habitats.

It should be noted that naturalness is terrestrially based, that is, based on "the imprint of human activity." The suggested list of attributes to consider furthers this concept. We believe that rather than go beyond terms provided by law and policy, night sky conditions are adequately recognized and addressed under Visual Resources of the Draft Plan/DEIS.

E. Permanent outdoor lighting should be prohibited in VRM Class I areas.

Response: Because VRM Class I areas apply to designated wilderness areas and NPS proposed wilderness only, the decision suggested for inclusion in the "Allowable Uses" section is logical. Therefore, Table 2.8, Visual Resources was modified to include it in the Proposed Plan/FEIS.

F. Light pollution is primarily caused by the wasted and inefficient component of outdoor lighting. Using the term "well-lit" to describe light pollution sources is inappropriate, since good quality lighting will reduce light pollution.

Response: See response to Public Concern #120 A above.

G. The Plan should adopt Alternatives B and C, which require using the best available technology to minimize light emission, as opposed to the more permissive wording included in Alternative E.

Response: See response to Public Concern #120 A above.

ISSUE #31: PROTECTION OF RESOURCES; WILDERNESS CHARACTERISTICS (WC)

Public Concern #116 (WC1)

There were a number of comments requesting various clarifications or changes regarding how wilderness characteristics are addressed in the document.

A. In section D, Administrative Actions, in addition to the language stated for "Common to all Planning Areas," the following should be stated: "Activities that would cause adverse long-term impacts to the important visual resources in Hurricane Rim, Diamond Butte, Moccasin Mountain, Grama and Kanab Creeks would be prohibited or mitigated to the extent practicable."

Response: This subconcern is related to a decision in Visual Resources Table 2.8, page 2-110. It is removed from wilderness characteristics and added to the visual resources section as response to Public Concern #119 D on page 5-191.

B. Alternative E contains no discussion of environmental impacts to wilderness characteristics from fire and fuels treatments.

Response: Potential impacts to areas where wilderness characteristics would be maintained were initially stated too generically for Alternatives C and D in the Draft Plan/DEIS. In response, the potential for fire and fuels treatments (as well as other vegetation treatments) was reevaluated, which resulted in modifying the Chapter 4 section for wilderness characteristics in the Proposed Plan/FEIS to provide more specificity regarding the differences between alternatives.

C. The statement, "No new wilderness areas would be created, but more than 280,000 acres would be managed as wilderness, without the designation" is unclear and appears to be a mechanism to open land in the future.

Response: This subconcern revealed refers to the management of areas (about 287,853 acres) where wilderness characteristics would be maintained under the Preferred Alternative. The commenter believes that, "If it's gonna [sic] be managed as wilderness, why not the designation?" The commenter also states that, "It qualifies as wilderness by the usual standards, remote, untrampled by the feet of man or cattle, or sheep, or other domestic critters, so please designate it as such." We believe that a clear legal and policy difference between "statutory or designated wilderness" and "areas where wilderness characteristics would be maintained" has been made in the Plan in Chapter 1 on pages 1-23 - 24; Chapter 2, Table 2.10, Wilderness Characteristics, page 2- 112; and in Appendix 3.D. The critical fact is that agencies do not designate wilderness, only Congress possesses that authority.

D. Language should be included in the RMP to clarify AGFD's role and responsibility for managing wildlife and BLM's intent to support AGFD in accomplishing their mission and goals.

Response: The comment underlying the concern from the Yuma Valley Rod and Gun Club requested that BLM add the following text to the Plan, "Land Use allocations and management prescriptions such as those to manage for wilderness characteristics or primitive recreation will not adversely impact the AGFD's ability to meet their Trust Responsibilities for managing wildlife, nor prohibit current or future proposed wildlife management activities on lands administered by BLM in Arizona. The RMP will reflect and support the spirit and intent of the Statewide MOU between BLM and AGFD." Clarification of the AGFD/BLM relationship and roles and responsibilities was added to the Interrelationships section of Chapter 2 in this Proposed Plan/FEIS. This Chapter 2 addition should satisfy comment concerns about the RMP supporting the spirit and intent of the Statewide MOU.

With regard to comment concerns that allocations and management prescriptions do not adversely impact AGFD's wildlife management activities, the suggested statement mixes AGFD roles and responsibilities with standard NEPA requirements for evaluation of site-specific proposals in light of plan conformance and other legal requirements. The DFCs for allocations to maintain wilderness characteristics include language that conveys the importance of wildlife and wildlife management as a component of managing areas to maintain wilderness characteristics. Because wildlife and wildlife management are considered important components of naturalness, AGFD actions to achieve those related DFCs could be implemented. However, site specific NEPA analysis may identify mitigations required to ensure conformance with the rest of the land use plan and other laws and regulations. No guarantee can be made at the land use plan level that implementation-level projects can be carried out entirely as proposed. Therefore, while AGFD's responsibility "to meet their Trust Responsibilities for managing wildlife" is not usurped, their "ability to meet their Trust Responsibilities for managing wildlife" would continue to undergo standard NEPA process with any necessary mitigation. The NEPA process is not considered the equivalent of "adversely impacting...AGFD's ability to meet their...responsibilities. . . ." The inclusion of the statements in the Interrelationships section and the DFCs already address the comment concerns

E. Clarify how access to lands with wilderness characteristics might be managed differently than already designated wilderness OR lands w/o allocation.

F. It is unclear how areas that are being proposed for management for wilderness characteristics would be managed differently than congressionally designated wilderness lands or lands without the allocation.

Response: Management practices for designated wilderness are defined by the Wilderness Act of 1964. Managing to maintain wilderness characteristics is not under that authority. These lands would not be "wilderness areas" (therefore, they are not managed under the Wilderness Act) and they would not be "WSAs" (therefore, they are not managed under any "interim management" policy or "nonimpairment" criteria tied to the Wilderness Act). They are identified using criteria provided in IM No. 2003-274 and IM No. 2003-275, Change 1, which are based in FLPMA, not the Wilderness Act. Table 2.10, Wilderness Characteristics, in the Draft Plan/ DEIS states the Preferred Alternative's DFCs, as well as the allocations, management actions, and allowable uses for these areas, which, generally, would be far less stringent than designated wilderness area or WSA management. For example, mineral entry and mineral leasing are not possible in designated wilderness, whereas, in areas where wilderness characteristics would be maintained, these uses may occur with appropriate mitigation measures to minimize potential impacts to naturalness and opportunities for solitude and primitive/unconfined recreation.

The differences between "designated wilderness" and "areas where wilderness characteristics would be maintained" are explained in various sections of the Draft Plan/DEIS: Chapter 1, page 2-24, Chapter 2, Table 2.10 and 2.16; and in Appendix 3.D. Further clarification can be found

by comparing the management tables in Chapter 2, pages 112-115, with the description of existing designated wilderness areas in Chapter 3, beginning on page 165 and/or the more detailed wilderness management described in the existing wilderness management plans listed on page 1-17. In addition, differences are explained in the DEIS, Chapter 1, page 24, and in Appendix 3.D.

G. How will conflicts between resources be resolved?

Response: Among the various DFCs for maintaining wilderness characteristics of naturalness, solitude, and primitive recreation in Table 2.10, Wilderness Characteristics, of the Draft Plan/DEIS, includes the following additional DFCs statement: *“Wildlife populations and habitat are important aspects of the ecosystem and are an important component of naturalness. Wildlife management activities would be consistent with naturalness in areas having wilderness characteristics.”* Another states: *“Areas where maintain wilderness characteristics would be maintained would be ecologically sustainable and resilient to natural and human-caused disturbances.”* As wildlife could be considered components of an “ecologically sustainable” system, and both could be considered an essential ingredient of naturalness, it logically follows that wildlife and ecosystem management may be, at the same time, a necessary component of wilderness characteristics while potentially introducing management activities that sometimes conflict with the other DFCs for these areas. However, as with any potentially surface-disturbing activity or project proposed, future implementation actions could likely be carried out with potential site-specific mitigating measures to ensure conformity with the overall land use plan and other laws. It is during NEPA analysis that specific proposals are considered, planned and modified to eliminate or reduce specific conflicts and meet a wide variety of legal and resource mandates and requirements, as well as all DFCs for these areas.

H. Clarify whether or not the wilderness characteristics areas include already existing routes or if they are being allocated only in already roadless areas.

Response: All lands where wilderness characteristics would be maintained under the Proposed Plan are roadless.

I. Chapter 2-114, Restoration, states that “Restoration, vegetation treatments, and other surface disturbing actions could be authorized in areas allocated to maintain wilderness characteristics to achieve DF’s, “but should say, “Restoration, vegetation treatments, wildlife management projects, and other....”

Response: While the term “other surface-disturbing actions” inherently includes wildlife management projects, the Proposed Plan/FEIS is modified to provide the suggested text.

J. Please exclude current easement areas from the “wilderness characteristics” designation. In addition, ADOT respectfully requests a 100’ buffer zone on either side of the highway to account for an “edge effect” from highway noise and potential future

temporary maintenance and construction easement needs (for example, temporary access for drainage needs).

Response: Closer review of GIS data revealed that the boundary for the area in question lies approximately 400 feet south of the northbound lanes of Interstate 15; a full 200 feet beyond the ROW boundary. Additionally, review of the spatial files documenting the presence or absence of each wilderness characteristic revealed that outstanding opportunities for solitude were mapped ½-mile south of the highway, reflecting the ADOT concern regarding noise and its effects on solitude. Therefore, while the area in question would be managed to the boundary 400 feet from the highway, opportunities for solitude would not be considered nor managed as outstanding in the area between 400 feet and ½-mile.

K. There are numerous shortcomings in the Vermilion and Pakoon Springs wilderness characteristics assessments (see letter 301).

Response: A careful assessment of lands reported to possess wilderness characteristics during the scoping period was conducted during this planning effort. This work included an assessment of each area proposed by the Arizona Wilderness Coalition, followed by application of a numerical process to produce an overall ranking of the areas found to possess these characteristics based on value, need, and manageability. This ranking provided the basis from which to assign different combinations of areas with wilderness characteristics to the range of plan alternatives and from which managers could make modifications. The assessment of wilderness characteristics was based solely in criteria provided in IM No. 2003-275, Change 1, Attachment 1, which are based in FLPMA, not the Wilderness Act. These criteria are embedded in the Wilderness Characteristics Assessment worksheets (see Appendix 3.D-11 to 3.D-14) and were used by field personnel. Handbook and other previous guidance related to wilderness inventory were revoked under IM No. 2003-195, making any use or reference of it inappropriate in the wilderness characteristics assessment process. The details of the assessment and the formulation of alternatives for wilderness characteristics can be found in Appendix 3.D. and in the wilderness assessment documents posted online.

L. Clarify how lands with Wilderness Characteristics (WC) can be managed properly and efficiently for wildlife.

Response: See responses to Public Concern #116, E, F, G, H, and I above.

Public Concern #117 (WC2)

There were a number of comments regarding the creation of additional wilderness areas and/or the maintenance of wilderness characteristics. Some wanted more wildernesses created or the greatest number of acres maintained as wilderness characteristics while others expressed their desire for no more lands allocated to wilderness or maintenance of wilderness characteristics.

A. Creating and preserving wilderness areas/wilderness qualities should be prioritized as it is the intent of Purpose, Significance, and Mission Statements of the Monuments/ Protect the maximum amount of land for its wilderness quality/Utilize the AZ Wilderness Coalition's proposal (There are varying amounts of lands and different areas specified in some of these, but the gist is generally the same).

Response: The Monument proclamations call for the protection of the biological, geological, and cultural objects. Purpose, significance, and mission statements were developed by the BLM and NPS during early stages of the planning process to clarify the intent of the Monument proclamations and were used to shape the development of this Plan. Wilderness characteristics are mentioned as an item of significance in these statements and their potential management was carefully assessed and considered in the development of plan alternatives. Because the purpose, significance, and mission statements are listed among a variety of goals for the Monuments (page 1-7 of the Draft Plan/DEIS), they have provided priorities for planning. The Proposed Plan represents a serious consideration and potential commitment to maintaining wilderness characteristics in light of and in balance with other identified priorities. Additionally, lands that were identified in the Preferred Alternative for maintaining wilderness characteristics are considered to possess naturalness and outstanding opportunities for solitude and primitive, unconfined recreation. The proposal from the Arizona Wilderness Coalition was carefully assessed and considered. Their proposal formed the “baseline” data from which the inventory, evaluation, and analysis were conducted. The details of that analysis can be found in Appendix 3.D.

B. Enough land is managed/designated as wilderness.

Response: See response to Public Concern #134 A on page 5-106.

C. Lands should be managed for wildlife characteristics and multiple uses.

Response: Management of areas to maintain wilderness characteristics would not necessarily preclude other uses, especially for wildlife management. Also, see responses to Public Concern #116, E and G above.

D. Creating more wilderness areas will have an adverse impact on wildlife/land restoration/access.

Response: Designating additional wilderness areas is outside the scope of this Plan as only Congress has the authority to do so. See response to Public Concern #134 A on page 5-106. Maintaining areas with wilderness characteristics would not significantly impede ability to suppress wildfire or restoration. As for access, the majority of these areas currently have no motorized road access. Also, see responses to Public Concern #116 C, E, G, and H above.

E. BLM should consider analysis of land using wilderness considerations as illustrated by Wildlands Council.

Response: The proposal from the Grand Canyon Wildlands Council was carefully analyzed. Their proposal formed the starting point from which the assessment and analysis were conducted. The details of that analysis can be found in Appendix 3.D. and in the online wilderness assessment documents posted online. Also see the response to Public Concern #116 L above.

F. Alternative C [for wilderness characteristics] should be adopted.

Response: Alternative C was carefully considered and, in terms of total acreage being managed to maintain wilderness characteristics, is very close to the Preferred Alternative. The difference between the two is 56,451 acres.

G. The Plan does not offer an alternative that sets aside enough land as wilderness areas.

Response: Designating additional wilderness areas is outside the scope of this Plan as only Congress has the authority to do so. See response to Public Concern #134 A, page 5-106.

H. Alternative B should be adopted.

Response: Alternative B proposes the most acreage (554,187 acres) for maintaining wilderness characteristics, including roughly 2/5 of the total acreage of the Monuments. Some of these acres were not included in the Preferred Alternative because they posed management difficulties, were of lower quality, may have inhibited restoration efforts, or may have conflicted with achieving other DFCs.

I. Special stipulations (such as no surface occupancy in Class I and II VRM areas or where naturalness, solitude, or primitive and unconfined recreation would be negatively impacted or destroyed) should be developed within one year of finalization of this Plan.

Response: The commenter more specifically states that applying only standard stipulations for mineral leasing in areas where wilderness characteristics would be maintained “is in conflict with the DFCs for Table 2.10 Wilderness Characteristics. It would be difficult to maintain these wilderness characteristics if only standard stipulations were applied.” With regard to assigning VRM Class I and II to areas where wilderness characteristics would be maintained, under the Preferred Alternative, VRM Class II would be designated for the areas identified for maintaining wilderness characteristics in the Arizona Strip FO where mineral leasing could occur. As for VRM Class I in these areas, see responses to Public Concerns #118 D and #119 B. While criteria for projects in areas with VRM Class II have already been defined (see VRM Class II, page 2-108 in the Draft Plan/DEIS) and may be applied to and met by mineral leasing activities, achieving the DFCs for wilderness characteristics, specifically naturalness, may be difficult

under standard stipulations for mineral leasing. However, while the BLM may not be fully able to protect wilderness characteristics in the Virgin Ridge, Purgatory Canyon/Grey Points, and Hack Canyon/Grama Canyon areas in the Arizona Strip FO (34,942 acres), fluid mineral exploration it is not likely to occur in these areas because oil and gas potential is very low.

J. Roads should be limited.

Response: Roads are limited. Please see Table 2.15, Travel Management, in the Draft Plan/DEIS for details.

K. Congress should designate more land as wilderness.

Response: The decision to designate wilderness belongs to Congress and cannot be addressed in this planning effort. The BLM currently has no legal procedure for recommending areas to Congress to designate as wilderness. The NPS proposed over 190,000 acres to Congress in 1979 through existing NPS protocols; that acreage remains proposed, not designated. Wilderness proponents may communicate directly with Congress via their congressional representatives. Please see response to Public Concern # 134 A, on page 5-106.

L. Alternative D should be adopted.

Response: Alternative D was carefully considered, but it was determined that Alternative E offered the best protection for high quality lands with wilderness characteristics.

M. No wilderness management prescriptions should be applied outside of designated Wilderness.

Response: We agree that no actions or prescriptions based in the Wilderness Act or wilderness regulations, manuals or policies should be applied outside wilderness. Table 2.10, Wilderness Characteristics in the Draft Plan/DEIS did contain (on page 2-114) a reference to use minimum impact suppression techniques (MIST) for fire management. While many of the practices found in the MIST protocol for fire management do not specifically mention wilderness, and while many techniques may be appropriate for fire management in other types of non-wilderness fire suppression scenarios, the reference was dropped from Table 2.10 in the Proposed Plan/FEIS.

N. The Draft Plan/DEIS does not protect the wilderness characteristics of all wilderness-quality lands.

Response: Key to the discussion of “protecting wilderness characteristics by prescription” (the “Plan”) and “protecting all wilderness-quality lands” (the “inventory”) is IM No. 2003-275, Change 1, Attachment 1 that says, “*Features of the land associated with the concept of wilderness that may be considered in land use planning when BLM determines that those characteristics are reasonably present, of sufficient value (condition, uniqueness, relevance,*

importance) and need (trend, risk), and are practical to manage.” The assessment of wilderness characteristics, or the “wilderness-quality lands,” as many comments refer, only satisfies the first condition of “reasonably present” in the preceding quote. In other words, “assessment” determines if the characteristics of naturalness or outstanding opportunities for solitude or outstanding opportunities for primitive/unconfined recreation are “reasonably present.” It is the planning effort and the development of alternatives that evaluates the other three conditions stated above (i.e., sufficient value, need, and are practical to manage). Merely identifying in the planning document all lands that possess the three wilderness characteristics without considering the other three conditions (value, need, manageability) could result in the BLM/NPS attempting to maintain wilderness characteristics on some lands that may not be in the best condition; be quite common; have little relevance to protecting important resources; not be at great risk of loss of unique or rare values; and that may be impractical to manage. Simply put, the assessment provides the basic material for the planning effort to evaluate more closely based on other criteria (value, need, manageability). As such, not all lands possessing the basic characteristics will necessarily be prescribed for maintenance in the Plan. The emphasis of each plan alternative also greatly affects the evaluation of the remaining conditions (value, need, manageability) and Plan’s management prescriptions. Such management prescriptions have to consider other multiple-use resource mandates. Land use plans seek to find the best mix of all programs, etc., to resolve planning issues and serve the Plan’s stated purpose and need. Those lands in the Preferred Alternative that were identified for maintaining wilderness characteristics in the Draft Plan/DEIS are considered to be of the highest quality, not merely because they contain a high degree of naturalness and outstanding opportunities for solitude and primitive, unconfined recreation, but because the evaluation of value, need, and manageability determined that these conditions were also well met. Conversely, some of the areas possessing wilderness characteristics were rejected in the Preferred Alternative because they posed management difficulties, were of lower quality, may have conflicted with other authorized uses, or may not have met the criteria defined in Appendix 3.D. Also, see responses to Public Concern #116 L and #117 B, both above.

O. There are very few areas on the Arizona Strip that contain true wilderness characteristics.

Response: Based on field application of guidance given in IM No. 2003-274, IM No. 2003-275, Change 1, and IM No. AZ 2005-007, 690,718 acres in the Planning Area were identified as having wilderness characteristics. All areas identified in the Preferred Alternative that would maintain wilderness characteristics meet the criteria defined in Appendix 3.D.

P. No land at all should be managed to maintain wilderness characteristics.

Response: Alternative A (no action) does not propose to maintain any wilderness characteristics. Those lands identified for maintaining wilderness characteristics in each of the alternatives (except Alternative A) are considered to be of the highest quality, containing solitude, naturalness, and outstanding opportunities for primitive, unconfined recreation. These

areas are roadless and it was determined that maintaining their wilderness characteristics was the best way to manage them. See also responses to response to Public Concerns #116 H and L and #117 C, H, and N above.

Q. Alternative E should be adopted.

Response: Thank you for your comment. Alternative E was identified as the Preferred Alternative in the Draft Plan/DEIS.

R. Lands with routes/roads should not be managed for wilderness characteristics as this is contradictory.

Response: In areas that were assessed for wilderness characteristics, the presence of routes alone did not necessarily preclude the area from being considered as “exhibiting a high degree of naturalness.” Other attributes of naturalness and the overall effect of those attributes determined whether such naturalness was present. Also, see responses to #116 H.

Public Concern #121 (WC3)

A number of comments expressed concern with violations of legal requirements in the wilderness areas/managing for wilderness character sections of the document.

A. The means by which wilderness characteristics are to be protected falls back to the old Interim Management Protection methods used in WSAs. This creates polygons of areas labeled as “MWC” (Manage for Wilderness Characteristics) that are treated exactly like WSAs. This is not the intent of the direction from the Secretary of the Interior.

Response: The planning effort made no use of the interim management policy (IMP) for WSAs in developing management prescriptions for areas where wilderness characteristics would be maintained. BLM IM 2003-274, *BLM Implementation of the Settlement of Utah v. Norton Regarding Wilderness Study* and IM 2003-275, Change 1, *Consideration of Wilderness Characteristics in Land Use Plans*, clarified the intent of the Secretary of the Interior that any prescriptive management of areas with wilderness characteristics is not to use the IMP’s nonimpairment standard or criteria found in BLM Handbook, H-8550-1. Additionally, the official manual for wilderness inventory, *Wilderness Inventory and Study Procedures Handbook (H-1630-1)*, was rescinded by the same documents. The IMs listed above remain as the sole guidance for the consideration of wilderness characteristics in the land use planning process, stating, “the BLM may consider information on wilderness characteristics, along with information on other uses and values, when preparing land use plans.” The commenter states that the management prescriptions for areas where wilderness characteristics would be maintained, “falls back to the same old Interim Management Protection methods used in WSAs. This creates polygons of areas labeled as “MWC” that are treated exactly like WSAs.” The BLM is required to manage existing WSAs on public lands outside the Planning Area (the

Planning Area contains no WSAs) “to the nonimpairment standard,” and in doing so, apply “nonimpairment criteria.” These are the foundations of any discussion of “managing areas like WSAs” or “using IMPs to manage areas.” H-8550-1 provides the following definitions for nonimpairment “standard” and “criteria”:

Nonimpairment standard: *The general standard for interim management is that lands under wilderness review must be managed so as not to impair their suitability for preservation as wilderness.*

Nonimpairment criteria: *a) The use, facility, or activity must be temporary. This means a temporary use that does not create surface disturbance or involve permanent placement of facilities may be allowed if such use can easily and immediately be terminated upon wilderness designation, and b) When the use, activity, or facility is terminated, the wilderness values must not have been degraded so far as to significantly constrain the Congress's prerogative regarding the area's suitability for preservation as wilderness.”*

None of various attributes listed in the “standard” and “criteria” statements, such as “interim management,” “under wilderness review,” “impair their suitability for preservation as wilderness,” “temporary uses only,” “does not create surface disturbance or permanent facility,” and cannot “significantly constrain Congress’s prerogative” regarding suitability, are found within the DFCs or the prescriptive management for areas where wilderness characteristics would be maintained. Simply put, WSAs and their management were already inventoried and recommended and are currently managed and waiting for Congressional action to either designate as wilderness or be released from IMP. There is no agency intent or legal mechanism for recommending areas where wilderness characteristics would be maintained to Congress for preservation as wilderness. Therefore, there is no “interim management,” “suitability for preservation as wilderness,” “wilderness review,” or “impairment standard or criteria” associated with these areas. The prescriptive management for these areas clearly demonstrates the difference between local management choosing to maintain identified characteristics as part of larger resource management scenarios versus the “on-hold for Congressional designation or release” management of WSAs. Also, see responses to Public Concern ##116 F and J, #117 M, and #119 B, all above. In addition, the abbreviation “MWC” was removed from the Proposed Plan/FEIS in order to avoid further comparisons with “WSAs.”

B. The BLM’s abandonment of its authority to designate any additional WSAs is invalid and will ultimately be overturned in pending litigation, and does not prevent BLM from designating new WSAs.

Response: The BLM is operating under the policy which resulted from *Utah v. Norton* settlement and cannot legally designate WSAs in a land use plan. Unless and until litigation overturns the decision, the BLM is operating under IM 2003-275, Change 1, *Consideration of Wilderness Characteristics in Land Use Plans*. A detailed explanation is available in Appendix 3.D.

C. The BLM must manage these lands for “multiple use and sustained yield,” per FLPMA Sec. 302.

Response: Lands identified for maintaining wilderness characteristics are, and will continue to be, managed for multiple use. For example: livestock grazing operations would continue, administrative motorized use would be permitted on designated routes, and existing land use authorizations would continue, subject to the terms and conditions of the existing authorizations. Also, see response to Public Concern #116 G, page 5-196.

D. Is it not true that only Congress can designate wilderness areas? It appears the BLM and NPS are violating the law by managing to maintain wilderness characteristics.

Response: During scoping, the public requested that the BLM/NPS consider wilderness characteristics within the Planning Area. Under BLM policy, as stated in the BLM’s October 23, 2003, IM No. 2003-275 – Change 1, “*The BLM will involve the public in the planning process to determine the best mix of resource use and protection consistent with the multiple-use and other criteria established in the FLPMA and other applicable laws, regulations and policies. Lands with wilderness characteristics may be managed to protect and/or preserve some or all of those characteristics. This may include protecting certain lands in their natural condition and/or providing opportunities for solitude, or primitive and unconfined types of recreation.*” The areas identified for maintaining wilderness characteristics do not increase designated wilderness, nor are these areas managed as WSAs.

For NPS lands, those identified as “maintained for wilderness characteristics” would be managed as backcountry areas, to protect their natural condition and/or to provide opportunities for solitude, or primitive and unconfined types of recreation, consistent with approved cultural and natural resource management activities and NPS backcountry management policy.

The classification “maintain wilderness characteristics” is derived from BLM planning guidance IM No. 2003-275. On NPS lands, this designation was used for interagency consistency in this particular jointly developed Land Use Plan. NPS Planning Guidelines (Director’s Order 2) zoned equivalent areas as “backcountry.” By NPS policy (2001), “backcountry” refers to primitive, undeveloped portions of parks. The NPS lands identified as “maintain for wilderness characteristics” are adjacent to either BLM lands that would be maintained for wilderness characteristics or lands previously proposed for wilderness designation by NPS. As such, they constitute a logical management unit with these adjacent areas and recognize the need for consistent classification, terminology, and management of Monument resources across agency boundaries. Also, see responses to Public Concerns # 116 C and J and #121 A and B above.

E. The wilderness settlement agreement between the Department of the Interior and the State of Utah acknowledged the ability of the BLM to “inventory” for wilderness

characteristics. The agreement did not acknowledge or stipulate to BLM authority to “manage” for wilderness characteristics.

Response: In the absence of an official manual (*Wilderness Inventory and Study Procedures Handbook (H-1630-1)*) was rescinded September 29, 2003), the BLM is operating under the authority of IM 2003-275, Change 1, *Consideration of Wilderness Characteristics in Land Use Plans*. A detailed explanation is available in Appendix 3.D.

F. There is no congressional direction to treat areas with wilderness characteristics as Wilderness Areas.

Response: See responses to Public Concerns #116 J, #118 E, and #121 A and B above.

G. There is no mandate in FLPMA and no process requirement for the BLM engaging in an ongoing wilderness inventory and review (Section 603 of FLPMA).

Response: The authority for assessment and evaluation of areas with wilderness characteristics resides in Section 201, not Section 603 of FLPMA. See responses to Public Concerns #116 J, #118 E, and #121 A and B.

H. The Arizona Wilderness Act of 1984 clearly released these and all other BLM lands within Arizona from further wilderness consideration.

Response: It released then-existing WSAs on the Arizona Strip from IMP and the non-impairment standard under Section 603 of FLPMA. It did not release these lands from inventory and potential maintenance of wilderness characteristics under Section 201 of FLPMA.

I. The American Antiquities Act of 1906, under which the Monument proclamation was declared, makes no reference to preserving “wilderness” characteristics.

Response: We agree. However, the proclamations do not preclude such management either.

ISSUE # 4: LIVESTOCK GRAZING

Public Concern #105 (GM1)

There were a number of comments requesting various clarifications or changes regarding the livestock management section of the document.

A. Isn't it illegal for the BLM to hold grazing permits? Without wildlife or cattle, the BLM cannot show beneficial use for water filing.

Response: The BLM would not hold a grazing permit for any allotment. Under the proposed plan, three forage reserves would be established. There would be no permittee of record for these allotments but the allotments would be available for grazing as needed under temporary use authorization.

The authority for establishing forage reserves is 43 CFR § 4100.0 which states that the BLM should manage the resource to “promote healthy sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangelands to properly functioning conditions;...to establish efficient and effective administration of grazing of public rangelands; and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands.” In addition, authority 43 CFR§ 4100.0–8 states that “The authorized officer shall manage livestock grazing on public lands under the principle of multiple use and sustained yield, and in accordance with applicable land use plans.” It also states, “Land use plans shall establish allowable resource uses (either singly or in combination) . . . use to be maintained, areas of use, and resource condition goals and objectives to be obtained.” Finally, the BLM through these plans will set forth “general management practices needed to achieve management objectives.”

When a pasture or an allotment needs to be rested to promote resource recovery due to wildfires, land treatments, drought etc., livestock may need to be removed completely. This may have drastic impacts to the local ranching operation on an individual basis, forcing the ranchers to reduce their operation drastically or completely remove all livestock from the range. This is where a forage reserve serves a purpose. By establishing forage reserves on the Arizona Strip, BLM is attempting to address several needs on a local basis by promoting healthy sustainable rangeland ecosystems in properly functioning conditions and providing for sustainability of the local livestock industry.

A break down of AUMs available by allotments (including forage reserve allotments) is provided in the Draft Plan/DEIS, Appendix 3. E. (Allotment AUMS by Land Status), on page 3.E-7. A brief analysis by alternative is provided in Chapter 4 (Livestock Grazing), pages 4-243 to 4-262, of the Draft Plan/DEIS.

In regards to water rights, the BLM follows 43 CFR § 4120.3–9 (Water Rights for the Purpose of Livestock Grazing on Public Lands). According to this authority, “any right that the United States acquires to use water on public land for the purpose of livestock watering will be acquired, perfected, maintained, and administered under the substantive and procedural laws of the state within which such land is located.” The State of Arizona water law currently states that the water right is to be issued to the “land owner,” which in the case of the forage reserves is the US Department of the Interior/BLM, with the exception of a small amount of State School Trust Lands.

B. Why was there no analysis performed for removing grazing in sensitive areas or incorporating sustainable techniques into existing range management practices?

Response: Alternative B in the Draft Plan/DEIS did analyze greater restrictions or removal of livestock grazing in "sensitive areas," as evidenced by proposing removal of grazing from desert tortoise habitat. Also under Alternative B, more and larger ACECs were identified with greater restrictions on grazing.

C. If the grazing continues year-round on the Tinweep Allotment, what are the mitigation measures that would minimize cattle trespass on Grand Canyon National Park lands?

Response: The NPS will need to keep boundary fences maintained the same as with other adjacent BLM grazing allotments. Livestock do sometimes get through fences and the grazing operators would be responsible to return them to the designated allotment. Maintenance of fences is usually the responsibility of the grazing permittees through an authorizing agreement such as a cooperative agreement or section 4 permits. In some cases, such as this one, the BLM or other agencies have maintenance responsibility.

D. GCNRA Grazing Management Plan (1999) and the GCNRA Minerals Management Plan (1980) should be added to the list of Activity (Implementation) Level Plans on page 1-17.

Response: The identified plans were added to the appropriate list in the Proposed Plan/FEIS.

E. BLM administrative authority over livestock grazing and mineral exploration on GCNRA lands should be described under the Vermilion and AZ Strip FO introduction.

Response: Information provided was added to the introduction section of the Proposed Plan/FEIS to reflect BLM administrative authority over livestock grazing and mineral exploration in GCNRA.

F. As defined for Parashant, it should be indicated for both Vermilion and AZ Strip FO should that, on GCNRA lands, sensitive resources would demonstrate no long-term degradation and respond favorably to livestock techniques

Response: Changes were made in appropriate sections of Chapter 2 in the Proposed Plan/FEIS indicating that sensitive resources would demonstrate no long-term degradation and respond favorably to livestock grazing management.

G. In Table 2.12 B (Land Use Allocations, Common to all Planning Areas), "BLM lands" should be changed to "BLM-administered lands" to reflect administrative responsibility of bordering lands of GCNRA.

Response: Sections were changed in the Proposed Plan/FEIS to reflect administrative responsibility by the BLM on bordering lands of GCNRA.

H. On Page 2-130, management actions for the River Pasture should indicate that the pasture would be closed to livestock use under Alternatives B and E to eliminate recreational conflicts.

Response: The River Pasture was clearly made unavailable for livestock grazing under Alternatives B and E in Table 2.12 B (Land Use Allocation) of the Draft Plan/DEIS. Consequently, there are no additional livestock grazing management actions necessary in Table 2.12 C. Therefore, the Management Actions section would not be applicable (NA) to the River Pasture, resulting in no change to the section in the Proposed Plan/FEIS.

I. Add the GCNRA Grazing Management Plan (1999) to the list of administrative guidance in chapter 3-122 to further clarify roles and responsibilities of the NPS and BLM.

Response: The requested reference was added to the list of administrative guidance in the Proposed Plan/FEIS.

J. Both Vermilion and AZ Strip FO livestock grazing sections should recognize that the BLM is to administer grazing on GCNRA lands according to BLM policy but subject to the NPS Organic Act and GCNRA enabling legislation, values, and purposes.

Response: Sections in Chapter 2 of the Proposed Plan/FEIS were modified to reflect that BLM is to administer grazing on GCNRA land according to BLM policy, but subject to the NPS Organic Act and GCNRA enabling legislation.

K. Regarding Appendix 3.E, according to the GCNRA Grazing Management Plan, the Bunting Well Allotment has 1,030 acres, the Ferry Swale Allotment has 14,584 (rather than 16,994 acres), and Wahweap has 10,702 acres of NPS land.

Response: Acreages were determined using the GIS system to be consistent throughout the Arizona Strip; however, these acreages for the listed allotments will be double-checked for accuracy.

L. Cooperating agencies have sponsored a new study titled "Economic Impacts of Livestock Grazing and Recreation on the Arizona Strip" which was released on March 13, 2006 and should be included in the Proposed Plan/FEIS.

Response: The cited study of economic impacts of livestock grazing and recreation on the Arizona Strip was included in the socioeconomic sections of the Proposed Plan/FEIS.

M. Table 2.12 does not include the established livestock use thresholds for key forage species on grazing allotments. Table 2.5 includes a 45 percent use limit on current

annual growth on allotments in desert tortoise habitat. The document should describe what use thresholds would be established on other allotments.

Response: This decision was carried forward from the 1992 RMP and, as such, was not analyzed again in the DEIS or FEIS. The use threshold is 50 percent for allotments with an intensive management plan and 45 percent on those allotments managed on a less intensive basis.

N. The alternatives in the Draft Plan/DEIS should be quantified as to the possible reduction in grazing AUM. Subjective values cannot be measured with quantitative tools like I-O models.

Response: Chapter 4 of the Proposed Plan/FEIS now reflects AUM changes by alternative where changes do occur. A break down of AUMs available by allotments (including forage reserve allotments) is provided under Appendix 3.E (Allotment AUMS by Land Status), page 3.E-7, with brief analysis by alternative.

O. The wording on the grazing allotment maps should be changed to take into account that some private lands do not show up because they are part of an allotment.

Response: The wording on the grazing allotment maps were changed to reflect that there are private lands within allotment boundaries, which do not show up because they are managed as part of that allotment.

P. Page 2-130 states, "On NPS lands, livestock grazing would be administered within NPS policy, the proclamation, and Lake Mead NRA enabling legislation, within a range of variability...." "Variability" is a BLM term, not an NPS and should not be used here.

Response: The text on page 2-7 is clarified in the Proposed Plan/Final EIS to better describe the NPS Vital Signs Monitoring Program. The text is also modified to clarify that Vital Signs standards for resources to be monitored are specific to the NPS, though NPS and BLM monitoring may be designed to be complimentary in terms of techniques and data collected, as applicable. Based on the clarifications for NPS Vital Signs rewritten on page 2-7, the DFCs on pages 2-28-30, and 2-148 need no further modification.

Q. The DEIS on page 1-2 states, "This Draft Plan/DEIS covers decisions only for BLM and NPS lands within the Planning Area." The sentence be qualified with "...except small areas of National Forest, either included or excluded, as may be described in MOUs or other management agreements."

Response: The suggested text has been added to the Proposed Plan/FEIS.

R. What effect will the different Alternatives will have on the AUMs?

Response: The changes in AUMs are portrayed in the Proposed Plan/FEIS in Chapter 4 for those allotments with AUM changes.

S. Appendix 3.E-3 , Allotment Acres by Land Status, Mainstreet #04808 needs to be updated at 36 N 10 W parts or all of Sections 21,22,23,24,25,26,27,28,33 & 34.

Response: Boundary and Acres have been double-checked for the Proposed Plan/FEIS and necessary changes have been made.

T. What is the process for closing allotments and the creation of forage reserves?

Response: When significant concerns are identified that would warrant closure or relinquishment of a grazing preference, the BLM, through the NEPA process involving interested public, agencies, permittees, etc., would analyze making the allotment unavailable for grazing or identifying the allotment as a forage reserve. This would involve proposing a reasonable range of alternatives for analysis, selecting a Preferred Alternative, and issuing a proposed decision. This may also require amending the RMP.

U. Chapter 2-129 states, "The NPS portion of the Parashant Allotment as currently fenced, would continue to be unavailable for livestock grazing." There is a project to be implemented this year to fence off parts of the NPS lands where the fencing is degraded, missing, or ineffective. Is this Plan going to preclude the fencing project?

Response: This Plan will not affect implementation of any ongoing projects that are already approved.

V. BLM should commit to conducting an EIS for livestock management in the Monuments describing the effects of different livestock grazing alternatives on all management efforts aimed at meeting overarching- ecological goals for managing livestock within the Monuments, as well as other agency - and public- defined goals for the Monuments.

Response: The Proposed Plan/Final EIS evaluates and describes the effects of the proposed grazing alternatives on all relevant resources at the land use planning level (broad, mid-scale, for the entire Planning Area). Livestock management will continue to be addressed on an allotment-by-allotment basis as part of the rangeland health assessment process, including the appropriate level of NEPA analysis.

Public Concern #106 (GM2)

There were a few general comments regarding the section on livestock management in the document. The majority of these expressed support for grazing rights or the closure of more land to grazing.

A. Grazing and ranching infrastructure should be reduced to a minimum or eliminated and/or more sites need to be closed to grazing as grazing has a negative impact on most other resources.

B. The use of public lands for livestock grazing is important and should not be overly restricted.

Response: Livestock grazing on BLM lands is guided by the Taylor Grazing Act, FLPMA, the Public Rangelands Improvement Act, as well as by the grazing regulations codified in 43 CFR part 4100. The Proposed Plan has been developed with all uses and resources in mind to provide an appropriate balance of uses. Management prescriptions have been and are applied where necessary to mitigate impacts to resources and other uses.

C. Reduce cattle trespass.

Response: It is the BLM's policy to deter unauthorized use and every reasonable effort is made to follow regulations and take action when infractions occur.

D. The Proposed Plan should commit to retaining and maintaining study plots and exclosures within the Planning Area.

Response: Study exclosures and other monitoring techniques are part of the District Monitoring Plan and will continue to be used and maintained for future reference. The monitoring plan will be reviewed and updated as part of the implementation plan, upon completion of this effort. That plan will identify study methods and needs for the near future.

E. The livestock grazing section should be as detailed as the recreation section.

Response: The level of detail in each section is guided by laws, regulations, and policies specific to each resource. This is further guided by the necessary level of planning and analysis to resolve specific issues. Therefore, not all sections are comparable in their level of detail.

F. The BLM Arizona Strip District has administered the Standards for Rangeland Health and Guidelines for Grazing Administration well.

Response: Thank You. The Arizona Strip allotment assessment process is one involving all interested parties to participate fully and help identify issues on an allotment-by-allotment basis,

which are fully evaluated by an interdisciplinary assessment team with oversight by a public group appointed by the Arizona Resource Advisory Council. This process is anticipated to continue throughout the scheduled evaluation effort, which will conclude in 2009.

G. Grazing reduces fire risk.

H. Grazing increases fire risk.

Response: This Plan strives to manage livestock grazing in such a manner that natural processes will function normally and desired plant community objectives are attained. In general, the desired plant communities contain key plant species that are usually components of an applicable ecological site guide for the area. Livestock utilization levels are limited and monitored for compliance so that they do not prevent the native plant community from maintaining itself. That being said, livestock grazing should have minimal influence on the fire frequency and intensity. Climate fluctuations have a greater influence on fire and fire behavior due to changes in production of fine fuels following dry or wet precipitation years.

I. Ranchers with grazing animals are vital in order to maintain and develop water supplies, fences, and/or roads in the area.

Response: The importance of rancher constructed and maintained water developments are understood, as are the need for facilities and access to manage livestock properly and maintain overall rangeland health. The Proposed Plan seeks to balance the need for management facilities, while ensuring the overall ambiance of the Arizona Strip is maintained in its historic character.

J. Grazing livestock and wildlife are not necessarily incompatible.

Response: We agree. Properly managed livestock grazing, which the Proposed Plan strives to promote, is compatible with wildlife. Wildlife and livestock can and do coexist in harmony on the Arizona Strip

K. There will be too great an economic impact on local economies if grazing is reduced (per Robert Fletcher's study).

Response: We recognize that the Fletcher Study has pointed out that there is an economic impact from livestock grazing on the Arizona Strip. There are some identified reductions in livestock use in the Proposed Plan, which will have impacts to the individual user and associated economy. Overall, the Proposed Plan does not make significant reduction in livestock use and should not result in any significant effect on the local economy. Please refer to the socioeconomics sections in the Proposed Plan/FEIS.

L. Grazing has not been demonstrated to have any substantial impact on the local economy.

Response: The economic effect of livestock grazing on local areas can vary widely by area and the business structure of the economy. In some areas, the influence of livestock and associated agriculture is and can be significant.

M. All lost AUMs, base waters, water rights, and the ability to run cattle, should be compensated to the full extent.

Response: BLM policy and regulation provides for compensation of fair market value of improvements and facilities when an area is removed from livestock grazing; however, there is no provision for BLM to compensate for the AUMs lost.

N. The Plan allows for too much grazing in riparian areas.

Response: Without specifics, it is difficult to address this concern. Of the major riparian areas within the district, the Paria River and the Beaver Dam confluence, are proposed to have no grazing use. Kanab Creek and the Virgin River are limited to seasonal use. Other riparian areas are generally associated with small springs and seeps. Many of these are fenced to exclude or regulate livestock use and many others are inaccessible to livestock due to topography and other factors.

O. Alternative B does not accurately reflect impacts to livestock grazing and is unfair to ranchers.

Response: Impacts from Alternative B were analyzed accordingly; however, Alternative E is the Proposed Plan and is felt to be a balance of demands on the public lands.

P. Historic livestock trails that have been in existence for over 50 years and are used on a regular basis should be identified and awarded priority designation.

Response: This comment is not fully understood. The official designation of stock drives has been done away with due to lack of need. If the comment refers to stock driveways or other trails that would be used to trail livestock, nothing in the Plan would preclude the continued use of these historic trails. We are aware of the Dominguez-Escalante, Mail, Honeymoon, and Temple Trails. If there are other historic trails we should be aware of, we would appreciate knowing their location.

Q. Interdisciplinary allotment evaluation processes have merit and should be used to keep permittees on track and prevent allotment deterioration.

Response: The Arizona Strip allotment assessment process is one of involving all interested parties to participate fully and help identify issues on an allotment-by-allotment basis, which are fully evaluated by an interdisciplinary assessment team with oversight by a public group

appointed by the Arizona Resource Advisory Council. The results of these evaluations are analyzed through the NEPA process and decisions are issued which are reflected in the grazing permit. This process is anticipated to continue throughout the scheduled evaluation effort, which will conclude in 2009.

R. The option to reconfigure an allotment or portion of an allotment to protect other priority resource values by exchanging for other grazing areas with equal or larger land base and AUM preference should not be allowed.

Response: The authority for BLM to combine, divide, or realign allotment boundaries is provided for in 43CFR 4110.2-4. The statement in Chapter 2 under forage reserves was meant only as a qualifier to indicate these allotments would be handled in the same manner as other grazing allotments (i.e., if management opportunities presented themselves, the option of reconfiguration could be considered).

S. The Plan does not sufficiently protect soils in the Planning Area and cannot without changes in livestock grazing levels in all heavily impacted areas.

Response: The Proposed Plan describes a reasonable level of livestock grazing and utilization levels that will adequately provide soil protection. It describes the various processes for monitoring soil and vegetative resource conditions and making adjustments where needed to rectify any problems encountered. In addition, each allotment will be evaluated through the Standards and Guides process, which looks specifically at soil conditions. Any areas not meeting standards will be identified and actions taken to remedy the cause.

Public Concern #107 (GM3)

A number of comments expressed concern with a lack of sufficient data or violations of legal requirements in the livestock management section. Most of these comments asserted that, as a result, the BLM could not make informed/legal decisions regarding grazing practices.

A. The lack of AMPs for 14 percent of the livestock grazing administered area makes it impossible to determine if the management on these allotments is sufficient, meeting goals, or being consistently monitored.

Response: The lack of an AMP does not mean that management is not occurring or vegetation studies are not being completed. The Arizona Land Health Assessment process is applied to all allotments to determine if goals and objectives (from land use plan objectives to site-specific objectives) are being met or not. In addition, through the Land Health Assessment process, new objectives and management recommendations are developed that might be necessary to meet land use plan-, habitat-, watershed-, and allotment-specific resource objectives to measure future evaluations against. However, Rangeland Health Assessments are not meant to be a NEPA document or a substitute for NEPA analysis. These documents evaluate rangeland health using

all available monitoring and other relative data. The assessment is used as a basis for the NEPA analysis considering the renewal of the associated grazing permit.

B. It is impossible to assess the impacts of the action alternatives without showing how the average utilization is estimated and with what frequency, or without assessing the values and scarcity of resources, as required by NEPA (or FLPMA). Rangeland health assessments are not a sufficient substitute and do not meet NEPA and FLPMA requirements.

Response: BLM's Land Use Planning Handbook (H-1601-1) describes the basic process used in development of the livestock grazing sections of the DEIS. Monitoring plans and/or AMPs describe the methods used to monitor and analyze the vegetation resources. These policies and/or implementation level decisions will be made in the monitoring plan that will be developed later. Utilization studies are used as a tool to help determine if stocking rates are appropriate, and are not an end in and of themselves. The Arizona Strip currently uses the grazed class method of estimating grazing use on key forage species concept. This method estimates the amount of the current year's above ground biomass production that has been removed by grazing. Key species are identified for each key area within an allotment and individuals of those species, along a transect line, are evaluated as to the amount of use received. Each individual use level is recorded and the use classes tallied. An average use for that species on that transect in that key area can then be determined. The frequencies of these studies is identified in the individual AMP, but are generally conducted when livestock are removed from a pasture. The values and resource scarcity were considered in developing special designations (e.g., ACECs), identifying habitat needs of special status species, maintaining existing wilderness areas, managing areas for wilderness characteristics, protecting Monument objects, and the like. Such studies also define the extent to which resource uses would be allowed. However, Land Health Assessments are not meant to be a NEPA document or a substitute for NEPA analysis. These documents are evaluations of the rangeland health using all available monitoring and other relative data. The assessment is used as a basis for the NEPA analysis considering the renewal of the associated grazing permit.

C. The Tuweep allotment is not currently meeting rangeland health standards and it should not be slated for use until recovery is achieved.

Response: The Standards for Rangeland Health and Guidelines for Grazing Administration assessment report for Tuweep allotment number 5220 states that, "Based on the analyses and supporting documentation referenced herein, resource conditions on the allotment . . . are making significant progress toward meeting the applicable standards for rangeland health."

D. The Draft Plan/DEIS does not assess the site-specific impacts of grazing within the Planning Area.

Response: BLM's Land Use Planning Handbook (H-1601-1) describes the basic process used in development of the Livestock grazing sections of the DEIS. This document describes two types of decisions: land use plan and implementation decisions. Site-specific decisions are normally made at the implementation level, which is not the process for the FEIS.

Land use plan decisions are broad-scale decisions that guide future land management actions and subsequent site-specific implementation decisions. Land use plan decisions fall into two categories: desired outcomes (goals and objectives) and allowable uses and actions to achieve outcomes. The BLM may also establish criteria in the land use plan to guide the identification of site-specific use levels for activities during plan implementation. Implementation decisions generally constitute the BLM's final approval allowing on-the-ground actions to proceed. These types of decisions require site-specific planning and NEPA analysis. Therefore, site-specific resource use levels are normally determined at the implementation level based on site-specific resource conditions and needs as determined through resource monitoring and assessments.

E. The Draft Plan/DEIS does not assess the impacts of grazing on other resources, including special status species, within the Planning Area.

Response: Each specific program (including special status species) or activity identifies the significant impacts to that program or activity from livestock grazing in Chapter 4 (Environmental Impacts) of the DEIS and FEIS.

F. The BLM rarely linked livestock grazing issues with other management issues, despite sufficient scientific evidence linking livestock grazing with soil instability, impaired water quality, and invasive vegetation.

Response: See various sections in Chapter 4, Environmental Impacts.

G. The Plan offered no proof that grazing is compatible with recreational use or that recreational use is a higher valuable use of the lands than grazing; therefore, the closure of allotments to reduce conflicts with recreationalists is not warranted.

Response: The section titled "Recreation and Visitor Services/Interpretation and Environmental Education," in Chapter 4 of the DEIS and FEIS discusses the impact from livestock grazing to recreation by alternative.

H. The DRMP/DEIS does not address the impacts/supplies inadequate data to analyze the impact of livestock on fire regimes or the spread of non-native grasses that increase the fuel load.

Response: Each specific program or activity analyzes significant impacts to that program or activity from livestock grazing in Chapter 4 DEIS. Also, see DEIS Chapter 4, page 4-82 under

section titled "fire and fuels management" where significant livestock grazing impacts are address under all alternatives.

I. The Draft Plan/DEIS does not address the impacts and supplies inadequate data to analyze the impact of livestock trampling on soils or native species (including plants and tortoises).

Response: The Proposed Plan/FEIS describes a reasonable level of livestock grazing and utilization levels to provide adequate soil protection. The Plan describes various processes for monitoring soil and vegetative resource conditions and making adjustments, where needed, to rectify any problems encountered. In addition, each allotment will be evaluated through the Standards and Guides process, which looks specifically at soil and vegetative conditions, as well as special status species needs. Any areas not meeting standards will be identified and actions taken to remedy the cause. Analysis of impacts was completed based on the best available information. Trampling was referenced 46 different times in Chapter 4 of the Draft Plan/DEIS. Some specific sites include Impacts to Soils (pages 4- 31, 32, 36, 37, 40, & 46) and Impacts to Special Status Species, specifically to desert tortoise (pages 4-141-143, 149, 155). For example, under Impacts to Special Status Species (desert tortoise), it states, "habitat loss and degradation and associated mortality of tortoises [results] from livestock grazing; and mortality or injury of tortoises results from trampling." It is also stated in Chapter 4 that, "cattle are known to trample tortoises and their burrows, but the frequency of trampling, or how this effects tortoise populations, is unclear."

J. It is illegal to feed cattle on public lands, so using weed-free feed is irrelevant.

Response: Feeding cattle on public lands with such feed as hay is not legal if it provides the bulk of the animals nutrition needs. Both livestock operators and other users of the public lands carry feed to care for cattle or horses, which are temporarily held in corrals for example, making it necessary to ensure, weed free status.

Supplemental feeding is legal, provided it is authorized. According to 43 CFR 4140.1(a) (3), the placing of supplemental feed on these lands without authorization, or contrary to the terms and conditions of the permit or lease, is prohibited.

This added language in the new CFRs clarifies that supplemental feeding made contrary to permit or lease terms and conditions is a violation even if the permittee or lessee is authorized to undertake some level of supplemental feeding.

K. Nowhere in the Draft Plan/DEIS is the information presented that would be needed to support a rational decision as to whether grazing on more than 80 percent of the Planning Area at proposed levels is consistent with the multiple-use mandate of FLMPA.

Response: Chapter 4 in the DEIS and FEIS discusses the impacts to other resources from livestock grazing. Where impacts would be significant, adjustment to livestock grazing would then be warranted. If this was the case, adjustments were made, either singularly or in combination through allotments being made unavailable for grazing, reduction in AUMs, or seasonal use adjustments.

L. The Plan does not offer a sufficient range of alternatives, including a necessary "no grazing" alternative.

Response: A no grazing alternative was analyzed in the Grazing EIS (1979) and carried forward through the Arizona Strip 1992 RMP/EIS. As a result, we did not consider it necessary to analyze such an alternative again. However, under Alternative B, the Draft Plan/DEIS did analyze greater restrictions or removal of livestock grazing on "sensitive areas," as evidenced by proposing removal of grazing from desert tortoise habitat. Additionally more and larger ACECs were identified with greater restrictions on grazing. We thus feel that a sufficient and appropriate range of alternatives has been analyzed.

M. The Plan does not follow NEPA Policy in completing a realistic economic study for grazing on the Arizona Strip.

Response: Please refer to the socioeconomic sections of the Proposed Plan/FEIS as they were expanded to include more information on the economic impacts of grazing.

N. Failure to protect the portion of Parashant that is managed by the NPS from livestock grazing demonstrates that the BLM has undervalued the resources and fails to sufficiently protect them to the extent of ignoring fundamental federal directives to do so.

Response: The BLM administers grazing on NPS lands in Parashant through specific MOUs that describe where grazing is authorized and how grazing is to be managed. If not already fenced, grazing allotments on NPS lands where livestock grazing would no longer be allowed would be fenced.

O. The Plan overly restricts grazing and thereby violates the intent of the Monument proclamations.

Response: The Proposed Plan has been developed with all uses and resources in mind to provide an appropriate balance of uses. Management prescriptions continue to be applied where necessary to mitigate impacts to resources and other uses. Therefore, it is felt that the Plan provides for a reasonable amount of livestock use and meets the intent of the proclamations.

P. No statutory or regulatory authority currently provides authority to the BLM to designate "Forage Reserves" from Taylor Grazing Act (TGA) grazing district allotments. The BLM should abandon attempts to create "Forage Reserves" in this planning effort

and, instead, follow congressional direction in permitting TGA grazing district allotments to valid ranchers for grazing purposes

Response: See response to Public Concern #105, on page 5-205. When a pasture or an allotment needs to be rested because of wildfires, land treatments, drought, etc., and to promote resource recovery, then the complete removal of livestock may be necessary. This may have drastic impacts to the local ranching operation on an individual bases, forcing the rancher to reduce his operation or completely remove all livestock from the range. This is where a forage reserve serves its purpose. By establishing forage reserves on the Arizona Strip, the BLM is attempting to address a couple of needs on a local basis by promoting healthy sustainable rangeland ecosystems in properly functioning conditions, and by providing for sustainability of the local livestock industry.

Public Concern #108 (GM4)

There were a number of comments related to proposed grazing policies at specific sites or in specific areas.

A. The Lees Ferry, Littlefield, and/or Mesquite allotments should have reductions in permitted numbers that correspond to reduced overall allotment size.

Response: We agree that the amount of use allowed in the Lees Ferry Allotment should reflect the area available for grazing and made that adjustment. AUM changes are now better defined in Chapter 4 of the Proposed Plan/FEIS. Changes of AUMs are in proportion to acreage available for grazing by allotment. Since the Littlefield and Mesquite Community allotments have not been reduced in size under Alternative E, there is no need to reduce the available AUMs.

B. Management prescriptions should be added for Parashant and/or Vermilion that include the reduction or elimination of livestock or recreation use from sensitive areas that harbor Monument objects needing protection or restoration.

C. Management prescriptions should be added for Paria Canyon Wilderness, Sand Cove, Coyote Buttes, Cottonwood Springs, and White Pocket that include the reduction or elimination of livestock or recreation use from sensitive areas that harbor Monument objects needing protection or restoration.

Response: There is nothing in the Plan to preclude making adjustments in grazing use or areas where it is determined that is necessary to protect Monument objects or resources.

D. Is grazing permitted in Cane Springs in the Preferred Alternative?

Response: Yes. Grazing would be also be allowed in Cane Springs under the Proposed Plan. However, grazing would be controlled with a fence to adjust timing and frequency of use. See

Table 2.3, page 2-41 (Cane Springs Restoration) in the Draft Plan/DEIS. Grazing and all associated facilities in the fenced Cane Springs riparian area of the Mud and Cane Allotment would be managed so that riparian resources are in or moving toward proper functioning condition.

E. In Alternative E, the un-allotted area at Marble Canyon changes to open. Is this a good idea?

Response: We agree that the area shown as un-allotted in the Lees Ferry Allotment should be shown as unavailable under Alternative E, and have made it so in the Proposed Plan/FEIS.

F. The boundary on the map for Pratt Tank area should show an un-allotted portion.

Response: The Pratt Tank Allotment does not contain an un-allotted area. There is an area adjacent to the allotment that is shown as un-allotted, but is really included in a USFS allotment and managed under an inter-agency MOU. This fact is made clear in the Proposed Plan/DEIS.

G. The Draft Plan/DEIS proposes no measures to eliminate, reduce, or mitigate grazing impacts on the Beanhole, Soap Creek, or House Rock allotments. Appendix 2.D is misleading in that it fails to reveal that all three of these determinations are currently under protest by the National Wildlife Federation and Joseph Feller, and the BLM has failed to issue final decisions addressing these protests.

Response: The Draft Plan/DEIS describes how grazing will be evaluated through the Arizona Standards and for Rangeland Health and Guidelines process in accordance with the grazing regulations. Appendix 2.D displays the status of the Standards and Guidelines evaluation, not the status of permit renewals. The decisions to renew the grazing permit on the Beanhole, Soap Creek, and House Rock allotments, not the evaluations, are under protest and are recognized. The final decisions will be issued at a later date.

H. Ephemeral extensions should not be authorized on the open portion of the Pakoon Allotment.

Response: Ephemeral extensions of use are determined based on a specific set of criteria outlined in the Arizona Standards for Rangeland Health and Guidelines for grazing management. Those conditions provide for plant needs and exist only when adequate moisture has been received to produce higher than normal production of annual vegetation. With these conditions met, there would be no justifiable reasons not to allow forage to be utilized.

I. A matrix, similar to the one used in the Proposed Upper Deschutes Management Plan and Final Environmental Impact Statement (2005), would be appropriate for the Arizona Strip Planning Area, and especially for Parashant and Vermilion, where conservation goals are prioritized over other multiple uses of public land.

Response: We appreciate the suggestion and information on the matrix. While we will not be using it in this Plan due to use of other methods we have employed in making decisions, there is no reason we cannot use this or a similar tool to help us as we go through the implementation phase of the Plan.

J. Grazing should not be allowed in Paria Canyon and the Buckskin Gulch areas.

Response: The Preferred Alternative in the Draft Plan/DEIS as well as the Proposed Plan/FEIS identifies that the Paria Canyon be unavailable for grazing use. This Plan covers only the portion of the Paria Canyon that is located in Arizona. The remainder of the Paria Canyon and Buckskin Gulch is located in Utah and administered by the Kanab Field Office of the BLM.

K. Fence maintenance in the Hack and Grama springs allotments should be emphasized due to the potential for livestock to access Kanab Creek on the National Forest and cause damage to heritage resources in Kanab Creek and Snake Gulch.

Response: The BLM and USFS do coordinate on day-to-day operations of grazing permits and maintenance of facilities and will continue to identify maintenance needs as well as the responsible parties, to ensure integrity of management prescriptions.

L. The Tuweep Allotment should remain open to livestock grazing.

Response: The Tuweep Allotment is identified available to livestock grazing as a forage reserve in the Preferred Alternative and Proposed Plan.

M. The area around Sand Hills, particularly portions with undocumented rock art (Joe's Tank), needs to be protected from grazing animals.

Response: There is nothing in the Plan to preclude making adjustments in grazing use or to areas where it is determined necessary to protect Monument objects or resources.

N. GCNRA lands should be closed to grazing.

Response: The BLM has no authority under this Plan to make a decision on GCNRA lands. The BLM administers grazing in accordance with national and specific MOUs that guide BLM-management of grazing, which is subject to values and purposes determinations by the NPS for GCNRA.

O. The Tassi and Pakoon areas closed in the 1998 RMP amendment should be evaluated for effects to vegetative composition and tortoise number. The areas should be closed to grazing.

Response: We agree that it would be important to evaluate the changes or lack of changes of vegetation and tortoise numbers in those areas identified unavailable to livestock in the 1998 RMP amendment. This will be done as funding and personnel will permit. It is proposed that these areas to continue to be unavailable to livestock grazing under both the Preferred Alternative and Proposed Plan.

P. No grazing should be allowed in Parashant.

Response: It is unclear as to whether the comment is referring to the Parashant Allotment or Grand Canyon-Parashant National Monument as a whole. The Parashant Allotment is designated available to grazing and proposed to be managed as a forage reserve because it is deemed an appropriate use of the area and does not preclude other uses or endanger Monument resources. The proclamation designating the Parashant Monument specifically provides for continued grazing use, in accordance with applicable laws and regulations.

Q. Tuweep should be managed as a forest reserve, but the phrase "or other actions that establish an AMP or livestock grazing system" should be dropped from the management action section.

Response: We assume that the comment was meant to say, "forage" reserve, not "forest" reserve. As a forage reserve, the Tuweep Allotment would continue to have authorized grazing. As such, there needs to be some form of management plan to define the grazing system to be used. With that assumption, we disagree that the language "or other actions that establish an AMP" should be removed.

R. The Parashant, Tuweep, and Pakoon allotments should be managed as forage reserves.

S. Is it legal for the Tuweep Allotment to be managed as a forage reserve?

Response: The Proposed Plan does designate the Parashant and Tuweep allotments as forage reserves, and we feel it is legal to manage them in this way. As 43 CFR § 4100.0 states, the BLM should manage the resource to "promote healthy sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangelands to properly functioning conditions;...to establish efficient and effective administration of grazing of public rangelands; and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands." In addition, 43 CFR§ 4100.0.8 states that "The authorized officer shall manage livestock grazing on public lands under the principle of multiple use and sustained yield, and in accordance with applicable land use plans." It also states, "Land use plans shall establish allowable resource uses,...use to be maintained, areas of use, and resource condition goals and objectives to be obtained." Finally, the BLM through these plans will set forth "general management practices needed to achieve management objectives." Also see response to Public Concern #105 on page 5-205.

T. The Parashant Allotment fence on the NPS boundary should follow the NPS boundary.

Response: The NPS has identified areas where livestock grazing would be authorized. Those areas where grazing would not be authorized would be fenced as necessary to exclude livestock. No fence currently exists exactly on the NPS boundary in the Parashant Allotment; however, it is NPS's intention to fence along the boundary, as funding permits. The allotment boundary has been modified to show only BLM lands are included in the allotment.

Public Concern #109 (GM5)

There were a number of comments related to OHV use by ranchers.

A. OHVs need to be used by ranchers in order to make range improvements and their use should not be overly restricted.

Response: It is recognized that there are legitimate needs for judicious cross-country travel to administer livestock use and associated support facilities. The Plan provides for OHV uses consistent with the operation of grazing allotments and associated management needs. These uses will be included in the AMP and/or the grazing permit.

B. The road maps are inaccurate and do not reflect actual OHV use on the ground.

Response: The BLM will continue to work on improving maps to display accurately road locations and OHV-use areas. The BLM would welcome any input into the process, especially, with specific details as to road locations and importance.

ISSUE # 5: RECREATION AND VISITOR SERVICES (RR)

Public Concern #66 (RR1)

A number of comments focused on non-motorized recreational uses; expressing the desire for increased opportunities for hiking, horseback riding, back packing, nature watching, and the like. Many of these comments also stressed the need for the BLM and NPS to limit motorized forms of recreation, especially in the Monuments, and provided reasons for doing so. Many of these asked the BLM and NPS to restrict OHV use to existing/designated roads or to eliminate OHV use altogether, with an emphasis in eliminating OHV play areas.

Response: SRMAs (with associated RMZs) in each BLM field office represent an effort to better manage demonstrated recreation demands by targeting areas for more definable and measurable recreation-tourism strategies and by focusing on the appropriate recreation-tourism market (who we are targeting and where they come from). By defining the various recreation niches within

those targeted areas and building a specific management framework of appropriate objectives, settings, activities, and actions for each RMZ, over time, opportunities for various specific recreation experiences would be “produced,” as well as the diverse benefits that those experiences may spin-off. In many RMZs, such management is prescribed with an emphasis on more non-motorized forms of recreation activities, whereas other RMZs emphasize motorized recreation. RMZs throughout the Planning Area that include non-motorized recreational uses and associated experiences and benefits as targets are Parashant Wildlands (Parashant SRMA), Cliffs and Rims (Sandhills SRMA), Coyote Buttes (Paria SRMA), Paria Canyon (Paria SRMA), Canyons and Mesas (St. George Basin SRMA), Virgin River (Virgin River SRMA), and Virgin River Gorge Scenic Gateway (Virgin River SRMA). In ERMA, dispersed recreation opportunities for non-motorized forms of recreation activities have and would continue to exist, albeit in an unstructured, custodial recreation management format.

Motorized forms of recreation area are already constrained across the Planning Area by many other legal, regulatory, and plan requirements. See Travel Management (OHV Area Designations, Allowable Uses, etc.), Special Status Species (Allowable Uses), and Special Designations (ACEC, Wilderness, OSNHT, etc.) sections in the Proposed Plan/FEIS.

With regard to motorized use/OHV area designations, the overwhelming majority of Planning Area (99.7 percent) is designated as either closed or limited to designated roads and trails under the Proposed Plan. Only 2.5 percent (7,181 acres) had been proposed for open OHV areas under the Preferred Alternative in the Draft Plan/DEIS. In comparison, the Proposed Plan in the FEIS proposes 976 acres, or .0003 percent of the Planning Area for Open OHV areas.

As stated above, OHV Open areas (i.e., play areas) have been modified in the Proposed Plan/FEIS. This is due in large part to reassessing the capability of the areas proposed, in light of other resource conditions and/or constraints (See response to Public Concern #1 A, page 5-63).

A. Because OHV use can lead to severe damage to natural and cultural resources due to the sensitive terrain and threatens natural quiet and the sense of solitude; however, such use only represents a single and rather small user group.

Response: Where OHV use occurs off designated routes, the potential for damage to natural and cultural resources is, indeed, very great. Not all terrain is “sensitive”; many surfaces can be “durable” with regard to OHV travel (i.e., rock, sandy wash bottoms, authorized roads and trails.) Some types of OHV create more noise than others. Traffic data on several of the most-used primary roads in Planning Area show fairly low Average Daily Traffic numbers (See Chapter 3, Travel Management). Such low traffic volume passing a given point would add motor sounds to the immediate setting for very few minutes per day. The remaining time, absent of active motor sounds from roads and trails, would represent as nearly as possible, “natural quiet.” Given the minor to negligible effect on primary roads, such effects would be negligible to insignificant on the much-less-traveled secondary and tertiary roads. OHV uses are actually quite diverse and involve a great many users and a number of user groups. Types of OHV use

range from sightseeing or driving for pleasure in standard-size vehicles, such as SUVs or pickup trucks; to accessing non-motorized opportunities; to specialized vehicle activities, such as rock crawling or motorcycle racing; to OHV touring and jamborees; to pleasure riding of motorcycles, OHVs, or mountain bikes.

B. Because there currently is a sufficient number of miles of roads open to OHV use, both within and outside the Arizona Strip District.

Response: Many roads, primitive roads, and trails do currently exist. “Sufficient” is a relative term, depending on viewpoint. While many roads exist, enhanced recreation opportunities for motorized recreation may not. For example, OHV use of standard vehicle routes does not produce enhanced opportunities in the way that a trail system designed and developed for OHVs would. It is similar to hiking down a wide road. While it is possible to hike down such a road, the road width does not produce a high quality recreation opportunity in the way that a single-track trail would.

C. Because we should protect the wildland values/wilderness characteristics of the Arizona Strip District.

Response: Management objectives, prescriptions, and allowable uses sections of various resources, such as wilderness, special status species, and wilderness characteristics, do emphasize protection and/or maintenance of natural values. As a result, public motorized access would be constrained in many areas or, in the case of designated wilderness, not allowed.

D. Because it is increasingly difficult to find area that are peaceful and quiet; removed from the noise and smells associated with motorized recreation (especially OHV use).

Response: In urban interface areas, this can be true, especially in late afternoon or on weekends. However, due to the remote nature of the Planning Area and the relative small numbers of visitors at any given time, peace and quiet (from OHV sounds) are still abundant (also see response to Public Concern #66 A on page 5-223).

E. Because Monuments were not set aside for motorized vehicle use but for protection of their fragile resources.

Response: True, the Monuments are set aside for protection of their scientific and cultural objects. However, the proclamations that created the Monuments also state that their creation and long-term management is in the public interest. Among other things, public interest may include use and enjoyment of the Monuments by current and future generations (see Purpose and Significance Statements for the Monuments in Chapter 1 of the DEIS and FEIS). Motor vehicle use is critical for visitors to access and enjoy the Monuments. Additionally, the proclamations themselves attribute the high quality and condition of Monument objects to the existing “limited

travel corridors” (i.e., the existing road network). Therefore, the current travel infrastructure can be deemed acceptable with regard to resource protection.

F. Because law enforcement levels are currently not sufficient enough to control/monitor use.

Response: Under the assumption that law enforcement cannot effectively enforce rules, it would be difficult to increase opportunities for one group and decrease them for another. In other words, it is just as difficult to control/monitor non-motorized use as it is to control/monitor motorized use.

Public Concern #67 (RR2)

A number of comments expressed support for motorized forms of recreation and need for additional motorized opportunities. Many of these focused on the need to create new OHV trails, more open areas for OHV use, allow the use of ephemeral washes, and consider event areas and guided tours. They generally felt that additional recreation opportunities are needed in order to meet the demands of a growing population along with an increase of off-road enthusiasts, and the lack of off-road areas available to the public in the region.

Response: See initial response to Public Concern #66 on page 5-223. RMZs throughout the Planning Area that specifically target motorized recreational uses and associated experiences and benefits include Shivwits Frontier (Parashant SRMA), Vermilion Cliffs (Gateways SRMA), House Rock (Gateways SRMA), The Uplands (Sand Hills SRMA), St. George Basin Rural Park (St. George Basin SRMA), Lime Kiln/Elbow Canyons (Virgin Ridge SRMA), Fredonia Rural Park (Fredonia SRMA), and Shinarump Cliffs (Fredonia SRMA). In ERMAs, dispersed recreation opportunities for motorized forms of recreation activities have and would continue to exist, albeit in an unstructured, custodial recreation management format.

As for creating new OHV trails (see detailed responses under Issue #1 Access/Travel Management), the actual planning and delineation of such trails on the public lands would typically be an implementation action, not a land use plan-level decision. In the Recreation and Visitor Services DFCs, the stage is set for OHV trail and Open area management, especially for the Rural, Backways, and Specialized TMAs. Such future trail and OHV Open area management would be coordinated between Recreation and Travel Management. In Table 2.15 of the Draft Plan/DEIS, under E.1.b. (Trail System Designations), the trails listed are primarily trails that already exist and E.1.b. merely states their status and name. However, by adding the conceptual High Desert Trail and the Hurricane and Kanab-Fredonia trail proposals to that table under “Other,” the Plan would then acknowledge their possible consideration during Plan implementation. It does this without locking in a set of routes/trails that will not have undergone site-specific analysis and that may, during later site-specific planning and evaluation, be determined to not be the best routing for the proposed systems. Also, section II.B.1.a. of Table 2.15 allows for the development of new routes (roads and/or trails) under various circumstances.

Finally, the various trail proposals coming in after the ROD would most likely be in conformance with the DFCs and specific DFCs for TMAs and the recreation ERMA management. The DFCs and the reference under E.1.b. should set the stage for future evaluation and delineation of these kinds of trails.

In numerous cases, ephemeral washes do contain portions of roads or trails that are proposed for public use as part of an authorized system. The unlimited use of ephemeral washes for motorized recreation would currently only apply in areas proposed as Open OHV areas. While the contention that vehicle tracks in washes disappear with the next rain storm is somewhat valid, many examples can be documented of vehicle tracks and impacts that persist from year to year, most notably on the interior, elevated sides where the drainage turns and vehicles have shortcut the turn. The general durability of washes is not generally in doubt. However, the contribution to increased soil loss and the propensity and potential for some users to leave routes (and washes) to explore off-route (cross-country) is greatly increased as the number of access routes is increased. Cross-country vehicle tracks generally do not disappear with the next storm; conversely, they tend to "invite" the next uninformed rider looking for new adventure to drive off-route as well. Management is already greatly challenged with keeping motor vehicles on existing, authorized routes; allowing the unlimited use of washes could exacerbate management and resource protection concerns a hundred-fold. Allowing travel in all washes would also inevitably create conflicts with livestock grazing operations with regard to fences. A designated route system can reduce or eliminate OHV use/fence conflicts with the installation of gates and cattle guard structures. Use of all washes for motorized recreation would make these provisions unrealistic (i.e., too many gates; potentially one in every wash).

Under the Proposed Plan, motorized events, such as rallies, jamborees, etc., would be considered on a case-by-case basis within the Planning Area. Likewise, guided tours of various types (OHV, 4WD, mountain bike, etc.) are considered on a case-by-case basis, except in OHV Closed area. Competitive events would not be considered in wilderness or NPS proposed wilderness. Only motorized speed events would be limited to use of the identified motorized speed event area. Therefore, with the exception of motorized speed events confined to one area and competitive events excluded from specific designations, the majority of the Planning Area would remain available for the consideration of a wide variety of event and tour possibilities.

As for the need for additional recreation opportunities to meet growing population needs, the identification of several new SRMAs, most containing a more specific emphasis on motorized recreation via certain RMZs, has been intended to help meet the need. (See initial response to Public Concern #66 on page 5-223) In addition, the very large acreage of the Planning Area has and would continue to provide for an increased demand for dispersed recreation. Dispersed, unstructured recreation opportunities (i.e., ERMAs) are really the primary recreation niche that the BLM, as an agency, provides. Much of the opportunity already exists. Communicating the opportunities and providing suitable information for visitors to pursue dispersed recreation activities is paramount to the "recreation marketing" actions that have been proposed. If dispersed, unstructured recreation opportunities are the primary "additions" needed for growing

communities, then the Plan has set the stage for the “custodial management” that, by policy, must be the hallmark of managing ERMAAs.

As for a lack of off-road areas available, if off-road is taken literally to mean Open OHV areas, then there are, within the region surrounding the Planning Area, five Open Areas (Las Vegas Dunes, north of Las Vegas; Sand Mountain, east of St. George; Sand Hollow, north of Motoqua; Coral Pink Sand Dunes, west of Kanab; and Little Sahara, west of Nephi, Utah). Not all landforms are conducive to designation as Open OHV areas. The Draft Plan/DEIS was modified. In the FEIS, the Proposed Plan proposes 976 acres of Open OHV as part of a motorized recreation emphasis for two RMZs (Fredonia and St. George Basin).

A. Because area was intended for multiple use and most users (up to 96 percent of visitors) engage in multiple-uses that involve motorized access and/or mechanized recreation.

Response: The management of many (multiple) uses is predominant in the Plan. While multiple use does not necessarily mean every use on every acre, the Proposed Plan presents a balanced approach to resolving the issue of access and motorized/non-motorized recreation issues. (See initial response to 66 on page 5-223) The wide variety of roads, primitive roads, and trails proposed for management as the travel system do provide many opportunities for diverse forms of motorized recreation in multiple settings. Taken together with the added variety of opportunities for motorized recreation on federal lands adjacent to the Planning Area, the 1,781 miles of routes proposed as the travel system provide access for vehicle exploring, guided tours, events, sightseeing, hunting, and many other activities. This system also provides diverse access to other federal lands and the recreation opportunities they produce.

B. Because additional primitive or semi-primitive, non-motorized recreation settings would threaten wildlife conservation activities and responsive wildlife-dependent recreation.

Response: The overwhelming majority of lands proposed for management of certain recreation settings to support the production of specific recreation experience and benefit outcomes in various RMZs already exist in such a condition that they meet the criteria described for primitive, semi-primitive, non-motorized, as well as semi-primitive motorized and roaded natural (See Appendix 3.H). In other words, the Preferred Alternative in the Draft Plan/DEIS would do little to change the face of the existing recreation settings--these settings already exist. The roadless or nearly roadless nature is an existing condition. The Preferred Alternative merely prescribes the maintenance of those conditions. However, for the settings in question, the Preferred Alternative does not describe the prescribed settings as clearly as is possible. It should be noted that each attribute of a setting component, in this case the physical setting (remoteness, naturalness, facilities) may be described and/or prescribed as a suitable range, i.e., P to SPNM. The more generic reference in the RMZs in question erroneously gave the impression of total roadlessness. Therefore, the setting text is modified in the Proposed Plan/FEIS to state for

Parashant Wildlands RMZ, “*Physical: Primitive to Roded Natural, with regard to remoteness...*” (as several areas in the southern portion of the Monument meet the Primitive criteria) and for Coyote Buttes RMZ “*Semi-Primitive Non-Motorized to Roded Natural,*” with regard to remoteness.” Additionally, to reduce the potential for confusion, Appendix 3.H was modified by deleting the “Overall Characteristics” reference that preceded the description of each specific setting attribute. Finally, to address another aspect of the concern, wildlife conservation and associated recreation activities are not necessarily precluded by the plan decisions to maintain various settings. Maintenance of settings does not usurp jurisdiction, role, or responsibility of the AGFD to manage wildlife. Numerous roads associated with wildlife catchments or primitive roads have been constructed within such areas over the life of the current Plan. Even within statutory wilderness, wildlife management operations have continued, complete with the construction of new or renovated catchments. Like any project proposed on federal lands, an EA would evaluate the potential impacts of new wildlife structures on other resources, values, and uses when they are proposed during the implementation of the RMP. With regard to SRMAs and the settings prescribed for RMZs, impact analysis would consider the potential effect a new structure or action might have on the prescribed recreation setting. The potential impacts to the local prescribed settings would then be evaluated to determine if they would or could then inhibit, prohibit or eliminate the ability of the setting to produce the targeted recreation opportunities. If targeted opportunities and benefits were possible with the project, such structures and actions would be deemed compatible with the setting. Mitigation measures could likely be developed to ensure and/or enhance the likelihood of compatibility. This is no different from the commonplace evaluation, analysis, mitigation, and determination of land use plan conformance that takes place in an EA with regard to most resources or uses. Additionally, in most locations where such settings already exist, it is in large part due to the existence of P and SPNM settings that wildlife dependent recreation activities are possible.

C. Because goals for the Planning Area (page 1-7) should specifically include a statement for motorized opportunities such as motorized exploration or adventure.

Response: Goal #1 does not mention modes of access related to recreation. It does generically provide for a wide variety of recreation exploration and adventure activities (both motorized and non-motorized) by stating “*Visitors will have the opportunity to experience adventure, beautiful vistas, retreat from the pressures of modern life, and a sense of discovery through a variety of appropriate and sustainable backcountry activities.*” It is possible that the inclusion of the term backcountry will be taken to mean non-motorized, though the BLM/NPS used the term to mean remote or non-urban. Therefore, the wording in the Proposed Plan/FEIS was changed to say “sustainable outdoor recreation activities.”

D. Because motorized forms of recreation are necessary for those who cannot reach backcountry areas by foot, horse, or bicycle (i.e., the aged, handicapped, etc.)

Response: See initial response to Public Concern #66 on 5-223, paragraph 1; Public Concern #67 on 5-227, paragraph 5; Public Concern #67A on 5-228; and Public Concern #3 A, E, I, J, L, and M, beginning on page 5-67.

E. Because excessive amounts of lands have already been closed to motorized vehicle use.

Response: “Excessive amounts” is an unquantifiable opinion. Under the Preferred Alternative in the Draft Plan/DEIS, the Planning Area would contain 455,925 acres (14 percent) of BLM and NPS lands in Closed OHV designation and 2,866,785 acres (86 percent) of BLM and NPS lands in Limited or Open OHV designations, where motorized recreation could occur on the over 6,715 miles of routes open to public use.

F. Because accessing the area by OHV has been an historic means of access for individuals and families.

Response: The Proposed Plan recognizes all forms of access needs and provides adequate to enhanced access (See Public Concern #67 E for numbers).

G. Because the majority of users should not be punished for the acts of a few individuals who do the damage--these people should be dealt with individually.

Response: The majority of potential route designations that reduce public motorized access are due to resource protection mandates, not necessarily due to specific resource damage. The Plan has to be proactive in its overall management with regard to special/sensitive resources. At the same time, the Plan endeavors to be proactive with regard to the need for public motorized access for a variety of recreation activity types. Monitoring of overall conditions and managing adaptively based on that monitoring will, over time, be the key to managing access.

H. Because closing roads would destroy the reason that people enjoy this area - for the sense of history, adventure, and exploration.

Response: While some road closures will reduce the overall mileage of routes available for public use, the Proposed Plan’s designated travel system will continue to provide more than adequate access for dispersed recreation involving history, adventure, and exploration. Also, see response to Public Concern #67 E above.

Public Concern #68 (RR3)

An array of comments dealt with recreation rules, requirements, and restrictions. Some people requested that the BLM and/or NPS should impose additional restriction and some requested additional clarification or coordination in implementing restrictions.

Response: As a general rule, visitor use rules above and beyond those found in 43 CFR 8360 and 36 CFR Parts 1-7 are developed by local offices as “supplemental rules.” They must undergo public involvement and notification prior to being instituted. Typically, such rules occur during plan implementation and are not usually generated as part of the land use plan.

They should be developed as a result of evaluating monitoring data (physical, social, administrative conditions, etc.), both in the short term and over time. If the “trend” of the monitoring data reveals a downward or negative tendency in conditions, then a deeper investigation into the cause(s) of the trend would be carried out. If the development of new visitor-use rules is deemed to be a remedy for the resource/social degraded condition(s), then such rules could be developed via the processes described in 43 CFR 8360 and/or 36 CFR Parts 2 and 71. Typically, other, more light-handed methods could be chosen to remedy the deteriorating conditions first. If such methods were not successful, actions that are more drastic would be taken, such as new visitor use rules or limits. (See Table 2.14,I.C.2.a.i., second action, page 2-153, in the Draft Plan/DEIS). The use of LAC concepts described in the Preferred Alternative (See Table 2.14,I.C.1.d.i.) would establish a number of key indicators of physical, social, and administrative change, but also establish appropriate or acceptable standards or thresholds for each indicator. Such standards would not be rules, but would serve as a gauge or measure to which monitoring results are compared. Monitoring data that consistently approaches or exceeds the standard would be considered a downward or negative trend, triggering the deeper investigation into the cause(s). Merely establishing new rules without data to support such decisions would be considered arbitrary. Likewise, it would be arbitrary to remove existing rules and requirements that are critical to producing targeted recreation opportunities or that are needed to mitigate recreation impacts to sensitive or protected resources.

A. Require campers to bring port-a-potties.

Response: (See initial response to Public Concern #68 above) Port-a-potties or other appropriate human waste disposal systems are already required for most activities authorized by Special Recreation Permit (SRP). This includes a variety of recreation activities ranging from competitive speed events, ATV jamborees, tours, organized groups, horse endurance events, etc. In Paria Canyon, portable, disposable personal waste bags are provided, but not required. For many SRPs involving recreation activities taking place in more remote roadless areas, proper Leave No Trace methods of waste disposal are emphasized. Leave No Trace methods are also emphasized for general recreation (un-permitted) activities. In higher use areas, BLM toilet facilities are provided.

B. The BLM and NPS should closely coordinate restrictions with other agencies (e.g., AGFD).

Response: The Proposed Plan has been revised (in Administrative Actions) to clarify the fact that any new rules, regulations, etc., would always involve coordination and input from other affected agencies, not just the public. The statement developed as a result of meeting with AGFD was also inserted in the interrelationships section of Chapter 2 in the Proposed Plan/FEIS.

C. The BLM and NPS need to clearly identify the differences between the two agencies in terms of rules and regulations relating to recreation, especially those relating to hunting.

Response: Because BLM and NPS regulations are derived from different enabling laws, proclamations, etc., there are sometimes very different visitor use rules. While the Recreation and Visitor Services section in Chapter 3 of the Draft Plan/DEIS does state that there are differences (primarily for Parashant where joint BLM/NPS management is mandated by proclamation), it does not elaborate on what those differences are. Because there are many regulations that affect visitor use, Chapter 3 cannot list them all. Therefore, Chapter 3 (pages. 3-151, 153, 155, 158 in the Draft Plan/DEIS) was modified. The Proposed Plan/FEIS now includes references to published visitor use regulations (i.e., 43 CFR 8300 and 36 CFR 2). It should be noted that the Preferred Alternative in Table 2.14 also provides a listing of the "Allowable Uses" concerning visitor use. Many of these would be common to all planning areas, while some would only apply in Parashant. Within the sections concerning Parashant, any decisions that would apply only to NPS lands are described as separate decisions.

D. Firearms, fires, and mountain bikes should be banned.

Response: (See initial response to Public Concern #68 above). In addition to the process described in response to Public Concern #68, firearms, fires, and mountain bikes are just a few of the activities or behaviors that may be regulated to some degree already. For example, in designated wilderness areas, mountain bikes, along with motorized vehicles and mechanized equipment, are prohibited. Campfires may be (and typically are on an annual basis) limited or prohibited during drought or other severe fire conditions. Use of firearms is regulated by state statutes and BLM/NPS public safety regulations (43 CFR 8365; 36 CFR 2.3), as well as by any established supplementary rules developed at the local agency level.

E. Camps and camping must be controlled totally, including "no fire" restrictions.

Response: (See initial response to Public Concern #68 above). Fire weather conditions change throughout the year. As such, campfires, during low to moderate fire weather conditions may pose no threat. Fire restrictions are initiated as needed during moderate to high fire weather conditions.

F. It should be clarified that group size and visitor use limits will continue for Paria Canyon, Buckskin Gulch, Wire Pass, and Coyote Buttes, in addition to any additional areas in Vermilion with significant values, such as White Pockets.

Response: The Preferred Alternative clearly addresses the former portion of the concern. The latter portion (regarding other areas in Vermilion) is also addressed by several other management actions related to application of visitor limits, LAC, monitoring, etc., found on page 2-153, 155 and especially 2-156, "*Visitor limits, regulations, or restrictions could be instituted and/or adjusted when monitoring of resource and social conditions indicate a trend toward unacceptable resource and social changes brought about by such use.*"

G. Under "Recreation Management Actions," replace the sentence, "Wilderness management objectives as express in individual wilderness management plans would be

complemented by recreation management activities adjacent to wilderness areas," with "Recreation activities adjacent to wilderness areas will be permitted and managed consistent with the wilderness management objectives established for the wilderness area."

Response: Suggested wording would apply wilderness management objectives to non-wilderness lands. However, we agree that the original language in the Draft Plan/DEIS is awkward. In addition, either statement could be construed as managing "buffer zones" around designated wilderness areas, which BLM cannot, by policy, prescribe. Therefore, the decision is deleted.

H. The lands should be closed to recreational shooting and/or hunting due to the re-introduction efforts for the California Condor and potential for lead poisoning. If shooting is to be allowed, then non-lead ammunition should be required.

Response: See response to Public Concern #68 above with regard to establishing new visitor use limits or rules. As for closing the Planning Area to firearm hunting altogether, regulation and management of hunting is the responsibility of AGFD. The decision regarding non-lead ammunition on page 2-154 of the Draft Plan/DEIS was clarified in the Proposed Plan/FEIS to state, "Voluntary use of non-lead ammunition would be encouraged." The USFWS signed an agreement with the Coalition of County and Local Governments, specifying that current and future land, water, or air uses and activities should not be restricted due to the designation of the nonessential experimental population, and/or the presence or potential presence of California Condors. While the BLM and NPS were not signatories to this agreement, it is our intent to continue to honor its precepts. For the public, this means that the BLM and NPS would project applicants of any mitigation or stipulations that could help reduce anticipated take, but these would not be mandatory.

I. Vehicle camping sites should be identified and limited to areas where resource conflicts or impacts are lessened.

Response: The Preferred Alternative does limit camping to "existing sites where previous camping use is evident" along designated routes in the Monuments. Most sites are readily identifiable as campsites without signing, however, some site marking may be needed for sites where it is unclear. The fact that the Proposed Plan proposes camping in existing only emphasizes the diminished potential for resource conflicts and/or impacts by using sites where initial impacts (which are typically the greatest impacts) have already taken place. However, where existing sites may overlay or cause a significant impact to a sensitive resource, a course of action should be stated. Therefore, the Proposed Plan/FEIS was modified to state, "*Vehicle camping along designated routes would be allowed only at existing sites where previous camping use is evident. However, existing sites that overlie or are causing significant impacts to sensitive resources would be closed and new sites could be made available in locations where resource impacts are lessened.*"

J. Fire pans should be mandatory for dispersed camping.

Response: (See initial response to Public Concern #68 above). In addition, Leave No Trace concepts are part of the information regularly made available to visitors.

K. Collection of dead and down wood for campsites should not be allowed near frequently used camping sites, or it should be stipulated that collection would be subject to ample supply in designated gathering areas, resource impacts identified through monitoring, and fire restrictions.

Response: Such a requirement would be unrealistic to enforce. Additionally, the concern may not be a resource issue warranting such a drastic requirement.

L. Collection of antlers on BLM lands is not consistent with collection policies in the Monuments (p. 2-155).

Response: Recreational collection of antlers is allowed on all BLM lands, including the BLM-administered portion of Parashant. On NPS lands, antlers and other animal parts are considered objects. Recreational collecting of these objects is not allowed. Wherever possible, the BLM and NPS made decisions consistent across agency boundaries. This is one of the few decisions that differ.

M. It should be stated that "Recreational activities would be limited (instead of "could" be limited), and possibly restricted, in special status species and other sensitive habitats."

Response: Using "would" would be inaccurate. The language on page 2-153 is the shortened version of the original language on page 2-78. The original language uses "could" rather than "would." The use of "would" would mean that visitor limits and restrictions would apply immediately. The use of "could" reflects the management discretion available in the future, were monitoring and evaluation of resource conditions to reveal a need to establish limits and restrictions.

N. The word "speed" should be removed from the stipulation "No motorized speed events would be authorized in the Monuments."

Response: The exclusion of all motorized events from the Monuments would be arbitrary. Events such as the ATV Jamboree, a 3-day organized event under permit that travels along existing roads in groups of no more than 25 vehicles, would be precluded from proposing any use in the Monuments. On the contrary, analyzing proposed motorized non-speed events in Monuments would include (but not be limited to) evaluating the proposed use against the prescribed recreation setting prescriptions for the affected RMZ. If the proposed use was determined to be compatible with the affected setting prescriptions (and other

resource/Monument concerns), and anticipated impacts were able to be mitigated, then authorization of such an event would not be considered to pose a threat to the protection of Monument objects, and the like.

O. The word "could" should be replaced with "will" in the stipulation, "The current special area permit and fee requirements for Paria Canyon, Buckskin Gulch, Wire Pass, and Coyote Buttes could continue..."

Response: Until the ROD is written, decisions must be written in a provisional manner. However, the intent of the proposed decision is to continue the current permit system for the area in question. Therefore, the proposed decision in the Proposed Plan/FEIS was revised to use "would," rather than "could."

P. Motorized or mechanized vehicle use should be either closed or limited to designated roads and trails in listed species habitat and recreational competitive events should not be allowed in listed species habitat.

Response: Listed species habitats that are proposed for ACECs in the Preferred Alternative are also proposed for a "Limited to Designated Roads and Trails" OHV area designation. As for recreation competitive events in such habitat, case-by-case NEPA analysis would determine the potential effects of a proposed event. The Preferred Alternative already contains various management decisions (see pages 2-27, 2-78, 2-91, 2-215, etc.) that provide criteria by which a proposed event's anticipated effects may be evaluated in listed species habitat and a decision rendered.

Q. Does the Arizona Recreational Use Statute apply to the Department of the Interior (Title 33, Chapter 12, Article 1)?

Response: The comment does not address a proposed decision in the Draft Plan/DEIS related to a planning question/issue. The applicability of the statute in question would likely be decided by an appropriate adjudicator on a case-by-case basis as complaints arise.

Public Concern #69 (RR4)

A number of respondents requested that the BLM/NPS define or further clarify specific terms or phrases, or to clarify specific policies/projects that relate to recreation management.

A. "Recreation Management Actions: Signing and Facilities" should be replaced with "Recreation Management Actions: Signing and Recreation Facilities" on page 2-15.

Response: While the format and logic of Table 2.14 makes it evident that the various subheadings fall in the "Recreation" realm, the addition of "Recreation" as suggested may help clarify that only recreation, not administrative or other facilities are the focus in the Recreation

and Visitor Services section of the Plan. Suggested changes were thus made in Chapter 1, 2, and 3 of the Proposed Plan/FEIS.

B. Spell out "TMAs" where it first appears (p. 2-144; table 2.14).

Response: Suggested change was made in the Proposed Plan/FEIS.

C. Clarify "emergency and administrative purposes" under "Recreation and Visitor Services" (page 2-143) to include AGFD wildlife management.

Response: The statement developed as a result of meeting with AGFD and was inserted in the Chapter 2 interrelationships section of the Proposed Plan/FEIS.

D. Clarify how recreation allocations & prescriptions would affect wildlife management projects.

Response: See response to Public Concern #67 B on page 5-228.

E. The definition of "trail" needs to be clarified so it is clear that it does not exclude motorized recreation.

Response: National guidance in IM No. 2006-173 provided a slightly modified definition for "trail," which does contain provision for OHV forms of transportation," although it does go on to clarify that trails are "not generally managed for use by four-wheel drive or high-clearance vehicles," implying trails would be the appropriate category in which motorcycle use would fall. The same guidance also created a new linear feature asset or "primitive road." As defined, this asset would be "managed for use by four-wheel drive or high clearance vehicles," which would accommodate OHV and the larger classes of vehicles, such as SUVs, pickup trucks, etc. Both definitions, as well as the updated definition for "road," have been added to the Glossary of the Proposed Plan/FEIS.

F. Clarify how the categories "authorized" and "unauthorized" airports and airstrips were determined and who makes the final decisions.

G. Clearly state which airstrips are being considered for closure.

Response: See response to Public Concern #9 A on page 5-94.

Public Concern #70 (RR5)

An array of comments pointed out weaknesses in the impact analysis relating to recreation, or that adequate recreational data was lacking to conduct unbiased impact analysis.

A. Recreation impacts to plants can include much more than what is described in the document.

Response: We agree that some of the proposed actions in the DEIS and FEIS may lead to adverse affects to listed species and/or their critical habitat. Many such effects are the result of non-permitted activities over which BLM has little or no management discretion. For authorized recreational activities, effects to listed plants are addressed in detail in the biological assessment for section 7 consultation under the ESA on the land use plan. Additional conservation measures have been, and will continue to be developed to minimize impacts to listed species.

B. Compared to wilderness visitor data, multiple-use visitor data does not exist or is under-stated.

Response: It is unclear how the commenter concluded that visitor use data is bias toward wilderness. Closer review of the actual comment revealed an assumption that all wilderness visitors have to “sign in.” While visitors to the specific areas of Paria Canyon and Coyote Butte are required to obtain a permit, in no other portion of the Paria Canyon/Vermilion Cliffs Wilderness or any of the other seven wilderness areas are visitors required to have a permit. Several wildernesses have visitor register boxes at which visitors voluntarily sign in. Several wilderness areas have no registers. Conversely, various non-wilderness recreation sites have visitor registers. Finally, many of the primary routes on the AZ Strip have traffic counters that tally all users crossing into the Planning Area. Occasional observations are made to verify the types of recreation users arriving. These observations, correlated to the counters, help to estimate the number and types of visitors. These data are entered annually into the Recreation Management Information System (RMiS). Occasional surveys of visitors also help to define the types of visitors, not just wilderness visitors. Other than the Paria Canyon/Coyote Buttes area, most visitor use in the Planning Area is non-wilderness use, according to the data.

C. A better description of the types of recreational activities occurring in the Virgin River is necessary to understand the impacts to fish.

Response: Recreation that could affect fish in the Virgin River are primarily dispersed, non-permitted activities such as swimming, wading, bird-watching, kayaking, mountain biking, and a variety of social activities. Most such activities occur during the spring and early summer months. Water levels are frequently too high and/or too cold in the winter and early spring and air temperatures are too high in late summer for such recreational activities. We provided only a cursory discussion of impacts from such recreation activities in the Draft Plan/DEIS because such activities are non-permitted, casual use recreation and only have a negligible effect on native fish populations. The DEIS and FEIS include a variety of conservation measures that further reduce the potential for adverse affects from these types of activities on native fish and wildlife populations. Specific impacts to listed fish species from authorized or permitted recreational uses are addressed in detail in the biological assessment for section 7 consultation under the ESA on the land use plan.

D. There are visitor use statistics available for the national forest that strongly supports motorized forms of recreation. Such statistics are not available for BLM lands.

Response. BLM recognizes motorized forms of recreation as indicated by the RET process used in this Plan.

E. A reasonable test of significance of impacts from motorized closures on motorized recreationists is lacking (Suggested indicators for evaluation are presented under 1 through 6 below).

Response: Chapter 4 recreation analysis in the Draft Plan/DEIS was based on the effects that all potential plan decisions could have on recreation settings and opportunities, as well as the potential 'spin-off' effects to recreation experiences. Specifically, effects on motorized recreation opportunities and experiences are stated throughout the Chapter 4, Impacts to Recreation section.

F. Where else can motorized recreationists go within a reasonable distance and with equal recreation value?

Response: Regional recreation opportunities is partially covered in Chapter 3 of the Draft Plan/DEIS (See 3-145, reference to regional opportunities); however, additional region information was incorporated in the Proposed Plan/FEIS.

G. Do motorized recreationists have an adequate selection of the recreational resources with the proposed motorized closure(s)?

Response: Assessing what is 'adequate' is somewhat subjective, as adequacy is defined differently for each visitor. However, the Preferred Alternative in the Draft Plan/DEIS does attempt to provide a wide variety of recreation opportunities; some structured and focused in SRMAs and their RMZs, and many that will allow for unstructured, diverse recreation activity opportunities in the ERMA. Chapter 4 was revised in the Proposed Plan/FEIS to clarify the anticipated impacts to recreation opportunities. See also response to Public Concern #67 above.

H. What is the balance of recreational opportunities in the area and region as demonstrated by the information developed from the outline shown in Table 1?

Response: Chapter 3 and the content of Chapter 2 of the Draft Plan/DEIS depict the balance. Chapter 4 in the Proposed Plan/FEIS restates this balance as an anticipated effect. The Proposed Plan, especially in regards to the SRMA/RMZs, focuses on both non-motorized and motorized use and the ERMAs, in general, provides adequately and flexibly for the public (e.g., new trails possible, focused projects to serve motorized recreationists). See also page 3-145, 146 in the Draft Plan/DEIS and response to Public Concern #67 on page 5-226

I. Are the existing motorized recreational opportunities sufficient for the needs of the public?

Response: See response to Public Concern #67 on page 5-226.

J. Are there documented user conflict and can the recreational resources be reasonably shared?

Response: Though no official complaint file exists, some users of all types have made their dissatisfaction known over the years. We believe the implementation of the Proposed Plan will contribute to reducing user conflicts, particularly in urban interface areas. Chapter 4 was revised in the Proposed Plan/FEIS reflect this. See also responses to Public Concerns #66 and #67 above.

K. What are the cumulative effects of this motorized closure combined with all other motorized closures?

Response: Changes were made to the Cumulative Impact section of Chapter 4 in the Proposed Plan/FEIS for changes in opportunities, not just settings.

L. The continued authorized use of existing backcountry landing strips are not addressed in the EIS, including the disclosure of any compelling evidence that their continued existence would result in any adverse impacts.

Response: Backcountry or recreation aviation is considered a recreation activity among the many that take place on public lands. The recreation and visitor services portions of Chapter 2 and Chapter 3 were modified in the Proposed Plan/FEIS to include this use. Also see response to Public Concern #9, on page 5-94.

M. There are no formal noise studies cited that have been done over Parashant to support the contention that small general aviation airplanes make any significant contribution to the ambient non-general aviation (e.g., trans-continental flights, military planes) noise levels.

Response: This is true as there have been no comprehensive noise studies completed for Parashant. The soundscapes section in Chapter 3 of the Draft Plan/DEIS (pages 3-100 and 101) merely states the fact that motorized vehicles intrude on the natural sound environment; no assessment of their impacts or level of significance are stated or implied. Natural quiet and natural sounds are resource values in the Monuments, wilderness, and portions of the Planning Area identified to maintain wilderness characteristics as related in the DFCs in Table 2.9.

Public Concern #71 (RR6)

There were a number to requests to provide a more thorough description of various recreation management allocations and tools of analysis (ROS, ERMA, SRMA, ROS, LAC, Carrying Capacity, etc.), and how they would be implemented. Many felt that these are complex systems/methods that were difficult to comprehend.

A. It is vital that cooperating agencies understand exactly what the LAC process entails and how it will be implemented.

Response: See Appendix 2.R for a thorough description of SRMA/ERMA. See Appendix 2.R for details regarding ROS. For specifics concerning LAC, see The Limits of Acceptable Change (LAC) System for Wilderness Planning, USFS General Technical Report INT-176, Ogden, UT. As expressed in the Proposed Plan, LAC would be used as a tool. While the protocol was designed for wilderness planning, the essential concepts for establishing sets of indicators and standards for resource and social conditions would be applied to a variety of recreation monitoring situations, where, over time, trends could be analyzed. The results would form the basis for adaptive management decision-making.

B. There is a lack of national or state BLM guidance on implementing the new recreation market-based format and/or the ROS.

Response: The sub-concern seems to refer to the absence of manuals and/or handbooks related to benefits-based management. National and state guidance does currently exist, such as the Recreation and Visitor Services section of Appendix C in the Land Use Planning Handbook; IM No. 2006-060; IM No. AZ-2005-007; Experience and Benefit Checklist (Adapted from Driver, B.L.; Tinsley, H.E.A., and Manfredo, M.J. 1991. "The Paragraphs about Leisure and Recreation Experience Preference Scales: Results from Two Inventories Designed to Assess the Breadth of the Perceived Psychological Benefits of Leisure," in Driver, B.L.; Brown, P.J., and Peterson, G.L. (eds). *Benefits of Leisure*. State College, PA: Venture Publishing, Inc., page 276); and the "workplan" that provides clear implementation of current and coming recreation management guidance, including benefits-based management (BBM)--the BLM's Priorities for Recreation and Visitor Services, May, 2003. The "purple book," as it is known, presents the foundational BLM implementation strategy for recreation and visitor services as a:

...service delivery plan for delivering benefits to the American people and their communities. Also, it is important to note that this strategy is indicative of a distinct shift from a traditional activity-based approach to management, to managing for specific individual, social, and economic benefits." The purple book states that its implementation "will provide: enhanced access; higher quality and more opportunities for outdoor recreation experiences; increased educational opportunities; increased access to authentic experiences; more opportunity for self determination (freedom of choice and a variety of experiences); safe and healthy sites for all populations; exceptional value and

benefits for the public's time and taxes; assistance in sustainable economic diversification that is both ecologically and socially responsible; and healthy links to an increasingly urbanized west.

This document contains 18 references to benefits in 9 Milestones; 16 references to “experience” in 7 Milestones; 3 references to ROS/Recreation settings; 9 references to “outcomes”; and so on. In addition, the BLM has provided five offerings of the weeklong NTC course 8300-11, Recreation Planning: Effective Engagement in BLM’s Land Use Planning Process, which focuses on how to develop the recreation and visitor services component of a land use plan, primarily SRMA/RMZs. The course has instructed some 150 agency recreation specialists, planning coordinators, state program leads, and contractors, and that’s not all. Supplemental guidance (a unified strategy, a handbook, a national visitor survey) are in the development stages. Given the guidance and training currently available, the inclusion of the “recreation market-based format and ROS” in land use plans under development is realistic and timely. Lastly, ROS is not new to the Bureau (see BLM Manual 8310). Also, see responses to Public Concern #66 on page 5-223, Public Concern #67 B on page 5-228; and Public Concern #71 C and G, below, for related aspects of the concern about “lack of guidance.”

C. The lack of clear implementation guidance as to how the new land use allocations and ROS settings are to be managed has resulted in incomplete or invalid impact analysis.

Response: The lack of more national guidance does not negate the management scenarios portrayed in the Plan. Each RMZ has a focused, measurable, objective; a clearly stated set of experience and benefits that are targeted; and prescribed settings in which the recreation activities would occur. The BLM and NPS produce recreation opportunities primarily by managing the activities and the settings. Garnering experiences and benefits is up to the visitor. Agency effectiveness in producing recreation opportunities will, by the objective date listed, be measured by asking users via survey, the degree to which they realized the targeted benefits. Typically, as stated, agency success would be accomplished if we provided “no less than 75 percent of responding visitors and affected community residents at least a ‘moderate’ realization” of the benefits. The sections on recreation management, recreation marketing, recreation monitoring, and recreation administration provide a basic set of parameters (an implementation framework) that portray the types of actions that would be needed to achieve the objectives. Other resource uses and project proposals would be evaluated through NEPA in light of RMZ settings and the ability to produce recreation opportunities. (Also, see response to Public Concern #67 B on page 5-228).

D. Why is activity level planning not allowed in ERMAs?

Response: See H-1601-1 Land Use Planning Handbook, Appendix C, Recreation and Visitor Services for basic ERMA discussion. In addition, Activity Level planning for SRMAs is needed to carry out the more focused and structured management that is proposed and the possibility of

expending major funds. Major expenditures are not intended for ERMA custodial management. While activity planning is not done for ERMAs, project plans may be done where action is needed to resolve one or more public safety, user conflict, and/or resource protection issues.

E. Only part of Coyote Buttes RMZ is in designated wilderness, but the recreation management objectives (page. 2-170) suggests that the entire area is designated wilderness.

Response: While the objective focuses on the combination of unique geology and wilderness setting that is the core of Coyote Buttes targeted experience, the RMZ does encompass a larger area than is the focus; primarily because the RMZ needs to manage, as much as possible, the total area upon which the production of the targeted recreation opportunities depends. (i.e., trailheads, access to the core area, etc.) In doing so, non-wilderness lands are included, but are not intended for management as statutory wilderness. Therefore, to clarify the intended management, the text was modified in the Proposed Plan/FEIS to state, "By the year 2008, manage this zone to produce opportunities for visitors to enjoy rugged, world-class, day-hiking adventure in a spectacular geologic showcase of colorful cliffs and eroded formations, while preserving its rustic character..."

F. Many RMZ prescriptions did not mention hunting as a "Primary Activity," which could be interpreted to exclude hunting.

Response: In RMZs, certain activities are targeted as the primary activities on which to focus management to produce opportunities and facilitate specific beneficial outcomes. Focusing on a recreation niche pares down the exhaustive, all-inclusive list of recreation activities to a handful of related activities that are targeted. The fact that hunting is not listed in every RMZ does not mean it is prohibited or that it is not a valid recreation activity. It merely means that each Recreation Niche and RMZ Management objective points to a fairly specific target in terms of the desired outcomes and the most logical recreation activities that would take place toward the realization of such outcomes. If it is not targeted, hunting, as well as other compatible activities, may continue; they are just not targeted for the management focus. A good example is the Lime Kiln Cliffs RMZ with its niche, "Easy, quick access from town to sustainable world class rock climbing in natural settings." If world class rock climbing is the targeted niche, then hunting does not logically fit the list of Primary Activities. It does not mean that it is precluded, just not targeted for producing specific opportunities and facilitating beneficial outcomes. Therefore, the term "Primary Activities" merely describes the activities targeted for specific management, versus a perceived exclusion, prohibition, or failure to recognize all of or the most popular activities. A parallel example may be the focus on "world class elk hunting" as a primary activity, versus varmint hunting that may take place in the same area, but not be the focus of more structured management. Clarification concerning hunting as one of several recreation activity types virtually ubiquitous in the Planning Area is made on page 2-144 under General DFCs in Backcountry, Specialized, and Primitive TMAs. In addition, each RMZ niche statement and management objective was reviewed in light of listed Primary Activities. All Primary

Activities listed were reconsidered. Based on this approach, hunting is listed in the following RMZs as a primary activity: Shivwits Frontier, Parashant Wildlands, Cliffs and Rims, Canyons and Mesas, Virgin Ridge, and The Badlands.

G. The process by which RMZs are identified is confusing, especially when comparing Alternatives A and E.

Response: Table 2.14 B, Land Use Allocations, is somewhat confusing. Mainly because Alternative A does not have BBM SRMAs and we are essentially a) reconfiguring and renaming some existing SRMAs, b) dropping or absorbing others into larger new SRMAs, and c) transitioning from non-BBM to BBM SRMAs, complete with the rejection of the notion that wilderness areas in and of themselves, are automatically SRMAs. The SRMAs of Alternatives A and B were identified under much different planning criteria than the SRMAs of Alternatives C, D, and E. The BBM SRMAs are tied to market demand rather than the mere fact of excessive visitor use.

H. Questions arise regarding the proposed elimination of existing SRMAs under the Preferred Alternative, as well as what implementation of improvements within these areas ultimately means.

Response: See response to Public Concern #71 G above concerning the elimination of some SRMAs. It is unclear as to what commenter is referring to regarding “implementation of improvements.”

I. Adequate consideration and analysis should be made through the Recreation Activity Management Plan (RAMP) process.

Response: There seems to be some apparent misunderstanding of the role of RAMP. The commenter seems to view RAMP, and accompanying NEPA, as the process that would “ensure the overall goal of preserving the remoteness and solitude that users of the area come to enjoy.” In reality, RAMP “takes its lead” with regard to ensuring an overall goal of preserving remoteness, etc., from the land use plan. The identification of SRMA/RMZ, and the full development of the appropriate strategy, recreation niches, and the accompanying RMZ objectives, benefits, experiences, activities, and settings is what sets the DFCs (the goal). The RAMP merely specifies how those conditions will be achieved—what actions will take place during implementation to ensure that RMZ objectives are met by a given date. As part of that process, actions proposed in RAMP will certainly undergo analysis as to whether or not or how much they will contribute to the land use plan SRMA/RMZ objectives. Any action that would not contribute to achieving RMZ objectives would not be appropriate in RAMP.

Public Concern #72 (RR7)

Some comments expressed the concern over visitor limits and how such limits would be implemented.

Response: See initial response to Public Concern #68 on page 5-230 for a description of how monitoring is used for decisions about new rules and similar restrictions.

A. Visitor restrictions in wilderness areas should be clarified.

Response: Any visitor limits for designated wilderness areas are in Wilderness Management Plans (WMP) or are supplemental rules (i.e., Paria Canyon-Coyote Buttes). Any visitor limits for wilderness characteristics are in Allowable Uses section of the Proposed Plan/FEIS, as well as in the Draft Plan/DEIS. Additional visitor use rules and similar restrictions would be a result of monitoring. (See initial response to Public Concern #68 on page 5-230 for a description of how monitoring is used for decisions about new rules and similar restrictions.)

B. If restrictions are placed on the number of visitors, consideration should be given to those who have drawn big game tags

Response: No new visitor rules or similar restrictions would be implemented without public involvement, review, and coordination with other adjacent and/or affected federal and state agencies. Visitors to Paria Canyon-Coyote Buttes are required to obtain an individual SRP; however, licensed hunters are exempt in order to avoid multiple permit requirements for the same area. (See response to Public Concern #68 B on page 5-231 for more discussion of coordination with AGFD concerning new permits/restrictions.)

C. Allowing further commercial SRPs on a case-by-case basis in the Coyote Buttes North area seems open and subject to interpretation. Regulation of visitors should be based on ensuring the preservation and protection of the fragile environment.

Response: See initial response to Public Concern #68 on page 5-230 and #68 F on page 5-232. Decisions to change visitor use limits are based in monitoring data evaluation. Decisions to authorize SRPs are based on such data, as well as the results of evaluating their conformance with the land use plan, their potential contribution to achieving RMZ objectives, and their performance. Commercial SRPs and their use in and of themselves are not necessarily a negative impact to the values and resources in Coyote Buttes. On the contrary, SRP holders, as fellow recreation providers, can collaboratively contribute to better management of the area.

Public Concern #73 (RR8)

Recreation Management DFCs should be broken out for each planning area so that it is clear what the specifics are for each planning area.

Response: Where individual planning area distinctions exist at this level (DFCs), each distinction is already shown below its planning area name. A close evaluation of the content resulted in modifying the DFC text slightly. DFCs that are more specific are found in the table of SRMAs. Likewise, management of recreation and visitor services that is more specific is in the management actions sections.

Public Concern #75 (RR9)

A few people expressed general support for the Plan, the types of recreation opportunities that it supports, and how such opportunities are proposed for management.

Response: Thank you for your comment.

Public Concern #76 (RR10)

A number of respondents voiced their support of keeping the Arizona Strip District open for all types of recreational activities (either motorized or non-motorized) for future generations to enjoy. Some of these specified certain activities that they would like to see allowed, such as recreational shooting and shed antler hunting. One person stressed the need to give recreation the same sort of consideration that is given to grazing and other resources.

Response: See various responses to Public Concern #66 on page 5-223 and #67 on page 5-226. Under the Preferred Alternative and Proposed Plan, recreational shooting and collection of antlers or other unregulated animal parts would be allowed on BLM lands, both in and outside the Monuments. Due to existing NPS regulations, these activities would not be allowed on NPS lands in Parashant. Recreation shooting associated with a valid hunting permit would be allowed within the NPS portion of Parashant.

Public Concern #77 (RR11)

Some were concerned about the management of Paria Canyon and proposed specific means to protect or enhance the recreational experiences in the canyon.

A. Close the River Pasture of the Lees Ferry allotment in order to improve visitor experience.

Response: The River Pasture is proposed as unavailable for livestock grazing in the Proposed Plan/FEIS.

B. Commercial use of horses and pack stock should be prohibited in Paria Canyon, and recreational use should be prohibited in the canyon and limited to Bush Head Canyon to Lees Ferry

Response: Currently, on BLM-administered lands in Paria Canyon, commercial use of pack stock is already prohibited above Bush Head Canyon. Apparently, NPS GCNRA also does not allow commercial stock on lands around Lees Ferry. As for prohibiting recreational stock use from most of the canyon, visitor use statistics as well as resource conditions reveal that there is very little private recreation horse use and that any that is occurring is not causing recurring impacts of a sort that would require prohibiting such use. See initial response to Public Concern #68 on page 5-230 for description of how such decisions will be made using data.

Public Concern #78 (RR12)

A few people commented on vehicle restrictions based on size.

A. BLM should not limit trails to use by vehicles less than 52 in (i.e., OHV width) as it would discriminate against full-size vehicles and is contrary to NPS policy of limiting vehicular traffic to street-licensed vehicles.

Response: Two standards have been utilized in the overall development of the draft Trail and Travel Management planning decisions. The first is the Arizona statewide standard data dictionary used to conduct route inventory. Among the 23 data elements used, two attributes of the “Route Type” data element seem to be pertinent to the concern expressed. The two attributes and their definitions are 1) **Tertiary Road Unpaved:** “Generally a two-track that may, or may not be usable by a two-wheel drive vehicle. No formal maintenance” and 2) **Single Track:** “Hiking, biking, or motorcycling trail. Can be up to one-half meter in width, not allowing OHVs or four-wheel-drive vehicles.” With regard to management of transportation related linear features, BLM IM No. 2006-173, “Implementation of Roads and Trails Terminology Report,” contains, among other terms defined, two features or assets that seem pertinent to the concern expressed. They are 1) **Primitive Road:** “A linear route managed for use by four-wheel drive or high-clearance vehicles. These routes do not normally meet any BLM road design standards” and 2) **Trail:** “A linear route managed for human powered, stock, or OHV forms of transportation or for historical or heritage values. Trails are not generally managed for use by four wheel drive or high clearance vehicles.” Closer inspection of the terms above shows that the inventory’s “Tertiary Road Unpaved” aligns with the transportation asset management’s “Primitive Road,” while the inventory’s “Single Track” aligns with the transportation asset management’s “Trail.” Potential implementation decisions would then reflect the rule-of-thumb that “Trail” assets would be available for travel modes such as, walking, equestrian, bicycle or motorcycle, but not OHV or larger, four-wheeled vehicles. “Primitive Road” would be available for use by travel modes such as, OHV, four-wheel drive, or high-clearance vehicles. Therefore, while “OHV Trail” is a commonly used term to identify a system of routes targeted, planned, and available for OHV recreation, from a terminology perspective, “OHV Road” would be more accurate. The Proposed Plan would contain many routes that exist as “Primitive Roads,” producing outstanding opportunities for OHV and four-wheel drive vehicle exploration and driving for pleasure. The Proposed Plan would contain far fewer routes that exist as “Trails,”

producing only moderate opportunities for hiking, equestrian, bicycle or motorcycle modes of exploration or travel. The potential for producing improved opportunities would be established by the Proposed Plan within the DFCs, Potential Implementation Actions, other Management Actions sub-sections of the Travel Management and Transportation Facilities sections.

B. Reconsider allowing the side-by-side OHV (although it may be near standard vehicle width).

Response: The comment may be an indirect reference to ARS concerning vehicle regulations. The Draft Plan/DEIS did not make an explicit decision concerning this type of vehicle and would not preclude use of side-by-side OHVs at this time.

Public Concern #79 (RR13)

The BLM should coordinate with AGFD in regards to the location of an OHV Event Area near Cottonwood and Rock Canyons, which have been identified as a high priority release site for bighorn sheep.

Response: As an actively participating cooperating agency in the development of the Plan, the AGFD worked closely with BLM and NPS on many resource issues, including trail and travel management. The Motorized Speed Event Area proposed in the Preferred Alternative was part of that coordination effort. Close inspection of the area proposed in Alternative E reveals that it would be a modified form of the original Alternative A event area. The Preferred Alternative purposely excludes Cottonwood Canyon and Rock Canyon, as well as the slopes and face of the Hurricane Cliffs, while including motorized routes critical to both motorized and non-motorized events. By limiting motorized speed events to this area only, the potential for impacts to bighorn sheep, as well as other resource values by large speed-related events elsewhere in the Planning Area, is eliminated. Additionally, the AGFD is always consulted as part of the NEPA process.

Public Concern #80 (RR14)

The BLM should be more flexible in managing motorized speed events, not limit speed events to the boundaries of a single OHV Event Area, and not eliminate future considerations for expansions or adding new event areas.

Response: See response to Public Concern #79. Various alternatives, including no authorization of motorized speed events and case-by-case consideration, were fully considered in the Draft Plan/DEIS (see page 2-189). However, the identification of a single area where such use has historically occurred and could continue to be considered was selected as the Proposed Plan.

A. Because it would be more appropriate to base the use of public lands for competitive events on flexible criteria and through future NEPA processes.

Response: Allocating lands (in this case, specifying an area for motorized speed events) for various uses precedes and sets the stage for any implementation decision to authorize or deny a permit application (in this case, authorizing a competitive event). In general, the Preferred Alternative only limits consideration of competitive events in two ways: a) “motorized speed events” would be considered only within the area allocated, and b) BLM/NPS would not consider competitive events of any type in ACECs, wilderness areas, and NPS proposed wilderness (for BLM wilderness areas, prohibition found at 43 CFR 6302.20, (i)). Therefore, with regard to competitive events in general, outside the ACECs, wilderness areas, and NPS proposed wilderness, “non-speed,” motorized events and all other competitive event types could be considered on a case-by-case basis throughout the Planning Area. This language is added to the Proposed Plan/FEIS to provide clarification of available competitive event options.

B. Because the OHV event area should be expanded to include race routes that have been used historically for the Rhino Rally, and should include the "Cactus Pass" route that is an important connector route for the event.

Response: Under the Preferred Alternative in the Draft Plan/DEIS, the Alternative A “OHV Event Area” was modified in four ways: 1) a name change from “OHV Event Area” to “Motorized Speed Event Area”; 2) lands in and to the east of the Hurricane Cliffs were eliminated (a) to provide protection for bighorn sheep and habitat and (b) because these lands have not been part of the “*race routes that have been used historically for the Rhino Rally*”; 3) lands between the northern edge of the Alternative A OHV Event Area and the Utah/Arizona state line were added to include many routes that have been used historically for the event; and 4) the specific requirement that any motorized speed events authorized would have to take place in the Motorized Speed Event Area. While the Preferred Alternative’s Motorized Speed Event Area is 88 percent as large as the Alternative A OHV Event Area, the effective use area is improved and “non-speed” motorized events are not limited to consideration of only one area for future events. All other “non-speed” motorized events and all other competitive event types (i.e., dual sport rallies, horse endurance races, etc., or organized events, such as OHV jamborees) could be considered on a case-by-case basis throughout the Planning Area, outside the ACECs, wilderness areas, and NPS proposed wilderness.

The Cactus Pass area includes an OHV/motorcycle trail through the habitat of Siler pincushion cactus, a threatened species. Because route designation is an implementation level decision, designation of this particular route is not appropriate for the EIS. Route designation in the St. George Basin, which includes Cactus Pass, is scheduled to occur within the next few years. At that time, a determination of whether to close Cactus Pass or leave it open would be made. In the interim, the 2005 decision record for the Rhino Rally event identifies which routes are available for use. Cactus Pass is not included on that list. Because OHV or motorcycle use of the Cactus Pass trail may adversely affect Siler pincushion cactus, section 7 consultation under the ESA would be required prior to authorization of any such use.

Public Concern #81 (RR15)

Some people were concerned about restrictions placed on parking off road for recreation purposes (hiking, camping, picnicking, etc.)

Response: In the Preferred Alternative, within Monuments and ACECs, parking for hiking and picnicking would have to take place along the “shoulder and immediate roadside.” (See page 2-190, 191 in the Draft Plan/DEIS; the terms “shoulder” and “roadside” are now defined in the Glossary of the Proposed Plan/FEIS). In much of the Arizona Strip FO, motorized vehicles may pull up to 100 feet off designated routes on either side of the centerline. As for camping, in the Monuments, vehicle camping would only be allowed in existing sites along designated routes (see page 2-155). It should be noted that most existing sites have short spur routes that access them. These routes were part of the route evaluation process in the Monuments and, once officially designated, would be part of the designated travel system, thus, their use would not be considered “off-road.” Dispersed camping in the Arizona Strip FO would be allowed subject to the travel restriction mentioned above (100 feet from centerline).

Public Concern #82 (RR16)

Helicopter landing on/near the Monuments and potential impacts to natural and cultural resources should be addressed. Open area restrictions and/or seasonal closing should be identified with information easily available to pilots and recreation planners.

Response: Helicopter landings are regulated by surface management agencies (e.g., the BLM and NPS) within designated wilderness and NPS proposed wilderness. No such regulations occur on the remainder of the Planning Area. To date, excessive landing of helicopters has not been documented as a resource issue with regard to surface impacts. Helicopter flights, especially low-level flight over remote and/or wilderness areas, can and does affect opportunities for visitors to enjoy solitude; however, it is the role of FAA to manage aircraft flights. In that role, FAA issued an advisory for general aviation requesting that pilots observe a voluntary 2,000 AGL over wilderness areas; it has been in affect for many years.

Flight regulations and restrictions originate with FAA. With regard to landings in wilderness and proposed wilderness areas, non-emergency, planned landings would require prior approval from BLM and/or NPS managers. Regarding communicating the location of special or sensitive areas to pilots, two resources continue to be available. Aeronautical charts (updated regularly) and agency visitor maps make the location of these areas readily known.

Public Concern #83 (RR17)

There were a few comments suggesting using volunteers to post signs, mark trails, inventorying roads, and/or monitoring the area.

- A. In terms of marking trails to coordinate with maps, an OHV club offered their time to take BLM supplied posts and numbers on any or all 13 trails used in their Jamboree and plant them over the next few years.*
- B. One group, including existing ASIA volunteers, stated that they would be happy to post signs concerning staying on designated trails and roads, as well as patrolling the Strip in a non-law enforcement manner.*
- C. PIC suggested using rural residents to assist in inventorying and monitoring the area to collect data for a route inventory database. PIC volunteered to assist in setting up such a program as it provides a unique opportunity to build partnerships and working relationships with residents in rural communities.*
- D. Organized groups who use the area could help in using matching funds grants, joint work projects, etc.*

Response: Volunteers have traditionally contributed thousands of hours of time to advance the mission, goals, and objectives of the BLM/NPS in the Planning Area. From behind a visitor contact counter, on the telephone, or building trails, volunteers continue to be a vital resource for agencies to depend for success in managing resources and opportunities. While much of the work that volunteers participate in is implementation-level work, some have helped in pre-planning work, such as route inventory review. The Preferred Alternative in the Draft Plan/DEIS failed to more explicitly recognize the important function of volunteers in land management. As such, the Recreation section and the Travel section were modified in Proposed Plan to include Administrative Actions to engage volunteers and organization in the implementation phase of the Plan.

Public Concern #84 (RR18)

Some people stressed the need to recognize recreation aviation as a legitimate form of recreation in the Plan and incorporate the activity throughout the Plan.

- A. The DEIS does not recognize or explicitly identify the uses, needs, habits, or ongoing goals of recreational aviation. Such discussion of aviation should be integrated throughout the Plan (e.g., under purpose and mission statements, recreation and recreation activities, transportation and access, alternatives, management units, public scoping, etc.)*

Response: See response to Public Concern #9 A on page 5-94.

- B. The recreational landing strips need to be included with the "Recreational Management Plans" along with the "Travel Management Plans"*

Response: See Public Concern #9 A, page 5-94. Additionally, recreation aviation, as a recreation activity, would be included, following the ROD, in implementation-level recreation plans and project decisions where such use is targeted in the RMZ-specific planning or project development. It should be noted that within RMZs, not all activities are targeted for the production of recreation opportunities. However, while many activity types may not be targeted, that does not necessarily mean they are prohibited. It merely means that a smaller set of recreation niche-dependent activities are targeted to produce opportunities that spin-off measurable benefits (see “primary activity” discussion in response to Public Concern #71, F, page 5-242). In ERMAs, specific recreation management plans would not be developed, as such recreation aviation and the use of any backcountry airstrips would, along with the variety of other recreation activities and sites, be managed custodially (e.g., by focusing an unstructured, dispersed recreation management approach that allows a wide variety of “recreational choices” by all visitors). Such management would respond in a more structured way to developing issues of public health and safety, user conflicts, and resource protection that involve recreation users.

C. Remove language that categorizes landing strip with sewage and dumpsite locations (EIS 2-27 table 2.5) as Aviation has no direct connection to these undesirable features.

Response: See response to Public Concern #9 A and B on page 5-94-5. This decision was carried forward from the biological opinion on the 1998 RMP amendment. The intent of the decision was to prioritize illegal and unauthorized sites for cleanup that pose a hazard to special status species or their habitats. While we continue to support cleanup of hazardous sites and those that pose a threat to special status species, airstrips do not pose the same threats to special status species that dumpsites do. For this reason, airstrips have been removed from this decision in the Proposed Plan/FEIS.

Public Concern #85 (RR19)

Several people requested that no additional recreation facilities and visitor services (signage, information kiosks, campgrounds, visitor centers, overlooks, etc.) be developed.

A. Because large recreational developments would bring excessive volume and pollution.

B. Because recreation developments cheapens and ultimately negates the whole concept and experience of the Arizona Strip in terms of exploration and adventure.

Response: (See all decisions in Table 2.14 C 1 a ii in the Draft Plan/DEIS related to signing and facilities. Also, see response to Public Concern #3 B, C, pages 5-67-8). The Preferred Alternative sets forth the concept that the only signing and recreation facilities development that would be considered in SRMAs would be that which is deemed critical to producing the targeted recreation opportunities and facilitating the realization of the targeted benefits prescribed for each RMZ. Likewise, in the custodial ERMAs, only signing and recreation facilities needed to

response to public health and safety concerns, user conflicts, and resource protection issues would be considered. This approach will effectively contribute to maintaining the character of the Planning Area while producing structured, beneficial outcomes in SRMAs and allowing for dispersed, generally unstructured recreation in the ERMAs.

Public Concern #86 (RR20)

Several people requested that additional recreation facilities and visitor services (signage, information kiosks, detailed maps, trails, campgrounds, visitor centers, overlooks, etc.) be developed, with some providing reasons for doing so and others requesting additional information or specific locations to develop.

Response: Many of the comments received were specific to implementation level decisions, not land use plan decisions. See also responses to Public Concern #85 above and Public Concern #3 B and C on pages 5-67 and 68.

A. Please provide a timeframe for completing recreation facilities/visitor services identified in the Plan.

Response: The basic timeframe for completing any specific management actions is during the “life of the Plan,” which could generally be up to about 20 years or more. However, effective response to planning issues would dictate much shorter timeframes. For many, if not all SRMAs, an implementation plan would be developed, describing in much greater detail than the land use plan, the management actions needed to achieve the objectives of the land use plan. These plans would include specific locations, capacities, customers, etc., as well as an implementation schedule. Efforts to develop these plans would begin soon after the ROD for the land use plan is final on a prioritized basis. As for the ERMAs, because they would be custodially managed, no specific implementation plan would be developed. Timeframes for projects in these areas would be dictated by the need to resolve site-specific public health and safety, user conflict, or resource protection issues.

B. Recreation facilities should be provided at Black Rock.

Response: See responses to Public Concern #86 and 86 A above.

C. Kiosks should be placed at every entrance into the Arizona Strip District informing visitors of the potential dangers upon entering the area and the differences between BLM and NPS rules and regulations.

Response: See responses to Public Concern #86 and 86 A above.

D. Having a trail system in place with marked trails and maps would help define places that the public should and would ride.

Response: See responses to Public Concern 86 and 86 A; also see Table 2.15 I E 1 b for decision concerning consideration of potential trail systems; See also responses Public Concern #7 D on page 5-84) In addition, the BLM has produced the Arizona Strip Visitor Map for many years. This resource clearly depicts the existing route system with route numbers where they exist on the higher standard routes. These route numbers are also posted at important intersections across the Strip. While these routes are typically not OHV or motorcycle width trails, they do provide an extensive, navigable vehicle-exploring network.

E. The Arizona Strip is a big and lonely place to get stranded and there are only a few signs with mileage on them to tell visitors how far away places are.

Response: See response to Public Concern #86 D above. Maintaining remote character and Arizona Strip experiences while providing basic information is the challenge. Directional signs with mileages already exist at all primary roads intersections, as well as many secondary roads intersections. Guidelines for future signing would be as described in the response to Public Concern #85 above. Not every road would have directional signing. Road number posting (versus directional signing) would be required for every road in a designated system.

Public Concern #87 (RR21)

A number of comments focused on hunting and the rules and regulations associated with hunting. Many of these urged that the Arizona Strip District remain open and accessible to hunting and to manage hunting and wildlife to allow future generations to enjoy the sport.

Response: Most comments related to this concern expressed frustration with the State of Arizona hunting regulations and license process.

A. There are currently too many rules and regulations on hunting, especially for non-residents who find it nearly impossible to draw a tag.

Response: Concerns appear to be focused on State of Arizona hunting regulations. Hunting on federal lands in the Planning Area as an activity type stands prominently as one of the important recreation activities provided for in the Proposed Plan/FEIS.

B. Routes to waterholes should remain open for hunting and viewing wildlife.

Response: See response to Public Concern #3 D, E, K, and L on pages 5-68 through 71.

Public Concern #88 (RR22)

Some people voiced their preference for primitive campsites and concern over restrictions placed on dispersed camping.

Response: Dispersed camping is generally not restricted. Driving off-road is more restricted; however, most existing campsites where previous camping use is evident are authorized for camping and have existing vehicle access (spur routes) that would be part of the designated travel system.

A. If dispersed camp sites are to be closed based on water quality concerns, a water quality-monitoring program should be implemented to determine any changes/improvements. If no improvements are realized, then cam sites should be reopened.

Response: No decisions were found in Chapter 2 of the Draft Plan/DEIS that propose restrictions on dispersed camping due to water quality concerns. In fact, camping decisions generally allow for camping in existing sites where previous camping use is evident within Monuments and ACECs/sensitive habitats and up to 100' off-road centerline in the non-Monument/non-ACEC areas (see pages 2-153 to 156 in the Draft Plan/DEIS).

Public Concern #89 (RR23)

Some felt that Tassi, Cane, and Pakoon springs and Oak Grove should not be managed as watchable wildlife areas.

A. Because all these areas are small and quite sensitive to overuse.

Response: We agree that areas to be managed as watchable wildlife areas are sensitive to overuse. The level of subsequent use of watchable wildlife areas is primarily dependent upon the level of public promotion. Some, but not all, sites identified as watchable wildlife sites are included within the Arizona Wildlife Viewing Guide, a colorful publication produced by the National Watchable Wildlife Program. Viewing Guides are available at most visitor information centers and help generate interest among members of the public for viewing wildlife at the sites described. The second edition of the Viewing Guide is currently in press. While several of the sites proposed as watchable wildlife areas on the Arizona Strip will be in the second edition of the Viewing Guide, none of the sites mentioned by the commenter will be included. As a result, the Proposed Plan/FEIS will be the only publication of these sites. We do not expect any dramatic increase in visitation at these sites as a result of finalizing the RMP and EIS. Site monitoring should identify increases in recreational visitation and use that exceeds acceptable levels. We would use the flexibility provided by the FEIS to modify management of over-utilized areas to reduce or eliminate impacts to sensitive resources.

Public Concern #90 (RR24)

A few people discussed user fees and permit systems and how they should or should not be implemented.

A. There should be no fee demo permits.

Response: Only Paria Canyon-Coyote Buttes areas require an individual SRP. Virgin River Canyon requires recreation use permits (RUPs). Both fees are based on Federal Lands Recreation Enhancement Act (FLREA, 2004). The Virgin River Canyon provides standard amenities that must be in place prior to requiring a fee. Fees contribute to ongoing management of special areas and the facilities and services that support them.

B. A small user fee could be implemented and used to collect user data and help determine if changes are needed in terms of user numbers and activities.

Response: Visitor data is already collected in a variety of ways, with cooperative partnerships expanding inventory/monitoring efforts into the more popular use areas. Traffic counters have been in place on some primary access routes to the Strip for up to 18 years, providing a glimpse at trends in road use, which correlates in part, to recreation visits. The current laws and regulations regarding the institution of fee programs are clear in their intent that the visiting public not be unduly burdened with fees to use public lands, especially for dispersed recreation. Fees typically go hand-in-hand with the institution of a permit system, which is a management response to correct or maintain a desired set of recreation conditions in an area. In developed sites, fees contribute to operating and maintaining standard and/or expanded amenities for the visitor.

C. Just as grazing and hiking, fees should be collected for all recreational activities, including OHV use.

Response: See response to Public Concern #90 B above. In addition, grazing is a commodity use. In other words, a resource, or portion of a resource (forage) is bought and removed from the land. General recreation is not usually considered a commodity use, unless commercial or competitive uses are sought. In such cases, permits are issued and fees are charged. In special areas where visitor management programs (limits, monitoring, infrastructure, etc.) become more intensive, individual SRPs are issued and fees paid. Finally, where a required set of standard amenities are provided for public use (such as developed campgrounds), a RUP is issued and fees charged. Charging all recreation users a fee would be virtually impossible under existing fee-related laws, regulations, and policies.

D. Any permit system or restriction of use or access should include coordination with other state and federal entities that issue use permits on federal lands to assure that authorized permittees have fair and reasonable access to their permitted activities.

Response: See response to Public Concern #68 B, page 5-231. The Proposed Plan has been revised (in Administrative Actions) to clarify the fact that any new rules, regulations, etc., would always involve coordination and input from other affected agencies, not just the public. The

statement worked out with AGFD was also inserted in Chapter 2 Interrelationships section of the Proposed Plan/FEIS.

E. Public input should be sought prior to instituting any new permit or fee program across the entire Planning Area.

Response: See response to Public Concern #72 B and C, page 5-244. Also see Table 2.14, on page 2-159 of the Draft Plan/DEIS. This is a standard policy for instituting fees or permits on any scale.

F. Dates for accepting applications for SRPs should be extended and many guides don't pursue the SRP until they know they have a client, which is oftentimes after the acceptance date. In fact, SRP processing should be able to occur year-round as no justification is given to limit SRP processing.

Response: The BLM recently contacted active SRP holders for feedback on the effectiveness of requiring applications to be submitted only between January 1 and April 1 of any given year. It was very clear that the change in schedule would have a major negative impact on many operations. Coordinating with AGFD concerning the proposed decision resulted in their support of the outfitters and guides concerns. Consultation with Grand Staircase-Escalante National Monument personnel revealed that their policy (similar to that proposed by the Preferred Alternative) did not work well, resulting in Grand Staircase-Escalante National Monument reverting to accepting new and renewal applications as they come in. Therefore, the Proposed Plan/FEIS was modified to reflect case-by-case processing of SRP applications.

G. In regards to SRP administration, commercial recreation permits should only be issued to the extent that their cumulative impacts are consistent with the overall objectives of the Plan and the interest of the public.

Response: Authorizing any type of SRP (commercial, competitive, or organized group) is a discretionary, implementation-level decision by a line manager. Agency policies, manuals, handbooks, and NEPA all reinforce the fundamental suggestion made by the commenter. NEPA requires that such a discretionary action be shown to be in conformance with the applicable land use plan and in the public interest. The suggested language is standard operating procedure for consideration of recreation permit proposals and, as such, is not added to the Proposed Plan.

H. What permitting system does the BLM plan to use for scientific research (NPS already has a permitting system in place)?

Response: The BLM currently has a system in place for authorizing research permits on BLM-administered public lands. The process requires the applicant to submit a research or study proposal that is reviewed by an interdisciplinary team. The permit system was implemented to minimize environmental affects from research activities, minimize or eliminate duplicative

research, increase agency awareness of the types of activities occurring on public lands, and ensure the BLM receives copies of research and technical reports. Where proposed research would occur on both BLM and NPS lands, the agencies have agreed to use a single permit.

Public Concern #91 (RR25)

A few comments addressed annual training for guides and outfitters, with some supporting such training because it would encourage appropriate use ethnics. Others opposed the training as it appears to single out guides and outfitters as no one else would be required to take special training. A few requested additional information on such training or requested to be involved in the training.

A. The AGFD would like to coordinate and participate in the training.

Response: As training is planning and scheduled, coordination and support from a variety of cooperating agencies and recreation providers will be sought.

B. If the training is going to be mandatory, who will pay for the travel costs?

Response: The decision does not state that the training would be mandatory. It merely states that it will be provided. Thus, attendance cost would be borne by individual attendees (see page 2-159 in the Draft Plan/DEIS).

C. How long will the training be and to what purpose?

Response: No specific timeframes yet exist; however, training could potentially involve 1-2 days. Such training could serve a variety of purposes that may include: a discussion of the BBM that drives SRMAs and how SRP holders are part of the recreation provider network; a refresher on permit administration (any changes to requirements, fee formulas, etc.); open forum Q & A; refresher on Leave No Trace and Tread Lightly concepts; refresher on the management objectives for the various RMZs coming out in the Plan and how that relates to commercial/competitive recreation uses; and a forum for discussion and brainstorming recreation management, monitoring, marketing, and administration actions intended to achieve land use plan objectives for producing recreation opportunities.

D. Annual training for outfitters and guides should be offered in at least three locations in Arizona south of the Colorado River.

Response: Annual training sessions would likely be held in various locations on a rotating basis; south of the Colorado River would be considered.

Public Concern #92 (RR26)

As the Parashant comprehensive interpretive plan (CIP; page 2-161) is developed, Pipe Spring National Monument would like to be included as a contributing and ongoing partner.

Response: The CIP would involve a number of adjacent federal and state agencies in the process of development and review. Pipe Springs National Monument has been included in applicable correspondence regarding the CIP and would be included in the final review process.

Public Concern #93 (RR27)

A few comments focused on the need for increased public education and involvement through improved communication and cooperation between user groups (hikers, equestrian, hunters, OHV users, and clubs), as well as law enforcement/rangers. There was also the question on how the Plan was going to provide for such education. There was one suggestion that the BLM invite all the groups using the Arizona Strip to the "Tread lightly! Awareness Course."

A. Because these are the people using the resource and they should be educated and self-policing as to acceptable behavior.

B. Because education is a stronger tool than elimination.

C. Because more the public understands the public land process, the more willing they are to help take care of an area.

Response: Two "Tread Lightly!" Courses were offered in 2006 (one in Page, Arizona, the other in St. George, Utah). Both had fair attendance by local organization leaders and others. Outreach for these classes was extensive and included local and regional Boy Scout Leaders, community leaders, local governments, OHV groups, OHV dealers, and was advertised in local papers. Attendees were, in general, OHV group leaders and government employees. We agree this type effort would need to be repeated on an annual basis and partnerships would need to be established to encourage active communication between user groups and land management agencies.

See also responses to Public Concern #83 and 94 above. In addition, many of the RMZs have targeted, among other benefits listed, benefits to environment, household, community, etc., that are focused on an improved awareness of the special values of the Strip and a heightened sense of responsibility and ownership in maintaining the qualities of the Strip. The bulk of the Interpretation and Environmental Education section relies on the concept of greater outreach, partnership, and involvement by visitors. It aspires to improved communication and cooperation between visitors, groups, and agencies toward the stated DFCs (see pages 2-159 to 161 in the Draft Plan/DEIS).

Public Concern #94 (RR28)

Under Interpretation and Education, the BLM should also establish interpretive actions for Vermilion (under Management Actions) and a CIP developed with specific goals and objectives.

Response: Interpretation that is much more specific and environmental education management actions would be developed as part of the CIP. Such actions are implementation actions, not land use plan-level decisions. The “Views” program is listed as a potential decision here because it was an ongoing project prior to this planning effort.

Comprehensive interpretive planning for Vermilion has been added to the Interpretive and Environmental Education section of the Proposed Plan/FEIS, as the current interpretive plan only covers onsite interpretive media. Developing a CIP for Vermilion would provide direction for offsite projects, partnerships, and the like.

ISSUE # 6: MINERALS (MI)**Public Concern #110 (M11)**

There were a few general comments regarding the section on mining and mineral exploration in the document. The majority of these expressed support for mining rights or the closure of more land to mining.

A. Mining and mineral exploration negatively impact the fragile environment, natural and cultural resources, remoteness and the sense of isolation, wildlife and their habitat, sensitive species, natural quiet, scenic beauty, air quality, soils, and adjacent wilderness areas and ACECs, and should therefore be restricted/eliminated in the Planning Area.

Response: Mineral exploration and development on public lands are largely regulated by various laws and regulations, within the BLM’s multiple-use concept; therefore, the BLM does not have the ability to eliminate or unnecessarily restrict these mining activities. Negative impacts to resources on public lands may be mitigated or restricted to the extent that they become either short term or minor. Any mining proposal would have to go through the NEPA process. Mining is not allowed in either Monument or in designated wilderness areas.

B. The use of public lands for mining and mineral exploration is important and should not be overly restricted.

Response: Mineral exploration and development is encouraged on public lands in keeping with the BLM’s multiple-use concept. Restrictions or mitigations are developed to the extent necessary to prevent the occurrence of unnecessary and undue degradation to resources.

C. The Plan should heavily restrict or eliminate uranium mining. Any mining proposal should have to go through the NEPA process.

Response: See response to Public Concern #110 A above.

D. Mining and mineral exploration should be restricted/eliminated in the Planning Area as "known oil and gas resources are not significant within the Planning Area, and no economic occurrences of oil or gas have been encountered to date" (page 3-129).

Response: Oil and gas exploration are regulated by the mineral leasing laws. Simply because no economic occurrences of oil or gas have been encountered to date does not mean they do not exist within the Arizona Strip FO. Also, see responses to Public Concern #110 A above and F below.

E. The conservation measures that have been included are appropriate. However, the measures can be fine-tuned and expanded as necessary as we review the draft BA and move through the section 7 consultation process.

Response: We agree that additional conservation measures may be appropriate, particularly with site-specific actions. The addition of new conservation measures will be addressed in consultation with the USFWS on the Proposed Plan/FEIS.

F. The conservation measures that have been included are appropriate. However, more stipulations could be developed, especially regarding preventing effects to the habitat of several species and the maintenance and operation of producing wells.

Response: Presently there is no oil or gas production in the Arizona Strip District. Prior to drilling a new well, the lessee would need to submit an Application for Permit to Drill. At that time the proposal for the new exploration well(s) would be subject to NEPA review and additional site-specific mitigations could be developed, if necessary. If an economic discovery of oil and gas is made and production facilities proposed, then an additional NEPA review process, specific to the proposed production facilities, would be required and additional mitigations could be developed, as determined by the NEPA process.

G. Mining and mineral exploration should be restricted/eliminated in the Planning Area as mining, oil, and gas exploration and developments pose direct and indirect threats to tortoises.

Response: See response to Public Concern #110 A above.

H. Mining and mineral exploration are vital to the economy.

Response: We agree with and thank you for your comment.

I. Industrial scale energy development, including solar and wind power, should only be developed in the remote areas of the Arizona Strip.

Response: The issuance of oil and gas leases and leasing laws impart specific rights to the lessee, including the ability to develop discoveries of oil and gas, in remote or other areas. The possible development of solar or wind power would only take place after extensive analysis, which would include input from the public on where the location of these facilities would be most appropriately located.

J. Oil and gas development should be prohibited in all ACECs designated for protection of cultural resources.

Response: If oil or gas is discovered in an ACEC, the laws protecting cultural resources and the NEPA process would ensure any potential impacts to these resources from oil or gas development would be either short term or minor. The technology exists through directional drilling that could allow oil field development from remote locations, effectively without impacting sensitive resources.

K. The BLM should not permit oil and gas leasing in critical habitat for the desert tortoise. It cannot be supported based on the risk to the desert tortoise and in light of the unclear and waivable-protective stipulations proposed by the agency.

Response: Oil and gas leasing in desert tortoise critical habitat is proposed as the BLM feels there would be sufficient protective measures developed through the NEPA process and in coordination with AGFD and the USFWS that any impacts to the tortoises would be either short term or minor. The technology exists through directional drilling that could allow oil field development from remote locations, effectively without impacting sensitive resources.

Public Concern #111 (MI2)

There were a number of comments requesting various clarifications or changes regarding the mining and mineral exploration section of the document.

A. On page 2-141, Table 2.13 (Minerals, I. Minerals Management, Land Use Allocations, 3. Salable Minerals), in regards to Vermilion add, "GCNRA lands bordering Vermilion NM are open to mineral disposition but no specific minerals have yet been identified (Per the GCNRA Mineral Management Plan, 1980)."

B. In regards to the Arizona Strip FO add, "GCNRA lands bordering the AZ Strip FO are open to mineral disposition but no specific minerals have yet been identified (per the Glen Canyon NRA Mineral Management Plan, 1980)."

Response: Thank you for your comments. The suggested changes were added to the Proposed Plan/FEIS.

C. New methods of drilling for oil and gas require (platform drilling) very little impact to the ground surface and no oilfields roads to mar the landscape. Geophysical surveys should be allowed along the Grand Wash in Parashant.

Response: The Monument lands were withdrawn from mineral exploration and development by presidential proclamation when the Monuments were designated. No oil and gas exploration could occur in these areas.

D. The lease stipulations in the proposal are inadequate. The BLM is required to consider more environmentally protective approaches to management and mitigation. In order for BLM to rely on mitigation, NEPA requires that the BLM make a firm commitment to the mitigation and discuss the mitigation measures "in sufficient detail to ensure that environmental consequences have been fairly evaluated..."

Response: The stipulations for oil and gas are a requirement of the lease. The stipulations may not entirely mitigate impacts but they are designed to mitigate impacts to the extent reasonably possible. Prior to drilling a new well, the lessee would need to submit an Application for Permit to Drill. At that time, the proposal for the new exploration well(s) would be subject to another NEPA review and additional site-specific mitigations would be developed, if necessary. If an economic discovery of oil and gas is made and production facilities proposed, then an additional NEPA review process, specific to the proposed production facilities, would be required and additional mitigations could be developed, as determined by the NEPA process.

E. The list of material sites in Appendix Q would be clarified if a column were added that showed which sites might be closed or prohibited if the conservation measures contained in Appendix E are implemented.

Response: Mineral material sites are opened primarily in response to demand. However, mineral material disposal is a discretionary action subject to authorization by management. As conservation measures are added or resource values change, management may decide to close a material site. Which material sites could be closed would depend on the resource being considered. Alternatively, some sites have relatively limited amounts of material and sites are closed as the commodity plays out. Therefore, the mineral material sites that could be closed or prohibited if the conservation measures are implemented is difficult to predict with much certainty.

ISSUE # 7: LANDS AND REALTY (LR)***Public Concern # 29(LR1)***

There were many comments regarding lands identified for disposal. Some commented on the disposal plan in general, some had suggestions, while others requested input regarding specific parcels.

Response: The identification of lands for disposal in this planning effort means that the BLM may, at their discretion, consider selling or exchanging a parcel so identified, if it is determined to be in the public interest and providing the appropriate NEPA documentation and environmental clearances have been completed. Prior to disposal, notices will be published in local newspapers and in the *Federal Register* so access needs or other valid existing rights can be identified and the public can provide input.

All of the parcels identified for disposal in this Plan will not automatically be put up for public auction upon completion of the Plan. Of the approximately 25,000 acres identified for disposal in the 1992 RMP, less than 1,000 acres were conveyed out of federal ownership and most were for recreational and/or other public facilities. Most of the lands identified for disposal in this planning effort were carried forward from the 1992 RMP. However, some of the lands identified for disposal in the 1992 RMP (Alternative A) are now within critical habitat areas of species that were not previously identified or are now within the new Monuments. Because of this and other factors, some adjustments to the lands identified for disposal are necessary. There are no lands identified for disposal within the Monuments or other specially designated areas or areas managed to maintain wilderness characteristics (see Table 2.11: Lands and Realty).

Some higher value parcels that meet the criteria to be sold under the authority of the Federal Land Transaction Facilitation Act (FLTFA) may be sold competitively; however, this can be done now, under the 1992 RMP, and is not dependent upon approval of a new Plan. Proceeds from selling lands under FLTFA remain within the state where they are sold and are used to purchase lands with higher priority resource values. As provided by the FLPMA (see Chapter 3, Lands and Realty for disposal criteria), the majority of lands identified for disposal are located in and around communities in support of community growth and expansion needs such as schools, parks, cemeteries, and fire stations.

The federal government cannot restrict development of lands when they are sold unless they are sold for a specific public or recreational purpose at less than fair market value under the R&PP Act.

D. Lands in our grazing allotment should not be identified for disposal.

H. In the section "Lands Identified for Disposal – Alternative E," for a wide variety of reasons, the following parcels should not be disposed of, sold, or traded: T41N – R8E

(Sec. 1) S ½, Sec 18 SE1/4, Sec 19 NE1/4), T41N – R8E (Sec 20 NW1/4, Sec 21 N1/2 N1/2), T40N – R5W (Sec 6 lots 2,3,4 and 7, SE1/4 SW1/4 and SW1/4 SE1/4), T40N – R5W (Sec 6, E1/2 SE1/4), T41N – R5W (Sec 17, N1/2 N1/2 N1/2 NE1/4 and N1/2 N1/2 N1/2 NE1/4 NW1/4), T41N – R5W (Sec. 30, lot 3, NE1/4 SW1/4), T41N – R5W (Sec. 31, lots 1 to 4 inclusive, E1/2 and E1/2 W1/2), T41N – R6W (Sec 25 E1/2 SE1/4), T41N – R6W (Sec 5. lot 11 and SE1/4 SW1/4) (Sec 8. W1/2 E1/2 E1/2 and NW1/4 SE1/4) (Sec 16. S1/2), T41N – R7W (Sec 4, lot 3 and 4, SW1/4 NE1/4, S1/2 NW1/4, NE1/4 SW1/4, N1/2 SE1/4, SE1/4 SE1/4), T41N – R7W (Sec 10 SE1/4 NE1/4, NE1/4 SE1/4), T41N – R7W (Sec. 14), T42N – R7W (Sec. 33, lots 2,3 and 4, and S1/2), T42N – R6W (Sec 32 – Corngrowers Site), T41N – R11W (Sec 6, Lots 1 and 2, S1/2 NE1/4, and SE1/4) (Sec 7, NE1/4), T42N – R11W (Sec 31 Lots 1 and 2, SE1/4).

Response: Lands identified for disposal in the Ferry Swale area were reduced to the N1/2N1/2, sec. 21, T. 41 N., R. 8 E., under the authority of the R&PP Act only. Lands in the Lone Butte area are no longer identified for disposal. The parcel within T. 41 N., R. 5 W., sec. 17, was identified for disposal to resolve a trespass. The trespasser paid administrative fees, but is still required to purchase priority lands within a National Landscape Conservation System (NLCS) unit to exchange, otherwise the improvements on BLM-administered land must be removed and the land returned to its prior condition. The BLM will follow up with this upon completion of this Plan. The lands identified for disposal near Lost Spring Mountain will remain identified for disposal. However, full compliance with NEPA and cultural resource laws would be required prior to disposal. The Corn Grower's site in Colorado City will remain identified for disposal. It was BLM's desire to make this a public use site in the 1992 RMP. However, given current budget constraints and Colorado City's preference, the site will not be developed. Full excavations of the site will occur prior to land disposal. Parcels west of Little Black Mountain were not removed from the lands identified for disposal and will not be included in the Little Black Mountain ACEC as they do not border the ACEC.

Public Concern #30 (LR2)

There were a number of comments regarding specific areas of land swap and land acquisition in the Planning Area.

A. The critical desert tortoise habitat east of the Beaver Dam schools should be made available to residential development.

Response: Several parcels of BLM-administered land were considered for the Beaver Dam Elementary and High Schools, but the Littlefield School District and Local School Board preferred the current locations. They were well aware of the boundary of the Beaver Dam ACEC and that BLM-administered land east of the schools would not be available for development. Inventories have been conducted in the area east of the schools that indicate moderately high desert tortoise densities. Critical habitat is designated by the USFWS. BLM is required by the ESA to manage the land for the survival and recovery of the species identified.

BLM policy also provides that critical habitat should be retained in federal ownership. The BLM-administered land east of the Beaver Dam schools will not be identified for disposal and the ACEC boundary will continue to be the BLM/School District boundary.

B. The State of Arizona should be compensated with BLM land in exchange for loss of State land holdings in the Monuments.

Response: The State of Arizona currently does not have authority to exchange land. Arizona's 1910 State Enabling Act and the 1912 Arizona Constitution required that State Trust lands could be disposed of only by public auction to the highest and best bidder. In 1936, the U.S. Congress amended the Enabling Act to authorize the State to make land exchanges under such regulations as the State Legislature may provide. However, the State failed to amend the State Constitution to make the land disposal requirements in the Constitution consistent with the congressional exchange amendment of the Enabling Act. The Legislature did pass exchange statutes and for more than 50 years the State made land exchanges with the federal government and private landowners to consolidate and improve the location of Trust land holdings. The exchange program was halted in 1988 after the State Supreme Court ruled that the State had failed to amend its 1912 State Constitution to authorize the exchange of Trust lands as an alternative to sale at public auction. Subsequent propositions to amend the State Constitution have not passed.

C. The BLM should prioritize areas in/adjacent to the Monuments when acquiring non-federal lands and interests in lands in areas allocated to maintain wilderness characteristics and set a timeframe within three years after finalization of the Plan.

Response: The BLM does currently and will continue to prioritize land acquisitions on a statewide basis. The BLM's ability to acquire land is based on having a willing seller and, if non-federal land becomes available for purchase, funding and staff are not always readily available. It is not realistic to place a three-year timeframe on land acquisitions. All land use plan decisions apply only to BLM-administered lands within the Planning Area.

D. Identify for disposal T41N, R15W., sec. 28, SWSWSW (small triangle southwest corner).

Response: See Response to Public Concern #29 D and H above.

E. The document should expand the discussion of cumulative and interrelated and interdependent effects associated with land exchanges, disposal, and development.

Response: We agree and have expanded the discussion of cumulative effects of land exchanges, disposals, and future development in the Proposed Plan/FEIS.

Public Concern #31 (LR3)

A number of comments expressed concern regarding the impact of land disposal/swap/acquisition on wildlife and other special status species.

A. Is Critical desert tortoise habitat available for disposal? Other suitable desert tortoise habitat should not be available for disposal.

*B. Where Brady's Pincushion cactus (*Pediocactus bradyi*) or its habitat is found along US 89A, please discontinue authorizing new special use permits in order to reduce potential vehicular damage to the cactus or its habitat.*

E. The statement, "utility lines on BLM lands would be designed, located, and constructed so as to avoid attracting desert tortoise predators" (page 2-89 in the Draft RMP/DEIS) is based on an erroneous assumption. Standard high-tension power towers are made of latticework and are virtually impossible to render unusable by ravens.

Response: The BLM has carefully considered the need for community growth and development in the area around Littlefield and Beaver Dam, Arizona. In an effort to provide for this expansion and minimize adverse affects to sensitive resources, including desert tortoise, the BLM has identified several parcels of land adjacent to these communities for disposal. Most of these parcels were identified as available for disposal in the 1992 RMP (Alternative A) and have been carried forward through several plan amendments. Areas that have since been designated by the USFWS as critical habitat have been removed from the list of parcels available for disposal. No critical desert tortoise habitat has been identified for disposal in the Proposed Plan/FEIS. Those lands that are identified are either not habitat for desert tortoise or are low-density (former category 3) tortoise habitat outside of the desert tortoise ACECs. These parcels are between two tortoise impassable barriers: the Virgin River and Interstate 15. Within the exception of a few culverts under the Interstate, these lands are physically isolated from the surrounding tortoise habitat. We believe that all manageable desert tortoise habitat has been included in the ACECs. The BLM is committed to managing the ACECs for the benefit of desert tortoise. The BLM identified lands outside the ACECs for disposal in an effort to try to focus future development in areas with low resource values.

The BLM will, as agreed in a March 1, 2006, meet with USFWS and ADOT, monitor the Brady's Pincushion cactus habitat area for OHV use and increased pedestrian use on an ongoing basis. Cactus monitoring results and the need for additional measures will be reviewed at regular meetings with ADOT.

C: The proposed Western Utility Group priority corridor shown on the Land Disposal Map in Cane Beds is potentially invasive to wildlife habitat. There already exists an underground utility line in the bottom of Rosy Canyon that subsequently follows Cane

*Beds road and Yellowstone Road that would be a viable route for any future utilities.
Concerned about the use of eminent domain that could occur with the current route.*

Response: See response to Public Concern #33 D and E below.

D. We recommend the BLM should carefully balance the DFCs associated with the National Energy Policy and the R&PP Act with the likely impacts to important and vulnerable ecosystems that such disposals may cause as well as the impacts of disposals within the Arizona Strip on objects identified in the Monument proclamations.

Response: No lands have been identified for disposal within the Monuments, therefore, no land disposals would take place under the R&PP Act making it unnecessary to address the impacts of land disposals within the Monuments or on objects identified in the Monument proclamations. Only ROWs as provided in Table 2.11: Lands and Realty could be authorized in the Monuments. The Lime Kiln portion of the utility corridor was removed from Parashant. The BLM does currently and will continue to comply with NEPA and applicable environmental laws, which includes the evaluation of impacts to important and vulnerable ecosystems, prior to the issuance of any ROW grant or the granting of land under the R&PP Act. This includes authorizations associated with the National Energy Policy Act.

Public Concern #32 (LR4)

A number of replies suggested modifications or clarifications to wording in the Plan.

A. Airports should not be listed in conjunction with landfills and sewer treatment ponds in 2-217.

F. The statement, "The Lands and Realty Program would respond effectively to the needs of external customers (i.e. the public) for the use and enjoyment of current and future generations and to internal customers (i.e. resource programs) for the protection and conservation of resources," in the section, "Common to all Planning Areas," sounds as though the Lands and Realty Program would respond only to internal staff for conservation and resource protection needs and not the general public.

Response: There is no connection between aviation and landfills other than the USFWS's Biological Opinion for the 1992 RMP, which stated that they do not want either to be located within the ACEC. Decision wording for Alternative A is printed verbatim from the 1992 RMP and cannot be changed. The DFCs statement in Table 2.11 (Lands and Realty) in the Draft Plan/DEIS has been reworded. The Proposed Plan/FEIS now states, "The Lands and Realty Program would respond effectively to the needs of external customers (i.e. the public) and internal customers (i.e., resource programs) for the use and enjoyment of current and future generations and for the protection and conservation of resources."

B. On Page 25, measure CR-2F, the term “appreciable reduction” should be defined.

C. Table 2.16 would be better phrased, “Land exchanges or disposals would be managed so that future developments would not adversely affect flows in the Virgin River,” as it would provide better protection for listed fish.

D. On Page 20, measure WF-2.C. reads more like a DFC than a conservation measure. For clarity, reword to state that land exchanges will occur only if there will be net benefits to the particular species.

E. Page 24, measure CR-2.D., and others that are worded similarly for other species, is confusing. The use development potential as a criterion for acquiring lands may not provide the best opportunities for conserving habitat for listed species.

Response: These conservation measures were carried forward from the terms and conditions of the 1998 Mojave Amendment to the 1992 RMP. We agree that the measures are confusing and the phrase “appreciable reduction” is vague. We believe that no disposal of habitat within the Virgin River corridor would have a net benefit on Southwestern Willow Flycatcher since there is a strong likelihood that the resulting development would require water. At best, disposals would be neutral in their effect. As a result, no disposals could occur. The conservation measures have been re-written in the Proposed Plan/FEIS for clarification. Development and use of groundwater resources on disposed lands could lead to reduction in water quantity and quality in the Virgin River, thereby affecting riparian vegetation, native fish, and other sensitive resources. The future development and use of disposal lands is unknown at this time. As a result, the BLM would evaluate each disposal action through NEPA and ESA on a case-by-case basis as proposals are received. Because groundwater reductions are cumulative in their effects on resources, the BLM would take a broad look at effects from all land disposals and water withdrawals in the Arizona section of the Virgin River. Due to the potential for significant adverse affects to listed species, the BLM would strongly encourage development and implementation of a habitat conservation plan for the Arizona reach of the Virgin River.

Public Concern #33 (LR5)

A number of people commented on ROW policies in the Plan.

A. Does the Plan make allowances for future ROWs across State Trust and private land?

B. No ROW exceptions should be granted on new authorizations for “public safety” reasons within the Monuments or those areas identified as having wilderness characteristics.

C. In addition to no new ROWs permitted on the Monuments, the BLM should state that applications for existing ROWs within the Monuments will not only have to meet NEPA compliance, but will be reviewed for conformance with the Monument proclamations.

Response: The BLM does not have authority to grant access **across** state or private land inside or outside of the Monuments. However, there are allowances in the Plan for future ROWs to provide access to state and private lands. Refer to Table 2.11: Lands and Realty, Management Actions, Land Use Authorizations, of the Draft Plan/DEIS. Within the Monuments, “No new ROWs or ancillary facilities would be authorized within the Monuments, except for ROWs pursuant to existing policies and practices and necessary for access to and/or maintenance of private or state inholdings. On BLM land, ROWs may be authorized for needs identified on private or state lands...” Land use authorizations, including ROWs, are issued only after compliance with NEPA, applicable environmental laws, and other land use plan decisions. The Plan clearly states that ROWs would require compliance with NEPA and other applicable environmental laws, as well as, compliance with other land use plan decisions, which includes protection of Monument objects (see Table 2.11: Lands and Realty). In addition, the Monument proclamations clearly state that valid existing rights would be protected. This includes existing ROWs. Existing ROWs in the Monuments are currently monitored and new stipulations will be added, if determined necessary.

D. The ROW for the Lake Powell Pipeline to Sand Hollow in Table 2.11 C (page-126 in the Draft Plan/DEIS) should be adopted.

E. The Water District is actively pursuing the Lake Powell Pipeline Project to bring water from Lake Powell to Kanab and across the Arizona Strip into the Sand Hollow area. As stated in the Draft Plan/DEIS, it is hoped that the pipeline will follow existing ROWs; however, there may be circumstances where that may not be possible.

Response: That portion of the utility corridor between Rosy Canyon and the regional utility corridor has been removed from non-federal land. The decisions in Table 2:11: Lands and Realty apply only to BLM-administered land. Land use authorizations, including powerline ROWs and water pipelines, are issued only after compliance with NEPA, applicable environmental laws, and other land use plan decisions. Stipulations identified as a result of the NEPA process are included in all land use authorizations. Currently, there are no new developments proposed within the existing utility corridor, however, preliminary investigations for a possible alternative route for the proposed Lake Powell Pipeline have taken place.

Public Concern #34 (LR6)

A number of comments were submitted regarding utility corridors proposed in the Plan.

A. The BLM should adopt the ½ mile Utility Corridor running from Glen Canyon Dam to the Arizona/Nevada border defined in Alternative B as compared to the 1-mile wide corridor defined in Alternative E of the Draft Plan/DEIS.

B. The existing utility corridor proposed to be expanded to one mile wide in the Ferry Swale and Beaver Dam Slope ACEC should remain at the current width unless stipulations for future developments can be added to avoid impacts to wildlife.

The Draft Plan/DEIS should present the locations of existing and proposed corridors and evaluate the impact utilities will have on tortoise populations. The BLM should designate the corridors to be as narrow as possible (e.g. no wider than 0.25 to 0.5) since the wider they are the more tortoises will be impacted by ravens.

Regarding the proposed Lake Powell Pipeline, make it clear that an EIS will need to be completed prior to authorizing the “use of BLM land for that route and a portion of the proposed flood control reservoir at Fort Pearce in Utah.”

Response: See response to Public Concern #33 D and E above.

Public Concern #35 (LR7)

Some comments address other decisions in the Lands and Realty section or are general comments on the section as a whole.

A. Private lands and inholdings should be left alone.

Response: See Response to Public Concern #30 C on page 5-265.

B. Regarding Table 2.11, page 2-128 of the Draft Plan/DEIS, model airplane interests asked that the road to the Page landfill be accessible for recreational use.

C. The Draft Plan/DEIS states federal land would be made available for expansion of the existing Colorado City airport, in coordination with Colorado City officials, ADOT and FAA. Whose grazing allotment would be reduced in size for this to take place?

Response: The paved road to the closed Page landfill will remain in place for access by city maintenance vehicles in order to monitor the old landfill site. The road will not be open to public access.

Regulations at 43 Code of Federal Regulations 4110.4-2(b) provide for a two-year prior notification before any use may occur on a grazing permit/lease that precludes livestock grazing. Land has been identified for disposal for future expansion of the Colorado City Airport and the affected grazing permittee would be notified.

ISSUE # 8: SOCIOECONOMICS (SO)***Public Concern #36 (SO1)***

A number of responses noted that the socioeconomic data provided is lacking, out-of date, or requires further analysis.

A. In addition to county levels, the socioeconomic impacts need to be considered at individual community levels.

Response: Community level impacts are considered in the impact analysis where possible. Detailed information on the 16 communities/community groupings is also provided in Appendix 3.I. Information on specific community-level impacts was limited by available data.

B. The socioeconomic impacts to the study area need to be quantified before a definitive “no socioeconomic impacts” judgment can be rendered.

Response: The socioeconomic impact section was updated in the Proposed Plan/FEIS by including available quantifiable data, including quantifying the impacts from livestock grazing based on the cost per AUM lost by alternative due to the proposed unavailability of livestock grazing on allotments.

C. The alternatives lack the most current hard data.

Response: The profiles of the communities in the study area were updated in the Proposed Plan/FEIS by incorporating population estimates between 2000 and 2005 and incorporating more recent employment data, including labor force numbers and unemployment rates for the first half of 2006.

D. The Plan omits newly incorporated communities.

Response: Apple Valley, incorporated October 14, 2004, was added to the community profile discussion in the Proposed Plan/FEIS under Washington County, Utah. Unfortunately, socioeconomic data is very limited for this community as it was not included in the 2000 census.

E. The Plan neglects the socioeconomic impact to private property owners in the Planning Area.

Response: While restricting “free and unencumbered access for development” would affect private property owners, lifting all such restrictions on access are out of the scope of this Plan.

F. The growth estimates provided for the study area are incorrect or /unsubstantiated.

Response: Growth estimates are based on the most reliable data available, including data from the U.S. Census. Data on past growth (up to 2000) are based on actual numbers (collected via the census), while estimates (2001-2005) and projections (up to 2030) are based on dependable methods used by federal or state governments.

G. There is no impact data for the communities that are affected by the Plan.

Response: See response to Public Concern #36 A above.

H. As mandated by the latest version of BLM's Land Use Planning Handbook, the Plan does not review and summarize relevant published literature on the history, economy, and social systems of the study area.

Response: The most recent studies available were used in the socioeconomic analysis, including from the U.S. Census Bureau; Department of Labor, Bureau of Labor Statistics; U.S. Department of Commerce, Bureau of Economic Analysis Regional Economic Information System; Arizona Department of Economic Security; and Utah Department of Workforce Services.

I. The Plan should demonstrate what kinds of businesses depend on tourism, resource extraction, and other activities within the study area.

Response: Information on tourism, resource extraction, and other activities is presented in Appendix 3.I of the Draft Plan/DEIS, which was updated in the Proposed Plan/FEIS.

J. The interrelation of social and economic factors needs further analysis.

Response: See response to Public Concern #36 A and B above.

K. The population data used is inaccurate and does not reflect actual growth rates.

Response: See response to Public Concern #36 F above.

L. Statistics prove that multiple uses are inappropriate for the Arizona Strip.

Response: The term "multiple use" management was created by Congress, which defined it as "management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people." Consequently, the BLM is required to manage public lands on the Arizona Strip for multiple uses.

M. Citing the Sonoran Institute (2003) for the graphs in the appendix is not accurate as these graphs come from several different sources (sources provided).

Response: As suggested, the source citations for the graphs in Appendix 3.I were corrected in the Proposed Plan/FEIS.

N. "Parashant" and "Vermillion" socioeconomics sections seem to refer to NLCS units, so they should be called by their complete names (e.g., "Grand Canyon-Parashant National Monument Socioeconomics").

Response: The terms "Vermilion" and "Parashant" replace "Vermilion Cliffs National Monument" and "Grand Canyon-Parashant National Monument," respectively, throughout the Draft Plan/DEIS and Proposed Plan/FEIS. It is clearly indicated at the beginning of the document that these abbreviated names would be used.

O. The information in the socioeconomics appendix should be moved to the main document as it contains the key points of the analysis.

Response: Due to size and formatting restrictions, the decision was made to leave the socioeconomic profile of the study area in Appendix 3.1 of the Proposed Plan/FEIS. This does not negate the importance of the information and readers can easily access the information for review.

Public Concern # 37 (SO2)

Many responses expressed concern regarding the socioeconomic data pertaining to ranching.

A. The Plan does not reference any/enough studies that demonstrate the economic benefits of ranching within the study area.

Response: The 2006 study by Fletcher, Borden, and Grumbles (*Economic Impacts of Livestock Grazing and Recreation on the Arizona Strip*) was reviewed and pertinent information was added into the socioeconomic analysis of the Proposed Plan/FEIS.

B. The Plan understates the economic significance of ranching and livestock operations to the study area.

Response: Additional information on ranching and livestock operations in the study area is presented in the socioeconomic sections of the Proposed Plan/FEIS. Also, see response to Public Concern #36 B and #37 A above.

C. The Plan relies too heavily on analysis provided by the Sonoran Institute.

Response: Other sources of data, in addition to those provided by the Sonoran Institute, were used in the community profile and socioeconomic analysis. See response to Public Concern #36 H above.

D. The Plan does not take into consideration the sustainability of ranching and livestock operations.

Response: The Plan proposes to maintain current levels of livestock grazing throughout most of the Planning Area. This, coupled with maintenance of one existing forage reserve and establishment of two new forage reserves, will more than adequately provide for sustained ranching and livestock operations.

E. The Plan overstates the economic benefits of ranching in the study area

Response: The discussion of benefits from ranching and livestock operations and impacts to such resource uses has been revised in the Proposed Plan/FEIS. See response to Public Concern #36 B and #37 A and B above.

Public Concern # 38 (SO3)

A few responses noted a need for more data regarding the impact of recreational activities in the study area.

A. The Plan does not take into account the substantial benefits to the economy provided by OHV recreational activities.

Response: Additional benefits from OHV recreational activities have been included in the Proposed Plan/FEIS.

B. There is no alternative provided that maximizes economic benefits.

Response: Alternative D maximizes economic benefits. See page 2-12 of the Draft Plan/DEIS.

Public Concern # 39 (SO4)

“Community Management Unit(s)” should be as large as possible to provide for substantial future growth.

Response: Potential land disposals should address future growth near the communities.

ISSUE # 9: ALTERNATIVES (AL)***Public Concern #17 (AL1)***

Why are new decisions necessary on the Arizona Strip? The Arizona Strip is fine the way it is, why change it? What changes required a revision of the 1992 Arizona Strip RMP?

Response: New decisions were necessary on the Arizona Strip because management plans needed to be created for Parashant and Vermilion, both designated by presidential proclamations in 2000. We also found this an opportunity to address changes and update decisions on the Arizona Strip FO lands, adjacent to these new Monuments. Access to these Monuments crosses the Arizona Strip FO and some uses, such as community woodcutting or the use of mineral materials (sand and gravel, flagstone, etc.) can now only occur outside of the Monuments. Interim Management has been in place on these Monuments since shortly after they were designated so a public process was needed so that the first management plans for these new Monuments could address how they would be managed into the future. This planning process has accomplished this. We were fortunate to have ten cooperating agencies, including local counties, communities, and tribes contributing to these decisions. Moreover, we received five times as many comments on the Draft Plan/DEIS than any other plan in Arizona and one-third more comments than the Grand Staircase-Escalante National Monument to the north. We are grateful for the broad public involvement, which has made this Proposed Plan/FEIS a much better document.

Managers felt that planning for the entire Planning Area (Parashant, Vermilion, and the Arizona FO) at once would be more cost effective, less confusing and demanding for the public, and would allow a more comprehensive, interrelated look at both Monument and non-Monument lands. They felt this would result in better decisions overall for these lands.

Other changes occurring in the region include the explosive population growth in nearby Washington County, Utah and Clark County, Nevada. Over the past 14 years, since the last RMP on the Arizona Strip, population has more than doubled in St. George, Utah and Mesquite, Nevada is at least five times larger. There has been a slight but steady increase in visitation to the region (e.g., to Zion and Grand Canyon National Parks and Lake Mead NRA) and that is expected to continue. Increasing visitation to Parashant and Vermilion is also expected to occur, as the public discovers these new Monuments. With the continuing demographic shift of population to southern Utah and Nevada, the demand for recreation opportunities in key areas across the Planning Area is expected to increase over the life of this Plan. The growing communities on the northern edges of the Arizona Strip will also continue to require mineral materials, firewood, flagstone, open spaces, vistas, and recreational opportunities near their towns.

Alternative A, the No Action Alternative, served as the baseline for comparison with the other alternatives presented. Each decision in this alternative was examined and was changed only if

there was a need for change. The decision tables illustrate that not all decisions were changed. We tried to leave the best decisions in Alternative A and only make necessary changes to update or add to them. In some cases, there are completely new sections presented in this Plan that were not in the 1992 RMP; such as Travel Management, Transportation Facilities, Wilderness Characteristics, Paleontology, Resources of Traditional Importance to American Indians, Soundscapes, Cave and Karst Management, Public Health and Safety, and Scientific Research. These represent the current demands of managing these lands and include more of what the agencies now must deal with every day.

We also believe the Proposed Plan/FEIS presents better DFCs for each resource and use, including those for Monument objects. These goals and objectives will assist managers and resource specialists in managing the resources and uses of these lands. The new and updated decisions will help us protect the Monument objects for which the Monuments were designated and manage these lands for a wide variety of uses.

Public Concern #18 (AL2)

A number of responses were in favor of Alternative B. Some gave reasons for their support of this option, while others qualified their support with specific requests for alterations.

A. The Agencies' Preferred Alternative does not protect the Monument objects, the fragile environment, natural and cultural resources, remoteness and sense of isolation, wildlife and their habitat, sensitive species, natural quiet, and scenic beauty.

Alternative E does not close enough roads, have enough acres to protect those areas with wilderness characteristics, and is not restrictive enough to protect Monument objects and natural and cultural resources.

Response: We appreciate the comments from those who believe that Alternative B and/or more restrictive management decisions are the best means to protect Monument objects, wilderness characteristics, and/or other resources or values. Some of these commenters were also among those who called for obtaining more baseline information, conducting more monitoring, and/or providing greater law enforcement presence. This poses a potential conflict because the reality of the situation, given the remoteness and travel distances on the Arizona Strip, is that people generally need motorized access to conduct these requested activities. To address this potential conflict, we evaluated existing routes to determine which were necessary for public uses versus those that may be better suited to a limitation of only administrative uses. In addition, some threats to objects or resources, such as disease outbreaks or invasive weed colonizations, may require human intervention. To be cost effective and prompt, that intervention may often require motorized access. In other words, motorized access may contribute to some problems (such as poaching or pot hunting) but may also contribute to some solutions (such as stopping invasive weeds from spreading or inventorying cultural sites before they may be degraded). We hope that these commenters understand this dichotomy and respect that the BLM and NPS face difficult decisions in trying to reconcile it.

We believe the Preferred Alternative in the Draft Plan/DEIS presented the best combination of possible decisions to protect Monument objects and natural and cultural resources, based on everything collected, analyzed, and considered at that time. Some commenters believed that the Preferred Alternative presented the best balance between protection of resources and uses. Others felt that one of the other alternatives was better. Some felt that none of the alternatives presented the full range of either use or protection. We respect the great diversity of perspectives on the Alternatives, and expect that these perspectives will continue as people evaluate the Proposed Plan. Diverse public comments helped us improve, clarify, and refine the Proposed Plan/FEIS and strengthen the analyses.

B. The agencies' Preferred Alternative ignores the majority of public opinion expressed in the 2002 scoping process asking for increased protection of the Arizona Strip's natural and cultural resources.

Response: Most of the public comments received during scoping, alternative development, and on the Draft Plan/DEIS were form letters, which usually lacked specific comments on specific decisions. All comment letters received were read, analyzed, and considered at each of the planning stages. Specific comments, either written or in meetings, proved best in providing rationale for specific changes to individual routes, wilderness characteristics areas, protection of Monument objects, Visual Resources, ACECs, OHV open areas, and the myriad of natural and cultural resources presented in this Proposed Plan/FEIS. The public planning process is also an educational and informational one that provides information both ways – to the individuals, groups, and communities concerned with land management and to the agencies responsible for managing those lands for the public. The information provided by the public, whether specific or not, helped in shaping this Proposed Plan/FEIS, which represents the best balance of protection and use. And we believe it was a successful process in informing and educating about the Arizona Strip and the complexity of managing its special natural and cultural resources.

Public Concern #19 (AL3)

A number of responses were in favor of Alternative C.

Response: Thank you for your comments.

Public Concern #20 (AL4)

A number of responses were in favor of Alternative D. Some gave reasons for their support of this option, while others qualified their support with specific requests for alterations.

A. Supports Alternative D as there is no evidence that there are significant threats to the area.

- B. Supports Alternative D as it is the least restrictive against multiple uses.*
- C. Supports Alternative D as it is the least restrictive against motorized vehicle use and general access.*

Response: Thank you for your comments.

Public Concern #21 (AL5)

A number of responses were in favor of Alternative E. Some gave reasons for their support of this option, while others qualified their support with specific requests for alterations.

- A. Supports this alternative as it provides a balance of protecting resources, maintaining multiple uses, and allowing access to the area.*
- B. Supports this alternative, but requests fewer road closures.*
- C. Supports this alternative, except notes that it fails to address any provisions for protecting certain special, scenic areas, especially in the Vermillion Cliffs NM.*
- D. Supports Alternative E as it is the only financially viable option.*
- E. Supports this option, but the southern sections of the Planning Area should be opened more for public recreational activities.*

Response: Thank you for your comments.

Public Concern #22 (AL6)

A number of responses suggest that a given Alternative, or all Alternatives, is undesirable. Some respondents gave specific reasons why.

- A. Does the Draft Plan/DEIS contain an adequate range of alternatives? The alternatives do not offer adequate protection to Monument objects of the environment and do not comply with the proclamations designating both Monuments. The alternatives are unsatisfactory as they ignore the fact that recreation is the primary use of the land and does not provide adequate opportunity for low-impact activities such as hiking, backpacking, or bird watching.*

Response: During scoping, development of the alternatives, and now, in considering comments on the Draft Plan/DEIS, thousands of public comments were received and dozens of meetings were held from 2000 to the present day with various individuals, groups, communities, and tribes. Community Based Partnership and Stewardship workshops were held early in the

planning process. James Kent and Associates assisted staff in conducting the Community Discovery Process early in planning as well.

Some large comments and reports, including transportation plans, specific recommendations on the use of transportation routes, reports on transportation effects on wildlife and cultural resources, recommendations for additional ACECs and wilderness characteristic's areas, and new information on socioeconomics of livestock grazing and recreation were received. In each case, the information was reviewed by staff at various agency levels (Arizona Strip District, Lake Mead NRA, regional and state offices, and Washington offices, cooperating agencies, and other federal and state agencies), depending on the nature of the information provided. The information, if provided in GIS format, was compared and/or integrated to the appropriate GIS theme. It was also used as a Mylar overlay or as additional information when determining the array of alternatives. The information, for the most part, was very useful in providing a wider spectrum of information and possibilities to the planning staff. For the issues of most concern to the public (access, wilderness, and protection of resources) this information was used in conjunction with internal information for these resources (see Appendices 2.L, 2.T, and 3.D for specific processes used). Criteria were developed for selecting routes, wilderness characteristics, and ACECs. Using all information available, the planning team rigorously explored and objectively evaluated all information so that the management team could identify a range of reasonable alternatives along with the Preferred Alternative that were responsive to the issues identified during scoping and the purpose and need for the plans.

Planning staff presented possible alternative decisions, based on both external and internal information, to management in order to identify the array of alternatives and to determine the Preferred Alternative. Choosing by Advantages also assisted in selecting the Preferred Alternative. The external information provided was not placed entirely into one of the alternatives, as other planning efforts have done, but were considered and assisted in developing all of the alternatives. The agencies' Preferred Alternative constituted the best combination of possible decisions based on the information available at the time.

We appreciate the comments for or against the Alternatives. These comments helped us to improve and refine our Proposed Plan. We respect the great diversity of perspectives on the Alternatives, and expect that these perspectives will continue as people evaluate the Proposed Plan.

Some commenters believe that recreation use is the predominant use in the Planning Area. Granted, all kinds of recreation occurs on the Arizona Strip, but a wide variety of other uses also apply including mining, livestock grazing, protection of scenic viewsheds, managing habitat for plants and animals, scientific research of natural and cultural resources, and land tenure changes to support community and agency goals. This Proposed Plan contains DFCs, management actions, administrative actions, implementation decisions, provisions, stipulations, and restrictions in order to protect the natural and cultural resources, including Monument objects, as recreation use increases on the Arizona Strip.

B. Why didn't the Preferred Alternative close more land to mineral exploration and development in the Arizona Strip FO?

Response: The Monuments were withdrawn from mineral entry when the President signed the proclamations creating them in 2000. Wilderness areas are also withdrawn from mineral entry. The combination of both the Monuments and all the wilderness areas in the Arizona Strip FO entail approximately 1,460,753 acres that are withdrawn from mineral entry on the Arizona Strip, which is about 43% of the entire Planning Area.

On the remaining 57% of the Planning Area, the mining laws require the BLM to provide for mineral exploration and development. The BLM's discretionary authority under these laws is limited. Special stipulations and restrictions to protect resources are described in this Proposed Plan. For example, in ACECs a plan of operations is required so that avoidance and other mitigating measures to protect critical resources can occur. Restrictions, stipulations, terms, and conditions can also be placed, depending on the type of mining activity and where it occurs, in order to protect resources (see Appendices 2.I, 2.O, and 2.P for specific information on mineral categories and restrictions or stipulations).

C. Why isn't there a "No Grazing" Alternative?

Response: A no grazing alternative was analyzed in the Grazing EIS (1979) and carried forward through the Arizona Strip 1992 RMP/EIS; therefore, we did not consider it necessary to analyze one again. The proclamation establishing Parashant identifies ranching and ranch structures as Monument objects, and directs the BLM to continue administering grazing use under applicable laws, regulations, and policies. The Draft Plan/DEIS did present and analyze a no grazing alternative in desert tortoise habitat under Alternative B. The Multiple Use Sustained Yield Act of 1960 is directed to the Department of Agriculture, not the Department of Interior under which the BLM and NPS both fall. It does not apply to Department of Interior agencies. FLPMA applies to BLM lands which also have a multiple use and sustained yield requirement as well as a consideration of the present and potential uses of the public lands, and weighing long term benefits to the public against short term benefits (FLPMA Section 202(c)(1), (5), (7)). The alternatives presented and analyzed for livestock grazing, including the no livestock grazing alternative in desert tortoise habitat, comply with FLPMA. The Arizona Standards for Rangeland Health and Guidelines for grazing management will continue to be applied on grazing allotments on the Arizona Strip. Monitoring studies and ecological site inventories will continue to assess and evaluate resource conditions. Measures will be taken, if resources are degraded.

D. Why didn't the BLM analyze an alternative that closes all springs and seeps to grazing?

Response: There are varied reasons why not all springs and seeps can be treated equally, as the terms spring and seep imply. Some are inaccessible to livestock, some are fenced, some have no

associated riparian vegetation, and some are located on private or state lands. Each has a different potential and different management needs. These are all implementation level decisions and are better handled at the implementation or activity level. The Standards and Guides process will be used to identify specific livestock grazing issues. In addition, specific recommendations will be made at that time for areas or conditions that require attention.

ISSUE # 10: GENERAL

Public Concern #23 (GENI)

Many responses had suggestions as to how the document could be improved or made more readable. These include the need for many terms used to be defined, filling in missing information, and correcting typos.

A. Typographical error in Appendix 3.1, pg 29. There are duplicate phrases in the description of Ivins that need to be corrected.

Response: Correction made.

B. Typographical error in 2-13 under Management Actions: Alternative E. Second line should refer to Alternative E, not A.

Response: Corrections made.

C. The numbers in the “% change” column of Table 4.4, page 4-365 are not correct. The number for Kane County should be 381 percent (rather than 113 percent) and the number for Washington County should be 476 percent (rather than 316 percent).

Response: Correction made.

D. The term “context” is used inconsistently in the document.

Response: No specifics given to explain the differing uses of the term context.

E. Because of the large geographic area and complexity of issues, the analysis would have been clarified with the use of tables including available quantitative information for each resource evaluated in Chapter 4.

Response: The level of analysis in Chapter 4 is considered appropriate for an area the size of the Planning Area and for the broad land use planning level decisions in the Proposed Plan. More site-specific analysis will occur at the project level in the future.

F. The definition of USFWS category SC at the end Table 3.14 is missing.

Response: “SC” stands for “Species of Concern.” The term describes a taxon whose conservation status may be of concern to the USFWS. We have added the definition of SC to the end of Table 3.14 and to the glossary in the Proposed Plan/FEIS.

G. It would be helpful to have the maps inserted with the appropriate table for ease of reference.

Response: Keeping all the Alternative maps together helps to compare the alternatives. If we put them with their respective decision table, Chapter 2 would not have flowed as well as it did in the Draft Plan/DEIS. However, in the Proposed Plan, maps are only presented for one alternative, the agencies’ Preferred Alternative (Alternative E in the Draft Plan/DEIS) which has now become the Proposed Plan. Thanks for the suggestion.

H. Common names of species should be capitalized (i.e. Southwestern Willow Flycatcher).

Response: After researching this comment, we determined that common names of birds are consistently capitalized. Mammals, reptiles, fish, and plant common names are typically not capitalized unless they begin a sentence or include a proper noun. We have made the appropriate changes as throughout the Proposed Plan/FEIS.

I. Where are the terms “airstrip” and “authorized airstrip” defined?

Response: New definitions for both terms have now been placed in the glossary of the Proposed Plan/FEIS.

J. Where is the term “special status species habitat” defined?

Response: As defined in the glossary, habitat is a specific set of physical conditions that surround a species, group of species, or a large community. In wildlife management, the major constituents of habitat are considered to be food, water, cover, and living space. Special status species include federally listed, proposed, and candidate species under the ESA, state-listed species, and BLM state director-designated sensitive species. Special status species habitat refers to any area where one or more special status may occur.

K. Table 4 in Appendix 1.C should identify which issue category the noted form letters addressed and in what amounts

Response: In the Scoping Report, we reported that 1,600 form letters from the Wilderness Society web page were received out of 2,219 total letters received for this planning effort (see page 17 of the Scoping Report, located at <http://www.blm.gov/az/LUP/strip/reports.htm>). Copies of this form letter constituted 72% of all scoping letters received.

L. A sample copy of an [cooperating agency] MOU should be included in the Appendix of the Proposed Plan/FEIS.

Response: A new appendix has been created for the Proposed Plan/FEIS that contains a sample MOU for a cooperating agency.

M. The 1994 Recovery Plan for Desert Tortoise (USFWS 1994) is not listed among the Plans and other Guidance Documents in the list on Page 1-19.

Response: We have added the recovery plan for desert tortoise to the list in Chapter 1 of the Proposed Plan/FEIS.

N. Pages 1-14 and 1-15 list multiple uses are being the primary emphasis of management, but most goals listed in the "Blueprints for the Future" emphasize dealing with the public and visitors.

Response: Thank you for your comment.

O. On Page 2-233, impact ratings need to include context, timing, and whether the impact is beneficial or adverse.

Response: We believe the Proposed Plan/FEIS properly analyzes the direct, indirect, and cumulative impacts of the alternatives, including context, intensity, and duration. See the introduction of Chapter 4 of the Proposed Plan/FEIS for a description of the types of impacts addressed.

P. The terms "exploration," "permitted use," "road," "trail," "way," and "off road" need to be clarified and consistent.

Response: New definitions had been added to the glossary of the Proposed Plan/FEIS.

Q. On Page 2-2, Vital Signs should be defined and quantified, rather than referred to as "productive" or "diverse."

Response: The process for establishing NPS Vital Signs standards is not yet completed. The text describing NPS Vital Signs has been rewritten in Chapter 2 of the Proposed Plan/FEIS to provide additional detail on the program's goals and objectives, and to clarify that any standards applied to NPS lands must meet NPS Management Policies.

R. The guidelines listed on pages 2-6 and 2-28 are not compatible with NPS Management Policies. We suggest including guidelines established by NPS.

Response: See response to Public Concern #23 R above.

S. The planning criteria listed in Appendix 1.E. should include provisions for the designation of organized and designated motorized trail systems.

Response: Organized and designated motorized trail systems can occur on any route designated open. Planning criteria are thus not necessary to accommodate such uses. The Tri-State OHV club has used, and may continue to use, any open route on the Arizona Strip.

T. The "RET Process" in Appendix 2.T is should include whether the decisions arrived at are workable, are actually enforceable, and have a reasonable expectation of compliance. If a closure is not enforceable, it should not be implemented.

Response: The RET is a process leading to a decision. Considerations were given about where it made the best sense to close and enforce closures of routes during the evaluation process. Final recommendations on how to close a route and monitor it will be made during implementation.

U. The document reads, "In Parashant, impacts from vegetation treatments in this ecological zone would be the same as those described under Alternative A," but those impacts are not clearly defined under Alternative A.

Response: The sentence referenced by the commenter goes on to state, "...under each of the various treatment methods." The description of impacts from vegetation treatments is necessarily general since the land use plan decision only provides that such treatments could be authorized. The DEIS does not specify the location, size, scope, and method of any particular treatment, since these are implementation level decisions. The magnitude of impact from vegetation treatments varies greatly with treatment method. In addition, a variety of other factors can influence the success or failure of a particular treatment action. Vegetation treatment effects are also dynamic over time, with vegetative composition and diversity continually changing. Because the magnitude of these effects is so variable, we included treatment acreage limitations in each ecological zone to provide the public with an indication of the maximum number of acres that could be treated. In most cases, we do not anticipate actually treating the maximum acreage. To clarify this, the section of Chapter 4 addressing the impacts to vegetation from vegetation treatments has been modified in the Proposed Plan/FEIS.

V. Timing, duration, intensity, contributing factors, and context of impacts on resources need to be quantified/more clearly defined. A summary of impacts and possible methods to mitigate them would also be useful.

Response: We agree and have provided additional quantification of effects to various resources throughout Chapter 4 of the Proposed Plan/FEIS. However, we emphasize that the analysis of effects to various resources is necessarily general because the land use plan provides the

authority for and identifies the types of decisions that may be authorized. The DEIS does not specify the location, size, shape, or even method used for most types of actions. Site-specific details for future actions are provided in the NEPA analysis for those actions. The EIS provides a general framework that guides managers in making decisions about what actions could occur and where. Since many of these future actions are generated by members of the public, we can only offer our predictions on the location, size, and extent of many future actions. See also response to Public Concern #23 P above.

W. SOPs for the mitigation of effects for each resource need to be added to the Plan.

Response: A number of standard operating procedures are described in Chapter 1 and in the appendices. Chapter 2 lists those decisions that the BLM and NPS intends to implement as standard operating procedures for managing resources over the life of the Plan. Specific stipulations and mitigation are also provided for management of sensitive areas under the Special Designations section. Finally, additional measures are included in Chapter 4, Appendices 2.A., 2.E., 2.I., and 2.O.

X. It is not clear where details on methodology used on page 4-60 are located in the document. Please reference and summarize.

Response: We assume that the commenter is requesting additional information about how the process described under Methods and Assumptions was developed and implemented in the various sections of Chapter 4. We believe that each individual section provides sufficient information to describe the process used to determine whether impacts were negligible, minor, moderate, or major. Additional detail about this process would not change the outcome of the environmental analysis presented or otherwise affect the decisions selected for the Preferred Alternative.

Y. On page 2-7, in addition to Parashant, it should be noted that resource conditions are verified using the NPS Vital Signs Program across GCNRA lands as well.

Response: The suggested change has been made in the Proposed Plan/FEIS.

Z. The designation of the Lees Ferry grazing allotment is incorrect on maps 2.8, 2.18, and 2.28.

Response: The suggested changes have been made in the Proposed Plan/FEIS.

AA. Define "primitive," "primitive motorized," "primitive non-motorized," "improvements," "facility," "projects," and "special coordinated management resource plans."

Response: Additional definitions had been added to the glossary of the Proposed Plan/FEIS.

BB. In Chapter 2-17, "public comment period" should read "public scoping period."

Response: The suggested change have been made in the Proposed Plan/FEIS.

CC. The AGFD Strategic Plan should be included on page 1-18, "Relationship to Other Plans."

Response: The suggested changes have been made in the Proposed Plan/FEIS.

DD. On page 2-21, "Implementation Decision," clarify that the route evaluation process is an implementation level decision, not a land use plan decision, and therefore subject to different appeal/protest processes.

Response: The suggested clarification has been made in the Proposed Plan/FEIS.

EE. Local agencies should be included in Table 2.14, "Agency Partnerships."

Response: The suggested inclusions have been added in the Proposed Plan/FEIS.

Public Concern #24 (GEN2)

Some commenters found the Draft Plan/DEIS too long and difficult to interpret.

Response: The comprehensive and long Draft Plan/DEIS reflects a planning process that has been very complex and detailed. Indeed, in contrast to most BLM RMP/DEISs, this one incorporated planning for three management areas (two Monuments and the Arizona Strip FO), and two agencies (BLM and NPS) with differing planning guidelines and regulations. The document reflects the complexity of current federal land management based on applicable laws, regulations, and policies.

Public Concern #25 (GEN3)

A number of commenters felt that certain aspects of the document need to be clarified, are contradictory, or are out-of-date.

A. How will resource allocations/designations impact other resources and uses?

Response: These impacts are described in Chapter 4 of the Proposed Plan/FEIS.

B. When are DFCs discussed, what are they, and how can they be met?

Response: DFCs are found at the beginning of each resource or resource use decision table (See Types of Decisions on pages 2-18-20). DFCs or Desired Outcomes are goals and objectives to direct BLM and NPS actions to effectively meet legal laws and regulations, national policy, and other resource or social needs. Management actions, also found in the decision tables, assist the agencies in meeting the DFCs.

C. How will conflict between resources be resolved? What will be the criteria, and how will the process work?

Response: We assume this comment refers to the consideration of site-specific project proposals after the RMP is completed (after the ROD). In making site-specific decisions on the Arizona Strip, BLM and NPS managers will rely on laws, regulations, and policy and the direction given in the approved land use plan (also known as plan conformance). Plan conformance means that the RMP specifically identifies or provides for a resource management action or (if not), the action is consistent with the terms, conditions, and decisions of the approved RMP. Questions asked to determine if the action being proposed is in conformance with the Plan are:

1. Do land use plan decisions allow, conditionally allow, or preclude the action?
2. Do land use plan decisions call for a new decision to accommodate the action?
3. If the Plan does not specifically mention the action, how clearly consistent is the action with plan objectives, term, condition, and decisions?

The manager will then make a decision based on the best available information at that time for the resources and/or uses involved.

D. The analysis of the NPS lands is dated and inadequate.

Response: On page 1-24 of the Draft Plan/DEIS, it clearly states that the 1979 Lake Mead wilderness proposal is the decision of record regarding potential wilderness lands on the NPS-portion of Parashant. As such, approximately 91 percent of NPS lands on Parashant are classed as potential wilderness, which under NPS Management Policies (2001) are managed to protect those qualities until Congress acts. Only Congress can establish wilderness on federal lands. Congress did not choose to so designate these lands when nearby BLM wilderness was designated in 1984. Because most of the NPS lands are classed as potential wilderness and their use has not changed dramatically, wilderness was not re-evaluated. However, some 5,574 acres have also been identified as existing in essentially natural condition where opportunities for solitude and unconfined recreation may be outstanding. These lands will be managed to maintain wilderness characteristics through NPS backcountry management policies.

E. The document should include timeframes for actions.

Response: A separate process, called the Budget Implementation Strategy Process, will occur, beginning in 2007, during which all actions will be prioritized and include those that can be

accomplished within the next 3-5 years. When a specific action could be tied to a timeframe in the Proposed Plan, it was. Future implementation of the decisions in these plans depends on future budget allocations. The Arizona Strip District will continue to collaborate with federal, state, local, and tribal partners, whenever possible, to share staff and resources during plan implementation.

F. By who is the Preferred Alternative preferred? The Preferred Alternative should be referred to as "Recommended by the BLM."

Response: The Preferred Alternative in the Draft Plan/DEIS is the agencies' (BLM and NPS) Preferred Alternative. These plans have also benefited greatly by input from many agencies, organizations, groups, communities, and individuals.

G. Regarding management units, TMA, VRM, wilderness characteristics, recreation allocations, and special area designations, it is unclear how the overlapping guidance, prescriptions, and management emphasis will impact projects in the future.

Response: Projects in areas with overlapping allocations and designations will still require conformance with the land use plan and compliance with NEPA; in some cases this will mean additional site-specific analysis. The BLM and NPS will continue to work cooperatively with agencies, organizations, and groups to complete projects of benefit to resources and uses. Also, see response to Public Concern #25 C above.

H. Page 2-14 – Plan maps identify two roads that begin on GCNRA and traverse into BLM lands on the Arizona Strip. These roads are designated in the Draft Plan/DEIS as part of the Back Roads Management Unit (beginning with Map 2.10). According to the Back Road Management Unit description, these lands may "provide resources such as fuelwood and mineral materials for use on the AZ Strip FO." However, collection of these materials by the public is prohibited on NPS lands.

Response: These roads are no longer depicted on maps in the Proposed Plan/FEIS.

I. Since the BLM is managing by management units, this wilderness boundary area could be incorporated into their already existing Outback Management Unit.

Response: Management units are not land use plan decisions. Management units were used only to assist in delineating the various geographic emphasis areas within this very large Planning Area so that it was more understandable to agency staff, cooperating agencies, and the public. Special designations and allocations, which are land use plan decisions, were then applied within these broad "management unit" areas. A wilderness area is a congressional designation within the management unit. The congressional designation applies and carries management direction that must be adhered to, while the management units carry no management direction and are not designations or decisions.

J. The management unit designations are a cause for concern as they seem to be broadly applied, rather than more specifically considered, particularly those management areas that appear to allow more intensive uses, such as the Community and Corridors Management Units.

Response: See response to Public Concern #25 I above.

K. The BLM and NPS have no jurisdiction over airspace.

Response: While the BLM and NPS recognizes that the FAA has jurisdiction over airspace, we have been communicating with the FAA to seek their recognition that how they regulate airspace, especially vis-à-vis lower-elevation commercial air tours, may affect our ability to provide solitude and natural quiet in areas that we manage as noise sensitive. We have requested the FAA's cooperation to ensure that future commercial air tours do not cause an impermissible constructive use of our noise sensitive areas under 49 USC 303(c). We respectfully disagree with the comment that we have not provided sufficient baseline data on Monument objects or other resources for an adequate NEPA analysis. We believe that we have considered all available, relevant information. We acknowledge that there is little or no baseline information on some resources or objects. This is unfortunate, but we did not have sufficient staff and funds to obtain this information prior to conducting the planning process. We intend to monitor implementation actions to the best of our ability and to adapt future management based on new information.

L. The document is not specific enough in general.

Response: The Draft Plan/DEIS is intended to address land use planning issues and decisions over a very large area. As such, it is by nature, broad and general. It is not intended to be site-specific, except in regards to travel management. The Plan contains specific sections on each plant and animal species, new sections on types of resources rarely found in BLM plans (Paleontology, Cave and Karst Resources, Soundscapes, Resources of Importance to American Indians, Scientific Research, and Public Health and Safety) and an exceptionally detailed route-by-route analysis of every route in the Monuments and the Littlefield area of the Arizona Strip FO. Most readers complained there was too much detail and specificity.

M. The document does not address the significant issues affecting motorized recreationists.

Response: Access was the number one issue identified during public scoping in 2002. Of the 10,521 comment letters received on the Draft Plan/DEIS, the large majority relate to access. During the Route Evaluation Process[©], recreation was one of the uses considered. This included motorized as well as non-motorized forms of travel. The Route Evaluation Process[©] also captured differing kinds of needs for the various kinds of motorized and non-motorized use,

recognizing that one kind of route would be necessary for one kind of experience, while another type would benefit another kind of user.

N. The lack of an inventory/survey of sensitive resources makes any impact analysis questionable.

Response: The best available data was used in examining environmental consequences of the decisions made in the Proposed Plan. This might mean that, in the case of cultural resources, only about 3 percent of the entire Planning Area has been inventoried intensively, which is comparable to other federally administered areas in this region. Obtaining a 100 percent inventory of all the cultural resources in the Planning Area would cost approximately \$96 million dollars, a prohibitive amount. Site-specific inventories have been, and will continue to be, conducted on a project-specific basis.

O. How would the lands bordering the Planning Area be affected under the various Alternatives?

Response: In order to determine what affect the Proposed Plan would have on adjacent areas, plans from all communities, counties, and agencies were obtained and examined. Plan decisions would have no jurisdiction over any adjacent private or state lands or over any other adjacent federally administered lands. Development of plan decisions considered adjacent lands during the planning process, their land use plans are the guiding documents. For some resources and uses, such as air, water, vegetation, wildlife or OHV Open Area opportunities, regional perspectives were important in guiding the decisions made.

The Arizona Strip District administers grazing on the NPS portion of Parashant and on GCNRA lands. The District also administers minerals for GCNRA. Those relationships would continue and the District would continue to manage these resources for these areas.

P. The baseline data for "objects" and other sensitive resources are inadequate and do not follow NEPA guidelines.

Response: The NEPA process for this planning effort was followed. Protection of the Monument objects identified in the proclamations is a primary objective for both Monuments. See response to Public Concern #25 N above.

Q. Due to the potential for conflicts when managing multiple resources, the Plan should better reflect and support the spirit and intent of the Statewide MOU between the BLM and AGFD in order to ensure the timely management of fish and wildlife.

Response: This MOU is addressed in the interrelationship section of Chapter 2 of the Proposed Plan/DIES.

R. None of BLM's action alternatives follows FLPMA section 202.

Response: The BLM portion of this Proposed Plan complied with all applicable provisions of FLPMA and the planning regulations at 43 CFR 1600.

S. The assumption that heavily impacting recreational uses of land should be located near urban areas and remote areas should be managed for more wilderness qualities is questionable.

Response: The historic and current uses on the Arizona Strip typically concentrate near communities, with exceptions in key destination points such as Coyote Butte North or Paria Canyon. The further from communities one goes on the Arizona Strip, the less uses are concentrated. This apparent pattern is what planners recognized and is what guided allocations and designations. The trend and risk associated with a specific resource or use determined specific actions that were necessary to protect natural and cultural resources.

Public Concern #26 (GEN4)

There were some responses stating that the Plan fails to address vital issues and is, therefore, unsatisfactory.

A. The Plan fails to clearly point out threats to the natural environment of the area through ranching, recreation, and other uses.

B. The Plan opens up too much land to ORV use.

C. The analysis of individual threats was inadequate as there was no data given to determine the relative impacts of the different alternatives.

Response: We believe that the Proposed Plan does address vital issues and analyzes potential impacts from various land uses. In addition, the Proposed Plan restricts most OHV use to designated routes and only identifies two small areas totaling 976 acres for open OHV use, which is a reduction from 7,180 acres from the DEIS.

D. The BLM failed to consider/incorporate the Citizen's proposal into the Plan.

Response: We carefully considered the Citizen's proposal along with other concerns and suggestions.

Public Concern #27 (GEN5)

Some responses were of a general nature not readily categorized with other concerns. Most had very general questions or comments.

A. Who started the process to build these reports and why?

Response: See response to Public Concern #17 on page 5-275.

B. How many taxpayer dollars were spent on these reports?

Response: We estimate we have spent approximately \$2.5 million to date in the preparation of these plans.

C. Will an implementation and monitoring plan follow the decision document?

Response: Yes, a separate management plan/implementation strategy will follow the four RODs (one for BLM lands in Parashant, Vermilion, and Arizona Strip FO and one for the NPS lands in Parashant). A monitoring strategy will be contained in the approved management plans.

D. What are the guiding regulations, policies, and management objectives for each of resource topic?

Response: See Appendix 1.D in the Draft Plan/DEIS for a start on the numerous laws and regulations that apply to resources and uses in the Planning Area. Goals and Objectives (DFCs) can be found for each resource topic in the Chapter 2 decision tables.

E. The various BLM field offices need to use consistent formatting when developing RMPs.

Response: All BLM offices must conform to the Land Use Planning Handbook (H-1601-1, March 11, 2005) which presents the required types of decisions and contains recommended outlines for RMPs. Individual BLM states may also issue additional guidance, which is the case for Arizona. Guidance may also be issued out of the BLM Washington Office, which also occurred during this planning effort. Efforts were made to have all the land use plans in Arizona as consistent as possible inasmuch as each of the different districts in the state contain differing resources and uses.

F. This Plan prioritizes visitor/public/recreation use over consideration of historical stewardship and care of Arizona Strip lands.

Response: This Plan prioritizes protection of the various natural and cultural resources on the Arizona Strip. Uses may occur so long as resources are protected, which will become more challenging in the future as population and demands on public lands increase.

G. Please protect the Monuments.

Response: See response to Public Concern #17 on page 5-275.

H. BLM should propose an alternative that would remove livestock from the occupied and potential habitat of Siler pincushion cactus.

Response: A wide variety of options for managing livestock grazing in special status species habitats were considered, including making areas unavailable to grazing. Livestock do not eat Siler pincushion cactus or any other special status plant found in the Planning Area. Therefore, we focused on determining impacts to the species from livestock trampling, OHV use, and other similar threats. In Siler pincushion cactus habitat, monitoring plots consistently indicate that the level of cactus mortality attributable to trampling by livestock is less than one percent of the population in dense plots near areas where cattle congregate. Where cattle are not concentrated, no mortalities were observed. Damage and mortality from OHV use was only slightly higher. The largest contributing factors to cactus mortality are rodent herbivory and drought. As a result, we determined that making occupied habitat unavailable for grazing was unnecessary and would do little to benefit the cactus. Instead, we included decisions in the Plan that would allow for installation of raptor perches to discourage rodents in the vicinity of the cactus. We also proposed to enlarge ACECs and restrict use of OHVs in their habitat. We believe that closing areas of potential, unoccupied habitat provides no benefit to the species and unnecessarily restricts use of public lands.

Public Concern #40 (GEN6)

A variety of comments were received that stated management needs to prioritize protection of Monument objects, the fragile environment, natural and cultural resources, remoteness and the sense of isolation, wildlife and their habitat, sensitive species, natural quiet, scenic beauty, air quality, soils, adjacent wilderness areas, and ACECs. They also stated that the Plan does not offer adequate protection these areas. Others stated that the lands should continue to be available for multiple use and/or management should remain as it is.

Response: We appreciate the diversity of comments on land management issues, and respect that people have different views on how to strike an appropriate balance between land uses and conservation measures. On Monument issues, we recognize that the proclamations are the dominant reservation, and that no uses may be authorized that would conflict with this reservation by harming Monument objects. We believe that the Proposed Plan does strike an appropriate balance between land uses and conservation measures, and does not conflict with the dominant reservation by harming Monument objects.

Public Concern #41 (GEN7)

Some comments requested specific alterations or clarifications to the document.

A. Management of lands purchased by environmental organizations should be tailored to help meet the goals of the organizations, which comply in spirit with the goals of the Monument proclamation.

Response: If environmental organizations purchase land, they can manage these lands as they see fit. If these lands are turned over to the federal government, they must be managed in accordance with all applicable laws, regulations, and policies, including existing management plans.

B. Due to provisions in the Antiquities Act, Goal 4 should be eliminated or be rewritten as follows: "The BLM and NPS will manage Monument lands to protect the objects and context that supports them as required by the Antiquities Act and the Monument proclamations and will—to the extent possible within that constraint—provide for recreational, scientific, commercial, social, and traditional uses."

Response: Thank you for your comment; however, the change was not made.

C. What does "collaborative process" in Vermillion Mission Statement, Item 4 refer to?

Response: It means that the BLM will work jointly with others, especially on a mutually beneficial endeavor.

D. The BLM needs to acknowledge the special nature of the Monuments by clearly stating in the Plan how its proposed actions will lead to achieving the purposes established by the language in the proclamations.

Response: See Chapters 1 and 2 of the Proposed Plan/FEIS.

E. The Monument proclamations put the burden of proof on each BLM route not encumbered by valid existing rights to demonstrate how it sufficiently contributes to preserving "Monument objects." Roads that fail the "protection" test should be closed.

Response: See response to Public Concern #22 on page 5-278.

F. The BLM must address how to protect the NLCS system's nationally significant cultural and historic resources, which are in jeopardy due to vandalism, looting, illegal off-road vehicle use, grazing, development, and lack of inventory.

Response: Implementation will provide the specific actions to locate, record, and protect these valuable resources. See also response to Public Concern #22 on page 5-278.

G. Address the placement of boundary signs between Parashant and Lake Mead NRA. Clarify the boundary with Grand Canyon National Park, where no hunting is allowed versus BLM lands, where hunting is allowed.

Response: Grand Canyon National Park is a separate administrative unit from Parashant. Hunting is prohibited in Grand Canyon National Park. Hunting is allowed, governed by Arizona state law, on Parashant whether on BLM lands or NPS lands. The NPS portion of the Monument is located in Lake Mead NRA. Most of the Monument's boundary with Grand Canyon National Park is at cliff edges, with Grand Canyon National Park lands occurring below the rim. Where the boundary occurs without a physiographic barrier, the boundary is mostly fenced and marked. Where road access occurs, entrance signs denote the change between the Monument and Park.

H. The BLM has completely misunderstood the meaning of "Vital Sign" and needs to adjust the document as a result.

Response: The Vital Sign initiative is a NPS resource inventory and monitoring initiative. The text on page 2-7 of the Draft Plan/DEIS is clarified in the Proposed Plan/FEIS to better describe the NPS Vital Signs Monitoring Program. The text is also modified to clarify that Vital Signs standards for resources to be monitored are specific to the NPS, though NPS and BLM monitoring may be designed to be complimentary in terms of techniques and data collected, as applicable.

I. The Draft Plan/DEIS failed to provide either AUMs or acres of forage lost to grazing by the proposed actions in creating "Forage Reserves" and in closing allotments.

Response: See new AUM numbers in the Proposed Plan/FEIS.

J. OHV users are unfairly singled out as a potential cause of vandalism in the area in the "Cumulative Impacts" section (page 4-58).

Response: The Draft Plan/DEIS looked at impacts from a wide range of impact topics; OHV use was only one.

K. What does the BLM mean by "National Monument?"

Response: National Monuments managed by the BLM are within the NLCS, a relatively new office of the BLM. Presidents can establish Monuments by proclamation as a means to protect these special areas for the public. The dominant reservation is the proclamations that created each Monument. For the most part, Monuments remain undeveloped, protected from mineral exploration and development, and under federal administration. Visitor centers or paved roads typically do not occur inside Monuments, with the closest communities providing interpretation and visitor services. Emphasis is placed on protecting, researching, and understanding the significant resources for which each Monument was created. Public visitation and interpretation

will also occur. Valid, existing rights identified in the proclamations, such as livestock grazing, may continue.

L. What happens when Monument values are not maintained, protected, and improved in lands selected as Vital Signs?

Response: Administrative action or management activities, to remedy situations where specific resources are not meeting NPS Vital Signs standards, are provided for in the Plan. For example, on grazing allotments, possible Administrative Actions are discussed on page 2-139 of the Draft Plan/DEIS.

M. BLM failed to apply the recommendation of the Desert Tortoise Recovery Plan Assessment Committee (DTRPAC) to consider the cumulative, interacting, and synergistic impacts of multiple threats on tortoise populations and thereby demonstrated the lack of current science used in the EIS.

Response: We believe that we have considered the cumulative effects of multiple threats on desert tortoise populations in the Planning Area. However, we believe that some of the most serious threats described in the DTRPAC report play a relatively inconsequential role in this part of the range of the species. Because of our remote and isolated location, the extent of habitat fragmentation due to development is considerably less than in virtually any other area within the range of desert tortoise. While many areas in surrounding states continue to develop and eliminate habitat, the Planning Area provide hard boundaries in the form of ACECs, WHAs, and Monuments. In these areas, many uses that pose a threat to desert tortoise are limited or restricted. Direct and indirect mortalities associated with roads are also considered low in the Planning Area due to the limited number of routes, low traffic speed and volume, and low density of desert tortoise. Collection, illegal handling, and other related threats are also considered very low in this part of the range of the species.

While not all threats play a major role in the decline of desert tortoise, we acknowledge that the cumulative impact of all the threats will ultimately determine whether the species will survive and recover. However, we can only address those threats for which we have the authority and the resources to manage. Our strategy for assisting with the recovery of desert tortoise focuses on those threats where we have discretionary management authority. The RMPs include decisions that expand ACECs, identify tortoise as the highest priority in resource conflicts, close routes through habitat, incorporate fire suppression and rehabilitation guidelines, limit or eliminate grazing in the most sensitive and highest density areas, and promote the development of habitat improvement projects and research. In addition, Parashant is closed to mineral entry (see response to Public Concern #60 E on page 5-168).

Using public comments as a basis for comparison, the two most controversial issues with the Preferred Alternative for management of desert tortoise habitat were route designation and livestock grazing. We refer the commenter to our responses to Public Concern #60 O and P

(pages 5-172-4) for a discussion of how and why we reached route designation decisions. Similarly, we refer the commenter to our responses to Public Concern #60 B, G, H, L, M, and N (pages 5-169 to 171) for an explanation of how we reached decisions relating to livestock grazing.

We have been reticent to simply prohibit and eliminate authorized uses without just cause and in the absence of adequate scientific literature as justification. For this reason, we have adopted a more moderate approach, using route closures where there is evidence of collisions, installing fences where collisions are likely, and leaving some routes open for fire suppression access and as fire breaks. We have also chosen to continue authorizing livestock grazing in specific areas with protective prescriptions and intensive monitoring. This is in keeping with the 1994 recovery plan in essentially the same manner as is described for experimental management zones (EMZs), though we chose not to call them that.

We acknowledge that there continue to be threats to desert tortoise in the Planning Area, even with the increase in management focus provided by the RMPs. We remain committed to actively participating in the recovery of the species and encouraging adjacent landowners to do the same.

Public Concern #42 (GEN8)

There were some comments expressing concerns and needed clarifications regarding land monitoring, protection, and restoration strategies and implementation.

A. There is no detailed strategy to implement objective monitoring, restoration, and adaptive management practices necessary to assure the long-term health of the concerned landscapes.

Response: A more detailed monitoring strategy will be included in the Approved Plans. See also response to Public Concern #42 E below.

B. Monitoring data is insufficient or inadequate.

Response: See response to Public Concern #25 E on page 5-288.

C. The Plan lacks a realistic monitoring budget.

Response: See response to Public Concern #25 E on page 5-288.

D. There is insufficient law enforcement to limit damage to the area.

Response: We recognize that greater monitoring and law enforcement would be desirable. At the same time, we recognize that these needs along with others are subject to BLM's limited staff

and funds. We simply cannot do everything that may be desirable in light of these limits. Therefore, we must prioritize to make the most efficient use of our available staff and funds.

E. How will open roads in the Monuments be monitored for environmental impact? Will permits be used?

Response: See response to Public Concern #42 A above. At a minimum, as staff and volunteers travel the roads in the Monuments and elsewhere, they will monitor them by identifying any impacts or problems that may emerge in the coming years. If there is a need to limit visitation because of resource damage in the future, similar to the permit system in place in the Coyote Buttes Fee Area, a permit system may be used.

Public Concern #123 (GEN9)

There were a few comments requesting various clarifications or changes regarding soundscapes as addressed in the document.

A. Under soundscapes, the NPS should have a monitoring component and thresholds.

Response: See additional decisions added to the Soundscapes section in the Proposed Plan/FEIS.

B. A timeframe for preserving and restoring quiet and natural sounds should be included.

Response: See additional decisions added to the Soundscapes section in the Proposed Plan/FEIS.

C. The Vermilion administrative actions should include a statement reading, "Within two years of a Final Management Plan, the BLM would evaluate how, when, and where motorized equipment is used on BLM lands. Where such use is necessary and appropriate, the least impacting equipment, vehicles, and transportation system would be used."

Response: We are making travel management decisions (route designations) as part of the planning process. We will also evaluate necessary access and type of equipment for any proposed use or project on a site-specific basis.

D. In the management direction listed in Table 2.9, the suggestion that natural quiet and natural sounds will be preserved or restored is much too vague. Almost any proposed action could fall under this provision.

Response: It is a general goal (i.e., a DFC). We acknowledge it is somewhat vague but it is a goal to which we strive. We recognize the importance of protecting solitude and natural quiet in noise sensitive areas, such as the Monuments and wilderness areas.

Public Concern #124 (GEN10)

There were few comments regarding soundscapes as addressed in the document.

A. The draft does not adequately address noise and soundscape issues, as was urged in prior scoping comments.

Response: See additional decisions added to the Soundscapes section in the Proposed Plan/FEIS.

B. There is constant low-decibel noise throughout the area from high-altitude jet traffic. There should be more emphasis on preserving quiet throughout the entire Planning Area. Natural quiet cannot be restored due to FAA regulations.

Response: Because the FAA has authority over aviation uses and airspace, we have submitted comments to the FAA on relevant environmental analyses requesting that they coordinate with us to ensure the protection of noise sensitive areas pursuant to 49 USC 303(c). The BLM has also been contacted on proposals relating to the Colorado City airport. An earlier proposal to expand this airport was deferred by the FAA, and a more recent proposal to improve the airport is pending FAA consideration. Under either the expansion or improvement proposal, Colorado City has requested the transfer of some BLM-administered land.

Public Concern #125 (GEN11)

There were a few general comments/requests for clarifications regarding planning and policies in the document.

A. There should be a long-term management plan, and a formal information management system or method, to support final RMP adaptive management efforts.

Response: See response to Public Concern # 132 on page 5-309.

B. Local communities should have the final say in planning and policy.

Response: Local communities have been heavily involved in the planning process for these plans and the BLM and NPS will continue to work with them in implementing decisions. We appreciate their involvement and look forward to working together on mutual opportunities and concerns.

C. Comments from outside the US should have no say in planning or policy.

Response: All comment letters were read and considered equally. See also response to Public Concern #127 C on page 5-304.

D. There should be a process for revisiting/reversing portions of the Plan before actions are taken.

Response: Land use plan decisions would require a plan amendment to change them; however, implementation decisions could be changed without a plan amendment. The planning process is dynamic and land use plan decisions can be revisited at any time due to new information or changes in circumstances.

E. No new agencies should be created, nor existing agencies expanded, that will restrict the freedoms of Americans.

Response: Thank you for your comment; however, it is outside the scope of this planning effort.

F. Planning and policies should protect Monument objects, the fragile environment, natural and cultural resources, remoteness and the sense of isolation, wildlife and their habitat, sensitive species, natural quiet, scenic beauty, air quality, soils, and adjacent wilderness areas and/or ACECs.

Response: See responses to Public Concerns #1, 2, 7, 55, 65, and 99.

G. Proposed management actions are unclear and too easily left open to individual interpretation.

Response: Land use planning decisions by their nature tend to be broad and general given the size of the Planning Area. They are intended to provide direction to guide implementation (or project-specific) decisions. The process of interpreting how planning decisions apply to a specific location and/or project is known as plan conformance. Also, see response to Public Concern #25 C on page 5-287.

H. The document proposes too many limitations on land access and usage.

Response: Limitations on access and use are only taken when natural or cultural resources must be protected. The RET Process provided a consistent facilitated process for looking at what access or motorized/mechanized uses were necessary and could remain without unduly impacting the natural and cultural resources. All kinds of uses were taken under consideration during the process, which has only been completed for the Monuments. We encourage the public and special interests to work with us when the same process is used for the Arizona Strip FO in the next 3-5 years.

I. The BLM has not adequately assessed how motorized recreation in the Preferred Alternative will impact the Monuments' sensitive wildlife, archaeological sites, and quiet recreation.

Response: See response to Public Concern #2 on page 5-66.

J. There is insufficient law enforcement to oversee the Plan's directives.

Response: See response to Public Concern #42 D on page 5-298.

K. Managing the Planning Area as proposed will require more staff/less reliance on volunteers.

Response: Arizona Strip staff relies on a great number of excellent volunteers and we will continue to encourage, train, and use as many as possible. Volunteers provide more than just extra manpower. They also encourage stewardship of the public land and, in working with BLM and NPS staff, relay information and points of view not otherwise attained.

L. Management should recruit more volunteers in order to reduce implementation expenses.

Response: See response to Public Concern #125 K above.

M. Make people aware that they cannot pick up shed antlers or horns in Lake Mead NRA.

Response: We agree. This decision is already articulated under the Fish and Wildlife section in Chapter 2, Table 2.4, of the Draft Plan/DEIS.

N. Closing 13,000 acres in an ACEC is too much for the Flycatcher. Three or four acres are enough.

Response: See also Public Concern #137 G on page 5-115. The proposed Kanab Creek ACEC would designate 13,148 acres for the benefit of Southwestern Willow Flycatchers, as well as riparian, scenic, and cultural values. Designation as an ACEC does not close the area to any authorized uses. Chapter 2 includes a list of the special management proposed for the Kanab Creek ACEC. Under these prescriptions, the ACEC would be closed to vegetative product sales, new land use authorizations, and mineral material disposals. Grazing would be limited to the non-growing season. The size of the ACEC proposed was determined by the resources present. We believe that maintaining the existing riparian area requires managing the area between the canyon rims as part of the ACEC.

O. Preferred Alternative E states, "This alternative acknowledges that the more remote areas of the Monument should be managed to preserve the remoteness and wilderness characteristics, the preservation of which was stressed during the public comment period," but the statement only applies to the NPS portion of Parashant. Clarify whether or not (and why) this does/does not apply to the BLM lands within the Monument.

Response: This statement does apply to the entire Planning Area; see the Executive Summary and Chapter 2 of the DEIS. The referenced quote is from the NPS Environmentally Preferred Alternative section of Chapter 2, and thus pertains only to the NPS portion of the Monument. Identification of the Environmentally Preferred Alternative was an NPS requirement in the Draft Plan/DEIS. BLM will identify the Environmentally Preferred Alternative in the ROD. See also response to Public Concern #25 S on page 5-292.

Public Concern #126 (GEN12)

There were some comments regarding compliance issues in the document.

A. The Plan should clarify that any proposed action in wilderness areas will go through the NEPA process.

Response: All proposed actions in wilderness areas, as well as those outside of such areas on other BLM or NPS administered lands, are subject to NEPA compliance. This is an on-going requirement that is not contingent upon issues addressed in the planning process. Indeed, when any proposed action subject to EA analysis is located in a wilderness area, we send out a Notice of Availability (NOA) letter to inform the interested public of the opportunity to review and comment on that EA prior to any decision.

B. The agency failed to inform the public of the opportunity to review data pursuant to the Data Quality Act, Section 515, of the Treasury and General Government Appropriations Act for Fiscal Year 2001.

Response: The Data Quality Act is an on-going statute that is not contingent on or solely triggered by the planning process. A NOI to prepare the EIS on the Arizona Strip Land Use Plan was printed in the *Federal Register* on April 24, 2001, advising the public of the EIS and associated public process. We have worked hard to be as transparent as possible and have provided documents or information, as requested whenever it was possible, to any member of the public that requested it.

C. There are numerous discrepancies that violate NEPA requirements in sections that analyze impacts (see letter 4931, comments 6, 12 and 16, Action Code PR13100).

D. BLM fails to provide detailed information regarding mitigation measures and violates NEPA requirements.

Response: We appreciate the comments on compliance issues, and believe that we have fulfilled all relevant legal requirements. However, we do not believe that all of these requirements had to be fully described in an already voluminous Draft Plan/DEIS. Indeed, it would be impractical and cost prohibitive to restate all of these statutory, regulatory, and policy requirements in their entirety in the DEIS. As such, we believe that it is sufficient to provide references and/or summaries of these requirements where they pertain to matters within the scope of the planning process.

Public Concern #127 (GEN13)

A number of people commented on who was not/should have been included in decision making processes.

A. The ranching community should have a greater voice in management planning.

Response: We gave equal consideration to all of the comments from all of the letters we received.

B. In Table 2.14IIc, AGFD should be included in the development of all CIPs and wildlife interpretative plans/actions.

Response: AGFD is included in BLM planning and actions related to wildlife. They have been actively involved in working with BLM in all aspects of land management and we hope they continue to do so.

C. The distribution list for the Draft Plan/DEIS overwhelmingly favored anti-OHV groups.

Response: The distribution list contains required federal and state agencies, local communities and governments, tribal governments, congressional offices, and non-governmental organizations and businesses. Members of local and state OHV groups are often listed as individuals, rather than organizations and are thus not reflected in the distribution list. The distribution list was developed from those who expressed an interest in the planning process. We also included those who were known to likely have an interest in or be affected by the planning process, and by those who were likely to have some expertise on and/or authority in the Arizona Strip. There was no attempt to skew the distribution list to any particular viewpoint or constituency. It is important to distinguish between submitting comments in this situation and voting in an election. The sheer number of comments taking a similar position, even if it constitutes a large majority, does not determine any outcome. In general, it is the relevance, specificity, and quality of a comment that determines its persuasive weight; not who provided the comment or how many times it was repeated.

D. There should be a cooperative relationship between federal land agencies and local units of government to identify and quantify the local tourism industry and plan for the future.

Response: The Arizona Strip District is working with Coconino and Mohave counties and local communities and businesses to address this concern.

E. The key to avoiding impairment of American Indian resources under any of the proposed alternatives is successful and ongoing consultation with the federally recognized Tribes traditionally affiliated with the NPS portion of Parashant.

Response: We agree and will continue our relationships with the regional tribes.

F. The people who live in and around the Planning Area should have greater say in policy decisions and implementation

Response: See response to Public Concern #127 A above.

G. Adaptive management should be supported by partnerships with university and other research organizations.

Response: We agree and are doing so.

H. The public should be more involved.

Response: We agree. We have been doing everything we can to involve the public in this planning process (See documents, information, and all planning bulletins at http://www.blm.gov/az/LUP/strip/strip_plan.htm). We hope that public involvement generated by this planning effort carries into the implementation phase of these plans. We need the public and want to hear from them, both individually and in groups.

I. The analysis of the Arizona Strip Draft Plan/DEIS is flawed. It does not recognize APHIS-Wildlife Services' federal authority, state recognition of Wildlife Services, Wildlife Services' NEPA documents and analysis, and Wildlife Services' request to be a cooperating agency when wildlife damage management is made an issue.

Response: See responses to Public Concerns 63 B – N and #114 B. “Wildlife damage management” was not identified as an issue by the public during scoping and is not an issue in this Plan. We recognize Wildlife Services’ authority and have made several changes to the text in the Proposed Plan/FEIS to reflect this. We regret that we never received Wildlife Services’ letter requesting cooperating agency status until after we received your comment letter. Wildlife Services is welcome to become a cooperating agency on this planning effort.

J. The lack of science in the Plan demonstrates that the BLM did not consult with biologists and scientists.

Response: We used the best available science throughout the document, though not all studies reviewed were actually referenced. The BLM and NPS employ biologists, botanists, range specialists, geologists, hydrologists, foresters, and ecologists. Each of these specialists participated in the development of the Plan. See also responses to Public Concerns #23, 41, 60 and others for specific examples of where and how scientific information was used in preparation of the Draft Plan/DEIS.

K. The BLM should improve their communication and cooperation with user groups such as hikers, equestrian, four wheel drivers, and OHV clubs.

Response: We attempt to get information to all members of the public and to talk with as many user groups as possible. We are always open to additional or new ways to improve information sharing, and communicating or cooperating with any group or individual.

Public Concern #128 (GEN14)

There were a couple of comments regarding the public's ability to comment on the Draft Plan/DEIS.

Response: Thank you for your comment or concern. We attempted to make the Draft Plan/DEIS as reader-friendly as possible; however, this was difficult due to the size of the document and the size of the area it covered.

Public Concern #129 (GEN 15)

There were a number of comments regarding jurisdiction, including which agencies should have jurisdiction over certain management tasks.

A. AGFD's role and function is not adequately recognized in the Plan, as AGFD authority is overwritten by the BLM and NPS. The BLM should manage the land and AGFD should manage wildlife and wildlife-dependent outdoor recreation, including hunting. Cooperative wildlife management activities should continue between AGFD and BLM and this should be clarified in the document.

Response: We respect AGFD's authority to manage wildlife. Of course, because the BLM and NPS manage the habitats upon which wildlife depend, it is imperative that we work cooperatively with AGFD. We have done so in the past, and we intend to continue to do so in the future. We expanded the Interrelationship section in Chapter 2 of the Proposed Plan/FEIS regarding BLM, NPS, and AGFD roles and responsibilities.

B. Signs or information kiosks should be placed throughout the Planning Area denoting who has jurisdiction over the land because it is confusing figuring out which policies apply where.

Response: Thanks for the suggestion. We will work towards this goal, as staff and budget allows.

C. The BLM and NPS should work with AGFD to ensure that all big game permittees are sent informational brochures on the differences in rules and regulations on BLM or NPS administered lands.

Response: We have done this in the past and will continue to do so in the future. We will reexamine information sent to big game guides and hunters to insure it is accurate and comprehensive.

D. Drug law enforcement should be done by drug law enforcement agencies, not by the BLM or AGFD.

Response: The word “drug” does not appear anywhere more than 1300 pages of the DEIS. We are unable to respond to this comment since we do not know its source reference and do not believe it is germane to the document.

E. Although Grand Canyon National Park is listed as participating in the planning process and as “working with a cooperating agency” (not as a cooperating agency, see page 1-20 of the Draft Plan/DEIS), there is no mention of continuing relations on issues of mutual or cross-boundary concern.

Response: More information has been added to the Interrelationship section of Chapter 2 in the Proposed Plan/FEIS to clarify the cooperating agency status of Grand Canyon National Park.

F. The BLM and USFS are only authorized to delineate wilderness areas, roadless areas, national recreation areas, natural landmarks and Monuments, and wild and scenic rivers and report such findings to Congress. Unless and until Congress actually designates such areas under applicable law, such delineations should have no effect on the multiple use and sustained yield mandates for management of public lands.

Response: Some administrative designations (pending final congressional action – such as wild and scenic river or wilderness recommendations) have interim management requirements (by law, regulation, or policy). The Monuments, which were designated by presidential proclamation, also have requirements within the proclamations.

G. Access by the conservation organizations such as the Mule Deer Foundation should not only be allowed but encouraged in the Plan, under the supervision, oversight, and approval of AGFD.

Response: Access to public lands is available and encouraged for all users equally. We believe that nothing in the DEIS or FEIS would interfere with or preclude access to wildlife habitat. We appreciate the support of the Mule Deer Foundation, AGFD, and all our partners in wildlife management. We also remain committed to responsible use of public lands and protection of sensitive habitats.

H. Restoration and conservation work on the Arizona Strip should be a national test bed for cooperative restoration and conservation at the scale of large landscapes (100,000 to 300,000 acre).

Response: We believe the Mt. Trumbull Restoration Project is one such project. For the past ten years, the BLM has worked cooperatively with NAU and AGFD on restoring the ponderosa pine forest on top the mountain.

Public Concern #130 (GEN16)

There were numerous comments suggesting that current management is fine and no management changes should be made. Many of these felt that multiple use land was being threatened by the Draft Plan/DEIS.

A. The cumulative affect of additional restrictive management was not adequately considered in the Draft Plan/DEIS.

B. Any language that does not support multiple-use is inconsistent with directives from Congress.

Response: The proclamations that established the Monuments under the Antiquities Act are the dominant reservation. These new Monuments were a primary reason for this planning process because the BLM and NPS need to revise their management in light of these proclamations. The Proposed Plan reflects how the BLM and NPS interpret their Antiquities Act duties in the context of these specific Proclamations. Also, see response to Public Concern #17 on page 5-275.

Public Concern #131 (GEN17)

There were a few comments suggesting that the Plan is not restrictive enough regarding multiple use policies.

A. The BLM should more realistically assess the adverse environmental effects of motorized travel, chaining, and restoration tree cutting.

B. The BLM must manage the Monuments for the protection and preservation of historic and scientific values, and only allow other "multiple-uses" when those uses do not conflict with the protective mandates of the proclamations and FLPMA.

C. Access and roads should be curtailed.

Response: We believe that we have realistically assessed the effects of motorized travel and other uses. We agree that we must protect Monument objects, and that we cannot authorize any uses that would harm such objects. In terms of access and roads, it should be remembered that these existed prior to creation of the Monuments, and that the proclamations acknowledge the compatibility of primitive travel corridors. Of course, we understand that reasonable people may disagree about what constitutes primitive travel corridors in connection with route designations in the Monuments.

Public Concern #132 (GEN18)

There were a few comments regarding finances.

A. The agencies do not have enough funding to implement proposed management measures. Please allocate more funds for management.

Response: Throughout the planning process on the Arizona Strip, managers and staff considered costs of implementing the decisions made in the Proposed Plan. Later this fall the Arizona Strip District will begin the Budget Implementation Strategy process in which staff and management will consider what can be implemented, budget needs, and how it will be accomplished during the next 3-5 years. Staff will consider critical priorities that must be accomplished and will look at ways to achieve them. Partnerships and cooperative involvement with communities, agencies, tribes, groups, and individuals will be sought so that the most important actions that need to occur on the Arizona Strip actually do happen.

B. There should be a cost analysis for implementing each Alternative.

Response: See response to Public Concern #132 A above.

C. The money used to make the Draft Plan/DEIS would have been better spent on agency staffing.

Response: A comprehensive planning process that involved the public was required by NEPA, FLPMA, and the NPS Organic Act. Planning that integrated ideas and concerns from the public will result in better management plans for the Monuments and the revision of the land use plan

for the Arizona Strip FO. Implementation of these plans will result in more efficient use of staff time, will direct and coordinate their efforts better, and will allow the BLM and NPS to know what is of importance to the public in managing these lands.

Public Concern #141 (GEN19)

A. BLM should revise the Monuments' purpose statements to eliminate all confusion about what the required management directives are. In order to fully comply with the requirements of the proclamations and the Antiquities Act, BLM should revise the Monuments' purpose statements to eliminate the phrase "public use and enjoyment," revise the mission statements to eliminate the entire phrase beginning with "sustainable ranching operations," and revise the Monuments' purpose statement to include the full list of Monument objects listed above. The agencies should also present a complete evaluation of the Proposed Plan's impacts on Monument objects by specifically including each Monument object (and referring to it as such) in the "affected environment" and "environmental impact" sections of the Proposed Plan/FEIS.

Response: The purpose, significance, and mission statements for each Monument were developed using NPS guidance to clarify the intent of the Monument proclamations and were used to shape the development of the Draft Plan/DEIS. These statements are based primarily on the Monument proclamations, but they also reflect FLPMA, NPS Organic Act, ESA, and other mandates as well. These purpose statements clarify why the Monuments were set aside as units for special management, the significance statements address what makes the areas unique, and the mission statements reflect ideal conditions which managers should strive to attain.

We disagree with the allegation that the purpose, mission, and significance statements are flawed because they do not include a full list of Monument objects. A management plan that supports the interrelationships inherent in natural systems, cultural landscapes, and archeological districts, rather than one that is limited to individual resources, is consistent with case law established in the Supreme Court and the lower courts. Cappaert supports the conclusion that management goals need not be limited to discrete, physical objects managed in a vacuum. Tulare County confirms that intangible objects such as ecosystems and scenic vistas qualify as Monument objects (*Cappaert v. United States*, 426 U.S. 128 (1976), and *Tulare County v. Bush*, 306 F.3d 1138 (D.C. Cir. 2002).

In developing management plans for both Monuments, the BLM and NPS chose to adopt a holistic approach to managing the Monuments instead of a piecemeal approach focusing on detailed management goals for discrete objects. The management plans include goals that recognize important relationships and interdependencies among the listed objects and the natural and cultural districts of which they are a part. The Plan embraces goals directed to preserving a broad class of objects such as the "junction of two physiographic ecoregions," "engaging scenery," and "sense of solitude" that pervades the Monuments.

Absent a conflict, the Monument proclamations do not supersede or preempt other applicable statutory guidance (e.g. FLPMA). In fact, each proclamation states that "establishment of the Monument is subject to valid existing rights" and allows for "public use and enjoyment" and "sustainable ranching operations," among other things.

We also disagree with the allegation that the inclusion of phrases such as "public use and enjoyment" and "sustainable ranching operations" are not consistent with the Monument proclamations and the Antiquities Act. Absent a conflict, the Monument proclamations do not supersede or preempt other applicable statutory guidance (e.g. FLPMA). In fact, each proclamation states that "establishment of the Monument is subject to valid existing rights" and allows for "public use and enjoyment" and "sustainable ranching operations," among other things.

B. The BLM should also revise the labels throughout the RMP to refer to the area of Grand Canyon-Parashant National Monument as "GCPNM" and the area of Vermilion Cliffs National Monument as "VCNM."

Response: In order to recognize Grand Canyon-Parashant and Vermilion Cliffs National Monuments as the special places they are, the term "Monument" in reference to them is capitalized throughout the Draft Plan/DEIS and Proposed Plan/FEIS. We will continue to use the terms "Parashant" and "Vermilion" in the Proposed Plan/FEIS as abbreviations for their full names.

ARIZONA STRIP PROPOSED PLAN/FEIS DISTRIBUTION LIST**Federal Agencies**

- Federal Aviation Administration, Washington, D.C.
- Federal Highway Administration
 - Phoenix, AZ
- U.S. Army Corps of Engineers, San Francisco, CA
- U.S. Department of Agriculture
 - APHIS Wildlife Services, Phoenix, AZ and Salt Lake City, UT
 - Forest Service
 - Washington Office
 - Kaibab National Forest, Fredonia and Williams, AZ
 - Coconino National Forest, Flagstaff, AZ
 - Dixie National Forest, St. George and Cedar City, UT
 - Leopold Institute, Missoula, MT
 - Natural Resources Conservation District, Fredonia, AZ
- U.S. Department of Defense
 - Environment and Safety, Pentagon, Washington, D.C.
 - Air Force Regional Environmental Office, San Francisco, CA
- U.S. Department of Energy, Washington, D.C.
- U. S. Department of Interior:
 - Bureau of Indian Affairs: Phoenix and Valentine, AZ, Gallup, NM, St. George, UT
 - Bureau of Land Management:
 - Arizona:** State Office, Phoenix, Tucson, Havasu, and Yuma,
 - Arizona Resource Advisory Council
 - Nevada:** State Office, Ely, Las Vegas
 - Utah:** State Office, Grand Staircase-Escalante National Monument, Cedar City,
 - Kanab, St. George
 - Bureau of Mines, Denver, CO
 - Bureau of Reclamation, Page, AZ, Boulder City, NV, and Denver, CO
 - Minerals Management Service, Denver, CO and Herndon, VA
 - Office of Environmental Policy and Compliance, Washington, D.C.
 - Office of Surface Mining, Washington, D.C.
 - National Park Service:
 - Washington Office
 - Arizona:** Grand Canyon NP, Grand Canyon NP, Tuweep, Glen Canyon NRA,
 - Pipe Springs NM
 - California:** Pacific West Region, Death Valley NP, Joshua Tree NP, Manzanar
 - NHS, Mojave National Preserve
 - Colorado:** Denver Service Center
 - Nevada:** Lake Mead NRA, Great Basin National Park
 - Utah:** Zion National Park
 - Fish and Wildlife Service, Flagstaff and Phoenix, AZ, Las Vegas, NV, Moab and West Valley, UT, and Reston, VA
 - Geological Survey, Flagstaff, AZ, Moab, UT and Reston, VA
- U. S. Department of Transportation, Washington, D.C.
- U.S. Environmental Protection Agency, Denver, CO, San Francisco, CA, and Washington, D.C.

State Agencies and Organizations

- Arizona Department of Agriculture
- Arizona Department of Commerce
- Arizona Department of Environmental Quality
- Arizona Department of Mines and Mineral Resources
- Arizona Department of Transportation, Phoenix and Kingman, AZ

Arizona Department of Water Resources, Phoenix, AZ
 Arizona Department of Game and Fish, Phoenix, Kingman, and Flagstaff, AZ; St. George, UT
 Arizona Geological Survey, Tucson, AZ
 Arizona Historical Society
 Arizona State Historic Preservation Office
 Arizona State Land Department
 Arizona State Parks
 Coral Pink Sand Dunes State Park, UT
 Northern Arizona Governor's Office
 Coconino County, AZ
 Mohave County, AZ
 Kane County, UT
 Washington County, UT
 Clark County, NV
 Washington County Water Conservancy District, UT
 Washington County School Superintendent, St. George, UT
 Washington County Planning Department, St. George, UT
 Five County Association of Governments, UT
 Clark County Desert Conservation Program, NV
 Las Vegas Valley Water District, NV
 Nevada Division of Environmental Protection, Carson City, NV
 Southern Nevada Water Authority
 Mohave County Public Land Use Committee
 Mohave County Cooperative Extension, Kingman, AZ
 Red Cliffs Desert Reserve, UT
 Northern Arizona University School of Forestry, Flagstaff, AZ
 Utah Department of Transportation, Cedar City and Salt Lake City, UT
 Utah Department of Agriculture, Salt Lake City, UT
 Utah Environmental Congress, Salt Lake City, UT
 Utah Division of Indian Affairs, Salt Lake City, UT
 Utah Division of Wildlife Resources, Salt Lake City, UT
 Utah Governor's Office of Planning and Budget, Salt Lake City, UT
 Utah Rural Development Council, Cedar City, UT
 Western Arizona Council of Governments, Yuma and Kingman, AZ

Local Governments

Arizona: Colorado City, Fredonia, Littlefield, Page, RIPPLE
 Page-Lake Powell Chamber of Commerce
Utah: Big Water, Hildale, Hurricane, Kanab, St. George, and Washington
 Hurricane Chamber of Commerce and St. George Chamber of Commerce
 Kane County Travel Council
Nevada: Beaver Dam, Boulder City, Bunkerville, Las Vegas, and Mesquite
 Beaver Dam, NV

Tribal Governments

Chemehuevi Indian Tribe
 Colorado River Indian Tribe
 Havasupai Tribe
 Hopi Tribe
 Hualapai Tribe
 Kaibab Band of Paiutes
 Las Vegas Indian Center
 Las Vegas Paiute Tribe
 Moapa Band of Paiutes

Navajo Nation

Bodaway/Gap Navajo Chapter
 Cameron Navajo Chapter
 Coalmine Navajo Chapter
 Coppermine Navajo Chapter
 LeChee Navajo Chapter
 Tuba City Navajo Chapter

Pahrump Band of Paiutes

Paiute Tribe of Utah

Pueblo of Zuni

San Juan Southern Paiute Tribe

Shivwits Band of Paiutes

Congressionals

Senator Jon Kyl, Arizona

Senator John McCain, Arizona

Senator Robert Bennett, Utah

Senator Orrin Hatch, Utah

Senator Harry Reid, Nevada

Senator John Ensign, Nevada

Representative Trent Franks, Arizona

Representative J.D. Hayworth, Arizona

Representative Ed Pastor, Arizona

Representative Rick Renzi, Arizona

Representative Jim Matheson, Utah

Representative Shelley Berkley, Nevada

Non-governmental Organizations and Businesses

Apex Minerals, Holladay, UT

Arizona Cattle Growers Association

Arizona Deer Association

Arizona Desert Bighorn Sheep Society

Arizona Section Society for Range Management

Arizona Mining Association

Arizona Wilderness Coalition

Arizona Wildlife Outfitters, Kingman, AZ

Back Country Horsemen of Utah, Ogden, UT

Big Chino Guide Service, Prescott, AZ

Blue Ribbon Coalition, Pocatello, ID

Blue River Adventures, Blue, AZ

Bridlebit Three Cattle Co., St. George, UT

Broken Bull outfitters, Chandler, AZ

Buckhorn Llama Company, Masonville, CO

Bunting Brothers, Kanab, UT

Bush and Gudgell, Inc., St. George, UT

Button Cattle Co., Kanab, UT

Californians for Western Wilderness, San Francisco, CA

Canyon Country Outback Tours, Kanab, UT

Center for Biological Diversity, Phoenix and Tucson, AZ

Center for Environmental Connections, Tucson, AZ

Cliff Dwellers Lodge, Marble Canyon, AZ

Colorland Outfitting, Santa Clara, UT

Conservation Fund, Las Vegas, NV

DeMar Limited, St. George, UT

Dixie Wildlife Federation, Cedar City, UT
Desert Bighorn Council, Kingman, AZ
Desert Tortoise Council
Dreamland Safari Tours, Kanab, UT
Dry Creek Outfitters, Yucca Valley, CA
Earth Justice, Oakland, CA
Esplin Livestock LLC, Mt. Carmel, UT
Environmental Defense Fund of Nevada, Las Vegas, NV
Environmental Solutions, LLC, Fruita, CO
Enviropan, Sandy, UT
EPG, Inc., Phoenix, AZ
Foremaster Ranches, La Verkin, UT
Friends of Grand Canyon, Mayer, AZ
Friends of Nevada Wilderness
Forest Guardians
Forestry Association, Glenwood, NM
Garkane Power Association, Kanab, UT
Goswick Outfitters, Humboldt, AZ
Grand Canyon River Guides, Flagstaff, AZ
Grand Canyon River Outfitters Association
Grand Canyon Tours, Moab, UT
Grand Canyon Trust, Moab and Flagstaff
Grand Canyon Wildlands Council, Flagstaff, AZ
Great Old Broads for Wilderness, Durango, CO
Great Outfitter and Guide Service, Mesa, AZ
Great Western Trail Association, Mesa, AZ
Harris Environmental Group, Tucson, AZ
HDR, Phoenix, AZ
Heaton Livestock Company, Alton, UT
Honeymoon Trail Company, Fredonia, AZ
Idaho Outfitters and Guides, Challis, ID
International Society for the Protection of Mustangs and Burros
International Uranium USA Corp, Denver, CO
Iverson Enterprises, St. George, UT
Jacob Lake Inn, Fredonia, AZ
Johnson Brother, Fredonia, AZ
Lake Powell Air Service, Page, AZ
Land and Water Fund of the Rockies, Boulder, CO
Langston and Sons, Richfield, UT
Lees Ferry Anglers, Marble Canyon, UT
Living Rivers Utah Office, Moab, UT
Lone Tree Outfitters, Payson, UT
Lost Spring Outfitters, Ely, NV
LuDon and Sons, St. George, UT
Marble Canyon Company, Marble Canyon, AZ
Mohave County Extension Agent, Kingman, AZ
Museum of Northern Arizona, Flagstaff, AZ
Museum of Peoples and Cultures, Provo, UT
National Park and Conservation Association, Washington, D.C.
National Trust for Historic Preservation, Washington, D.C.
National Wildlife Federation, Reston, VA, Boulder, CO, Washington, D.C.
Natural Resources Defense Council, San Francisco, CA and New York, NY

NAU, School of Forestry and Ecological Restoration Institute, Flagstaff, AZ
 Northern Arizona Audubon, Sedona, AZ
 Pacific Legal Foundation, Sacramento, CA
 Paria River Natural History Association, Big Water, UT
 Partners in Conservation
 Peregrine Fund, Boise, ID
 Permits West, Inc., Santa Fe, NM
 Public Lands Interpretive Association, Phoenix, AZ
 Qwest Communications, Tempe, AZ
 Red Cliffs Audubon Society, St. George, UT
 Red Rock Adventures, Inc., Las Vegas, NV
 River Runners for Wilderness, Moab, UT
 Riverside Ruff Riders, Riverside, CA
 Safari Club International, Flagstaff and Tucson, AZ
 Sagebrush Outfitters, Kanab, UT
 Santa Fe Pacific Pipeline Co., Bloomington, CA
 Sierra Club, Flagstaff and Phoenix, AZ, San Francisco, CA, Washington, D.C.
 Silver Arrow Stone Co., Fredonia, AZ
 Society for American Archaeology, Washington, D.C.
 Society for Range Management, Tucson, AZ
 Sonoran Audubon Society, Glendale, AZ
 Sonoran Institute, Bozeman, MT and Tucson, AZ
 Southern Nevada Water Authority, Las Vegas, NV
 Southern Utah Climbers Association, St. George, UT
 Southern Utah Wilderness Alliance, Salt Lake City, UT
 Southwest Minerals Exploration Association, Tucson, AZ
 Southwest Regional Conservation Committee, Tucson, AZ
 Southwest Resources Council, Hurricane, UT
 Sportsmen for Fish and Wildlife, South Weber, UT
 SW Forest Alliance, Flagstaff, AZ
 SWCA, Inc., Tucson, AZ
 Territorial Livestock Company, Fredonia, AZ
 The Forestry Association, Inc., Glenwood, NM
 The Nature Conservancy, Tucson and Flagstaff, AZ and Las Vegas, NV
 The Wilderness Society, Denver, CO and Washington D.C.
 TJ Cattle Company, Washington, UT
 Trust for Public Lands, Washington, D.C.
 Utah Rural Development Council, Cedar City, UT
 Utah Shared Access Alliance, Payson, UT
 University of Arizona, Cooperative Extension Service, Kingman, AZ
 US Outfitters, Inc., Taos, NM
 US Public Interest Group, Washington, D.C.
 Western Gypsum, Inc., St. George, UT
 Western Kane County SSD, Kanab, UT
 Western Resource Advocates, Salt Lake City, UT
 Western Watershed Project, Southern Utah, Boulder, UT
 Wild Utah Project, Salt Lake City, UT
 Wilderness Watch, Missoula, MT
 Wildlife Society, Tucson, AZ and Bethesda, MD
 Yuma Audubon Society, Yuma, AZ
 Zion Natural History Association, Springdale, UT

LIST OF PREPARERS

Those responsible for preparation of this Proposed Plan/FEIS are presented below in Table 5.4:

Table 5.4: List of Preparers					
Name	Title	Agency	Assignment	Education	Years of Expertise
Michelle Bailey	Recreation Planner	BLM	Recreation	B.S., Parks and Recreation Mgmt.	7 Years
Gloria Benson	Native American Coordinator	BLM	Cultural Resources (American Indian Resources)		25 years
Jonathan Boswell	GIS, GPS Consultant	GEO-MM&C	GIS Analysis and Data Development GPS Data Collection and Management Map/Graphics Development	A.A., General Studies	3 years
David Boyd	Public Affairs Specialist	BLM	Outreach, Editing, Scoping Report, Planning Bulletins, Technical Coordinator	B.S., Wildlife Biology M.A., Journalism	17 years
Hilary Boyd	Fire Ecologist	BLM	Fire Ecology (Occurrence, Risk)	B.S., Wildlife Biology M.S., Wildlife Science	10 years
Jeff Bradybaugh	Superintendent, Parashant	NPS	Management Overview, NPS Planning	M.S., Wildlife Science	24 years
Paula Branstner	Interpretive Specialist	NPS	Environmental Education and Interpretation	A.S., General Studies/ Occupational Therapy	18 years
Whit Bunting	Rangeland Management Specialist	BLM	Livestock Grazing, Vegetation (Rangelands)	B.S., Range Science	15 years
Todd Calico	GIS, GPS Consultant	TLC-GIS	GIS Analysis and Data Development GPS Data Collection and Management Map/Graphics Development	A.S., General Studies BIS., Natural Resources and Environmental Studies	5 Years
Rody Cox	Geologist, Lead for Minerals Program and Paleontological Resources	BLM	Geology, Paleontology, Minerals (Leasable and Locatable Minerals, Mineral Materials)	B.A., Biology M.S., Geology	23 years
Dennis Curtis	Monument Manager, Parashant	BLM	Management Overview, Planning Overview	M.S., Geography	38 years
William Dickinson	Superintendent, Lake Mead NRA	NPS	Management Overview	B.A., Landscape Architecture	32 years
Timothy Duck	Ecologist	BLM	Forest Products, Ecozones, Ecology, Restoration	B.S., Ecology and Evolutionary Biology	25 years

Table 5.4: List of Preparers

Name	Title	Agency	Assignment	Education	Years of Expertise
Scott Florence	District Manager	BLM	Management Overview, Planning Overview	B.S. Range and Wildlife	30 years
Tom Folks	Recreation, Wilderness, Cultural Team Leader	BLM	Travel Management, Recreation, Visual Resources, Back Country Byways, National and Regional Trails, Wild and Scenic Rivers, Wilderness	B.S., Recreation Park Planning and Resource Management	30 years
Laurie Ford	Lands and Geological Sciences Team Lead	BLM	Management Overview, Lands and Realty, Utility and Communication Corridors		25 years
Becky Hammond	Manager, Arizona Strip FO	BLM	Management Overview, Geology	B.S., Geology M.S., Geology	19 years
Kathleen Hareksen	Assistant Manager Parashant	BLM	Management Overview, Vegetation (Forests and Woodlands, Riparian and Wetlands)	B.S., Natural Resource Management	31 years
Diana Hawks	Planning Coordinator	BLM	Planning Team Lead, Cultural Resources (Archaeological, Historic, and American Indian Resources), ACECs	B.S., Archaeology M.A., Archaeology	32 years
Michael Herder	Wildlife Team Leader	BLM	Fish and Wildlife, Special Status Species (Animals), ACECs, Management Overview	B.S., Wildlife Management B.A., Zoology M.A., Marine Biology	27 years
John Herron	Archaeologist	BLM	Cultural Resources (Archaeological and Historical Resources), ACECs	B.A., Archaeology, Ecology and Evolutionary Biology	30 years
Jim Holland	Management Assistant, Lake Mead NRA	NPS	Management Overview, Lands and Realty, Recreation, Planning Overview	B.S., Zoology & Botany M.S., Biology	28 years
Lee Hughes	Ecologist	BLM	Special Status Species (Plants), Vegetation (Riparian and Wetlands), ACECs	A.S., Forestry B.S., Fishery and Range Management	33 years
Lilian Jonas	Writer/Editor	EnviroSystems Management	Document Writing and Editing	B.S., Biology M.A., Applied Sociology Ph.D., Sociology	16 years
Dave Kiel	GIS Specialist, Recreation Planner	BLM	GIS Data Development GIS Analysis Map/Graphics Development		18 years
Shirley Kodele	Budget Technician	NPS	Comment Analysis Document Preparation GIS Assistance	B.S., Geography	12 years

Table 5.4: List of Preparers

Name	Title	Agency	Assignment	Education	Years of Expertise
Marisa Monger	GIS Specialist	BLM	GIS Data Development GIS Analysis Map/Graphics Development	B.A., Psychology	8 years
Kenneth Moore	Lead Natural Resource Specialist	BLM	Access, Vegetation (Forests and Woodlands), Forest Products, Restoration	B.S., Forest Management	37 years
Rosie Pepito	Cultural Resource Manager, Lake Mead NRA	NPS	Cultural Resources (Archaeological, Historical, and American Indian Resources)		20 years
Linda Price	Standards and Guides Team Leader, Vermilion Manager	BLM	Standards for Rangeland Health, Management Overview	B.S., Ecology	16 years
Robert Sandberg	Range Team Leader	BLM	Range and Vegetation, Management Overview	B.S., Botany & Zoology	29 years
Kathy Seegmiller	Information Technology Specialist	BLM	Comment Analysis Database Management		25 years
Phillip Seegmiller	Rangeland Management Specialist	BLM	Vegetation (Forests and Woodlands, Rangelands, Riparian and Wetlands)	B.S., Outdoor Recreation/Range Management	26 years
Darla Sidles	Superintendent, Parashant	NPS	Lead Planner, Management Overview	B.A., Business Administration	20 years
Robert Smith	Hazmat, Soil, Water and Air Programs Lead	BLM	Air Quality, Water (Ground and Surface Water) Soil Resources, Health and Safety (Hazardous Materials)	B.S., Soil Science Graduate Certificate in Hazardous Waste Land Management	31 years
Richard Spotts	Environmental Coordinator	BLM	NEPA Compliance Review	B.A., Political Science J.D., Law	24 years
Jo Starr	GIS Specialist	NPS	GIS Data Development GIS Analysis	B.S., Natural Resources and Environmental Studies	8 years
Roger Taylor	District Manager, Arizona Strip	BLM	Management overview	B.S., Range Management	39 years
Kent Turner	Resource Management Chief, Lake Mead NRA	NPS	Management overview	B.S., Biology	26 years
Ron Wadsworth	Lead Law Enforcement Officer	BLM	Public Safety (Crime), Law Enforcement	B.S., Wildlife Biology	21 years

Table 5.4: List of Preparers

Name	Title	Agency	Assignment	Education	Years of Expertise
L.D. Walker	Noxious Weed Coordinator	BLM	Vegetation (Noxious Weeds), Fish and Wildlife (Invasive Species), Wild Horses and Burros	B.S., Zoology	29 years
Gary Warshefski	Assistant Superintendent, Lake Mead NRA	NPS	Management overview	B.S., Forestry M.S., Public Administration	29 years
Les Weeks	Consultant, Route Evaluations	ARS, Inc	Transportation/Access	B.A., Ecosystems Analysis M.A., Biogeography	24 years
Aaron Wilkerson	Forester	BLM	Restoration, Forestry	B.S., Forestry	6 years
Ericka Wilkerson	Administrative Assistant	Contractor	Comment Analysis Document Preparation	B.S., Criminal Justice	11 years
Kari Yanskey	Botanist	NPS	Vegetation (Forests and Woodlands, Rangelands, Riparian and Wetlands), Special Status Species (Plants)	B.S., Biology	23 years

As the nation's principle conservation agency, the Department of Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environment and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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