DRAFT

Rio Puerco

Resource Management Plan

MARCH 1985

US DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ALBUQUERQUE DISTRICT
RIO PUERCO RESOURCE AREA

BLM-NM-PT-85-005-4410

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
3550 Pan American Freeway, N.E.
P.O. Box 6770
Albuquerque, New Mexico 87107

IN REPLY REFER TO
1610(017)

NOTICE

Enclosed for your review and comment is the Draft Rio Puerco Resource Management Plan (RMP) and Environmental Impact Statement (EIS). This Resource Management Plan is an attempt to integrate all resources into a single unified program of managament after considering a reasonable range of alternatives. Your review and comments are needed at this time to ensure that your concerns have been considered in the planning process.

Please direct your written comments to the Area Manager, Bureau of Land Management, Rio Puerco Resource Area, Post Office Box 6770, Albuquerque, New Mexico 87197-6770. Written comments must be received by close of business on July 1, 1985. Also use this address when requesting further information on materials referenced in the Draft RMP/EIS.

Oral comments will be accepted at the following public hearings:

Date and Time	City	Location
May 29, 1985 7:00 P.M.	Cuba, New Mexico	Municipal Complex Meeting Room
May 30, 1985 7:00 P.M.	Albuquerque, New Mexico	Albuquerque Convention Center 401 Second Street, N.W.
June 3, 1985 7:00 P.M.	Estancia, New Mexico	Catholic Center
June 4, 1985 7:00 P.M.	Grants, New Mexico	Holiday Inn I-40 Exit 85

A ten-minute time limit will be placed on oral comments. Oral comments should be accompanied by a written synopsis of the presentation. Written and oral comments will be fully considered and evaluated in preparation of the Proposed Resource Management Plan and Final Environmental Impact Statement.

If changes are minor, the Proposed Resource Management Plan and Final Environmental Impact Statement will only include those changes and will not be a full reprint of the Draft RMP/EIS. For this reason, reviewers are requested to retain their copy of the Draft RMP/EIS for use in conjunction with the Proposed RMP and Final Environmental Impact Statement.

Henrick E. Hanson
Rio Puerco Resource Area
Manager

DRAFT

RIO PUERCO RESOURCE MANAGEMENT PLAN AND ENVIRONMENTAL IMPACT STATEMENT

MARCH 1985

PREPARED BY:
US DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RIO PUERCO
RESOURCE MANAGEMENT PLAN
AND
ENVIRONMENTAL IMPACT STATEMENT

Draft (X) Final ( )

The United States Department of the Interior, Bureau of Land Management

1. Type of Action: Administrative (X) Legislative ( )

2. Abstract: This Draft Resource Management Plan and Environmental Impact Statement describes and analyzes four alternatives for managing the public lands and resources in the Rio Puerco Resource Area, New Mexico. They are: (1) Continuation of Current Management (No Action) Alternative, (2) Resource Conservation Alternative, (3) Resource Production Alternative, and (4) Balanced Management (Preferred) Alternative.

3. Comments have been requested from the following: See attached distribution list.

4. For further information, contact:

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Rio Puerco Resource Area
3550 Pan American Freeway, NE
PO Box 6770
Albuquerque, New Mexico 87197-6770
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5. Comments on the Draft Resource Management Plan and Environmental Impact Statement must be received no later than: JULY 1, 1985

Charles W. Luscher

Charles W. Luscher
State Director
New Mexico State Office

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SUMMARY

This Draft Rio Puerco Resource Management Plan (RMP) and Environmental Impact Statement (EIS) identifies and analyzes the future options for managing the 896,490 acres of public land and 1,962,753 acres of Federal mineral estate administered by the Bureau of Land Management (BLM) through the Rio Puerco Resource Area (RPRA) office in the Albuquerque District. Located in central and north-central New Mexico, the RPRA encompasses 8,620,838 acres, including all of Bernalillo, Cibola, Torrance and Valencia Counties, most of Sandoval County and small parts of McKinley and Santa Fe Counties. The lands and resources of the RPRA are described in detail in Chapters 1 and 3; Map 1-1 displays the surface ownership pattern.

The Rio Puerco RMP is being prepared using the BLM planning regulations issued under the authority of the Federal Land Policy and Management Act of 1976. When completed, the RMP will provide a comprehensive framework for managing and allocating public land and resources within the RPRA during the next ten to twenty years. The contents of this Draft RMP/EIS document are primarily focused on resolving seven key resource management issues. These issues are: (1) Special Management Areas; (2) Off-Road Vehicle Designation; (3) Vegetative Uses, on public lands not covered by previous grazing EIS's; (4) Land Ownership Adjustments, particularly in Torrance County and the Cuba-La Jara area; (5) Fuelwood Supply, in Sandoval County; (6) Rights-of-Way Corridors, also in Sandoval County; and (7) Coal Leasing Suitability Assessment. Each of the seven issues and the related planning criteria are discussed in Chapter 1.

Several problems brought up during the issue identification process are not included as separate issues in the RMP/EIS. Some of these are resolvable within continuing management guidance; others, such as the protection of significant cultural resources, would be resolved with the identification of Special Management Areas as proposed for Issue 1. Those aspects of current management that are not at issue are covered in the "Continuing Management Guidance" section of Chapter 2. The Continuing Management Guidance section is a summary of how the Rio Puerco Resource Area is presently being managed, and how, outside of the resolution of the issue questions, it will be managed when the RMP is approved. The Continuing Management Guidance was developed primarily from laws, regulations, and manuals, as well as from previous land use plans and grazing EIS's.

Four RMP alternatives have been developed that describe the different management options available to BLM for the RPRA. These alternatives were developed to respond to the issues and concerns expressed by the public and BLM early in the planning process. Each alternative presents a different blend and balance of resource allocations and uses. Together with the Continuing Management Guidance, each of the alternatives forms a separate, feasible land use plan.

The alternatives in this EIS are designed to provide general management guidance. Specific projects for an area or resource will be detailed in activity plans with accompanying environmental analyses. These activity plans will discuss more precisely how a particular area or resource will be managed, and will comply with the approved RMP's resolution of the issues.

The four RMP alternatives are summarized below and further described in Chapter 2. The impacts anticipated from all of these alternatives are described in Chapter 4, and a comparative summary of impacts is included as Table 2-7.

The first alternative discussed represents a continuation of current management practices; for the purpose of the RMP/EIS, this constitutes the No Action Alternative. The second alternative stresses resource conservation, the third the production of commodity resources. The fourth, the Balanced Management Alternative, provides for a variety of uses by incorporating features of the No Action, the Resource Conservation, and Resource Production Alternatives. This is also the Preferred Alternative, the alternative which the BLM is proposing to implement.

These alternatives were developed as a range of reasonable combinations of resource uses and management practices to

respond to the planning issues and provide, in combination with the Continuing Management Guidance, management direction for all resources. They also provide a distinct choice among potential management strategies.

"No grazing" was initially proposed as an alternative for the vegetative uses issue. However, since this "No-Grazing Alternative" would not conform to the BLM requirement that alternatives be feasible, practical and implementable, it was eliminated from consideration. The impacts of implementing a No-Grazing Alternative on the public lands in the issue area are described in Appendix Q.

The following description summarizes the key points of each alternative:

ALTERNATIVE A

Alternative A is the continuation of current management and is referred to as the "No Action" Alternative. This alternative reflects the current management of the RPRA and how it would continue to be managed as described in the Continuing Management Guidance section of Chapter 2. This alternative provides a baseline for comparison of other alternatives.

No Special Management Areas (SMA's) would be identified.

No new ORV "closed" or "limited" designations would be implemented in the RPRA. All public land except those lands under Interim Wilderness Management and the Bluewater Canyon ACEC would remain open to motorized vehicle use.

No change in management would be proposed for the 123,300 acres of public land in the vegetative uses issue area. This alternative will be used to provide baseline data for the establishment of vegetative monitoring studies.

No adjustments in the land ownership pattern would take place under this alternative, unless public land were sold or exchanged as the result of future tract-specific amendments to the RMP.

The fuelwood supply issue area would continue to be open to collecting dead-and-down wood. About 10 acres per year of greenwood would be made available for fuelwood cutting, primarily to reduce the encroachment of pinyon-juniper into ponderosa pine stands, and small amounts of fuelwood would be made available to the public as a result of wildlife habitat improvement projects, rights-of-way clearings, and as dead-and-down wood from areas chained or chemically treated to improve livestock forage.

No of right-of-way corridors or windows would be designated. New rights-of-way would continue to be processed on a case-by-case basis.

No new public coal leases could be granted in the RPRA without a plan amendment to the RMP.

ALTERNATIVE B

Alternative B is the Resource Conservation Alternative which places primary emphasis on maintaining or improving important environmental values. Commodity or non-renewable resource use would be permitted only to an extent compatible with this resource conservation emphasis. The goal of this alternative is to change present management direction so that the identified issues are resolved in a manner that places highest priority on the maintenance or improvement of environmental values.

Twenty-two Special Management Areas totalling 426,636 acres would be identified. This acreage includes private and State trust land proposed for acquisition, or proposed for inclusion in one of the SMA's by Cooperative Management Agreement. The proposed SMA's include nine ACEC's, three Research Natural Areas (one of which would also be an ACEC), and one National Trail. The Ignacio Chavez SMA would be open for woodcutting only to improve wildlife habitat. Rights-of-way granted through the area of overlap between the Ojito SMA and Ojito East window could have special stipulations attached to protect SMA values.

Four areas in the Azabache Station, Cabezon Peak, Guadalupe, and Ojito SMA's, two road segments in the Ignacio Chavez SMA, and one in the Ojito SMA, totalling 10,248 acres of public land and 10 miles of road would be closed to motorized vehicle travel. Two road segments in the Ojito SMA and three in the Ignacio Chavez SMA, totalling 12 miles, would be limited to authorized users. In addition to closures for SMA's, 6 miles of existing roads and trails would be closed outside of SMA's. Two areas would be designated for specific types of ORV use. One area would be used for trials motorcycle riding, both as a "play-area" and for competitive events. The other area

would be designated for competitive dune-buggy events using existing roads. Other motorized vehicle travel in the RPRA would be limited to existing roads and trails. About 124 miles of existing routes would be designated as an ORV recreation trail system.

This alternative would provide for improved ecological condition, enchanced wildlife habitat, and improved protection of watershed resources through reductions in allowable livestock grazing use and improved grazing management. It is estimated that reduction in allowable livestock grazing use would be proposed for nine Improve Category ("I") allotments, while no reduction would be anticipated for the Maintain "M" and Custodial "C" allotments. The actual reductions would be based on currently available vegetative data and on vegetative monitoring studies. Requests for increases in allowable livestock grazing use would be considered when wildlife and watershed needs are satisfied.

Approximately 58,000 acres of scattered and isolated tracts of public land within the issue area are considered potentially available for land ownership adjustment. Exchange of these public lands for State trust and private lands identified for acquisition as planned actions in SMA's or to benefit other resource management programs would be considered the preferred method of ownership adjustment. To expedite land ownership adjustments, exchanges for State trust lands would be processed as a first priority. Exchanges for private lands, a more time-consuming process, would be processed as the second priority. All other public land within the issue area would be retained as public lands for the enhancement of BLM resource management programs.

Fuelwood would be available to the public through commercial or home-use sales from approximately 7,620 acres of public land. Small additional amounts of fuelwood would also be made available to the public as a result of wildlife habitat improvement projects and right-of-way clearings, and as dead-and-down wood.

Rights-of-way corridors and windows would be designated as the preferred locations for future transmission line placements in the RPRA. The area of maximum coal development potential underlying the proposed corridor in the San Luis area would not be available for coal leasing. No fluid mineral leasing would be allowed in the rights-of-way windows, to provide protection for these critical transmission line placement areas.

About 6,400 acres of public coal resources would be identified as acceptable for further consideration for coal leasing. The twenty unsuitability criteria (where the information was available) have been applied to the area of maximum coal development potential. The area of maximum coal development potential has also been scrutinized using the multiple use screens. Following surface owner consultation and application of the unsuitability criteria and multiple use screens only areas with no conflicts were brought forward for further consideration.

ALTERNATIVE C

Alternative C is the Resource Production Alternative. This alternative would place primary emphasis on making public land and resources available for use and development. The principles of multiple use and sustained yield would be observed, and environmental values protected to the extent required by applicable laws, regulations, and policies. The goal of this alternative is to change management direction in the RPRA so that the seven issues are resolved in a manner that generally places highest priority on the production of resources from the public lands.

Only the sixteen SMA's which would not significantly restrict development of commodity resources (fuelwood and minerals) would be identified. The SMA's considered in this alternative total 366,375 acres. The Ignacio Chavez Grant would be open for intensive fuelwood cutting to help meet expressed fuelwood demand and would not be managed as an SMA. Rights-of-way granted through the area of overlap between the Ojito SMA and Ojito East window could have special stipulations attached to protect SMA values.

Four areas in the Azabache Station, Cabezon Peak, Guadalupe, and Ojito SMA's and one road segment in the Ojito SMA would be closed to motorized vehicle travel. These closures total 10,248 acres. The rest of the RPRA, except for the the public lands under Interim Wilderness Management or in the Bluewater ACEC, would be designated as "open" for motorized vehicle use.

This alternative would provide for the maximization of forage production for livestock grazing use through an intensive

program of grazing management. It is estimated that short-term reductions in allowable livestock grazing use would be proposed on six "I" allotments, with long-term increases in allowable livestock grazing use anticipated on these six allotments, as well as six other "I" and "M" allotments. The determination of AUM's required for short-term reductions and AUM's available for increased livestock grazing use in the long term would be based on currently available vegetative data and on vegetative monitoring studies. Changes in grazing management would be implemented only to increase forage production and improve ecological condition. Increased forage for wildlife habitat and watershed protection would be considered only after livestock grazing use needs were met.

Approximately 58,000 acres of scattered and isolated tracts of public land are considered potentially available for disposal. Under this alternative, the preferred method of disposal of the public lands identified as potentially available for disposal would be public auction. As long as any future ownership adjustments conform to the theme of this alternative, such actions would be considered consistent with the RMP. All public sale actions would be thoroughly examined under the NEPA process, including full public participation. The planning criteria for this issue would also be considered when analyzing public sale actions.

Fuelwood would be made available to the public through commercial or home use sales from approximately 29,930 acres of public land. Small additional amounts of fuelwood would also be made available to the public as a result of wildlife habitat improvement projects, right-of-way clearings, and as dead-and-down wood.

Rights-of-way windows would be established on the public lands. These rights-of-way windows have been identified in areas where topographic or land ownership constraints make it advantageous to locate transmission lines on public land. Multiple use of the public lands within these windows would continue; however, discretionary land uses which would complicate or increase the cost of right-of-way development would be prohibited. Rights-of-way granted through the area acceptable for further consideration for coal leasing would be restricted to placement in the de facto corridor. Fluid mineral leases issued within the windows would have stipulations attached to minimize conflicts.

Approximately 8,800 acres of public coal resources would be identified as acceptable for further consideration for coal leasing. The twenty unsuitability criteria (where the information was available) have been applied to the area of maximum development potential and lands found unsuitable have been eliminated from further consideration. Application of the multiple use screens would not eliminate any lands from further consideration under this alternative, nor would surface owner consultation.

ALTERNATIVE D

Alternative D is the Balanced Management Alternative. It is also the BLM's Preferred Alternative and is designed to provide balanced management direction for the RPRA. Its goal is to resolve the seven issues by providing for a combination of resource uses that would protect important environmental values and sensitive resources while at the same time allowing development of resources which provide commercial goods and services.

Twenty-two SMA's totalling 426,636 acres would be identified. This acreage includes private and State trust land that is being proposed in this alternative for acquisition or proposed for management as part of the SMA's through agreements with owners. The twenty-two proposed SMA's include nine ACEC's, three Research Natural Areas (one of which would also be an ACEC), and one National Trail. The Ignacio Chavez SMA would be managed for a combination of uses including about 1,700 acres which would be open for intensive fuelwood cutting, consistent with the principles of multiple use and sustained yield. In addition, limited greenwood cutting to reduce the invasion of pinyon and juniper into stands of ponderosa pine would be permitted in order to maintain the ponderosa pine stands and to improve wildlife habitat in the SMA. Rights-of-way granted through the area of overlap between the Ojito SMA and Ojito East window could have special stipulations attached to protect SMA values.

Four areas in the Azabache Station, Cabezon Peak, Guadalupe, and Ojito SMA's, two road segments in the Ignacio Chavez SMA, and one in the Ojito SMA, totalling 10,248 acres public land and 10 miles of road, would be closed to motorized vehicle traffic. Two road segments in the Ojito SMA and three in the Ignacio Chavez SMA, totalling 12 miles, would be limited to authorized users. In addition to closures and limitations for

SMA's, 6 miles of existing roads and trails would be closed outside of SMA's. Two areas would be designated for specific types of ORV use. One area would be used for trials motorcycle riding, both as a "play-area" and for competitive events. The other area would be designated for competitive dune-buggy events using existing routes. Other motorized vehicle travel in the RPRA would be designated as defined on Map 2-14. About 124 miles of existing roads and trails would be designated as an ORV recreation trail system.

This alternative would provide for a balance of resource uses through a program of improved grazing management. Future changes in management would be developed to resolve resource conflicts. It is estimated that short-term reductions in allowable livestock grazing use would be proposed for six allotments, with no reductions proposed for the remaining allotments. In the long term, livestock grazing use would return to currently allowable levels of use as resource conflicts are resolved as a result of improved grazing management and construction of rangeland improvements. The actual short- and long-term adjustments implemented would be based on current vegetative data and on vegetative monitoring studies.

About 58,000 acres of scattered and isolated tracts of public land within the land ownership adjustment issue area would be considered potentially available for ownership adjustment. Exchange of these public lands for State trust and private lands identified for acquisition as planned actions in SMA's or to benefit other resource management programs would be considered the preferred method of ownership adjustment. To expedite land ownership adjustments, exchanges for State trust lands would be processed as a first priority. Exchanges for private lands, a more time-consuming process, would be processed as a second priority. Recreation and Public Purposes Act disposals and public land sales would be considered as acceptable methods of ownership adjustment as third and fourth priorities. All public sale actions would be thoroughly examined under the NEPA process, including public participation. The planning criteria would be considered when analyzing public sale actions. As long as any future ownership adjustments conform to the theme of this alternative, such actions would be considered consistent with the RMP.

Fuelwood would be available to the public through commercial or home-use sales from approximately 9,320 acres of public land. Small additional amounts of fuelwood would also be made available to the public as a result of wildlife habitat improvement projects, right-of-way clearings, and as dead-and-down wood.

Rights-of-way corridors would be designated as the preferred locations for future transmission line placements in the RPRA. In addition to the designation of right-of-way corridors, right-of-way windows would be established. Future rights-of-way would be located in Corridor I so as to minimize conflicts with coal resources. This would be accomplished by concentrating transmission lines in the southwestern part of the corridor adjacent to the area identified as acceptable for further consideration for coal leasing. However, any transmission lines located in an area leased for coal could be relocated at the lessee's expense to avoid bypass coal. The rights-of-way windows have been identified in areas where topographic or land ownership constraints make it advantageous to locate transmission lines on public land. Multiple use of the public lands within these windows would continue; however, discretionary developments which would complicate or increase the cost of right-of-way development would be prohibited. For example, fluid mineral leases issued within the windows would have stipulations attached to minimize conflicts with transmission lines.

Approximately 8,800 acres of public coal would be identified as acceptable for further consideration for coal leasing. The twenty unsuitability criteria (where the information was available) have been applied to the area of maximum coal development potential. The area of maximum coal development potential has also been scrutinized using the multiple use screens. Following surface owner consultation and the application of the unsuitability criteria and multiple use screens, only areas with no known conflicts were brought forward for further consideration.

Chapter 1

INTRODUCTION, ISSUES AND CRITERIA

CHAPTER 1

PURPOSE AND NEED

INTRODUCTION

The Rio Puerco Resource Management Plan (RMP) has been prepared to provide a comprehensive framework for managing the public lands and for allocating resources in the Rio Puerco Resource Area (RPRA) during the next ten to twenty years. This document includes both a proposed RMP (the preferred alternative) and a draft Environmental Impact Statement (EIS) which fulfill the Federal Land Policy and Management Act (FLPMA) requirement for comprehensive land use planning for the public lands. In addition, court-ordered and statutory requirements will be met upon final approval of two of the decisions proposed in this document. The first of these is the statutory requirement that the public land be designated as "open," "limited," or "closed" to off-road vehicle (ORV) use. This RMP/EIS also analyzes alternatives for livestock grazing on public land as required by the court-ordered settlement of a 1973 lawsuit filed against the Bureau of Land Management (BLM) by the Natural Resources Defense Council (NRDC). Plan amendments will keep the RMP current with resource management needs and policies if necessary.

Since land use plans have been completed for Cibola and Valencia Counties (the Ladron and Divide Management Framework Plans [USDI, BLM 1977, 1983b]), these counties are not, for the most part, addressed in this RMP. The RMP/EIS incorporates applicable land use planning decisions contained in these two MFP's, the Rio Grande MFP (USDI, BLM 1979c), the Chaco MFP (USDI, BLM 1981b)(see Appendix A), and three grazing Environmental Impact Statements prepared by the Bureau of Land Management's Albuquerque and Socorro Districts between 1978 and 1982 (USDI, BLM 1979a, 1982b, 1978b) (see Appendix B).

LOCATION

The planning area, located in central and north-central New Mexico, encompasses 8,620,838 acres, and includes all of Bernalillo, Cibola, Torrance and Valencia Counties, most of Sandoval County, and small parts of McKinley and Santa Fe Counties. Table 1-1 shows land status acreage on a county-by-county basis; Pocket Map A illustrates land status within the Resource Area; Map 1-1 illustrates the planning area and shows its location within New Mexico. This area covers approximately 11 percent of the State's land, but contains 40 percent of the population, concentrated in the Albuquerque metropolitan area. This population density strongly affects the demands placed on the public lands.

The distribution of the public lands is another important influence on land management options. The public lands in the Rio Puerco Resource Area are fairly well consolidated in Sandoval County, while a "checkerboard" ownership pattern predominates in Cibola and Valencia Counties. In Bernalillo County the public land is located in two small blocks, while over 100 small tracts are scattered throughout Torrance County. The planning area includes some public land in McKinley County which is part of the Farmington Resource Area, and some in Santa Fe County which is part of the Taos Resource Area. Agreements between the Rio Puerco Resource Area and these other Albuquerque District Resource Areas have assigned administrative responsibility for these small acreages to the RPRA. For this reason, these small amounts of public land in McKinley and Santa Fe Counties are included in the Rio Puerco RMP/EIS planning area. This planning area is referred to as the Rio Puerco Resource Area in this document.

PLANNING ISSUES AND CRITERIA

The BLM planning regulations (43 Code of Federal Regulations [CFR] 1600) equate land use planning with problem solving and issue resolution. An issue is defined as an opportunity, conflict, or problem regarding the use or management of public lands and resources. Not all problems are capable of resolution through land use planning--some may require changes in policy, budget or law. Issue-driven planning means that only those aspects of current management that are felt to be at issue are examined through the process of formulating and evaluating alternatives. The issue-oriented approach eliminates needless data gathering and analysis by focusing on existing conflicts and controversies.

TABLE 1-1

PLANNING AREA ACREAGE

County	BLM Administered Surface Acres	Percent 1/	Other Surface State	Private	Other 2/	County Surface Acreage 3/	BLM Administered Subsurface Only 4/
Bernalillo	9,414	1	32,201	340,779	359,892	742,286	108,800
Cibola 5/	385,215	13	212,844	1,386,227	922,753	2,907,039	570,578
Sandoval (part)	382,995	18	72,069	670,044	1,036,044	2,161,152	549,120
Torrance	42,622	2	299,805	1,593,090	168,070	2,103,587	708,576
McKinley (part)	41,748	90	640	3,796	0	46,184	1,440
Santa Fe (part)	2,660	83	0	559	0	3,219	559
Valencia 5/	31,836	5	25,881	536,803	62,851	657,371	23,680
TOTALS	896,490	10	643,440	4,531,298	2,549,610	8,620,838	1,962,753

1/ This figure represents the percentage which is public land in the part of the county included within the Rio Puerco Planning Area.

2/ This figure includes Indian Reservations and other Federal non-BLM lands.

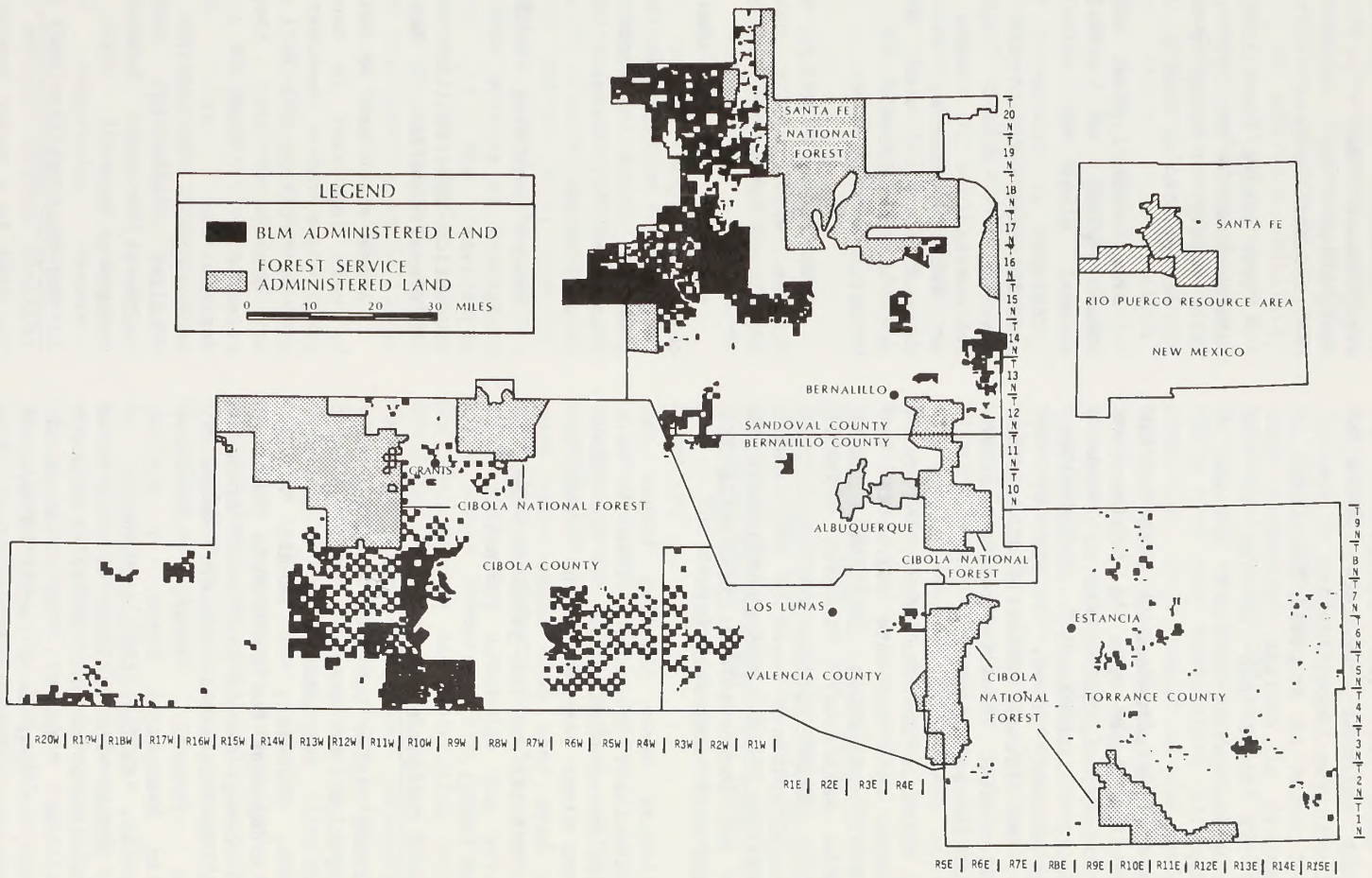
3/ This figure represents the county surface acreage of all land within the Rio Puerco Planning Area boundary.

4/ This figure only includes the acreage of the complete mineral estate owned by the U.S. and administered by BLM, beneath private acreage.

5/ These figures were acquired from the Socorro Resource Area Office.

MAP 1 - 1

RIO PUERCO PLANNING AREA



Several problems brought up during the issue identification process are not included as separate issues in the RMP/EIS. Some of these are resolvable within continuing management guidance; others, such as the protection of significant cultural resources, would be resolved with the identification of Special Management Areas as proposed for Issue 1. Those aspects of current management that are not at issue are covered in the "Continuing Management Guidance" section of Chapter 2.

The seven issues addressed in this RMP/EIS were identified based upon the judgement of the RMP interdisciplinary team of resource specialists, interagency consultation, State government input, review by BLM managers, and through extensive discussions with individuals, industry representatives and public interest groups.

Planning criteria are the standards, rules and measures used for data collection and alternative formulation, and will guide final plan selection. Planning criteria are taken from appropriate laws and regulations, guidance found in BLM Manuals and directives, and concerns expressed in meetings and consultations, both with the public and with other agencies.

The following seven planning issues and their associated planning criteria were identified for resolution in the Rio Puerco RMP. Some minor changes in the issues and criteria have been made since they were last distributed to the public to improve readability and eliminate redundancy (see USDI, BLM 1983g).

1. Special Management Areas

Public lands within the RPRA contain areas where special management could protect important recreational, natural, scientific, cultural, or scenic values. Special management for such areas could be achieved through identification of Areas of Critical Environmental Concern (ACEC's), Research Natural Areas, Intensive Recreation Management Areas, or similar designations, and/or the development of activity plans. The analysis of this issue also defines which other resource opportunities would be enhanced, diminished, or lost as a result of Special Management Area (SMA) identification. This issue applies to the entire RPRA (see Map 1-2). The decision needed to resolve this issue is:

What areas and/or resources, if any, should receive special management attention?

The planning criteria for this issue are:

Areas containing important historic, cultural, or scenic values; fish and wildlife habitat; or other natural systems or processes of greater than local significance may be considered for designation as Areas of Critical Environmental Concern.

Those public lands identified as having natural hazards that are threats to human life, safety, or property may be considered for designation as ACEC's.

Areas with typical representations of common plant or animal associations; unusual plant or animal associations; threatened or endangered plant or animal associations; threatened or endangered plant or animal species; typical representations of common geologic, soil, or water features; or outstanding or unusual geologic, soil, or water features may be considered for designation as Research Natural Areas.

Areas along highways, roads, trails or streams with scenic qualities may be considered for designation as Scenic Areas.

Areas of unusual natural characteristics where management of recreation activities is necessary to preserve those characteristics may be considered for designation as Outstanding Natural Areas.

Areas requiring explicit recreation management to achieve the BLM's recreation objectives and to provide specific recreation opportunities may be identified as Intensive Recreation Management Areas.

Areas which are so unique that it may be more important to manage them for a single use or a combination of specific uses rather than for full multiple use may be considered for special management attention. Examples of possible designations are Chaco Culture Archeological Protection Sites, Crucial Wildlife Habitat, National Natural Landmarks, and Intensive Recreation Management Areas.

2. Off-Road Vehicle (ORV) Designation

The RPRA is a major source of high quality recreational ORV experiences for the Albuquerque metropolitan area. The Resource Area is also subject to non-recreational ORV activity related to other uses of the public land. In recent years there has been an increase in ORV use

on the public land in the RPRA, with an associated increase in conflicts with other activities. As used in this RMP "off-road vehicle" means any motorized vehicle capable of, or designed for, travel over natural terrain. Use of military, fire, emergency, or law enforcement vehicles being used for emergency purposes; vehicles whose use is expressly authorized by the authorized officer, or otherwise officially approved; vehicles in official use; and combat or combat support vehicles when used in times of national defense emergencies is excluded from this definition and would not be affected by "closed" or "limited" designations. This issue applies to the entire RPRA (see Map 1-3). The decisions needed to resolve this issue are:

What areas should be designated "open," "closed," or "limited" to ORV use?

What land condition goals or objectives should be attained and maintained to deal with the growing ORV demand on the public land?

The planning criteria for this issue are:

All public land will be designated "open" to ORV use unless designated "closed" or "limited."

Designation of public lands as suitable for limited ORV use or closed to ORV use will be made to allow for the protection of the public lands, to promote the safety of all users of the public land, and to minimize the conflicts between the various users of those lands.

ORV use related to mining claim operations will not be restricted, except by regulations and requirements found in 43 CFR 3809, as amended on March 2, 1983.

ORV use performed in conformance with existing leases, permits, rights-of-way stipulations, or other land-use authorizations will not be restricted.

Public lands currently or historically used for organized ORV events may be designated as "limited" to specific types ORV use when there are no special restrictions or compelling resource protection needs, user conflicts, or public safety issues to warrant further limiting ORV use.

Designation for ORV use will consider protection of resources such as valuable wildlife habitat, cultural resource values, wilderness values, watershed, visual quality, recreational values, and other resource uses.

ORV use will be limited on those public lands where trespassing on non-public land would be encouraged by an "open" designation.

3. Vegetative Uses

Approximately 123,300 acres of public lands in the RPRA not considered in prior grazing EIS's have been inventoried for ecological condition. As a result of the analysis of the inventory data, these public acres have been placed in one of three selective management categories. The principal consideration for this issue is the determination of management changes and adjustments in allowable livestock grazing use, if any, needed to reduce conflicts between livestock grazing and other uses of the public lands. This issue applies to the public land in Sandoval, Santa Fe, and Torrance Counties not covered by the Rio Puerco Livestock Grazing Environmental Statement (USDI, BLM 1978b), the East Socorro Grazing Environmental Statement (USDI, BLM 1979a), and the West Socorro Rangeland Management Program Environmental Impact Statement (USDI, BLM 1982b) (see Map 1-4). The decision needed to resolve this issue is:

What are the correct levels of vegetative use for livestock, wildlife and watershed protection?

The planning criteria for this issue are:

A range inventory has been conducted for the purpose of designating ecological condition for each range site, determining the selective management category, and identifying existing range improvements. The criteria for selective management category determination are displayed in Appendix L. The grazing allotment selective management categories may be changed based on additional resource data. The selective management categories are described as follows:

a. Maintain (M) category: The range inventory indicates that these public lands are in satisfactory ecological condition and no significant resource conflicts have been identified. The BLM will manage these lands in a manner that will maintain the existing resource condition.

b. Improve (I) category: The range inventory indicates that these public lands are in unsatisfactory ecological condition

and/or significant resource conflicts have been identified. The BLM will manage these public lands to improve the ecological condition and/or reduce resource conflicts. These objectives will be accomplished through the intensification of range management and/or reductions in allowable livestock grazing use.

c. Custodial (C) category: The range inventory indicates that these public lands have a low potential for improvement in ecological condition. The BLM will manage these lands to protect existing resource values.

4. Land Ownership Adjustments

Significant amounts of public land in the RPRA are in small, isolated tracts. The RMP/EIS will consider what types of land ownership adjustments (both disposal and acquisition) could achieve more efficient management of the public resources. Adjustments could be made through exchange, transfer, or sale. This issue applies to the entire Rio Puerco Resource Area; however, most of the lands identified for land ownership adjustment at this time are in Torrance County. The few remaining isolated tracts in Bernalillo County, and the small, isolated tracts in and around Cuba and the tracts in the agricultural area near La Jara in Sandoval County may be recommended for land ownership adjustment under this issue (see Map 1-5). The decisions needed to resolve this issue are:

On which lands should ownership be adjusted to facilitate more efficient management?

Which techniques of ownership adjustment should be used to facilitate more efficient management?

Which public land should be disposed of by the BLM or identified for further study?

The planning criteria for this issue are:

Under the Recreation and Public Purposes Act, State, county, municipal, and qualified non-profit organizations will have the opportunity to obtain public lands identified for disposal.

Public lands may be identified for disposal if they are found to be valuable chiefly for residential, commercial, industrial, or agricultural purposes.

Public land not identified for disposal will be considered for exchange and Recreation and Public Purposes Act disposals on a case-by-case basis after consultation and coordination with Federal, State, county and local governments and agencies, and after public and environmental review.

Where possible, public lands identified for disposal will be exchanged for non-Federal lands that have been identified for acquisition to enhance BLM resource management programs.

All land identified for disposal will be disposed of at or above fair market value (excluding those lands disposed of under the Recreation and Public Purposes Act and the Color-of-Title Acts).

Lands identified for disposal which have no legal public access and only one adjacent landowner will be offered in non-competitive sales at fair market value.

Valuable wildlife habitat on public land which is otherwise suitable for disposal will be considered for exchange only with State or local agencies or non-profit private organizations with wildlife management responsibilities.

Those public lands which BLM has determined to have no known value for locatable or saleable minerals will be disposed of only in compliance with Washington Office Instruction Memorandum 84-487 (USDI, BLM 1984a) (see Appendix G).

Public lands in contiguous blocks but with serious erosion problems will be disposed of only under the Recreation and Public Purposes Act or the non-discretionary Color-of-Title Act.

Public lands will not be disposed of if they provide access to large blocks of other Federal lands, unless access rights for public uses can be reserved in the patent.

Public lands will not be disposed of if cultural or paleontological resources of national, State or regional significance are found upon them and the adverse effects of the disposal action cannot be mitigated at reasonable cost.

Public lands will not be disposed of if the disposal is contrary to State, county, or local land use plans or zoning ordinances.

Existing authorized permits, leases, rights-of-way, and licenses will be

identified as valid existing rights. All disposal of public lands will be subject to valid existing rights.

Holders of valid permits or cooperative agreements covered by Section 4 of the Taylor Grazing Act will be reimbursed for financial investments they have made in rangeland improvement projects on public land if the BLM disposes of the land.

Those public lands which the BLM has determined to meet the requirements for status as Wilderness will not be disposed of until Congress has determined whether they should be designated as Wilderness or returned to multiple use management.

Public lands included in wilderness interim management areas will be retained in public ownership.

5. Fuelwood Supply

There has been a significant increase in demand for firewood in the RPRA over the past ten years, the result of expanded use of home fireplaces in the Albuquerque metropolitan area and the continued heavy use by subsistence users in outlying towns and pueblos. The issue area for fuelwood is the public land in Sandoval County covered by the Rio Puerco Grazing Environmental Statement (USDI, BLM 1978b) (see Map 1-6). Public land outside the issue area is not addressed due to lack of manageable stands (as in Torrance County) or because it is covered by an approved Management Framework Plan (as in Cibola and Valencia Counties, see Appendix A)(USDI, BLM 1977, 1983b). The decisions needed to resolve this issue are:

Which public lands should be designated for sale of fuelwood?

On which public lands will the sale of fuelwood reduce resource conflicts and/or enhance resource production while meeting as much of the expressed demand as possible?

The planning criteria for this issue are:

Fuelwood products will be made available to the public on a sustained yield basis.

Fuelwood products will be made available to the public at fair market value.

Fuelwood products sales will be designed to minimize trespass on non-public lands and, where possible, will be located near population centers.

Fuelwood will be sold, where possible, in areas where the quality of wildlife habitat will not be degraded, but rather will be enhanced by the sale.

Fuelwood will be made available from lands which would minimize the deterioration of existing roads, while discouraging the proliferation of new roads and ways.

Fuelwood will not be made available where erosion problems are severe.

Roads created for access to fuelwood sale areas will be rehabilitated and abandoned upon completion of the sale, unless considered essential.

Fuelwood will not be made available in areas where harvesting would degrade or disturb livestock grazing, or the scenic, cultural, historic, recreational, or wilderness values of the area.

Fuelwood products will be made available first from stands damaged by insects, fire, and/or diseases where practical.

Fuelwood will be salvaged, where practical, from right-of-way clearings, tree-thinning areas, and chaining and chemically-treated areas.

6. Rights-of-Way Corridors

The RPRA lies between New Mexico's major population center and its major source of power generation and natural gas production. There is a need to assure that development of linear rights-of-way does not result in undesirable impacts to other public resources and values. This issue focuses primarily on the public lands in Sandoval County (see Map 1-7). The decisions needed to resolve this issue are:

Which public lands in the RPRA should be designated as utility corridors to minimize negative environmental consequences from right-of-way development and maximize multiple placements?

What land-use restrictions should be placed on the public lands within the identified corridors?

The planning criteria for this issue are:

Public lands in which there are now multiple compatible rights-of-way will be considered for corridor designation.

Potential right-of-way corridors on public lands which have minimal conflicts with critical resource values (e.g., erosion problem areas, valuable wildlife areas, and scenic areas) will be favored.

Identification of right-of-way corridors will seek to optimize economic efficiency of right-of-way management as balanced by environmental and social concerns.

Technical, public safety, and national security concerns will be considered in designating corridors.

7. Coal Leasing Suitability Assessment

Most of the San Juan Basin's coal reserves lie to the north and west of the RPRA. However, deposits having development potential do occur within the RPRA. In the past, extensive underground coal mining has taken place and at present there is an approved mine plan for Federal coal leases in the La Ventana area of Sandoval County. The RMP/EIS will identify areas acceptable for further consideration for coal leasing following application of the coal development potential, unsuitability criteria, multiple use, and surface owner consultation screens. The issue centers on the area of maximum coal development potential near San Luis (see Map 1-8 and Appendix D). The decision needed to resolve this issue is:

Which areas should be identified as acceptable for further consideration for coal leasing?

The planning criteria for this issue are the four screens required by the coal regulations (43 CFR 3400):

The definition of coal development potential (43 CFR 3420.1-4) has been considerably restricted in this document and several levels of development potential have been established (see Appendix D). Only those areas with maximum development potential will be identified as acceptable for further consideration for leasing.

In those areas identified as having maximum development potential, the BLM will consult with all surface owners who meet the qualified surface owner criteria (43 CFR 3400.0-5), and whose lands overlie Federal coal deposits, to determine preference for or against mining by other than underground mining techniques. Where a significant number of surface owners in an area have expressed a preference against mining those deposits by other than underground mining techniques, that area will be considered acceptable for further consideration only for development by underground mining techniques.

The BLM will apply the twenty unsuitability criteria set out in 43 CFR 3461 to assess whether there are areas unsuitable for all or certain stipulated methods of mining.

Multiple use decisions may be made which will eliminate additional coal deposits from further consideration to protect other resource values of a locally important or unique nature not included in the unsuitability criteria.

THE PLANNING PROCESS

The BLM resource management planning process consists of nine basic steps. This process requires the use of an interdisciplinary team of resource specialists for the completion of each step. The steps described in the planning regulations and followed in preparing this RMP are summarized below and graphically displayed on Figure 1-1. Publication of this document is part of Step 7, selection of a preferred alternative.

Step 1. Identification of Issues

This step is intended to identify resource management problems or conflicts that can be resolved through the planning process.

Step 2. Development of Planning Criteria

During this step preliminary decisions are made regarding the kinds of information needed to clarify the issues, the kinds of alternatives to be developed, and the factors to be considered in evaluating alternatives and selecting a preferred Resource Management Plan.

Step 3. Inventory Data and Information Collection

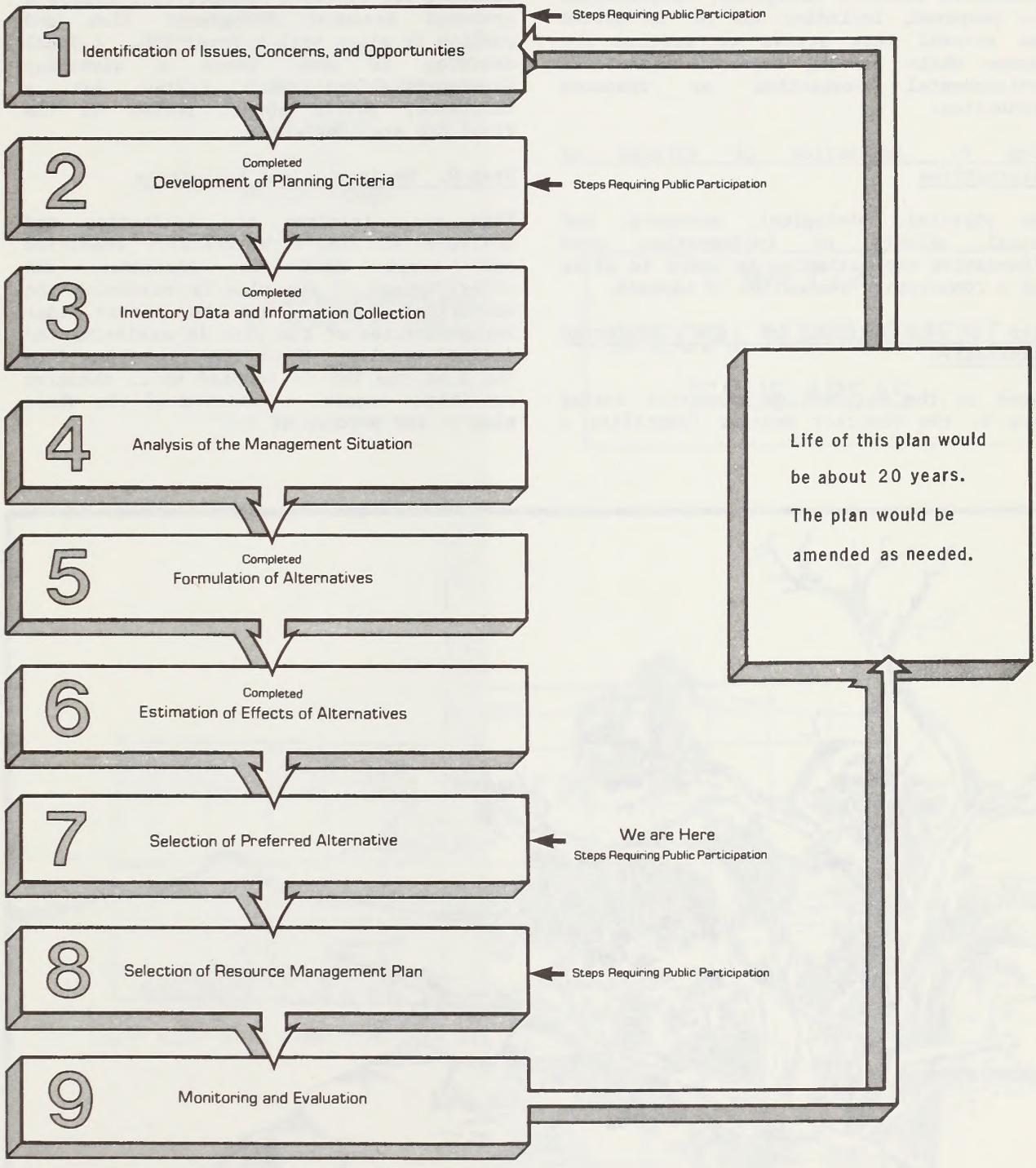
This step involves the collection of various kinds of issue-related resource, environmental, social, economic, and institutional data needed for completion of the process.

Step 4. Analysis of the Management Situation (MSA)

This step calls for deliberate assessment of the current situation. It includes a description of current BLM management

FIGURE 1 - 1

STEPS IN THE RESOURCE MANAGEMENT PLANNING PROCESS



guidance, a discussion of existing problems and opportunities for solving them, and a consolidation of existing data needed to analyze and resolve the identified issues.

Step 5. Formulation of Alternatives

During this step several complete, reasonable resource management alternatives are prepared, including one for no action and several that strive to resolve the issues while placing emphasis either on environmental protection or resource production.

Step 6. Estimation of Effects of Alternatives

The physical, biological, economic, and social effects of implementing each alternative are estimated in order to allow for a comparative evaluation of impacts.

Step 7. Selection of the Preferred Alternative

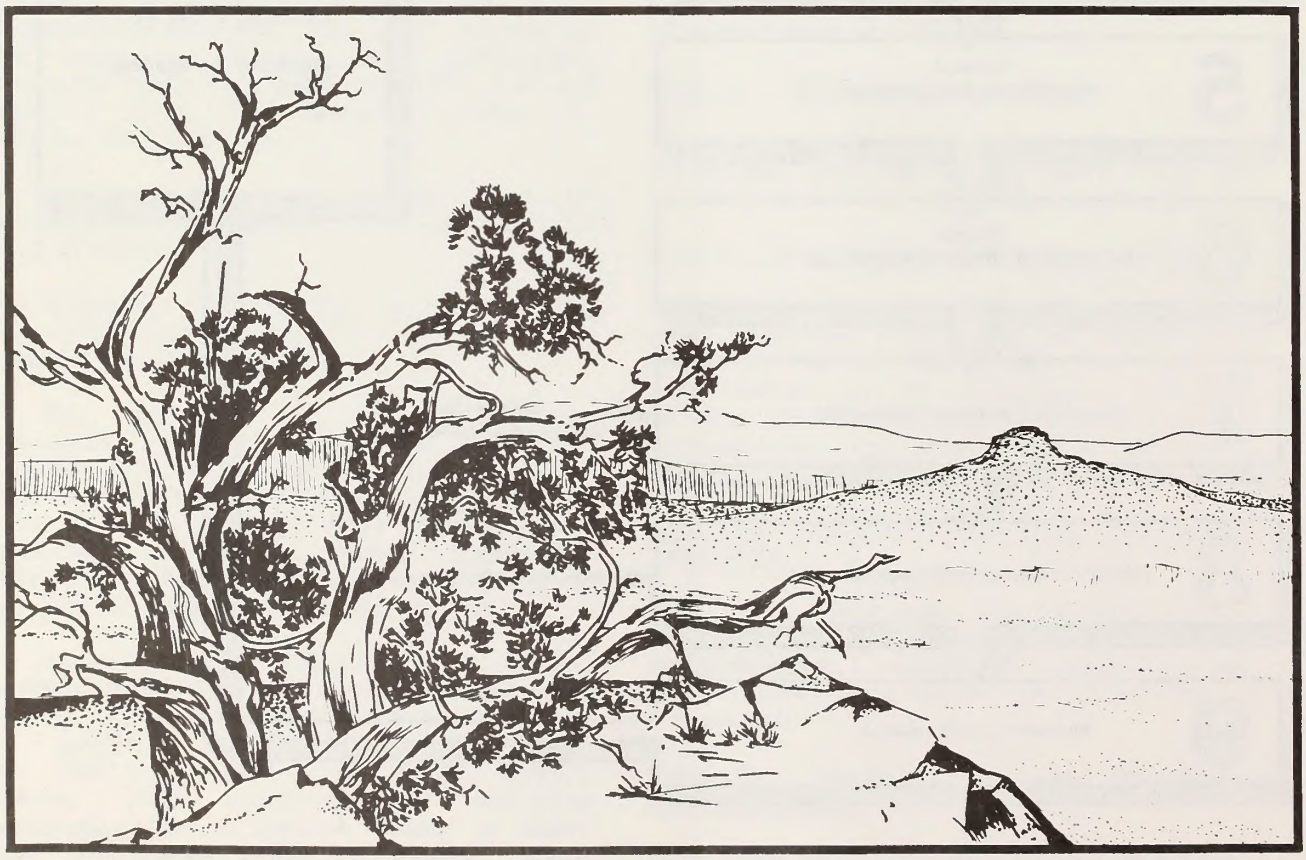
Based on the information generated during Step 6, the District Manager identifies a preferred alternative. The Draft RMP/EIS document is then prepared and distributed for public review.

Step 8. Selection of the Resource Management Plan

Based on the results of public review and comment, the District Manager will select a proposed Resource Management Plan and publish it along with a Final EIS. A final decision is made after a sixty-day Governor's Consistency Review and a thirty-day public appeal period on the Final EIS are completed.

Step 9. Monitoring and Evaluation

This step involves the collection and analysis of long-term resource condition and trend data to determine the effectiveness of the plan in resolving the identified issues, and to assure that implementation of the plan is achieving the desired results. Monitoring continues from the time the RMP is adopted until changing conditions require a revision of the whole plan or any portion of it.



RIO PUERCO RESOURCE AREA

LEGEND

- AREAS SIGNIFICANT TO THIS ISSUE
- PUBLIC LANDS
- FOREST SERVICE
- INDIAN RESERVATION
- RESOURCE AREA BOUNDARY
- COUNTY BOUNDARY
- COUNTY SEAT
- INTERSTATE HIGHWAY
- US HIGHWAY
- STATE HIGHWAY

SPECIAL MANAGEMENT AREA #19 AND #20 ARE SHOWN IN APPENDIX C

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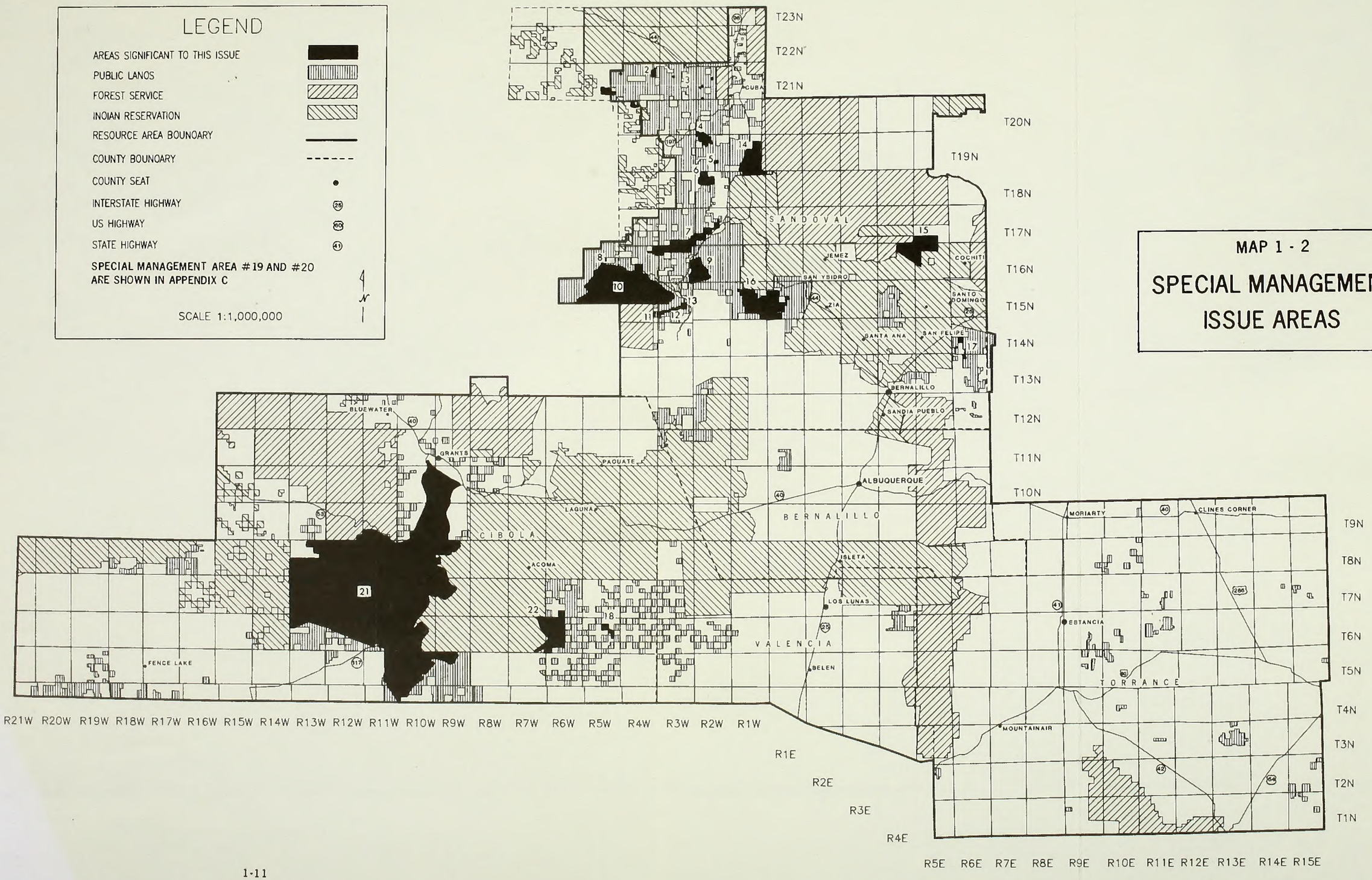


MAP 1 - 2

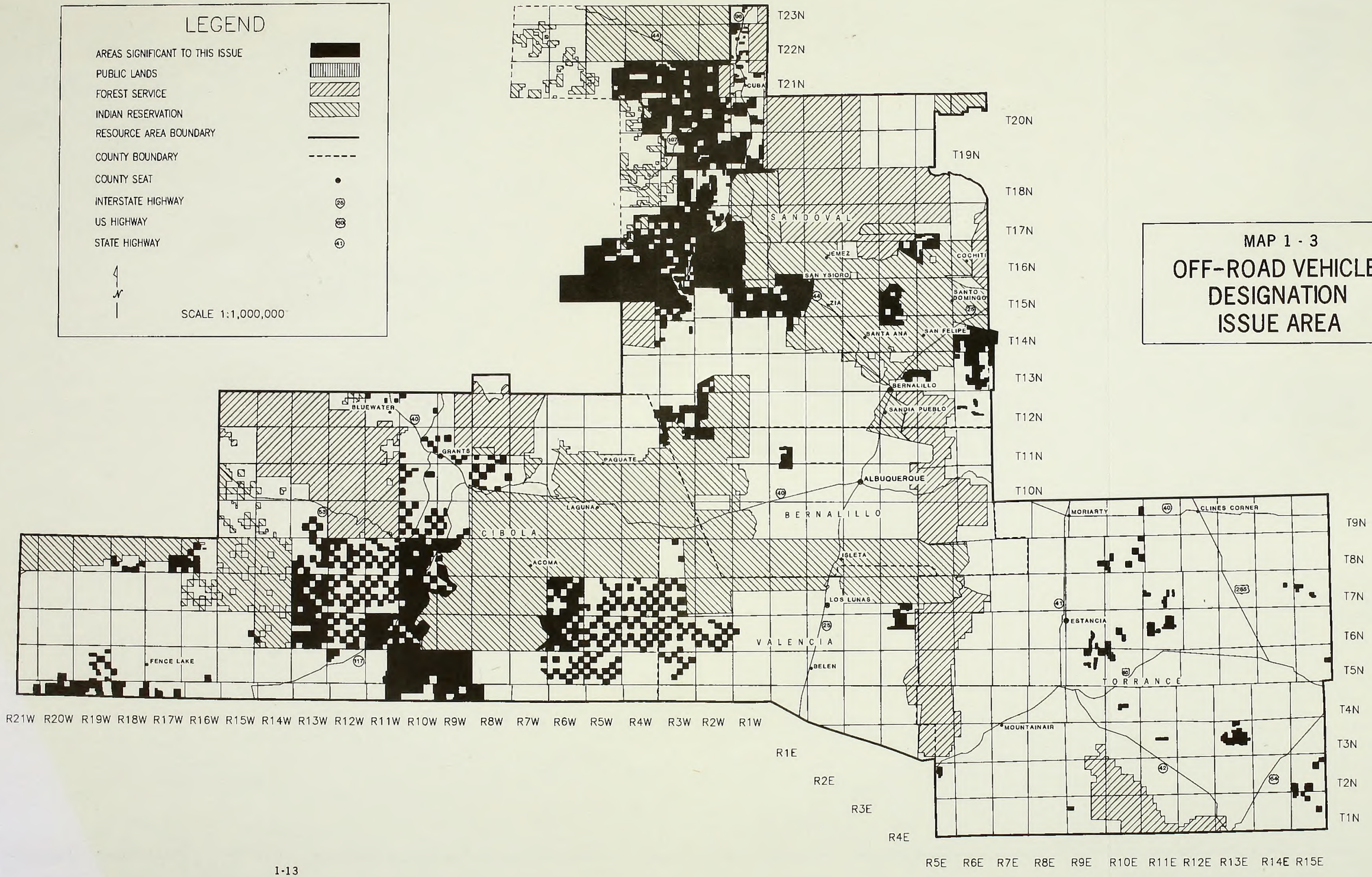
SPECIAL MANAGEMENT ISSUE AREAS

RIO PUERCO RESOURCE AREA

LEGEND

- AREAS SIGNIFICANT TO THIS ISSUE
- PUBLIC LANDS
- FOREST SERVICE
- INDIAN RESERVATION
- RESOURCE AREA BOUNDARY
- COUNTY BOUNDARY
- COUNTY SEAT
- INTERSTATE HIGHWAY
- US HIGHWAY
- STATE HIGHWAY

SCALE 1:1,000,000



MAP 1 - 3

OFF-ROAD VEHICLE DESIGNATION ISSUE AREA

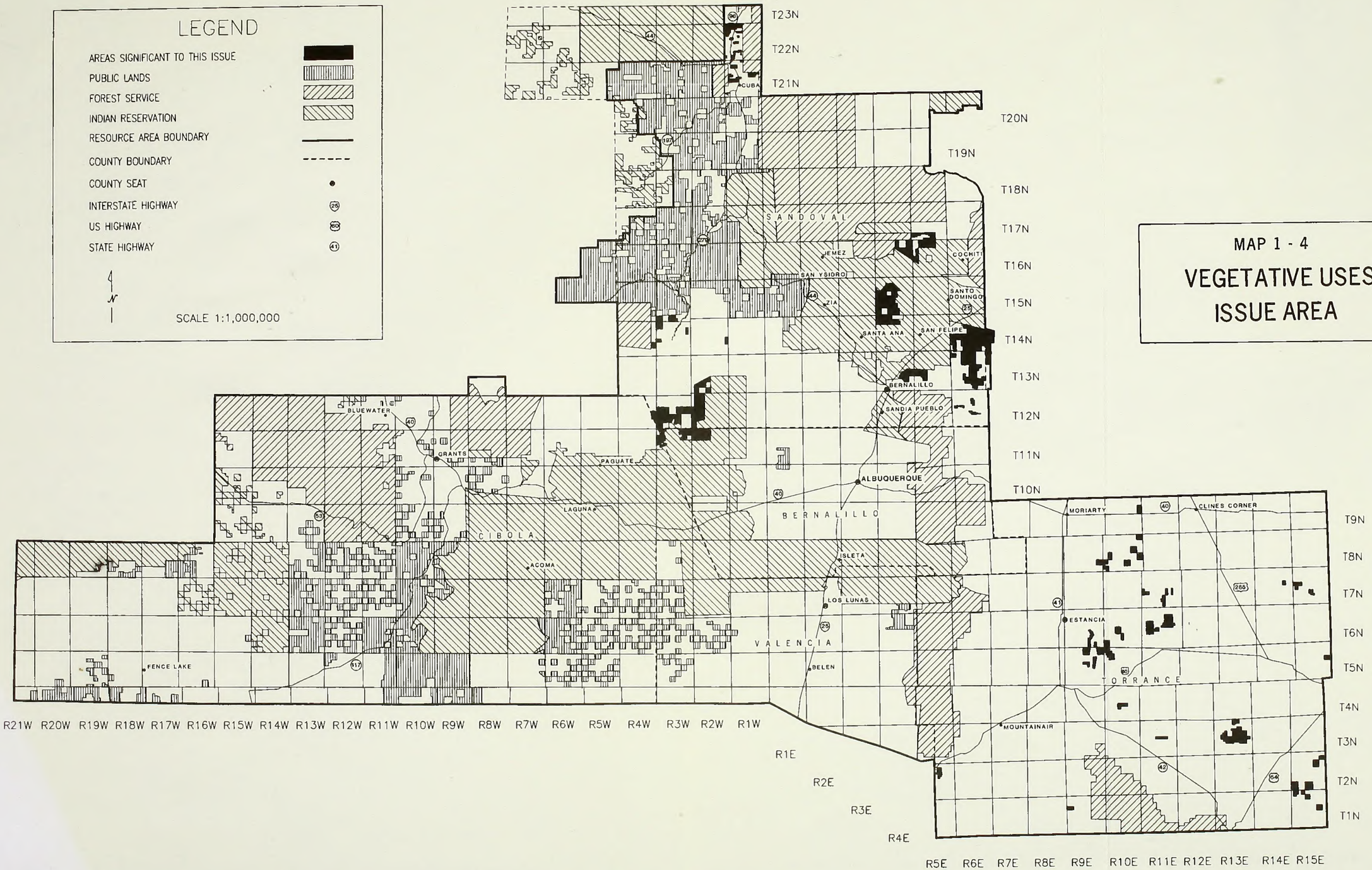
RIO PUERCO RESOURCE AREA

LEGEND

- AREAS SIGNIFICANT TO THIS ISSUE
- PUBLIC LANDS
- FOREST SERVICE
- INDIAN RESERVATION
- RESOURCE AREA BOUNDARY
- COUNTY BOUNDARY
- COUNTY SEAT
- INTERSTATE HIGHWAY
- US HIGHWAY
- STATE HIGHWAY

N

SCALE 1:1,000,000



MAP 1 - 4

VEGETATIVE USES
ISSUE AREA

RIO PUERCO RESOURCE AREA

LEGEND

- AREAS SIGNIFICANT TO THIS ISSUE
- PUBLIC LANDS
- FOREST SERVICE
- INDIAN RESERVATION
- RESOURCE AREA BOUNDARY
- COUNTY BOUNDARY
- COUNTY SEAT
- INTERSTATE HIGHWAY
- US HIGHWAY
- STATE HIGHWAY

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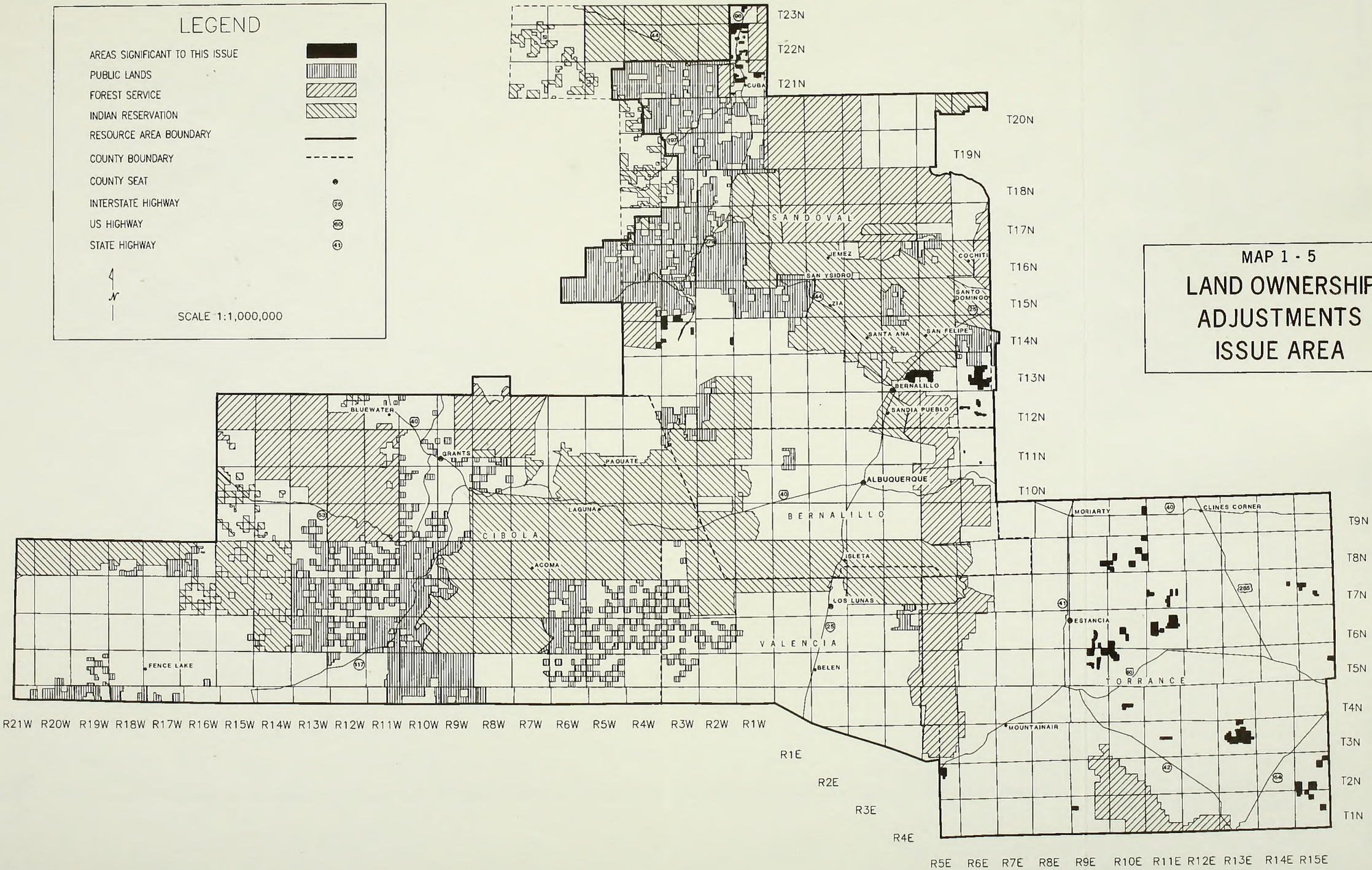
SCALE 1:1,000,000



MAP 1 - 5

LAND OWNERSHIP ADJUSTMENTS ISSUE AREA

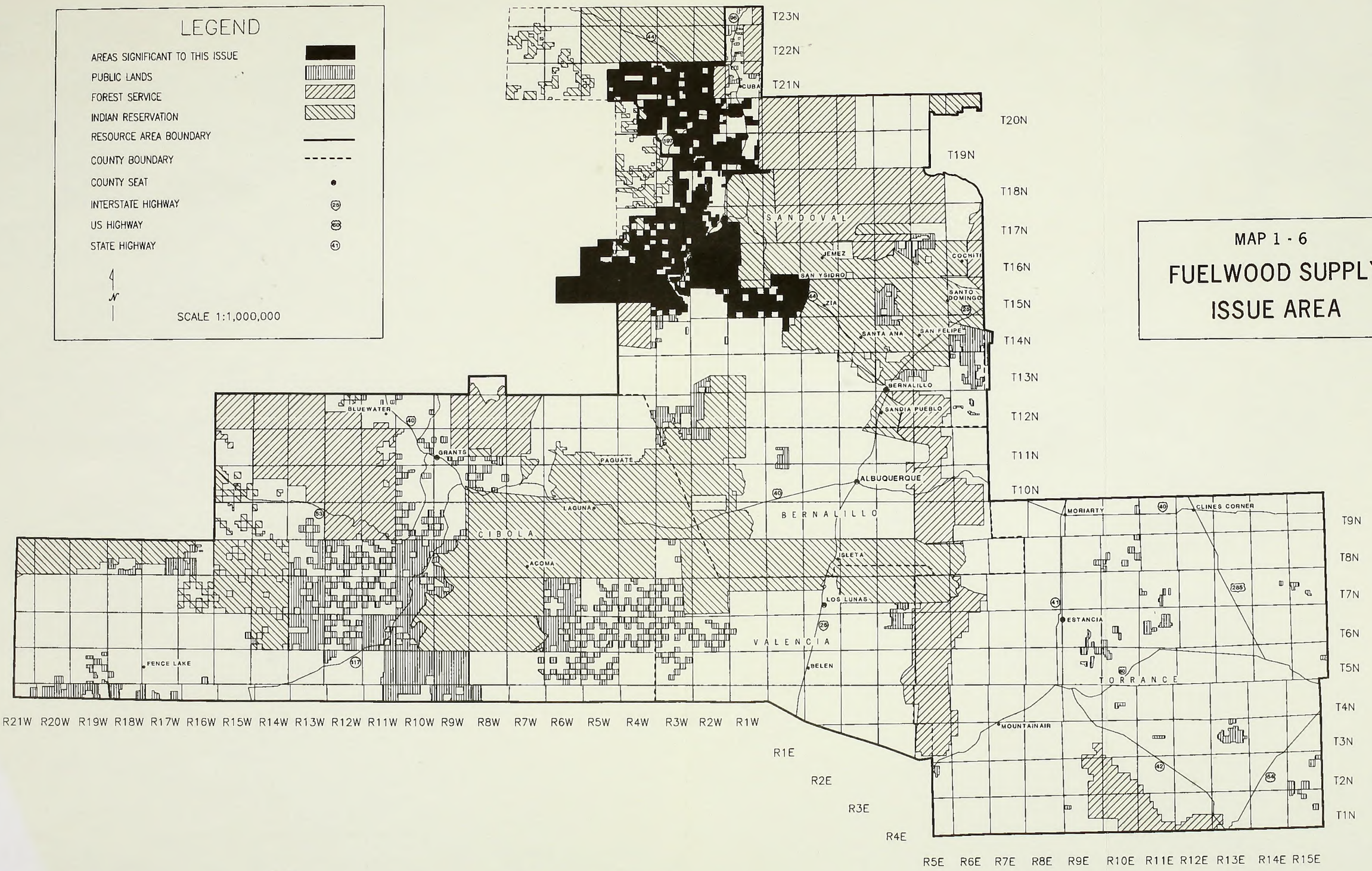
RIO PUERCO RESOURCE AREA

LEGEND

- AREAS SIGNIFICANT TO THIS ISSUE
- PUBLIC LANDS
- FOREST SERVICE
- INDIAN RESERVATION
- RESOURCE AREA BOUNDARY
- COUNTY BOUNDARY
- COUNTY SEAT
- INTERSTATE HIGHWAY
- US HIGHWAY
- STATE HIGHWAY

N

SCALE 1:1,000,000



MAP 1 - 6

FUELWOOD SUPPLY ISSUE AREA

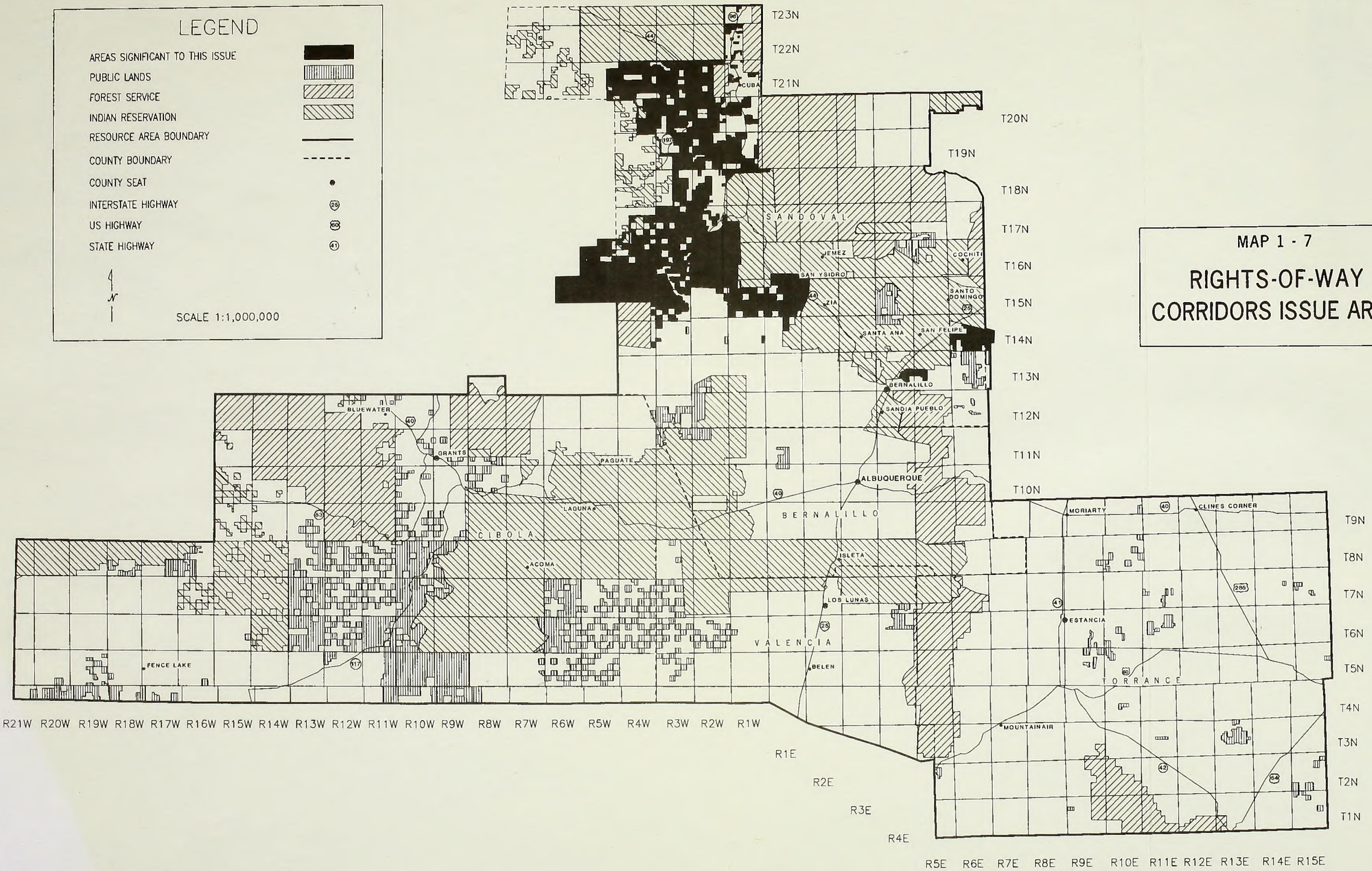
RIO PUERCO RESOURCE AREA

LEGEND

- AREAS SIGNIFICANT TO THIS ISSUE
- PUBLIC LANDS
- FOREST SERVICE
- INDIAN RESERVATION
- RESOURCE AREA BOUNDARY
- COUNTY BOUNDARY
- COUNTY SEAT
- INTERSTATE HIGHWAY
- US HIGHWAY
- STATE HIGHWAY

N

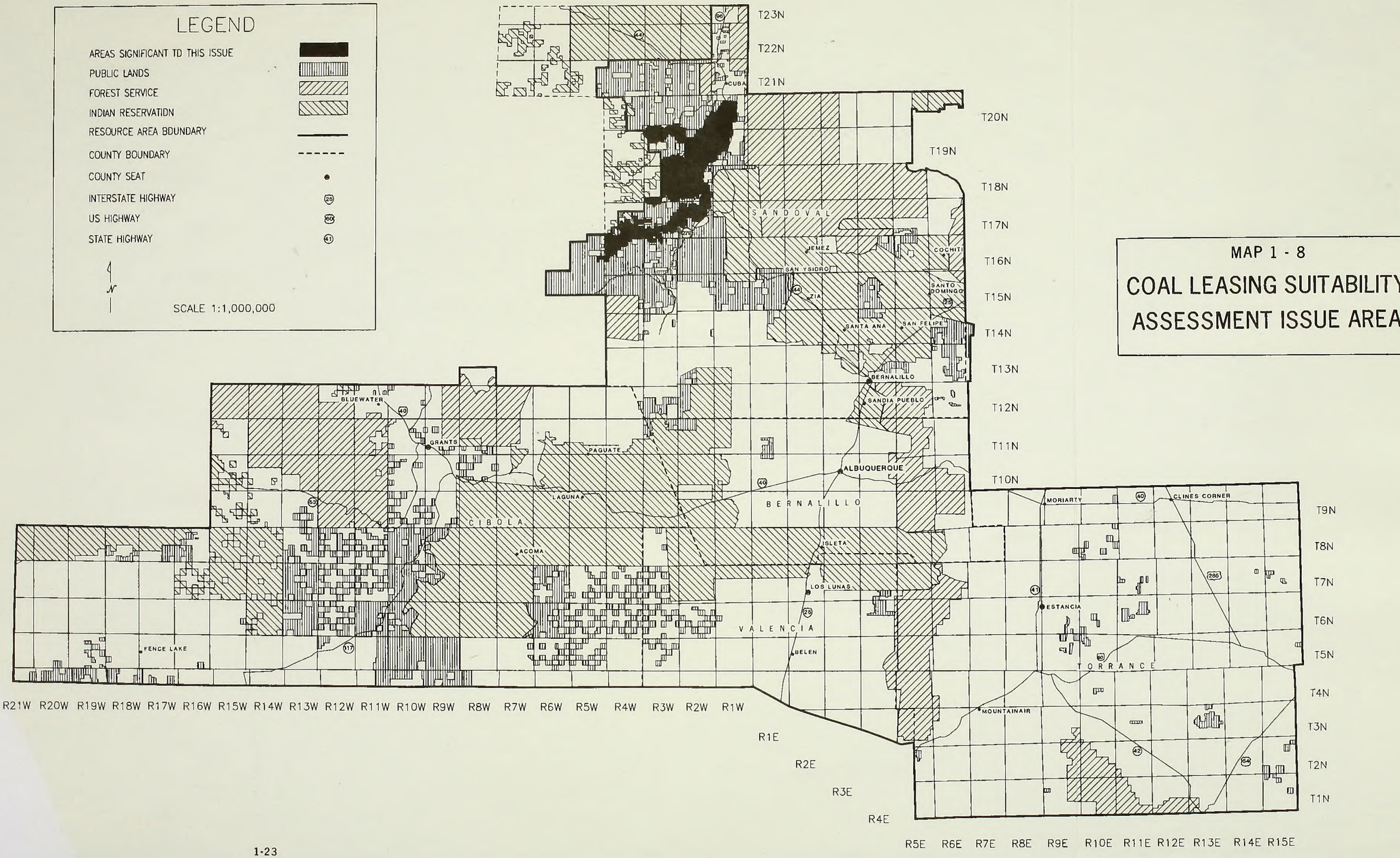
SCALE 1:1,000,000



MAP 1 - 7

RIGHTS-OF-WAY
CORRIDORS ISSUE AREA

RIO PUERCO RESOURCE AREA



MAP 1 - 8

COAL LEASING SUITABILITY ASSESSMENT ISSUE AREA

Chapter 2

RMP ALTERNATIVES INCLUDING THE PROPOSED PLAN

CHAPTER 2

RMP ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE/ PROPOSED RESOURCE MANAGEMENT PLAN

INTRODUCTION

This chapter is divided into two sections, "Continuing Management Guidance" and "The Proposed Action and Alternatives." The continuing guidance section is a summary of how the Rio Puerco Resource Area is presently being managed, and how, outside of the resolution of the issue questions, it will be managed when the RMP is approved. The continuing guidance was developed primarily from laws, regulations and manuals, as well as from previous land use plans and grazing Environmental Impact Statements.

With the exception of the laws, regulations and manuals, the existing documents cover only portions of the RPRA. This RMP will provide new land use planning for those areas not previously covered and will consolidate and update the existing management decisions and guidance. Those public lands, resources and programs not affected by the resolution of the issues will be managed essentially as they are presently, as outlined in the Continuing Management Guidance.

Four different alternatives were developed as solutions to the issue questions. Each alternative presents a different blend and balance of resource allocations and uses. They are based on input from the RMP interdisciplinary team, other RPRA staff, and the BLM Albuquerque District and NM State Offices, as well as from the interested public. All four alternatives comply with the Federal Land Policy and Management Act requirement that the public land be managed on the basis of multiple use and sustained yield. Together with the Continuing Management Guidance, each of the alternatives forms a separate, feasible land use plan (see Figure 2-1).

The alternatives in this EIS are designed to provide general management guidance. Specific projects for an area or resource will be detailed in activity plans with accompanying environmental analyses. These activity plans will discuss more precisely how a particular area or resource will be managed, and will comply with the approved RMP's resolution of the issues.

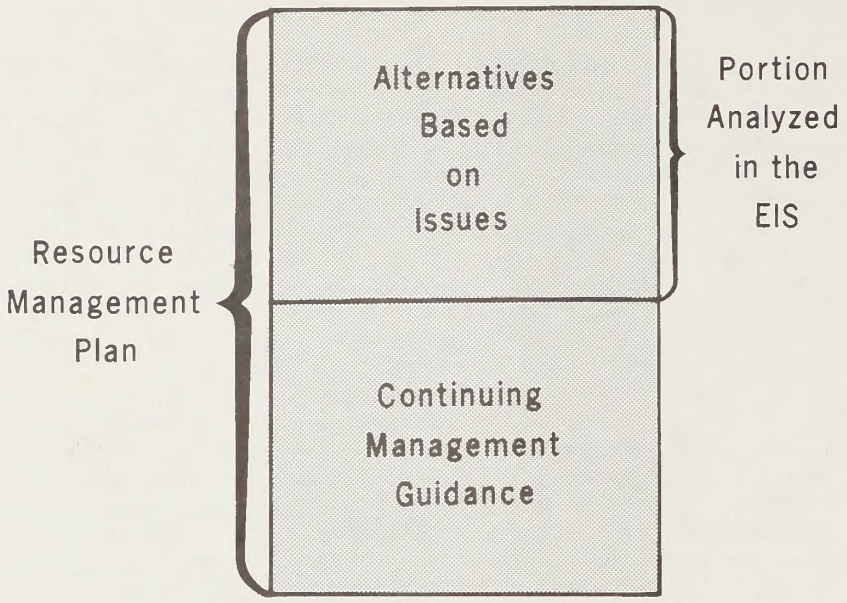
CONTINUING MANAGEMENT GUIDANCE

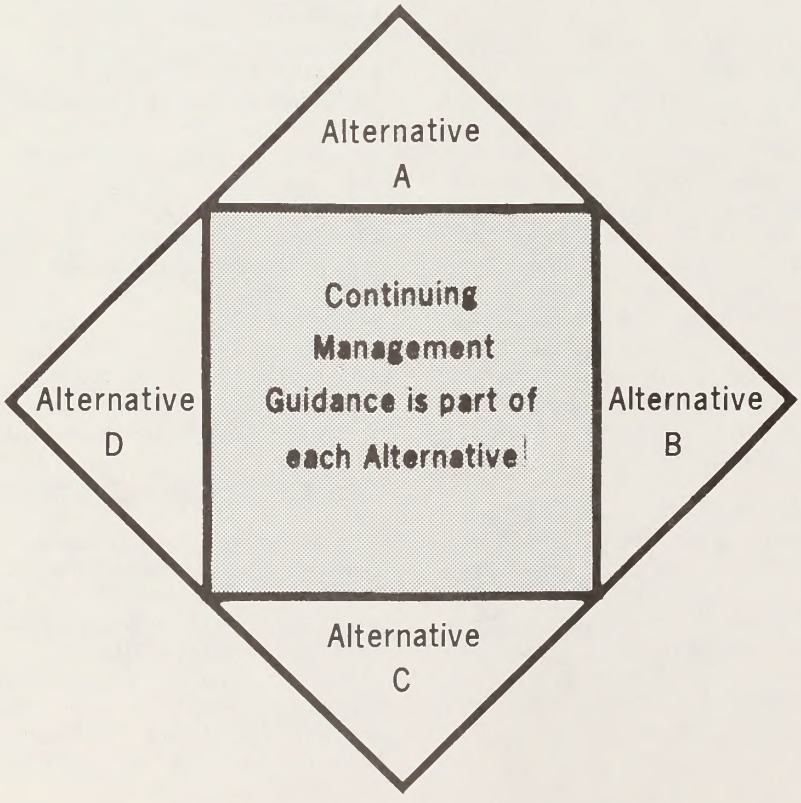
This section presents a summary discussion of current resource management in the Rio Puerco Resource Area. It is based on the information contained in an unpublished companion document to this RMP/EIS, the Management Situation Analysis (MSA). The "Existing Management Situation" section of the MSA is a detailed discussion of the existing management guidance applicable to the RPRA. The major sources of this guidance are laws, regulations, BLM manuals, Department of the Interior manuals, executive orders, BLM Washington Office instruction memorandums, and BLM New Mexico State Office instruction memorandums. In addition, the Rio Puerco Livestock Grazing Management Environmental Statement (USDI, BLM 1978b), portions of the East Socorro Grazing Management Environmental Statement (USDI, BLM 1979a),and the West Socorro Rangeland Management Program Environmental Impact Statement (USDI, BLM 1982b), and portions of the Ladron (USDI, BLM 1977), Divide (USDI, BLM 1983b), Chaco (USDI, BLM 1981b), and Rio Grande (USDI, BLM 1979c) Management Framework Plans provide guidance for the management of parts of the Rio Puerco Resource Area (Map 2-1). A summary of the land use planning decisions from the Chaco, Divide, Ladron, and Rio Grande MFP's is located in Appendix A; the decisions from the grazing EIS's are summarized in Appendix B. The MSA and the detailed guidance it contains for the management of the RPRA are considered to be incorporated into the RMP/EIS by reference. As summarized below, management of the resources in the RPRA not affected by the resolution of the issues will be managed based on the detailed guidance contained in the Management Situation Analysis.

Geology, Energy, and Minerals

It is the policy of the BLM to make mineral resources available for disposal and to encourage development of those resources to meet national, regional, and local needs, consistent with national objectives of an adequate supply of minerals at reasonable market prices. At the same time, the BLM strives to assure that mineral development is carried out to minimize environmental

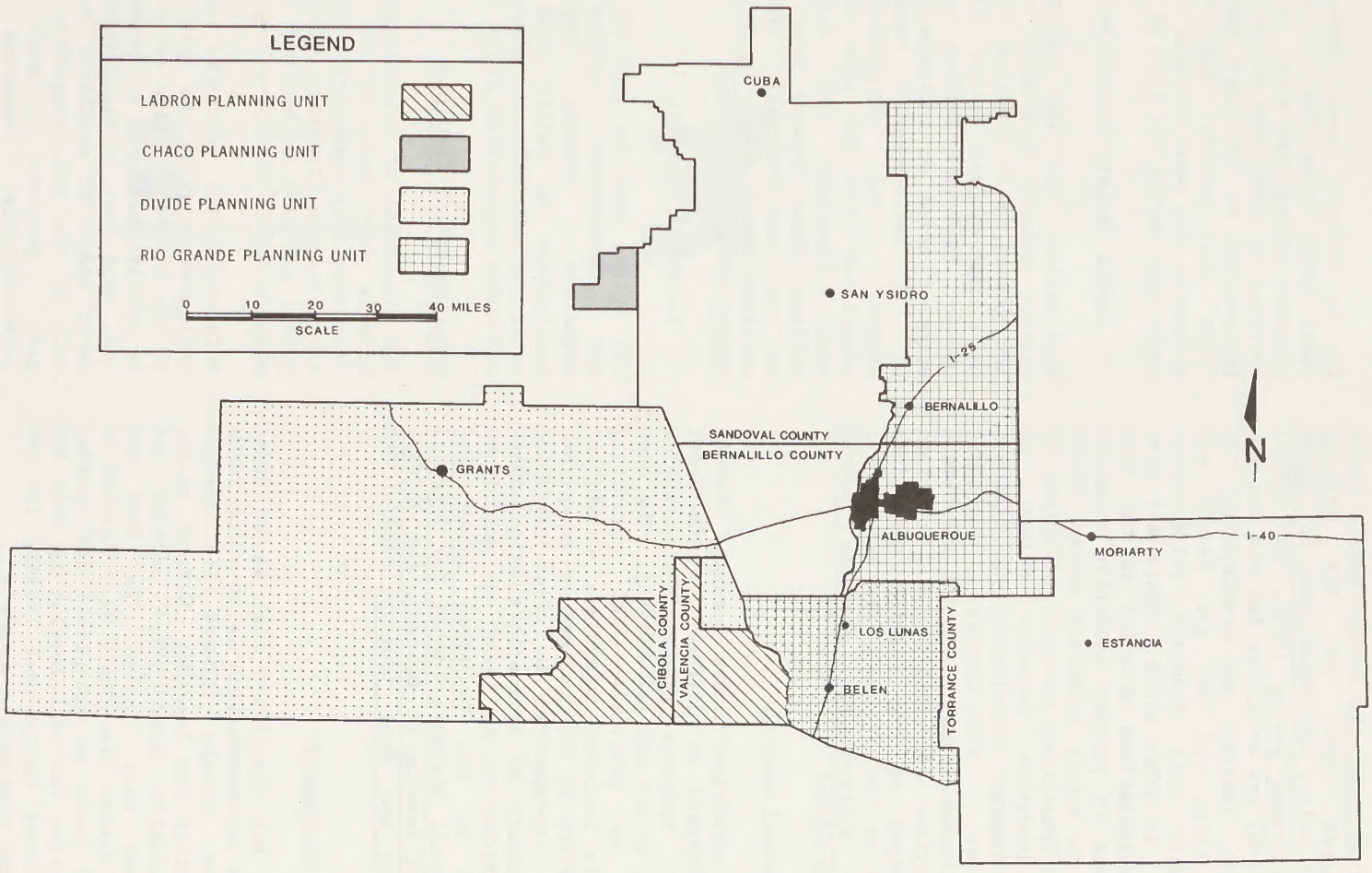
FIGURE 2 - 1
RELATIONSHIP OF ALTERNATIVES TO CONTINUING MANAGEMENT GUIDANCE





MAP 2-1

EXISTING MANAGEMENT FRAMEWORK PLANNING UNITS



damage and to provide for the rehabilitation of lands affected.

Oil and Gas Leasing

As a general rule, all of the public lands not managed under the BLM Interim Management Policy and Guidelines for Lands Under Wilderness Review (USDI, BLM 1979b) (see Map 2-6) are available for oil and gas exploration, leasing, and development. In certain areas, oil and gas leases are issued with only standard stipulations attached. In other areas, leases may have special stipulations attached at the time of issuance to protect sensitive resource values. In highly sensitive areas, where special stipulations are not sufficient to protect important resource values, no surface occupancy stipulations are attached to leases. Site-specific decisions regarding lease issuance and the attachment of appropriate stipulations will continue to be based on the leasing guidelines contained in the Northern New Mexico Oil and Gas Environmental Analysis Record (USDI, BLM 1974a).

Geothermal Leasing

Although authorized under separate statute and implemented by different regulations, geothermal resource leasing is virtually identical to oil and gas leasing. The same sequence of activities and permitting actions is followed regardless of whether the commodity is oil and gas or geothermal fluids. Site-specific decisions regarding the attachment of appropriate stipulations will continue to be based on guidelines contained in the Technical Report and Environmental Analysis Record for Proposed Geothermal Leasing of Cabezon, San Ysidro, and Santa Ana Mesa Country (USDI, BLM 1976b).

Coal Management

This RMP has identified coal as an issue and makes recommendations as to which lands should be brought forward for further consideration for leasing. Current policy and regulation permit coal leasing and development only through the land use planning system (see Map 2-2). Failure to recommend lands as acceptable for further consideration for coal leasing in this RMP would prevent future coal leasing for the life of the plan unless amended.

Several coal leases already exist within the boundaries of the RPRA (see Map D-1) and will not be affected by recommendations made in any of the alternatives. These leases, some of which date back to the mid-1940's, were awarded under coal leasing regulations which have been superseded by current regulations.

The La Ventana lease, currently held by Ideal Basic Industries, is the site of a proposed underground mine. A mine plan was approved in 1980, but probably will not be implemented in the near future due to a "soft" coal market. Even though opening prospects are poor at this time, the mine could open during the life of the plan.

Common Variety Mineral Materials

Applications for the removal of common variety mineral materials, including sand and gravel, will continue to be processed on a case-by-case basis. Stipulations to protect important surface values will be attached based on interdisciplinary review of the environmental impacts of each request. The environmental impacts associated with the sale of carbonaceous shale (humates) and stipulations to mititate those impacts have been addressed in an environmental analysis record entitled Humate Sales in Northern Sandoval County (USDI, BLM 1976a).

Locatable Minerals

All public land is open to mineral entry and development unless previously withdrawn. Mineral exploration and development on public land is regulated under 43 CFR 3800 to prevent unnecessary and undue degradation of the land.

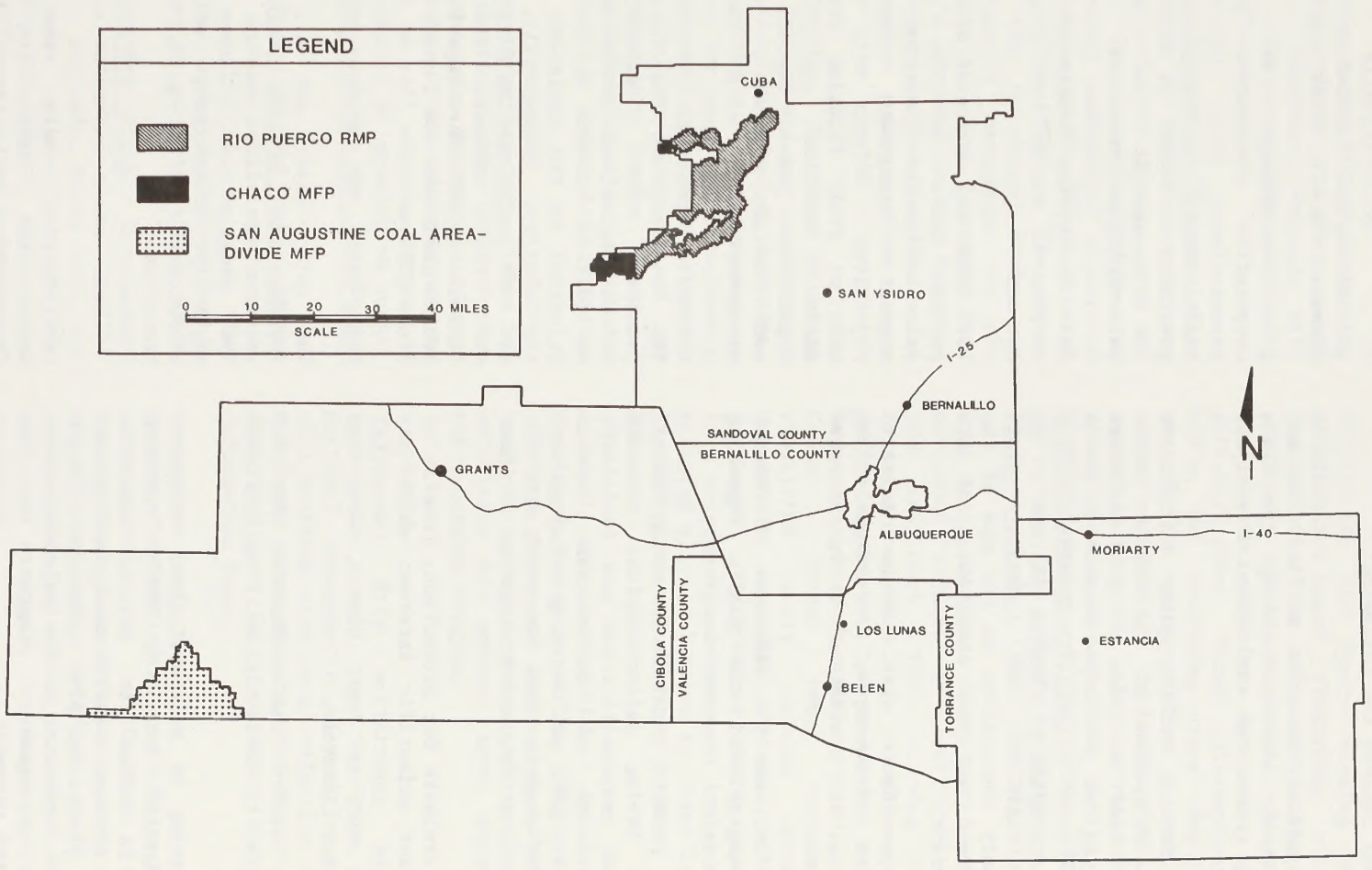
Paleontological Resources

The management of paleontological resources affects many users of the public lands. The scientific community, hobby collectors, the minerals industry, and the general public all have an interest in how the BLM manages fossil resources.

Paleontological resources are unique and nonrenewable resources which provide clues to the history of life on earth. They may be easily destroyed or permanently damaged and, once lost, a significant specimen may never again be available for study. The role of the BLM, therefore, is to manage and protect, where necessary, paleontological resources occurring on public lands. The effective management and protection of these resources is dependent upon two elements: the resolution of conflicts through the BLM's planning

MAP 2-2

STATUS OF COAL PLANNING



system, and a spirit of cooperation and informed restraint among public land users.

The objectives of paleontological resource management include the following:

(1) To identify and evaluate paleontological resources so that they may be adequately addressed through the BLM's planning system and environmental analysis documents.

(2) To develop activity plans which carry out the objectives of the RMP or other approved land use plan to protect those paleontological resources considered to be of significant scientific interest. This may be accomplished through salvage or in situ mitigation, but should avoid unnecessary constraints on the use of the public land and the development of its resources.

(3) To provide for uses such as scientific collection and research, recreational-hobby collecting, and educational or interpretive activities.

(4) To increase the awareness of Federal land managers and the public regarding paleontological resource management.

(5) To promote consistency among Federal agencies having paleontological resource management responsibilities and facilitate the exchange of information between Federal, state, and local governments and scientific organizations concerned with the management, study, and protection of these resources.

(6) To evaluate for protection, fossils of significant scientific interest which may occur in association with industrial minerals such as coal, humate, sand and gravel, and limestone.

(7) To accord the protection provided under law to scientifically significant fossils.

Consideration of paleontological resources is integrated into the BLM's planning system in order to develop specific guidance through resource management plans, activity plans, and plan amendments. Major phases or components of the paleontological resource management program may be implemented through:

(1) The development and maintenance of paleontological information in order to address impacts to the resource from competing land uses.

(2) Avoidance of or mitigation of impacts to scientifically significant paleontological resources at a level commensurate with their significance.

(3) Development of volunteer or cooperative management agreements and associations with individuals, local organizations, universities, museums, and governmental bodies in order to facilitate the management and protection of paleontological resources.

(4) Monitoring management decisions and actions to ensure that program objectives are met.

(5) Promoting awareness among users of the public lands of the importance of paleontological resources in order to augment management and protection objectives. Efforts will continue to be made to avoid focusing attention on the exact location of scientifically significant paleontological resources if such attention would conflict with management objectives for these resources.

Effective October 1, 1984, the authority of the Secretary of the Interior to issue permits for archeological and paleontological investigations under the Antiquities Act (16 U.S.C. 432, 433) was delegated to the Assistant Secretaries of the Interior. Subsequently, this authority was redelegated to the Director of the BLM and the various State Directors. Paleontological investigation permits for public lands are now issued through the BLM State Offices.

Soil, Water, and Air Resources

The soil, water and air program will continue to provide support to other resource activities in the Resource Area. The program will also continue to emphasize protection, maintenance, and enhancement of the soil, water, and air resources.

Soil

Participation with the USDA Soil Conservation Service in the National Cooperative Soil Survey will continue. Evaluation and updating of older soil surveys will continue as needed to provide a current data base. Detailed soil surveys

for individual projects will be conducted as needed.

Water

Control of erosion and sediment production from public lands remains a high priority management goal. Therefore, emphasis will be placed on continuing the following watershed activities:

Rio Puerco Hydrology Study. This program is designed to measure runoff and sediment production from three types of grazing systems. This is part of a program to evaluate whether management objectives are being met within the Rio Puerco Grazing ES area (USDI, BLM 1978b). The three watersheds in the Hydrology Study are proposed for special management in the Pelon Watershed, Ojito, and San Luis Mesa Raptor Area SMA's proposed in the Resource Production, Resource Conservation, and Balanced Management Alternatives (see Appendix C).

Dam Safety Program. The first phase of the Dam Safety Program is an inventory of the dams in the Albuquerque District, assessing the condition of each structure. The second phase includes the development of a maintenance and rehabilitation schedule for all structures, and preparation of Emergency Action Plans for High Hazard dams (those dams for which dam failure represents a threat to life or property).

Soil and Hydrology Research. The BLM is partially funding the USDA Forest Service Rocky Mountain Forest and Range Experimental Station at Albuquerque to conduct research on soil organic matter and the hydrologic effects of grazing on runoff and sediment yield within the Rio Puerco Grazing ES area.

Water Use Inventory and Water Rights Program. This program will continue to identify and quantify water needs for public lands. The Water Use Inventory is scheduled for completion by the end of 1986.

Watershed Activity Plans. Development of comprehensive watershed plans by 1990 for the Governor, Trechado, Monte Seco, and San Jose watersheds is specified in the Divide MFP (USDI, BLM 1983b). The Ladron MFP (USDI, BLM 1977) calls for reduction of erosion through grazing management, development of water control structures, and reduction in erosion related to vehicular travel. Reduction of erosion through implementation of Allotment Management Plans (AMP's) on allotments suitable for intensive management was expected because of increased vegetative cover.

Within the Rio Puerco Grazing ES area, modification of existing Allotment Management Plans that adequately address watershed problems is preferred to development of a separate watershed activity plan. Those allotments without AMP's, but containing areas identified in the ES as having either a critical or severe watershed condition, will have watershed activity plans developed. This direction was provided in the Rio Puerco Watershed Management Plan (USDI, BLM 1974b) and the Rio Puerco Special Project Evaluation Report (USDI, BLM 1972).

Some areas of public lands have never had a watershed inventory or a watershed activity plan developed. This includes lands in Torrance and Bernalillo Counties and those public lands in the southwest corner of Sandoval Country adjacent to Cibola County. Recent range surveys have identified gully erosion areas and watershed activity plans will be developed. In Torrance County the effort in watershed inventory and activity planning will be limited to those lands not identified as suitable for disposal in this RMP.

A broad watershed activity plan will be developed for the entire RPRA using the existing plans and data, consolidating the various decision documents, and setting priorities for project level planning in the watershed program.

Air

Cooperation and participation in the National Atmospheric Deposition Program will continue with data collection from the acid rain gauge in Cuba, New Mexico. These data are part of a national air quality information base.

Prevention and reduction of air quality impacts from activities on public lands is accomplished by mitigation measures developed on a case-by-case basis through the NEPA process. Activities such as road construction and mining have dust abatement programs as part of their permits or contracts.

Range Resources

The grazing program in the RPRA is authorized by The Taylor Grazing Act of

1934, The Federal Land Policy and Management Act of 1976, The Public Rangelands Improvement Act of 1978, and The Bankhead-Jones Farm Tenant Act of 1937. In addition to issuance of grazing permits and leases, unauthorized use detection and abatement, allotment supervision, and other actions authorized by the previously mentioned legislation, three grazing environmental impact statements (USDI, BLM 1979a, 1978b, 1982b) have been completed and approved in compliance with the Final Judgement of the National Resources Defense Council v. Morton Law Suit, Civil No. 1983-73 (see Map 2-3). These environmental statements provide further program guidance through proposed actions and management objectives for approximately 793,982 acres of public land within the RPRA. The guidance established in these environmental statements will be implemented by continuously monitored grazing decisions. The proposed actions of these environmental statements and subsequent management decisions have been incorporated into this RMP (see Appendix B).

Activity plans will continue to be prepared to implement the management proposed in the grazing decisions, with site-specific environmental assessments (EA's) used to analyze actions proposed in the activity plans. These EA's will be developed in accordance with NEPA requirements.

Rio Puerco Livestock Grazing Environmental Statement

The Rio Puerco Livestock Grazing Environmental Statement (USDI, BLM 1978b) proposed to initiate an intensive livestock grazing management program on approximately 393,083 acres of public land in Sandoval and McKinley Counties. To implement this program, Allotment Management Plans (AMP's) were developed for each allotment in the ES area to improve ecological condition to acceptable levels, reduce soil erosion, improve water quality, provide sufficient forage for livestock and wildlife, and enhance other environmental values.

East Socorro Livestock Grazing Environmental Statement

The East Socorro Livestock Grazing Environmental Statement (USDI, BLM 1979a) proposed to implement a grazing management program based on the growth requirements of the vegetation for approximately 112,629 acres of public land in Valencia County and the eastern portion of Cibola County. To implement this program, eight new AMP's were developed and four revised. These AMP's provide for the accomplishment of the following goals: (1) enhance the vegetative resource, (2) improve range condition, (3) reduce erosion and sedimentation damage, (4) improve water quality, (5) provide quality habitat for wildlife, (6) improve the recreation and visual resources, (7) provide a continuous supply of livestock forage, and (8) protect archeological and historic sites.

West Socorro Livestock Grazing Environmental Impact Statement

The West Socorro Livestock Grazing Environmental Impact Statement (USDI, BLM 1982b) proposed to protect and enhance the soil and vegetative resources of the EIS area, enhancing livestock forage, watershed, wildlife habitat, recreation and aesthetics, and socio-cultural and economic values on approximately 288,270 acres of public land in Cibola and Valencia Counties.

To accomplish these management goals, grazing management prescriptions were developed for each of the thirty-seven allotments in this area, including required and optional grazing strategies. The consultation, coordination, and cooperation process required by Section 8 of the Public Rangelands Improvement Act of 1978 has been initiated with the affected grazing allottees. Based on this process, grazing management strategies, including the identification of needed range improvements, will be developed and implemented by grazing decisions which will accomplish the goals and objectives established in the EIS.

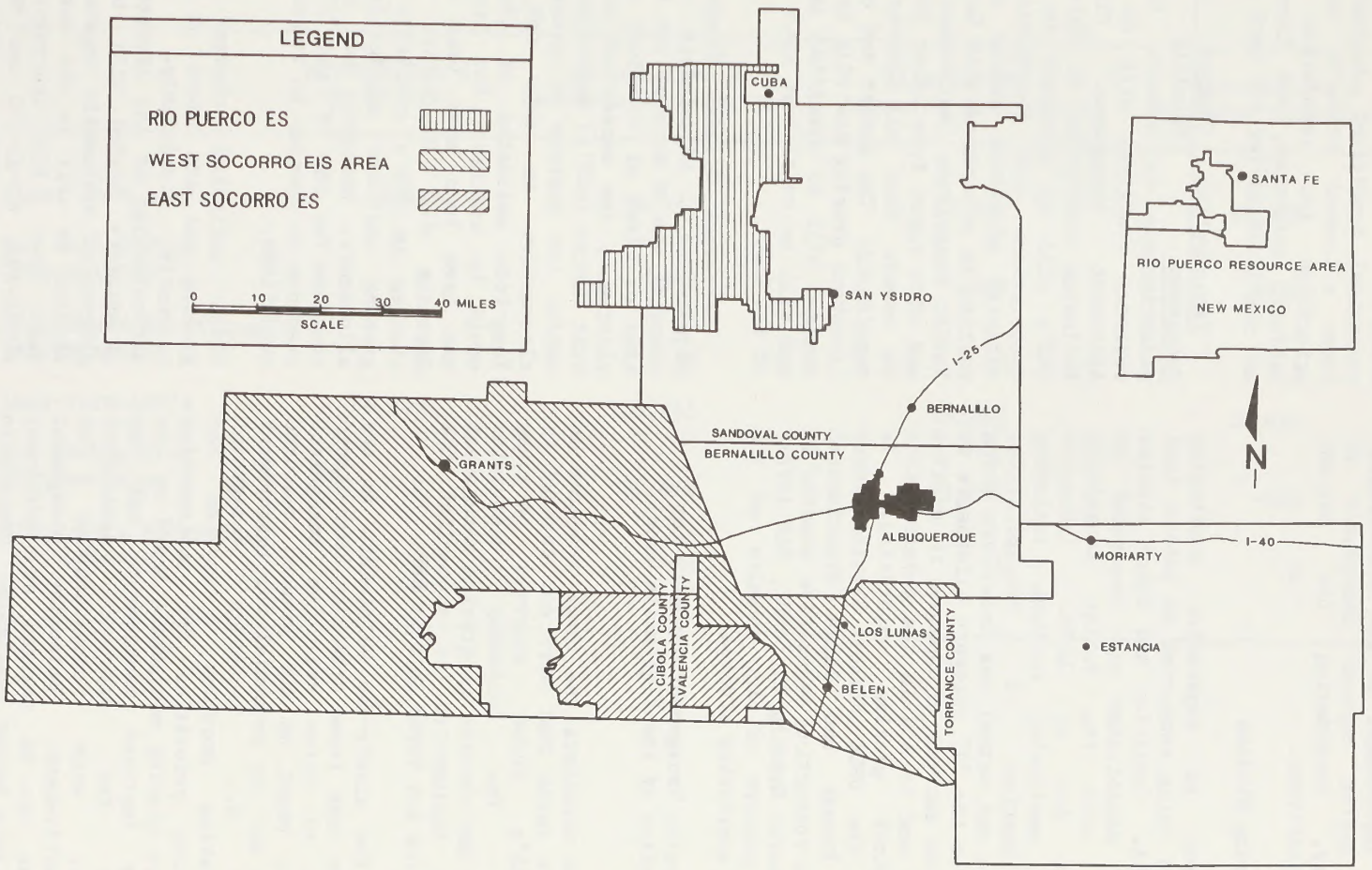
Selective Management Categorization

Each of the 121 grazing allotments in the RPRA covered by the three grazing ES/EIS's (USDI, BLM 1978b, 1979a, 1982b,) has been placed into one of three Selective Management Categories based on present resource conditions and potential for improvement. Management categorization allows the establishment of priorities for implementing grazing management based on the need for management and potential for improved range condition, with consideration for cost-effectiveness.

The three selective management categories are: Maintain (M), Improve (I), and Custodial (C). The "M" category allotments will be managed to maintain current satisfactory ecological condition. The "I" category allotments will be managed intensively to improve unsatisfactory ecological condition and resolve resource

MAP 2 - 3

EXISTING GRAZING EIS AREAS



conflicts. The "C" category allotments will be managed to prevent resource degradation. The "C" allotments have a low potential for improved ecological condition; improvement is not economically feasible; and/or current management is satisfactory, considering the current resource conditions.

Monitoring Studies

Three types of vegetative monitoring studies are being conducted on public land in the RPRA. Condition and trend studies are being established and conducted in accordance with the Public Rangelands Improvement Act of 1978. Intensive vegetative monitoring studies, including the collection of precipitation, utilization and actual use data, are being conducted on the "I" category allotments to evaluate the success of changes in grazing management and to aid in the determination of livestock grazing capacities. In addition, the USDA Forest Service Rocky Mountain Forest and Range Experimental Station is conducting vegetative studies in the Rio Puerco Grazing ES (USDI, BLM 1978b) area in support of the results of the intensive monitoring studies.

Continuing Management Guidance for Resolution of the Vegetative Uses Issue

This issue considers the range resource on the public lands that were not covered by the RPRA's three approved grazing ES/EIS's. The following discussion describes how changes in grazing management would be implemented to accomplish the alternatives set forth in this RMP.

Each of the ninety-two allotments in the vegetative uses issue area has been placed into one of three selective management categories based on the present resource condition and the potential for improvement (Appendix S). Selective management categorization provides a system for establishing priorities for implementing changes in grazing management based on the need for improved management, and the potential for improved ecological condition, with consideration for cost-effectiveness. Selective management categories can be changed as additional resource data become available. Changes in categories would result in management changes appropriate to the new category, consistent with the objectives of the approved RMP.

Allotment-Specific Management Actions for the Improve (I) Category. Each "I" allotment either has resource conflicts that could be resolved by changes in management or is in less than acceptable ecological condition. Appendix M displays these allotment resource conflicts. The priorities for resolution of wildlife habitat, watershed, and livestock grazing use conflicts differ for each alternative.

Implementing Changes in Allotment Management. Specific management prescriptions to resolve the identified resource conflicts will be developed in Allotment Management Plans (AMP's) following completion of this RMP. These AMP's will be prepared in consultation, cooperation, and coordination with the affected allottees and/or other affected parties in accordance with Section 8 of The Public Rangelands Improvement Act of 1978, and with input from other RPRA specialists to ensure that all resource needs are considered. The manner and extent to which livestock grazing use will be conducted and managed will be specified in these AMP's, and will be consistent with the objectives of the RMP.

Livestock Grazing Management and Use Adjustments. Adjustments are made by changing one or more of the following: the kind or class of livestock grazing on the allotment, the season of use, the Animal Unit Months (AUM's) authorized for grazing, and/or the pattern of grazing. For each alternative in this RMP, short- and long-term estimates of the AUM's which would be available for livestock grazing use have been made (see Table 2-1 and Appendix P). Generally, the estimated changes in AUM's available for livestock grazing use are applicable to the "I" allotments; however, use adjustment will continue for the "M" and "C" allotments in response to changes in resource demands and conditions.

These estimated changes in livestock grazing use are based on the best data currently available. The final determination of the livestock grazing use adjustments needed will be based on a program of systematic vegetative monitoring studies as well as the current vegetative data base. BLM Instruction Memorandums WO-82-292, WO-82-650 and NM-82-280 (USDI, BLM 1982c, 1982e, 1982f) discuss the application of the vegetative monitoring studies in more detail.

TABLE 2-1

SUMMARY OF ESTIMATED CHANGES IN AUM'S BY ALTERNATIVE

	Alternative A No Action	Alternative B Resource Conservation	Alternative C Resource Production	Alternative D Balanced Management
Short-Term AUM's	18,639	16,745	17,941	17,789
Net Change from Current Use	0	-1,894	-698	-850
Allotments Receiving Adjustments	0	9	6	6
Long-Term AUM's	18,639	16,745	20,289	18,634
Net Change from Current Use	0	-1,894	+1,650	+850
Allotments Receiving Adjustments	0	9	12	6

Vegetative monitoring studies will also be used to evaluate the changes in resource condition resulting from grazing management practices and to evaluate the effectiveness of changes in grazing management to resolve the identified resource conflicts.

The changes in AUM's allocated for livestock grazing use can be implemented either through documented mutual agreement with the affected allottee or by grazing decision. Adjustments through mutual agreement may be implemented after the public review period of the Resource Area Rangeland Program Summary. Adjustments implemented by grazing decision will be based on consultation with the affected allottee and will be in accordance with the guidance in the Federal regulations (43 CFR 4110.3-3). The regulations specify that permanent increases and decreases in allocations of livestock forage "shall be implemented over a five-year period...."

Rangeland Improvements. Rangeland improvements would be implemented for each alternative in this RMP, with the exception of the continuation of Current Management Alternative and will be developed in accordance with BLM Instruction Memorandum WO-83-27 (USDI, BLM 1982d). Typical rangeland improvements and the general procedures to be followed in implementing them are described in Appendix N. Future rangeland improvements will be designed and constructed to meet the management objectives proposed in the RMP. The extent, location, and timing of such actions would depend on the improvements needed for each allotment, allottee contributions, and BLM funding capability, and would be developed with consideration for other resource uses.

All allotments for which rangeland improvement funds are to be spent will be subjected to economic analysis. This analysis will be used to develop a final priority ranking of allotments for the commitment of the range improvement funds needed to implement AMP's. In general, the highest priority for implementation will be assigned to those improvements for which the total anticipated benefits exceed the costs.

Grazing Systems. Grazing systems will be implemented for each alternative except the Continuation of Current Management Alternative. The type of system to be implemented will be based on consideration of the following factors: the degree and type of resource conflicts; resource characteristics, including vegetation potential and water availability; allottee needs; and implementation costs. Typical grazing systems available for consideration are described in Appendix O.

Tracts Unleased for Grazing

Approximately 11,817 acres of unleased public land generally will remain available for consideration for authorized grazing in accordance with the BLM grazing regulations (43 CFR 4110 and 43 CFR 4130). However, an estimated 7,092 public acres in Torrance County are unsuitable for livestock grazing use and are expected to remain unleased. Any of these public lands leased for grazing in the future will be managed in accordance with the objectives of the approved RMP. A grazing lease authorizes the use of public lands outside grazing districts under Section 15 of The Taylor Grazing Act for the purpose of grazing livestock only.

Wildlife

National legislation such as FLPMA, The Endangered Species Act of 1973, The Public Rangelands Improvement Act of 1978, and The Sikes Act of 1960, as amended, have directed the BLM to improve management of wildlife habitat to meet wildlife needs in the face of increasing demands for basic energy supplies, building materials and food products. It is the responsibility of the RPRA to identify opportunities to maintain, improve and expand wildlife habitat on the public lands for both consumptive and non-consumptive use and identify portions of the wildlife resource deserving special attention.

Inventories

The RPRA maintains a current inventory of wildlife habitat and species occurrence. This information is used in land use planning, habitat management, and multiple use decisions. All actions in the RPRA are reviewed and given site-specific analysis during the environmental assessment process to determine whether the action will affect a threatened or endangered species, wetland, or riparian area. Also considered are impacts to resident species' habitat or habitat improvement projects and compatibility with the New Mexico Department of Game and Fish Comprehensive Wildlife Plan (N.M. Department of Game and Fish 1980). Conservation measures will continue to be taken to protect rare plants listed by the New Mexico Heritage Program (1983). All range and watershed improvements will continue to be designed

to achieve both range and wildlife objectives. This includes location and design of waters and vegetation manipulation projects. Fences are designed so as to cause the least resistance to wildlife movement.

Animal Damage Control

Animal damage control activities on public lands in the RPRA are guided by Department of the Interior policy and the annual Animal Damage Control Plan for the Albuquerque District prepared jointly by the U.S. Fish and Wildlife Service (FWS) and the BLM. The FWS has overall responsibility for the program and supervises all control activities. The BLM has approval responsibility for the specific control actions on public land.

Habitat Management

The Upper Rio Puerco, Ojo del Espiritu Santo Grant, and El Malpais (USDI, BLM 1981f, 1978c, 1981d) Habitat Management Plans and the Bluewater Canyon Action Plan (USDI, BLM 1983d) covering 534,932 acres of public land are being implemented in the RPRA. Projects will be developed as identified in the HMP's as funding becomes available. Completed projects which continue to meet wildlife habitat objectives will be maintained. The Habitat Management Plans will be revised as needed to reflect changes in policy and to accommodate wildlife range expansion.

Woodland Resources

The forestry program within the RPRA consists of managing limited ponderosa pine stands and more extensive pinyon-juniper woodlands. Congress has mandated through FLPMA that the forestry and woodland program be managed on the basis of multiple use and sustained yield. The Material Disposal Act of 1947, as amended, establishes the authority under which the BLM disposes of timber and other forest products.

The Ladron and Divide MFP's (USDI, BLM 1977, 1983b) established woodland and timber management goals for the public land in Valencia and Cibola counties. These decisions have been incorporated into this RMP/EIS (see Appendix A) and will be implemented during the activity planning phase.

Ponderosa Pine

The long term goal of ponderosa pine management in the RPRA is to increase reproduction and stand vigor, as well as to reduce encroachment of pinyon-juniper into the ponderosa pine stands. Providing for the long-term maintenance of the ponderosa pine stands is also a goal of the program. Since existing ponderosa pine is managed for enhancement and protection of the stands, rather than the maximization of forest products, no specific allowable cut goals will be established for this species in the RPRA. All forestry practices currently being implemented in the RPRA are in conformance with standard silvicultural practices and the 1981 environmental assessment Timber Management Plan (USDI, BLM 1981e), covering the BLM Albuquerque and Socorro Districts.

In addition to the guidelines contained in the Timber Management Plan, other silvicultural practices are currently being implemented in the RPRA. Season of harvest may be varied to minimize conflicts with other resources. Slash is disposed of in a manner conducive to revegetation and protection of the site. Slash burning complies with State of New Mexico air quality regulations. Harvest cuts are laid out in such a manner as to reduce the risk of windthrow. A snag management program is being implemented to enhance bird habitat. All activity plans developed for forestry and woodlands products are examined through the NEPA process and are subject to public review and participation.

Pinyon-Juniper

The main guideline document for the woodland (pinyon-juniper) program is the Public Domain Woodlands Management Policy Statement (USDI, BLM 1982g). The long-term goals of the woodland management program in the RPRA are to establish and maintain healthy stands producing fuelwood on a sustained yield basis in established woodland management areas, to reduce trespass cutting throughout the RPRA, and to manage stands with consideration for other forest and woodland product yields.

The pinyon-juniper woodlands within the RPRA are managed on a sustained yield basis. However, in some cases pinyon-juniper woodlands are harvested in such a manner as to prevent the reestablishment of the stand in order to promote other resource management objectives. For example, pinyon-juniper woodland has been intentionally reduced in the past to develop wildlife habitat and promote the growth of ponderosa pine stands.

Slash treatment follows the same guidelines identified for the ponderosa pine program.

The first priority sources for fuelwood supply in the RPRA are, when practical, dead-and-down wood from chainings and chemically-treated areas, right-of-way clearings, and tree-thinning areas. Greenwood areas are utilized last. Specific silvicultural standards are established at the activity planning stage and are written on a site-specific basis. The silvicultural standards are consistent with acceptable methods for the species and site.

Recreation

Recreation programs in the RPRA are managed according to multiple use principles, unless specified otherwise by law. The RPRA's primary goal is to ensure the continued availability of outdoor recreation opportunities which are not readily available from other sources. Recreation use is managed in order to protect the health and safety of the users, to protect natural and cultural resource values, and to promote public use and enjoyment of the public lands. RPRA management priority is given to undeveloped areas currently experiencing resource damage, user conflicts, or threatening visitor safety. Management priority is also given to those areas where use exceeds current capacity and to areas near urban centers. Additionally, unique and/or scenic attractions adjoining heavily travelled highways are managed on a priority basis. Other priorities are preservation and protection of natural and cultural resources, including scenic, historic, and archeological values, and primitive environments.

Recreation resources will continue to be evaluated on a case-by-case basis as a part of project level planning. Such evaluation will consider the significance of the proposed project and the sensitivity of recreation resources in the affected area. Stipulations will be attached as appropriate to assure compatibility of projects with recreation management objectives.

Off-Road Vehicles (ORV)

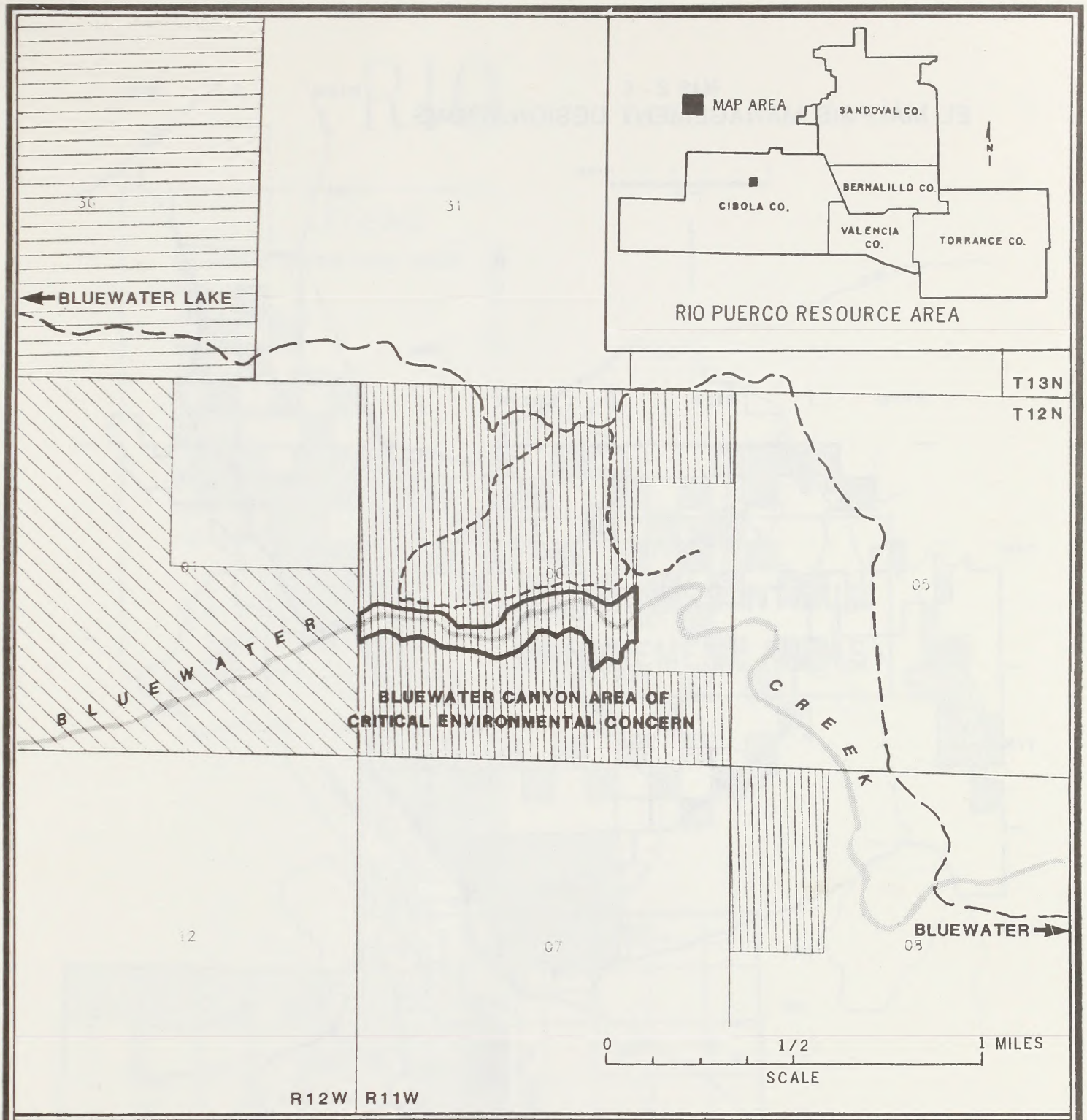
It is the policy of the RPRA to manage the ORV program to protect the resources of the public lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands. All organized commercial and competitive ORV events are examined through the NEPA process on a case-by-case basis. Permit stipulations for the various approved events are designed to limit adverse impacts that ORV use may have on the natural and human environment. Emergency ORV "limited" or "closed" designations are made on a case-by-case basis to prevent unnecessary degradation of resources, to ensure visitor safety, or to resolve user conflicts. Emergency closures remain in effect only until either an interim or standard designation can be made, or until the adverse effects are eliminated and measures to prevent their recurrence have been implemented. Interim designations are used when the normal planning schedule does not permit the timely resolution of ORV-related issues through the RMP process.

The Bluewater Area of Critical Environmental Concern in Cibola County is closed to all motorized vehicle use (see Map 2-4). Motorized vehicle use in the El Malpais Wilderness Instant Study Area (ISA) is limited to existing roads and trails (see Map 2-5). The RPRA has five Wilderness Study Areas (WSA's) and seven additional areas of intensive wilderness review being administered under Interim Wilderness Management Policy (USDI, BLM 1979b) (see Map 2-6). Under this policy, motorized vehicle use in all of these areas is limited to existing routes. Cross-country travel is allowed only by permit.

Wilderness

Wilderness resources in the RPRA have been inventoried using the BLM Wilderness Inventory Handbook (USDI, BLM 1978a) and are currently being managed under the Interim Management Policy and Guidelines for Lands Under Wilderness Review (USDI, BLM 1979b). This management emphasis will continue until Congress decides which lands are suitable or unsuitable for Wilderness designation.

The RPRA manages five Wilderness Study Areas (WSA) and one Wilderness Instant Study Area (ISA). Seven additional areas with BLM-managed surface, but with mineral estate in private ownership (split estate), are now involved in a court case to determine their suitability for WSA status. Until such time as the courts reach a decision on this issue, these seven areas with wilderness characteristics will be managed under the Interim Management Policy and Guidelines for Lands Under Wilderness Review (USDI, BLM 1979b). See Table 2-2 for a summary of current status and recommendations for Wilderness Study



MAP 2 - 4

BLUEWATER ACEC

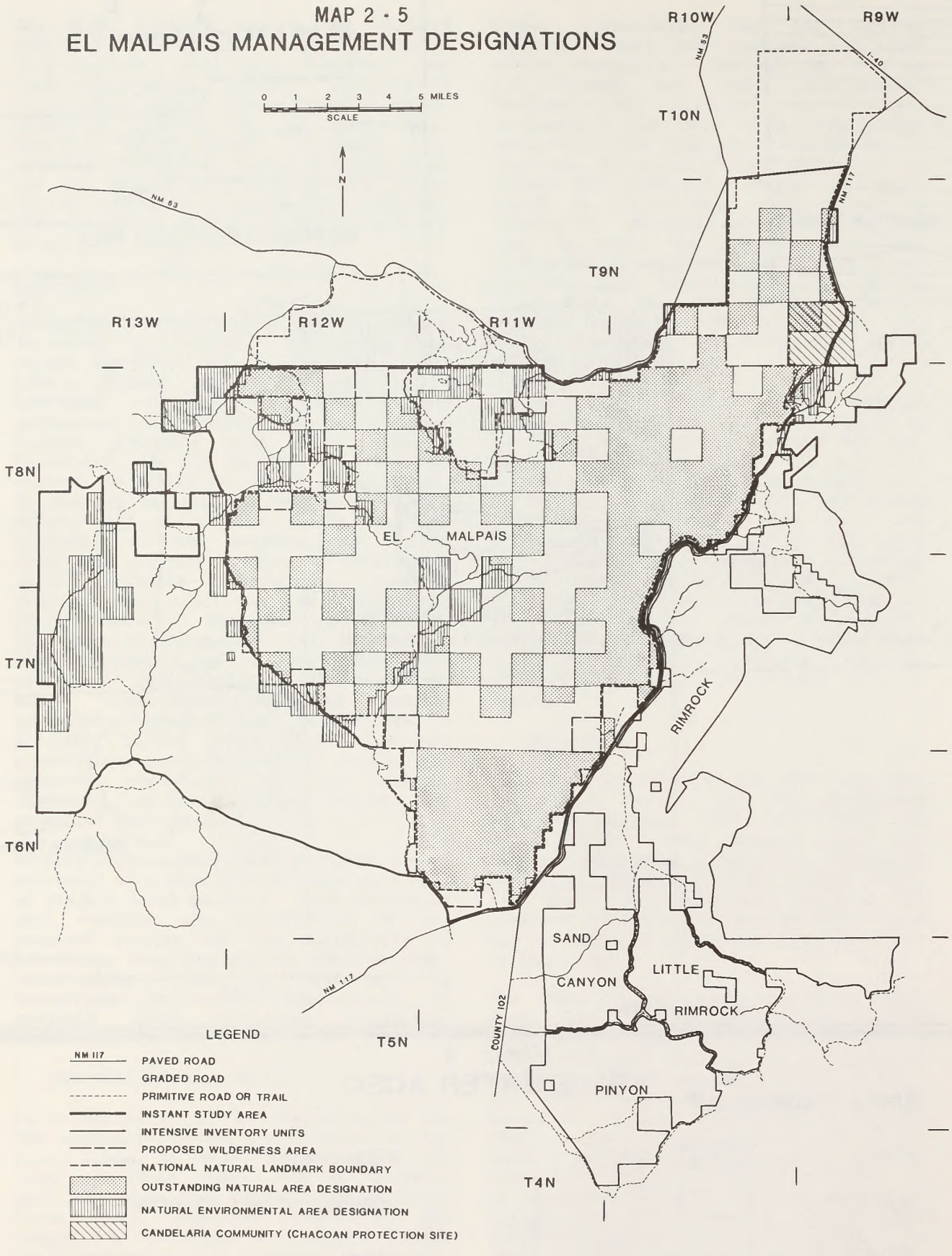
SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE
- INDIAN

N

- GRADED ROAD
- UNIMPROVED DIRT ROAD
- ACEC

MAP 2 - 5
EL MALPAIS MANAGEMENT DESIGNATIONS



RIO PUERCO RESOURCE AREA

LEGEND

- WILDERNESS INTERIM MGMT. AREAS
- PUBLIC LANDS
- FOREST SERVICE
- INDIAN RESERVATION
- RESOURCE AREA BOUNDARY
- COUNTY BOUNDARY
- COUNTY SEAT
- INTERSTATE HIGHWAY
- US HIGHWAY
- STATE HIGHWAY

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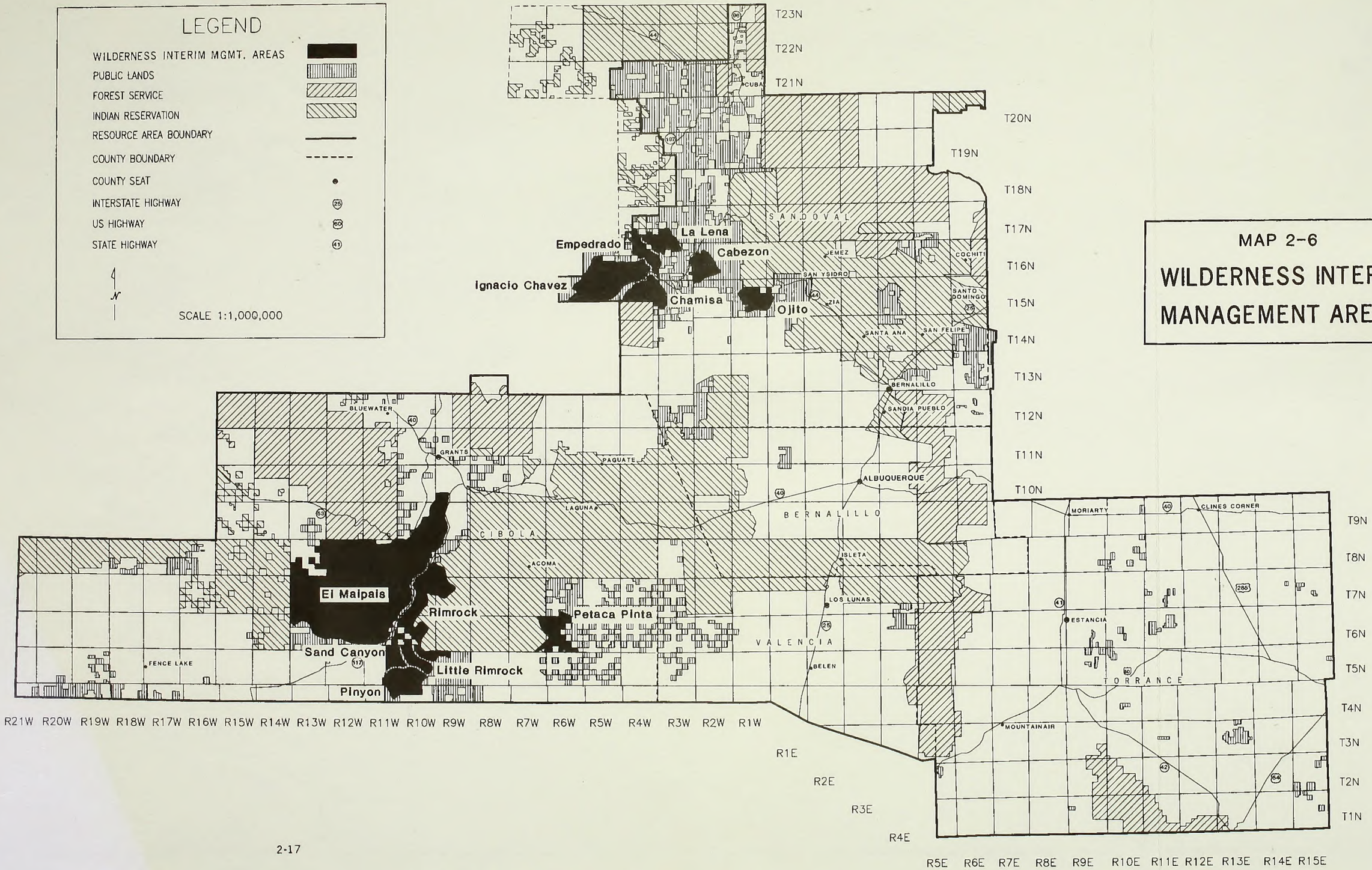


MAP 2-6

WILDERNESS INTERIM MANAGEMENT AREAS

TABLE 2-2

WILDERNESS STUDY AREAS CURRENTLY MANAGED UNDER INTERIM MANAGEMENT POLICY AND GUIDELINES FOR LANDS UNDER WILDERNESS REVIEW*

Name	Current Wilderness Recommendation**	Current Status
Ojito	Suitable for Wilderness	Wilderness Study Area
Cabezon	Suitable for Wilderness	Wilderness Study Area
La Lena	Unsuitable for Wilderness	Wilderness Study Area
Empedrado	Unsuitable for Wilderness	Wilderness Study Area
Ignacio Chavez N1/2	Suitable for Wilderness	Wilderness Study Area
El Malpais	Suitable for Wilderness	Instant Study Area****

* This table does not reflect Wilderness Inventory Units which were released from wilderness review by the Secretary of Interior's policy announcement of December 30, 1982 which deleted split estate lands from further wilderness consideration. These lands will remain under interim management pending resolution of the Sierra Club, et al. v. Watt, et al. (No. Civil 2-83-035 RAR) court case. The Wilderness Inventory Units in the RPRA affected by this policy are: Ignacio Chavez S1/2, Chamisa, Rimrock, Sand Canyon, Pinyon, and Petaca Pinta.

** The Wilderness Study Areas will be analyzed in the Statewide EIS except for El Malpais which was analyzed in the Draft Environmental Impact Statement and Wilderness Study Report for Wilderness Designation of El Malpais (USDI, BLM 1981c).

*** The Ignacio Chavez Wilderness Study Area was split in half. The south half has split estate (Federal surface/non-Federal subsurface) and the north half has no split estate and has been carried forward as a Wilderness Study Area.

**** Instant Study Areas are public land areas, formally designated as Natural or Primitive areas prior to November 1, 1975, which were automatically designated as Wilderness Study Areas. A portion of the El Malpais ISA was recommended as suitable for Wilderness. The final status of this area is uncertain until the split estate issue is resolved.

Areas, Wilderness Inventory Units, and the El Malpais Instant Study Area.

The task of assessing wilderness suitability is being completed for the public lands in New Mexico on an accelerated, statewide basis and is occurring entirely outside of the RMP process. A Statewide Draft Wilderness EIS is scheduled for release during 1985. This document will be incorporated into a wilderness study package to be submitted through the Department of the Interior to the President by October 21, 1991. The President will have two years to review the document and forward it to Congress for final review and approval. Any acreage designated as Wilderness will become part of the National Wilderness System and be managed under the Wilderness Management Policy (USDI, BLM 1981g).

The Rio Puerco RMP will make no assumptions concerning the final outcome of the New Mexico State Wilderness Study. Any recommendations made through the RMP concerning lands currently being managed under the Interim Management Policy and Guidelines for Lands Under Wilderness Review (USDI, BLM 1979b) will be confined to the identified RMP issues.

Additional Designations

Portions of the El Malpais have been designated as an Outstanding Natural Area, Natural Environmental Area, and as a National Natural Landmark. These designations overlap with the El Malpais Wilderness Instant Study Area (see Map 2-5).

Visual Resources

Visual resources will continue to be inventoried and evaluated as a part of activity and project planning. A contrast rating process will be used as a project assessment tool during environmental review of affected areas. Stipulations will be established as appropriate to assure compatibility of projects with management objectives for visual resources.

Areas designated as Wilderness will be subject to Class I Visual Resource Management (VRM) guidelines. Wilderness Study Areas have been placed in an interim Class II category. Areas recommended for or designated as Intensive Recreation Special Management Areas or Areas of Critical Environmental Concern for recreational or scenic values will be subject to Class II VRM guidelines. See Appendix J for a description of four VRM classes.

Cultural Resources

The RPRA manages cultural resources on the public lands in a manner that protects and provides for the proper use of those resources. Cultural resources include archeological, historic, and socio-cultural properties. The degree of management is commensurate with the scientific or socio-cultural values of the resource, the degree of threat, and the resource's vulnerability. Under this concept, the RPRA attempts to protect a representative sample of the full array of cultural resources, both prehistoric and historic, found on BLM-administered land.

Federal laws such as The National Historic Preservation Act of 1966, The Archeological and Historic Preservation Act of 1974, The Archeological Resources Protection Act of 1979, The American Indian Religious Freedom Act of 1978, and FLPMA provide for the protection and management of cultural resources.

Inventory and Evaluation

The BLM undertakes and maintains a cultural resource inventory for all Bureau-administered lands. These inventories are categorized into three classes: Class I--Existing inventory or literature search, Class II--Sampling field inventory (all sampled units are inventoried to Class III standards), and Class III--Intensive field inventory. In most cases, a Class III inventory is required before any surface disturbance may occur.

The RPRA maintains a cumulative site inventory file documenting the locations of all known sites, all areas surveyed, as well as areas known to be devoid of cultural resources.

Cultural resources in the RPRA are organized into five classes which roughly parallel traditional Southwestern cultural distinctions: (1) PaleoIndian, (2) Archaic, (3) Pueblo, (4) Historic, and (5) Unknown. These classes are management classifications and are synthetic in the sense that they generalize broad, temporally-based classes of sites, allowing the development of long-term management strategies appropriate to a particular class (see Appendix K).

The management goal category system (see Appendix K) establishes long-term strategies for each of the five classes of cultural resources. These goal categories

provide the basis for commiting individual cultural resource sites or properties to a specific use category.

The BLM uses the use category system to evaluate cultural resources. This use category system is based on the consideration of actual or potential use of individual sites or properties. These use categories are: (1) Current Scientific Use, (2) Potential Scientific Use, (3) Conservation for Future Use, (4) Management Use, (5) Socio-Cultural Use, (6) Public Use, and (7) Discharged Use (see Appendix K).

Nominations

The BLM prepares and submits nominations of priority cultural resource properties located on the public lands to the National Register of Historic Places. BLM also coordinates with other agencies and organizations in nominating cultural resources eligible for inclusion in various other Federal, State, and local cultural resource registry systems.

Cultural Resource Management Plans

The RPRA is currently implementing one Cultural Resource Management Plan (CRMP), for the Guadalupe Ruin Chacoan outlier (USDI, BLM 1981a). Future CRMP's will be developed for some of the Special Management Areas identified in this RMP. Other CRMP's for specific cultural resource properties may also be developed if the management objectives are consistent with the approved RMP.

Protection and Utilization

The RPRA's cultural resource management program protects cultural resources on a limited basis through the application of both administrative and physical measures as necessitated by the cultural resource's scientific and socio-cultural value, vulnerability, and degree of threat. Interim protection will focus primarily on a patrol and surveillance effort, conducted on an irregular basis, until specific cultural resource management objectives are developed. An active program of signing cultural resource properties under threat of active or potential vandalism will continue.

The BLM issues cultural resource use permits for cultural resource inventory, collection, and excavation on public land. These permits are an important tool for managing the scientific use of cultural resources. In addition, cultural resources will continue to be made available for scientific and socio-cultural use, consistent with the specific use and protection objectives for the resource.

Compliance

The BLM takes into account the effects of its actions or authorizations on cultural resources. Adverse impacts to cultural resources are avoided whenever possible or practical. When adverse impacts caused by BLM projects or BLM-authorized actions cannot be avoided, mitigation may be conducted. The nature of mitigation implemented depends upon the impact, and the scientific and socio-cultural values of the resource involved. As required, these actions are coordinated with the State Historic Preservation Officer and the National Advisory Council on Historic Preservation.

Lands and Realty

Public Land Exchanges

The RPRA has an active land exchange program. The RPRA is currently concentrating its exchange efforts in Cibola and Valencia Counties under decisions contained in the Ladron, Rio Grande, and Divide MFP's (USDI, BLM 1977, 1979c, 1983b). All exchange proposals are examined in conformance with NEPA requirements, including extensive public review. Public lands which leave Federal ownership as a result of exchange actions have been identified as suitable for disposal in an approved planning document.

On October 3, 1984, the New Mexico Bureau of Land Management State Director and the Commissioner of public lands of the State of New Mexico signed a Memorandum of Understanding to establish a comprehensive, long-term Statewide land exchange program between the BLM and the State of New Mexico (USDI, BLM 1984f). The objectives of this program are to improve the land management potential of both State and Federal lands; eliminate unnecessary Federal and State conflicts generated by existing ownership patterns; facilitate the management of State and BLM lands by substantially realigning the scattered State and BLM sections and creating solid block or consolidated land ownership; and develop procedures that are most expeditious and cost effective.

Public Land Withdrawals

It is the policy of the BLM to keep the public lands open for public use and enjoyment. However, there are conditions which warrant the removal of certain public lands from general use. Through withdrawal of these public lands, the public safety is guaranteed and the integrity of the special uses is assured. In an effort to keep as much of the public land open to the widest variety of uses, the RPRA reviews all existing withdrawals on a periodic basis. Such review ensures that the reasons for the restrictions are still valid and that the smallest acreage possible is included in withdrawal status.

Secretarial Orders have been used in the Rio Puerco Resource Area to withdraw public lands from general use by transferring management responsibility to other Department of the Interior agencies, such as the Bureau of Indian Affairs and the Bureau of Reclamation. Public lands have also been transferred by Executive Order to agencies outside of the Department of the Interior such as the Department of Agriculture Forest Service, the Department of Defense, and the Federal Aviation Administration.

Rio Grande Occupancy Resolution Program

The Rio Grande Management Framework Plan (USDI, BLM 1979c) identified unauthorized occupancy on public land along the Rio Grande as one of the major problems affecting the BLM's management effort. Over the years, land titles had become hopelessly tangled, with pieces of public land being sold with private land in private transactions, usually inadvertently. This eventually led to a serious problem of clouded titles which prevented individual land owners from obtaining home improvement loans and title insurance. BLM management options were also severely restricted since private dwellings and improvements encumbering public lands preclude public use.

As a result of the MFP decisions, the Rio Grande Occupancy Resolution Program (RGORP) was initiated in June 1979 to resolve unauthorized occupancy within the program area. Disposals under the RGORP are normally made under The Color-of-Title Act of 1928, as amended, The Color-of-Title Act of 1932, and The Act of December 12, 1980. If the Color-of-Title Acts do not apply to a particular occupancy, then Section 203 of The Federal Land Policy and Management Act of 1976 or The Recreation and Public Purposes Act of 1926, as amended, may be used.

As the unauthorized occupancy problem in the Albuquerque area is resolved, the program emphasis in the RPRA will shift to public lands within the town of Bernalillo, and then to the rural areas of Valencia County. The entire RGORP in the RPRA is tentatively scheduled for completion in 1988.

Sales of Public Lands

The RPRA maintains a record of individuals, businesses and other organizations interested in purchasing public lands. Sales of public lands identified as suitable for disposal in an approved land use plan are administered on a case-by-case basis. All sale actions are examined through the NEPA process and are subject to public participation and review.

Recreation and Public Purposes

Under the Recreation and Public Purposes Act (R&PP), the RPRA has the authority to lease or patent public land to governmental and non-profit entities for public parks, building sites, and sanitary landfills at less than fair market value. Applications for use of public lands under the R&PP Act are processed as a RPRA priority. Such applications are processed under the requirements of NEPA and are subject to public review.

Rights-of-Way

The RPRA grants rights-of-way, leases, and permits to qualified individuals, businesses, and governmental entities for the use of the public lands. These rights-of-way are issued so as to protect natural and cultural resources associated with the public lands and adjacent lands. Rights-of-way are also issued to promote the maximum utilization of existing rights-of-way, including joint use whenever possible. All right-of-way actions are coordinated, to the fullest extent possible, with Federal, State and local government agencies, adjacent land owners, and interested individuals and groups. All right-of-way applications are analyzed on a case-by-case basis.

Rights-of-way corridors were designated though sections of Cibola and Valencia Counties by the Divide and Ladron MFP's (USDI, BLM 1983b, 1977). The purpose of these corridor designations is the

prevention of haphazard right-of-way placement and the reduction of adverse environmental impacts. The designated corridors also decrease the repeated analysis of alternative routes during the NEPA process.

Support Programs

To help accomplish the objectives of the resource management programs the BLM has three support programs: Fire Management; Access, Transportation and Right-of-Way (ATROW); and Cadastral Survey Programs.

Fire Management

The RPRA will continue to participate in the "Joint Powers Agreement" between the State of New Mexico and the United States Departments of Agriculture and the Interior. This agreement provides for mutual wildland fire assistance between the participating agencies. The RPRA is covered by the Cibola and Santa Fe Operating Units established under this agreement.

The RPRA will continue to carry out the BLM's basic suppression policy of initial attack of all wildfires on or threatening public lands with the objective being to contain the fire during the first burning period. This policy is followed unless altered in the Normal Fire Year Plan. Fires will be suppressed on all non-public lands in the RPRA initial attack zone.

BLM policy provides for limited fire suppression action in areas where the expense associated with the usual suppression procedures is not warranted. BLM determines the appropriate response to a wildland fire based upon suppression difficulty, the resource values threatened, and hazards to fire crews. The need for limited suppression areas is normally identified by the Fire Management Officer with the concurrence of the various resource specialists. Crew safety along with economic factors are normally the principal objectives in designating an area for limited suppression.

The El Malpais Outstanding Natural Area (ONA) is the only limited suppression area in the RPRA. Under the limited suppression designation approved in 1976, all fires within the ONA are monitored by qualified fire management personnel. Each fire is evaluated and those determined to be threats to life and/or property, or to have the potential to cause excessive resource damage are suppressed.

The RPRA has a prescribed burning program. Prescribed burns are conducted as part of range, wildlife, and watershed protection and/or improvement projects. These burns are analyzed on a project-by-project basis in compliance with NEPA. All prescribed burns are the result of various approved Allotment Management Plans, Habitat Management Plans, or Watershed Protection Plans.

ATROW

The RPRA has an active easement acquisition program to facilitate the management of the public lands and their use by the general public. The need to acquire legal access across certain private lands in Sandoval County was identified in the 1978 Rio Puerco Livestock Grazing Environmental Statement (USDI, BLM 1978b).

Various activity plans are being developed to implement the Divide MFP (USDI, BLM 1983b). These activity plans will identify specific locations where legal access needs to be acquired. As the activity plans are approved, the required easements will be prioritized by the RPRA, as described by the Area-wide transportation plan.

Cadastral Survey

Cadastral survey is defined as the creation, reestablishment, marking, and definition of boundaries of the public lands. In addition, responsibility for the preparation and interpretation of the survey records lies with the BLM.

Cadastral surveys will continue to be conducted in support of resource management programs. Survey requirements and priorities will be determined on a yearly basis as a part of the annual budget process.

THE PROPOSED ACTION AND ALTERNATIVES

Alternatives Considered

The Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) require the identification of a proposed action and/or preferred alternative. These terms are synonymous in this RMP/EIS.

Four alternative Resource Management Plans are identified in this section and analyzed in this RMP/EIS. The first alternative discussed represents a continuation of current management practices; for the purpose of the RMP/EIS, this constitutes

the No Action Alternative. The second alternative stresses resource conservation, the third the production of commodity resources. The fourth, the Balanced Management Alternative, provides for a variety of uses by incorporating features of the No Action, the Resource Conservation, and Resource Production Alternatives.

These alternatives were developed as a range of reasonable combinations of resource uses and management practices to respond to the planning issues and provide, in combination with the Continuing Management Guidance, management direction for all resources. They also provide a distinct choice among potential management strategies. Each alternative conforms to the FLPMA policy that the public lands be managed on the basis of multiple use and sustained yield.

"No grazing" was initially proposed as an alternative for the vegetative uses issue. However, since this "no-grazing alternative" would not conform to the BLM requirement that alternatives be feasible, practical and implementable, it was eliminated from consideration. The impacts of implementing a no-grazing alternative on the public lands in the issue area (see Map 1-4) are described in Appendix Q.

Alternative A: Continuation of Current Management (No Action Alternative)

Theme

This alternative describes the continuation of current management for the resources affected by the issue questions. As with all alternatives, other resources and programs would continue to be managed as described in the Continuing Management Guidance section of this chapter. This alternative provides a baseline for comparison of other alternatives. Since much of the RPRA lacks formal management direction established through comprehensive land use planning, the management direction for this alternative was derived from existing management decisions and guidance such as laws, regulations, and manuals. Like the other alternatives, the Continuation of Current Management Alternative would allow future management of the RPRA to be responsive to changing regulations and policies.

1. Special Management Areas: No Special Management Areas (SMA's) would be identified.

2. Off-Road Vehicle Designation: No new ORV "closed" or "limited" designations would be implemented in the RPRA. All public land except those lands under interim wilderness management (see Map 2-6) and the Bluewater Canyon ACEC (see Map 2-4) would remain open to ORV use. Emergency ORV closures would continue to be made on a case-by-case basis to prevent unnecessary degradation of resources until an interim or permanent closure could be made or until the adverse effects were eliminated and measures to prevent their recurrence implemented.

3. Vegetative Uses: No change in management would be proposed for the 123,300 acres of public land in the issue area. Appendix S displays the current management situation by allotment and Table 2-1 summarizes the estimated AUM's of allowable livestock grazing use by alternative. Appendix P displays estimated short- and long-term AUM's by alternative for the "M" and "I" allotments. This alternative will be used to provide baseline data for the establishment of vegetative monitoring studies.

4. Land Ownership Adjustment: All public land in the issue area examined in this RMP/EIS would generally be retained in public ownership and there would be no adjustments in the land ownership pattern under this alternative unless sold or exchanged as the result of future tract-specific amendments to the RMP.

5. Fuelwood Supply: The issue area is open to collecting dead-and-down wood. About 10 acres per year of greenwood has been made available for fuelwood cutting, primarily to reduce the encroachment of pinyon-juniper into ponderosa pine stands. This cutting area is usually located in the Ignacio Chavez Grant, between the Ignacio Chavez and the Chamisa Wilderness Inventory Units. Small amounts of fuelwood would be made available to the public as a result of wildlife habitat improvement projects, right-of-way clearings, and from dead-and-down wood in areas chained or chemically treated to improve livestock forage.

6. Right-of-Way Corridors: There would be no designation of right-of-way corridors or windows in the issue area. New rights-of-way would continue to be processed on a case-by-case basis.

7. Coal Leasing Suitability Assessment: Under the coal leasing regulations,

no new public coal leases could be granted in the RPRA without a plan amendment to the RMP.

Alternative B: Resource Conservation

Theme

The Resource Conservation Alternative places primary emphasis on maintaining or improving important environmental values. Commodity or non-renewable resource use would be permitted only to an extent compatible with this resource conservation emphasis. The goal of this alternative is to change present management direction so that the identified issues are resolved in a manner that places highest priority on the maintenance or improvement of environmental values.

1. Special Management Areas: Twenty-two Special Management Areas totalling 426,636 acres would be identified under this alternative (see Tables 2-3 and 2-4, Map 1-2, and Appendix C).

TABLE 2-4

SPECIAL MANAGEMENT AREAS

Alternatives B and D
Torrejon Fossil Fauna
Pelon Watershed
Historic Homesteads
Canon Jarido
Jones Canyon
Headcut Prehistoric Community
San Luis Mesa Raptor Area
Azabache Station
Cabezon Peak
Ignacio Chavez
Big Bead Mesa
Canon Tapia
Guadalupe Ruin and Community
Elk Springs
Tent Rocks
Ojito
Ball Ranch
Pronoun Cave Complex
Continental Divide Trail
1870's Wagon Road Trail
El Malpais
Petaca Pinta

This acreage includes private and State trust land proposed for acquisition, or proposed for inclusion in one of the SMA's by Cooperative Management Agreement. For purposes of analysis in this RMP/EIS, all twenty-two areas are labeled "Special Management Areas." As described in Appendix C, the proposed Special Management Areas include nine ACEC's, three Research Natural Areas (one of which would also be an ACEC), and one National Trail. Parts of the proposed El Malpais SMA have already been designated as an Outstanding Natural Area, a Natural Environmental Area, and a National Natural Landmark. The Ignacio Chavez SMA would be open for woodcutting only to improve wildlife habitat under this alternative. A portion of the Ojito East rights-of-way window overlaps the Ojito SMA (see Map C-16). Special stipulations could be attached to any right-of-way granted in this area of overlap to provide protection for the SMA's resource values.

2. Off-Road Vehicle Designation: Four areas in the Azabache Station, Cabezon Peak, Guadalupe, and Ojito SMA's, two road segments in the Ignacio Chavez SMA, and one in the Ojito SMA, totalling 10,248 acres of public land and 10 miles of road, would be closed to motorized vehicle travel as planned actions for the SMA's (see Maps C-8, C-9, C-10, C-13, and C-16). Five road segments, three in the Ignacio Chavez SMA and two in the Ojito SMA, totalling 12 miles would be limited to authorized users. In addition to closures for SMA's, 6 miles of existing roads and trails in 3 road segments would be closed outside of SMA's (see Map 2-7). The existing Bluewater ACEC (see Map 2-4) would remain closed to motorized vehicle traffic. Vehicular use within WSA's and Wilderness Inventory Units (see Map 2-6) would continue to be limited to existing roads and trails until Congress determines their suitability for Wilderness. Two areas would be designated for specific types of ORV use. One area would be used for trials motorcycle riding, both as a "play-area" and for competitive events (see Map 2-8). The other area would be designated for competitive dune-buggy events using existing roads (Map 2-9). Other motorized vehicle travel in the RPRA would be limited to existing roads and trails. The roads and trails in portions of these areas have been delineated; this information is available in the MSA. The roads and trails in the remaining areas would be delineated if this alternative were selected as the RMP. About 124 miles of existing roads and trails would be designated as an ORV recreation trail system (see Pocket Map E).

3. Vegetative Uses: This alternative would provide for improved ecological condition, enchanced wildlife habitat, and

TABLE 2-3

SPECIAL MANAGEMENT AREAS* PROPOSED FOR THE RIO PUERCO RMP

Area Number	Area Name	Existing Recognition	Total Surface Acres	Management Goals	Planned Actions	Support Needs
1	Torrejon Fossil Fauna	Listed as type locality by the American Museum Novitates	2,981	Designate as ACEC** to protect Torrejon Fauna for scientific study	Activity plan*** Limit motorized vehicle use to existing roads and trails***	
2	Pelon Watershed	Part of Rio Puerco Hydrology Study	858	Develop as SMA to protect Rio Puerco Hydrology Study	Activity plan Withdraw minerals*** No surface disturbance*** Limit motorized vehicle use to existing roads and trails	
3	Historic Homesteads	None	16	Develop as SMA for recreation and cultural values	Activity plan	
4	Canon Jarido	None	1,803	Develop as SMA for recreational, scenic and cultural values, and wildlife habitat	Activity plan Limit motorized vehicle use to existing roads and trails No surface disturbance	

TABLE 2-3 (Continued)

Area Number	Area Name	Existing Recognition	Total Surface Acres	Management Goals	Planned Actions	Support Needs
5	Jones Canyon	None	649	Designate as ACEC to protect cultural, recreational, and scenic values, and riparian habitat	Activity plan No surface disturbance Acquire non-public lands Withdraw locatable minerals Limit motorized vehicle use to existing roads and trails Allow no surface occupancy (fluid minerals)***	Survey ATROW Land Acquisition
6	Headcut Prehistoric Community	None	2,274	Develop as SMA for cultural values	Activity plan Limit motorized vehicle use to existing roads and trails Acquire non-public lands	Survey ATROW Land Acquisition
7	San Luis Mesa Raptor Area	Portions are part of Rio Puerco Hydrology Study Portions are part of La Lena Wilderness Study Area	10,447	Designate as ACEC to protect raptor nesting habitat and Rio Puerco Hydrology Study (Empedrado Watershed)	Activity plan No surface disturbing activities Feb. 1-July 1 No surface disturbance in watershed area Limit motorized vehicle use to existing roads and trails Withdraw all minerals in Empedrado Watershed Study Area	

TABLE 2-3 (Continued)

Area Number	Area Name	Existing Recognition	Total Surface Acres	Management Goals	Planned Actions	Support Needs
8	Azabache Station	Not brought forward for further consideration for leasing due to multiple-use considerations--Chaco MFP	80	Develop as SMA for recreational and cultural values	Activity plan Allow no surface occupancy (fluid minerals) Withdraw locatable and saleable minerals Close to motorized vehicle use***	
9	Cabezon Peak	Cabezon Peak Wilderness Study Area	5,765	Designate as ACEC to protect recreational, scenic, and sociocultural values, and rare plant habitat	Activity plan No surface disturbance Close to motorized vehicle use Acquire non-public lands	Survey Land Acquisition
10	Ignacio Chavez	Ignacio Chavez and Chamisa Wilderness Study Areas	43,182	Develop as SMA for recreational and scenic values, wildlife habitat, woodland products, and ponderosa pine regeneration	Activity plan Fuelwood harvest would be allowed in different portions of the SMA by different alternatives (if no wilderness designation occurs) The area will be managed for recreation experience No surface disturbance Limit motorized vehicle use to existing roads and trails Standard fluid mineral lease stipulations will be determined during activity planning Close certain roads Acquire non-public lands	Survey Land Acquisition

TABLE 2-3 (Continued)

Area Number	Area Name	Existing Recognition	Total Surface Acres	Management Goals	Planned Actions	Support Needs
11	Big Bead Mesa	National Historic Landmark	311	Develop as SMA for cultural values	Activity plan Allow no surface occupancy (fluid minerals) Limit motorized vehicle use to existing roads and trails Withdraw locatable and saleable minerals	Survey ATROW
12	Canon Tapia	None	1,093	Designate as ACEC to protect cultural values	Activity plan Acquire non-public lands Allow no surface occupancy (fluid minerals)	Survey ATROW Land Acquisition
13	Guadalupe Ruin and Community	State and National Registers of Historic Places	487	Develop as SMA for cultural values	Activity plan Close to motorized vehicle use within 40 acre fenced area; limit remainder to existing roads and trails Withdraw all minerals	

TABLE 2-3 (Continued)

Area Number	Area Name	Existing Recognition	Total Surface Acres	Management Goals	Planned Actions	Support Needs
14	Elk Springs	New Mexico Comprehensive Wildlife Plan critical big-game range Juana Lopez stratigraphic member is recognized by USGS as a reference section	10,300	Designate as ACEC to protect elk and deer winter range, alleviate big game depredation on private lands, and protect recreational and scenic values Designate 40 acres as a Research Natural Area to protect paleontological values (Juana Lopez member)	Activity plan Acquire non-public lands Limit motorized vehicle use to existing roads and trails with seasonal restrictions Allow no surface disturbance No surface disturbing activities associated with fluid mineral development Nov. 16-May 14 Allow no surface disturbance in Research Natural Area Withdraw all minerals on Reserach Natural Area	Survey ATROW Land Acquisition
15	Tent Rocks	None	11,743	Develop as SMA to protect wildlife habitat Designate a portion as ACEC to protect geological, recreational and scenic values	Activity plan Develop agreements with private landowners*** Limit motorized vehicle use to existing roads and trails No surface disturbance Develop water and rehabilitate grassland parks	

TABLE 2-3 (Continued)

Area Number	Area Name	Existing Recognition	Total Surface Acres	Management Goals	Planned Actions	Support Needs
16	Ojito	Portions are part of Ojito Wilderness Study Area Portions are part of Rio Puerco Hydrology Study	13,657	Designate as ACEC to reduce geological hazard (Las Milpas Gas Storage) and to protect geological, paleontological, cultural, recreational and scenic values, wildlife and rare plant habitat, and Rio Puerco Hydrology Study (Querencia Watershed)	Activity plans Acquire non-public land No surface disturbance Limit motorized vehicle use to existing roads and trails Close certain roads Close to motorized vehicle use in watershed area and Las Milpas pipeline and well areas Withdraw locatable minerals in the Las Milpas Gas Storage Area Withdraw all minerals in the Querencia Watershed Study Area	Survey Land Acquisition
17	Ball Ranch	The Nature Conservancy is currently negotiating a conservation easement on the Ball private land	1,895	Designate as ACEC/ Research Natural Area to protect rare plant habitat and paleontological values	Activity plan Limit motorized vehicle use to existing roads and trails No surface disturbance Withdraw all minerals	

TABLE 2-3 (Continued)

Area Number	Area Name	Existing Recognition	Total Surface Acres	Management Goals	Planned Actions	Support Needs
18	Pronoun Cave Complex	None	1,194	Designate as Research Natural Area to protect paleontological, recreational and cultural values	Activity plan Develop agreement New Mexico Museum of Natural History Limit motorized vehicle use to existing roads	
19	Continental Divide Trail	Part of National Trail System	715	Manage as a National Trail	Activity plan	
20	1870's Wagon Road Trail	None	630	Develop as SMA for recreational values	Activity plan Develop agreement with State of New Mexico	
21	El Malpais	National Natural Landmark, Outstanding Natural Area. Natural Environmental Area, Wilderness Instant Study Area, Sand Canyon, Rimrock, Little Rimrock and Pinyon Wilderness Inventory Units, Candelaria Ruin and Community Chaco Outlier Archeological Protection site	302,611	Develop as SMA for cultural, recreational, and scenic values, and wildlife habitat	Activity plans Limit motorized vehicle use to existing roads and trails Acquire mineral estate	Mineral Appraisal Land Acquisition

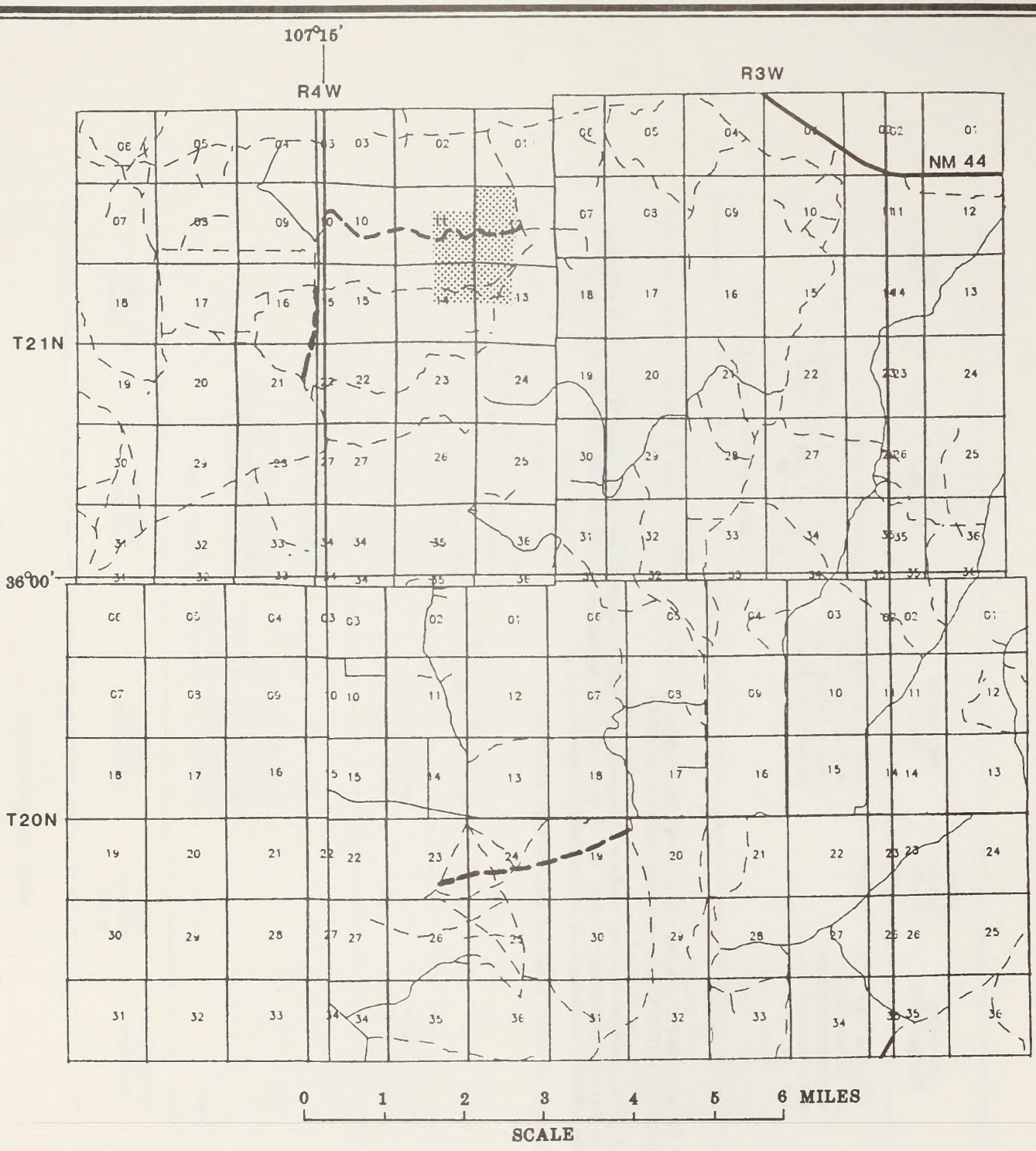
TABLE 2-3 (Concluded)

Area Number	Area Name	Existing Recognition	Total Surface Acres	Management Goals	Planned Actions	Support Needs
22	Petaca Pinta	Portions are part of Petaca Pinta Wilderness Inventory Unit	13,789	Develop as SMA for recreational and scenic values, and wildlife habitat	Activity plan Limit motorized vehicle use to existing roads and trails Acquire mineral estate	

* For Purposes of analysis in this RMP/EIS, Areas of Critical Environmental Concern (ACEC's), Research Natural Areas, National Trails and Special Management Areas (SMA's) are analyzed together as SMA's.

** A plan of operations and EA is required for any surface disturbing activity located in an ACEC, thus affording additional protection for the area. If not designated as an ACEC, up to five acres of surface disturbance each year in each project area*** is authorized by law without assessment of environmental impacts.

*** See glossary for explanation of these terms as used in this RMP/EIS.

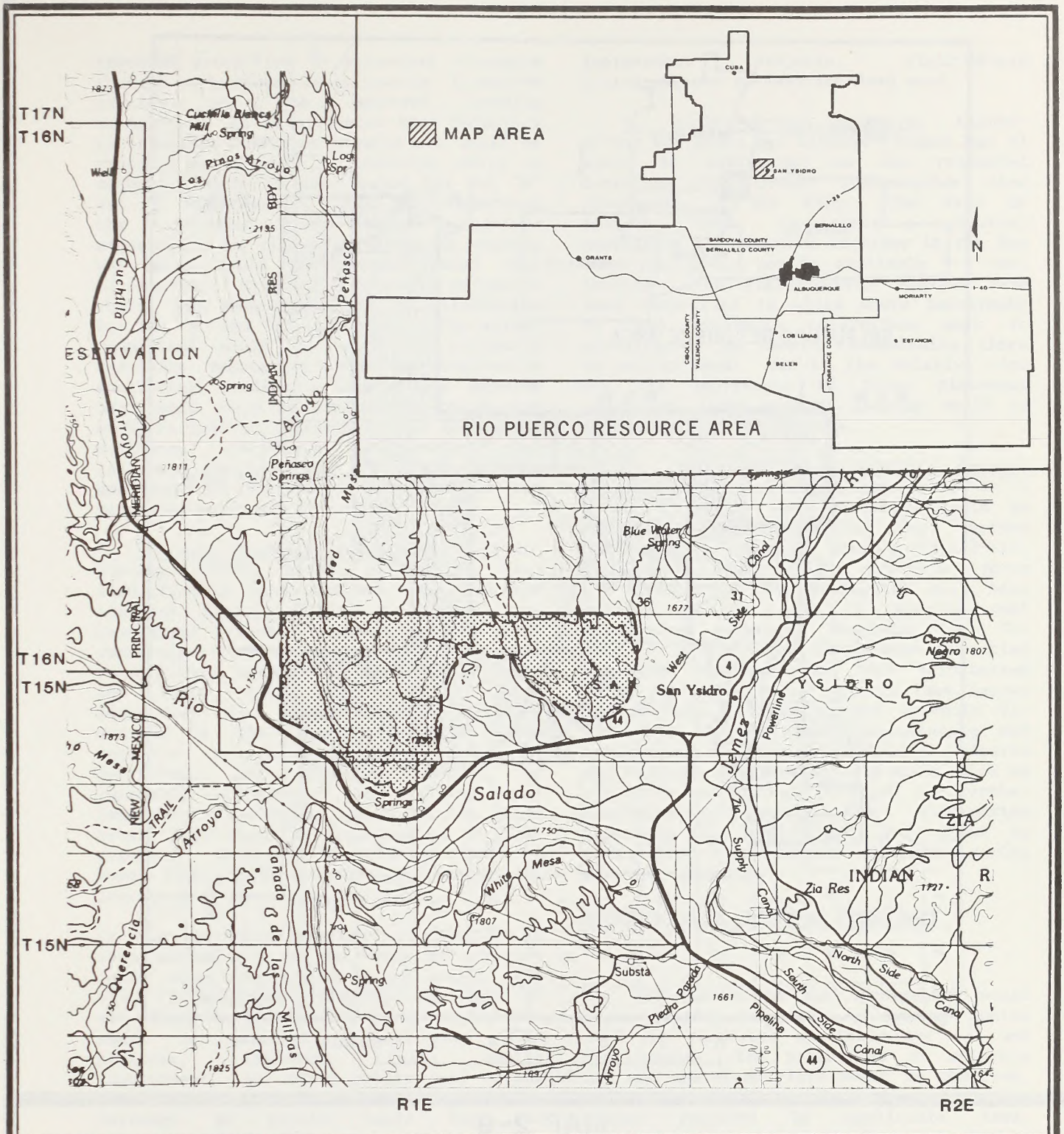


MAP 2-7
ROAD CLOSURES OUTSIDE SPECIAL MANAGEMENT AREAS

N

ROAD CLOSURES OUTSIDE SMA'S

SMA 2

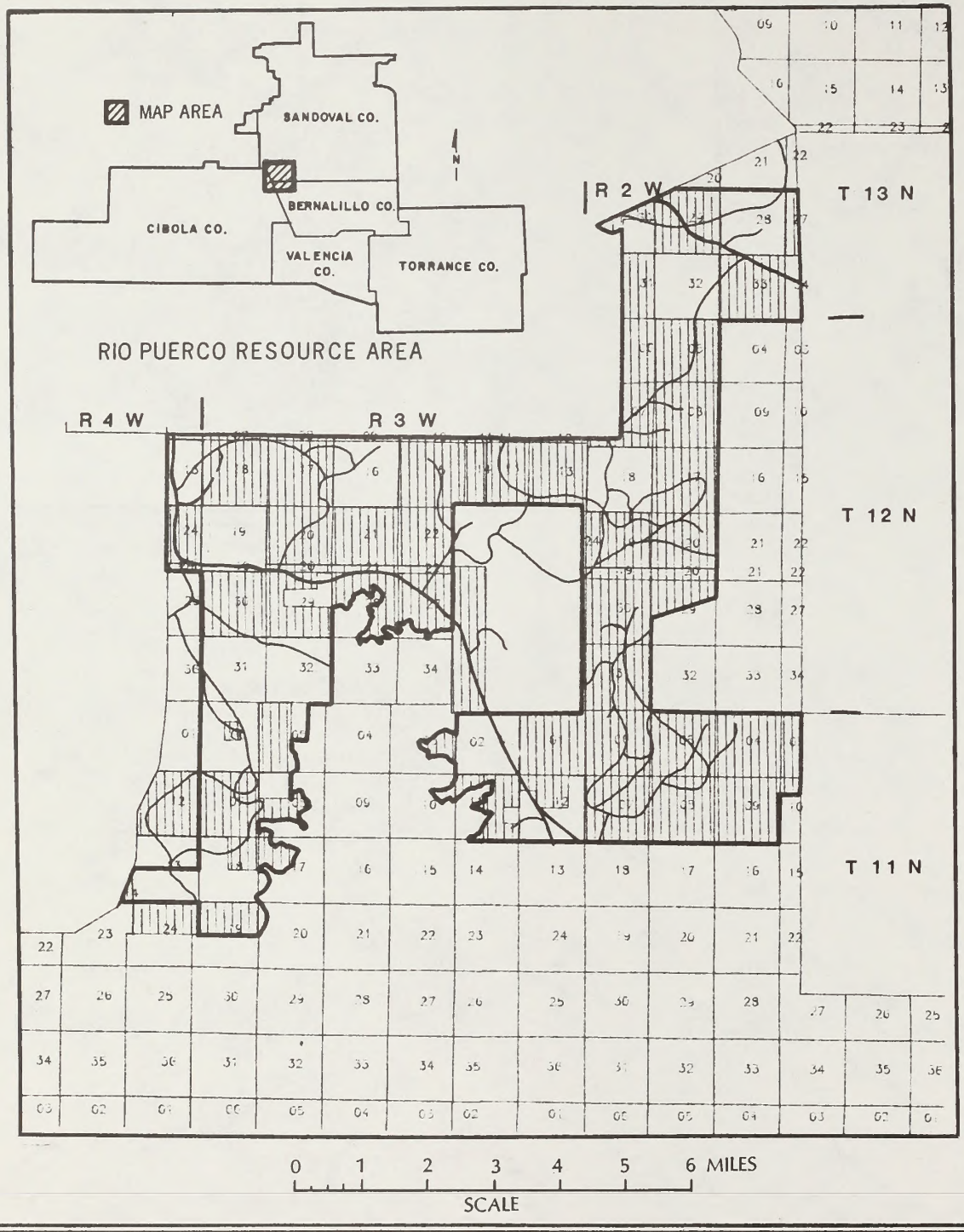


MAP 2-8
SAN YSIDRO MOTORCYCLE TRIALS AREA

N

PROPOSED TRIALS AREA

0 1 2 3 4 MILES
SCALE



MAP 2-9
COMPETITIVE DUNE BUGGY EVENT AREA

SURFACE OWNERSHIP

BLM

PRIVATE

N

PROPOSED COMPETITIVE DUNE BUGGY EVENT AREA

GRADED ROAD

PRIMITIVE TRAIL

improved protection of watershed resources through reductions in allowable livestock grazing use and improved grazing management. It is estimated that reduction in allowable livestock grazing use would be proposed for nine "I" allotments, while no reduction would be anticipated for the "M" and "C" allotments. Table 2-1 summarizes the estimated short- and long-term adjustments in allowable livestock grazing use which would be proposed under this alternative. Appendix P displays estimated short- and long-term AUM's by alternative for the "M" and "I" allotments. The actual reductions would be based on currently available vegetative data and vegetative monitoring studies. Changes in grazing management would be implemented to resolve wildlife habitat, watershed, and ecological condition conflicts. Requests for increases in allowable livestock grazing use would be considered when wildlife and watershed needs are satisfied.

4. Land Ownership Adjustment: Approximately 58,000 acres of public land identified on Table 2-5 are scattered and isolated tracts within the issue area considered potentially available for land ownership adjustment. Under this alternative, exchange of these public lands for State trust and private lands identified for acquisition as planned actions in SMA's or to benefit other resource management programs would be considered the preferred method of ownership adjustment. To expedite land ownership adjustments, exchanges for State trust lands would be processed as a first priority. Exchanges for private lands, a more time-consuming process, would be processed as the second priority.

It has not been feasible to identify in this RMP/EIS all of the State and private lands whose acquisition would benefit BLM resource management programs. As they are identified in the future, their acquisition would be examined through the NEPA proccess, including full public involvement. All other public land within the areas identified on Map 1-5 would be retained as public lands for the enhancement of BLM resource management programs.

5. Fuelwood Supply: Fuelwood would be available to the public through commercial or home-use sales from approximately 7,620 acres of public land under this alternative (see Map 2-10). Small additional amounts of fuelwood would also be made available to the public as a result of wildlife habitat improvement projects, right-of-way clearings, and as dead-and-down wood.

6. Rights-of-Way Corridors: Rights-of-way corridors and windows (Pocket Map B) would be designated as the preferred locations for future transmission line placements in the RPRA. The area of maximum coal development potential underlying the proposed corridor in the San Luis area would not be available for coal leasing. The rights-of-way windows have been identified in areas where topography or land ownership constraints make it advantageous to locate transmission lines on public land. Due to the relative size and the importance of these placement areas, no fluid mineral leasing would be allowed within the windows.

7. Coal Leasing Suitability Assessment: Under this alternative, about 5,720 acres of public coal resources would be identified as acceptable for further consideration for coal leasing (Map 2-11). The twenty unsuitability criteria (where the information was available) have been applied to the area of maximum coal development potential (Appendix E). The area of maximum coal development potential (Appendix D) has also been scrutinized using the multiple use screens (see Issues and Criteria, Chapter 1 and Appendix E). Following surface owner consultation and application of the unsuitability criteria and multiple use screens only areas with no conflicts were brought forward for further consideration under this alternative (Appendix E). The coal area would be inventoried for cultural resources during activity planning.

Alternative C: Resource Production

Theme

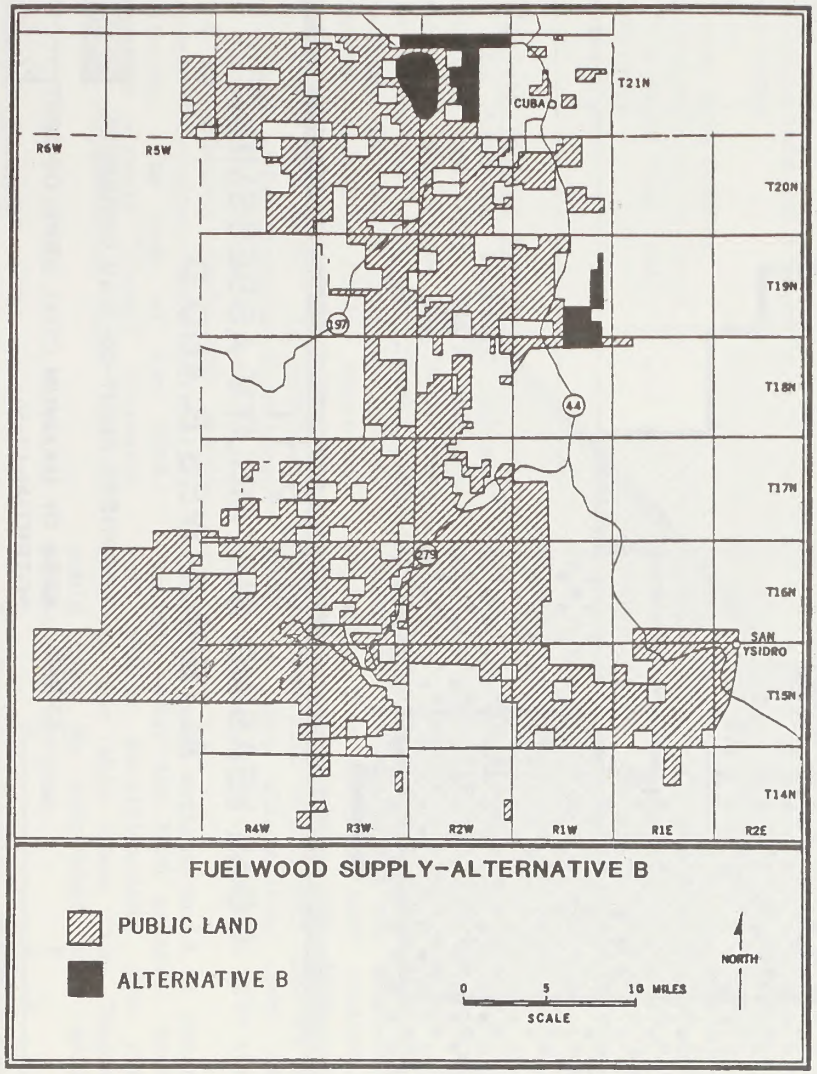
The Resource Production Alternative would place primary emphasis on making public land and resources available for use and development. The principles of multiple use and sustained yield would be observed, and environmental values protected to the extent required by applicable laws, regulations and policies. The goal of this alternative is to change management direction in the RPRA so that the seven issues are resolved in a manner that generally places highest priority on the production of resources from the public lands.

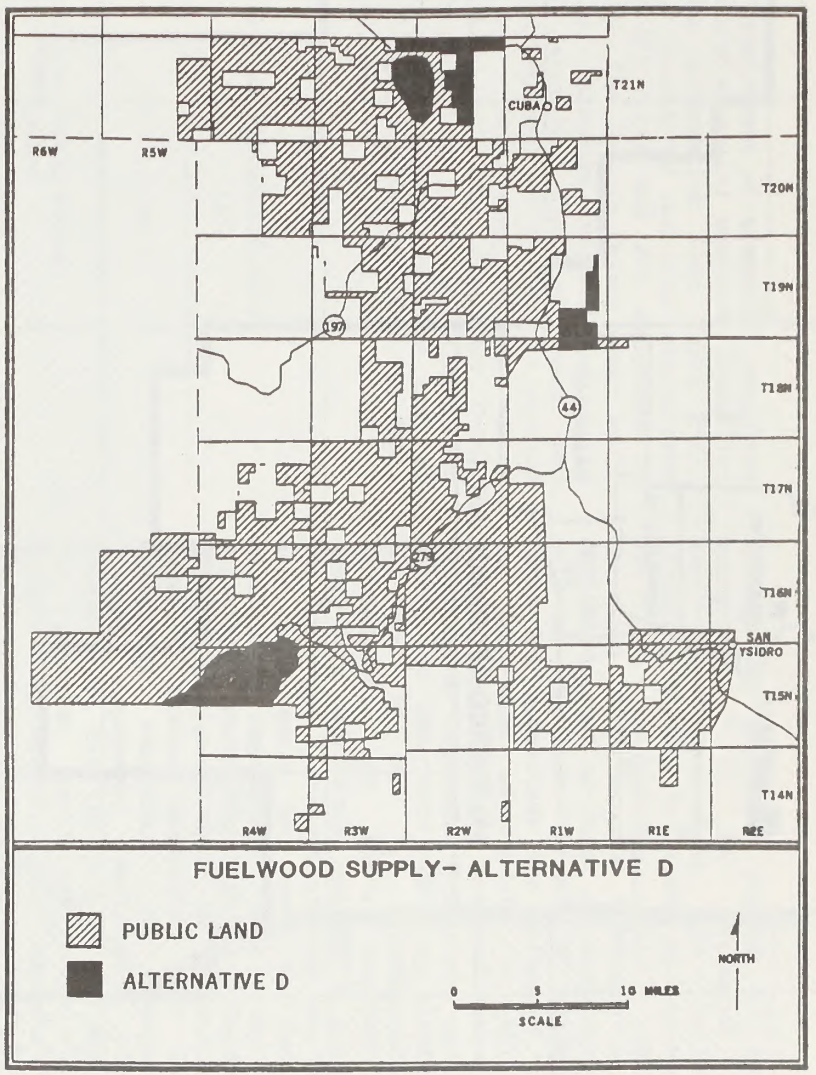
1. Special Management Areas: Only the sixteen SMA's which would not significantly

TABLE 2-5

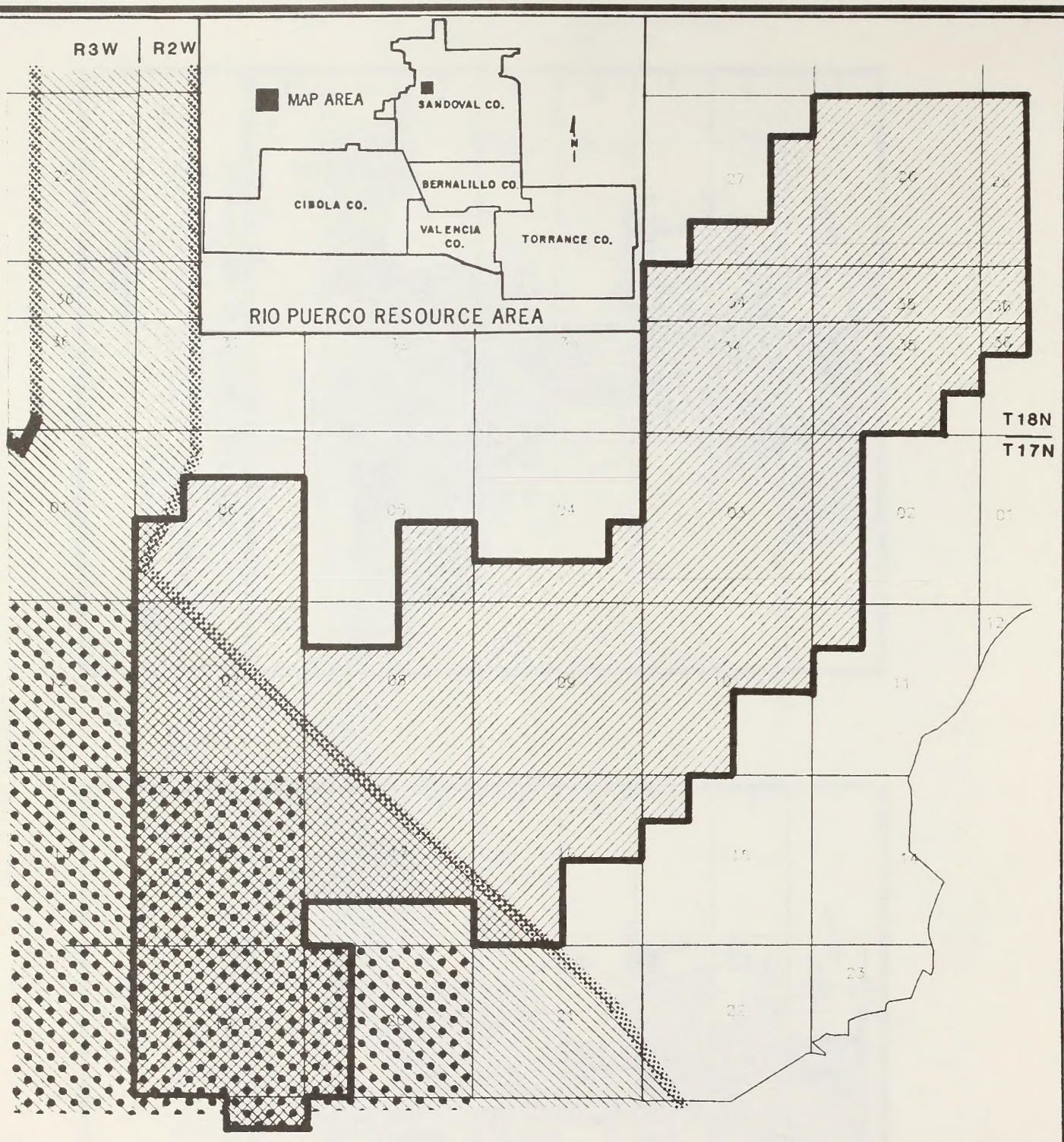
PUBLIC LANDS IDENTIFIED AS POTENTIALLY SUITABLE
FOR DISPOSAL OR FOR FURTHER STUDY

Township	Range (NMPM)	Public Lands Identified as Potentially Suitable for Disposal	Public Lands Identified for Further Study for Disposal
1 North	8 East	X	
1 North	9 East	X	
1 North	13 East	X	
1 North	15 East	X	
2 North	5 East	X	
2 North	11 East	X	
2 North	12 East	X	
2 North	14 East	X	
2 North	15 East	X	
3 North	5 East		X
3 North	6 East	X	
3 North	8 East	X	
3 North	10 East	X	
3 North	11 East	X	
3 North	12 East	X	
3 North	13 East		X
3 North	17 East	X	
4 North	8 East	X	
4 North	9 East		X
4 North	10 East	X	
4 North	14 East	X	
5 North	7 East		X
5 North	9 East		X
5 North	10 East		X
5 North	12 East		X
5 North	13 East		X
5 North	14 East		X
5 North	15 East		X
6 North	9 East		X
6 North	10 East	X	
6 North	11 East	X	
6 North	14 East	X	
6 North	15 East	X	
7 North	6 East	X	
7 North	7 East	X	
7 North	10 East	X	
7 North	11 East	X	
7 North	14 East	X	
7 North	15 East	X	
8 North	9 East	X	
8 North	10 East	X	
9 North	9 East	X	
9 North	10 East	X	
10 North	5 East	X	
10 North	6 East	X	
11 North	8 East	X	
12 North	6 East	X	
14 North	2 West	X	
14 North	3 West	X	
14 North	4 West	X	
21 North	1 West	X	
22 North	1 West		X
23 North	1 West		X


CUBA
T21N
R6W
R5W
T20N
T19N
T18N
T17N
T16N
SAN YSIDRO
T15N
T14N
R4W
R3W
R2W
R1W
R1E
R2E
197
44
FUELWOOD SUPPLY-ALTERNATIVE B
PUBLIC LAND
ALTERNATIVE B
0 5 10 MILES
SCALE
NORTH


CUBA
T21N
R6W
R5W
T20N
T19N
T18N
T17N
T16N
SAN YSIDRO
T15N
T14N
R4W
R3W
R2W
R1W
R1E
R2E
197
44
FUELWOOD SUPPLY- ALTERNATIVE D
PUBLIC LAND
ALTERNATIVE D
0 5 10 MILES
SCALE
NORTH

MAP 2-10



MAP 2-11
COAL LEASING SUITABILITY ASSESSMENT
ALTERNATIVES B AND D

PROPOSED RIGHT-OF-WAY CORRIDOR

AREA OF MAXIMUM COAL DEVELOPMENT POTENTIAL

PROPOSED RIGHT-OF-WAY WINDOW

N

0 1 2 MILES

SCALE

restrict development of commodity resources (fuelwood and minerals) would be identified under this alternative (see Table 2-6). The SMA's considered in this alternative total 366,375 acres and are described in Appendix C. The Ignacio Chavez Grant would be open for intensive fuelwood cutting to help meet expressed fuelwood demand and would not be managed as an SMA. A portion of the Ojito East rights-of-way window overlaps the Ojito SMA (see Map C-16). Special stipulations could be attached to any right-of-way granted in this area of overlap to provide protection for the SMA's resource values.

TABLE 2-6

SPECIAL MANAGEMENT AREAS

Alternative C
Torrejon Fossil Fauna
Pelon Watershed
Historic Homesteads
San Luis Mesa Raptor Area
Azabache Station
Cabezon Peak
Big Bead Mesa
Canon Tapia
Guadalupe Ruin and Community
Tent Rocks
Ojito
Pronoun Cave Complex
Continental Divide Trail
1870's Wagon Road Trail
El Malpais
Petaca Pinta

2. Off-Road Vehicle Designation: Four areas in the Azabache Station, Cabezon Peak, Guadalupe, and Ojito SMA's and one road segment in the Ojito SMA would be closed to motorized vehicle travel as planned actions for SMA's proposed above. These closures, totalling 10,248 acres and 6 miles of road, are identified on Maps C-9, C-10, C-13, and C-16. In addition, the public land under Interim Wilderness Management (see Map 2-6) would continue to be limited to existing roads and trails until Congress determines their suitability for Wilderness. The rest of the RPRA, except for the already "closed" Bluewater ACEC, would be designated as "open" for ORV use.

3. Vegetative Uses: This alternative would provide for the maximization of forage production for livestock grazing use through an intensive program of grazing management. It is estimated that short-term reductions in allowable livestock grazing use would be proposed on six "I" allotments, with long-term increases in allowable livestock grazing use anticipated on these six allotments, as well as six other "I" and "M" allotments. Table 2-1 summarizes the estimated short- and long-term adjustments in allowable livestock grazing use proposed under this alternative. Appendix P displays estimated short- and long-term AUM's by alternative for the "M" and "I" allotments. The determination of AUM's required for short-term reductions and AUM's available for increased livestock grazing use in the long term would be based on currently available vegetative data and on vegetative monitoring studies. Changes in grazing management would be implemented to increase forage production and improve ecological condition. No changes in grazing management would be proposed specifically for the purpose of resolving the resource conflicts identified in Appendix M; however, some improvement in these resource conflicts would be anticipated as a result of improved grazing management. Increased forage for wildlife habitat and watershed protection would be considered only after livestock grazing use needs were met.

4. Land Ownership Adjustments: Approximately 58,000 acres of public lands identified on Table 2-5 are scattered and isolated tracts considered potentially available for disposal. Under this alternative, the preferred method of disposal of the public lands in the issue area identified as potentially available for disposal would be public auction.

It has not been feasible to identify in this RMP/EIS all of the scattered and isolated public lands which would potentially be suitable for disposal. As additional public lands are identified as suitable, they would be made available for ownership adjustment. As long as any future ownership adjustments conform to the theme of this alternative, such actions would be considered consistent with the RMP.

All public sale actions would be thoroughly examined under the NEPA process, including full public participation. The planning criteria for this issue (see Chapter 1) would also be considered when analyzing public sale actions.

5. Fuelwood Supply: Fuelwood would be made available to the public through commercial or home use sales from

approximately 29,930 acres of public land (see Map 2-12). Small additional amounts of fuelwood would also be made available to the public as a result of wildlife habitat improvement projects, right-of-way clearings, and as dead-and-down wood, as described for the Continuation of Current Management Alternative.

6. Rights-of-Way Corridors: Rights-of-way windows would be established on the public lands as identified on Pocket Map B. These rights-of-way windows have been identified in areas where topographic or land ownership constraints make it advantageous to locate transmission lines on public land. However, right-of-way developments in the area of high coal development potential would be restricted to the de facto corridor as identified on Map 2-13. Due to the relative size and the importance of these placement areas, fluid mineral leases issued within the windows would carry special stipulations designed to minimize conflicts. Multiple use of the public lands within these windows would continue; however, discretionary land uses which would complicate or increase the cost of right-of-way development would be prohibited.

7. Coal Leasing Suitability Assessment: Approximately 8,020 acres of public coal resources would be identified as acceptable for further consideration for coal leasing under this alternative (Map 2-13). The twenty unsuitability criteria (where the information was available) have been applied to the area of maximum development potential (Appendix D) and lands found unsuitable eliminated from further consideration (Appendix E). Application of the multiple use screens would not eliminate any lands from further consideration under this alternative, nor would surface owner consultation (Appendix E). This acreage would be inventoried for cultural resources during activity planning.

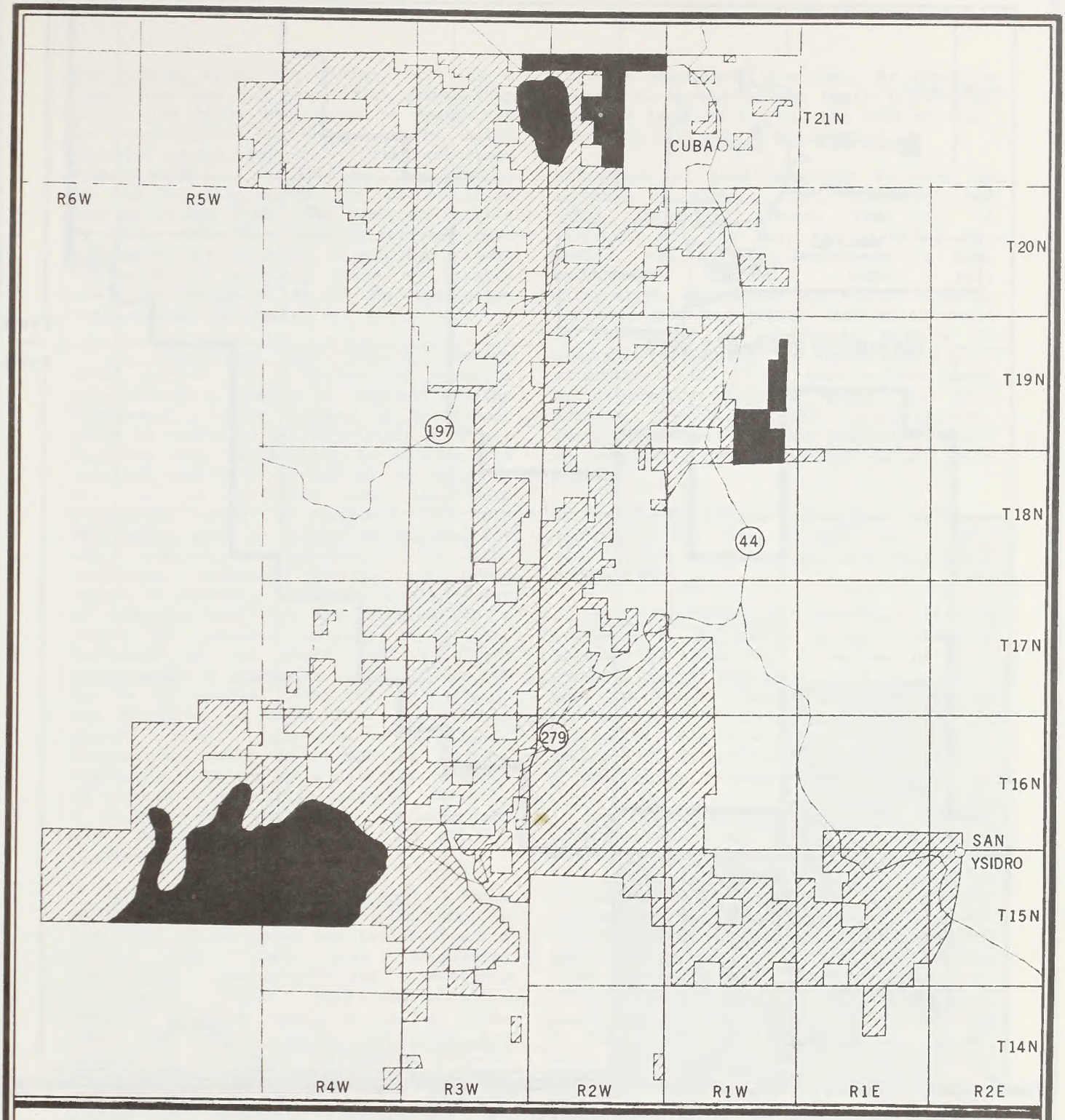
Alternative D: Balanced Management/ Preferred Alternative

Theme

The Preferred Alternative for this RMP/EIS is designed to provide balanced management direction for the RPRA. Its goal is to resolve the seven issues by providing for a combination of resource uses that would protect important environmental values and sensitive resources while at the same time allowing development of resources which provide commercial goods and services.

1. Special Management Areas: Twenty-two SMA's totaling 426,636 acres would be identified under this alternative (see Tables 2-3 and 2-4, Map 1-2, and Appendix C). This acreage includes private and State trust land that is being proposed in this alternative for acquisition or proposed for management as part of the SMA's through Cooperative Management Agreement with the owner. The twenty-two proposed SMA's include nine ACEC's, three Research Natural Areas (one of which would also be an ACEC), and one National Trail (see Appendix C). Parts of the proposed El Malpais SMA have already been designated as an Outstanding Natural Area, a Natural Environmental Area, and a National Natural Landmark. The Ignacio Chavez SMA would be managed for a combination of uses. About 17,300 acres in the area between the current Ignacio Chavez and Chamisa Wilderness Inventory Units (see Map 2-10) would be open for intensive fuelwood cutting, consistent with the principles of multiple use and sustained yield. Limited greenwood cutting to reduce the invasion of pinyon and juniper into stands of ponderosa pine would be permitted to maintain the ponderosa pine stands and to improve wildlife habitat in the SMA. A portion of the Ojito East rights-of-way window overlaps the Ojito SMA (see Map C-16). Special stipulations could be attached to any right-of-way granted in this area of overlap to provide protection for the SMA's resource values.

2. Off-Road Vehicle Designation: Under this alternative four areas in the Azabache Station, Cabezon Peak, Guadalupe, and Ojito SMA's, two road segments in the Ignacio Chavez SMA, and one road segment in the Ojito SMA, totalling 10,248 acres of public land and 10 miles of road, would be closed to motorized vehicle traffic as planned actions for the SMA's. Two road segments in the Ojito SMA and three in the Ignacio Chavez SMA, totalling 12 miles, would be limited to authorized users (see Table 2-3 and Maps C-8, C-9, C-10, C-13, and C-16). In addition to closures and limitations for SMA's, 6 miles of existing roads and trails in 3 road segments would be closed outside of SMA's (see Map 2-7). The existing Bluewater ACEC would remain closed to motorized vehicle traffic. Vehicular use within WSA's and Wilderness Inventory Units (see Map 2-6) would continue to be limited to existing roads and trails until Congress determines their suitability for Wilderness. Use of two road segments would be limited to authorized users. One area would be used



MAP 2-12
FUELWOOD SUPPLY - ALTERNATIVE C

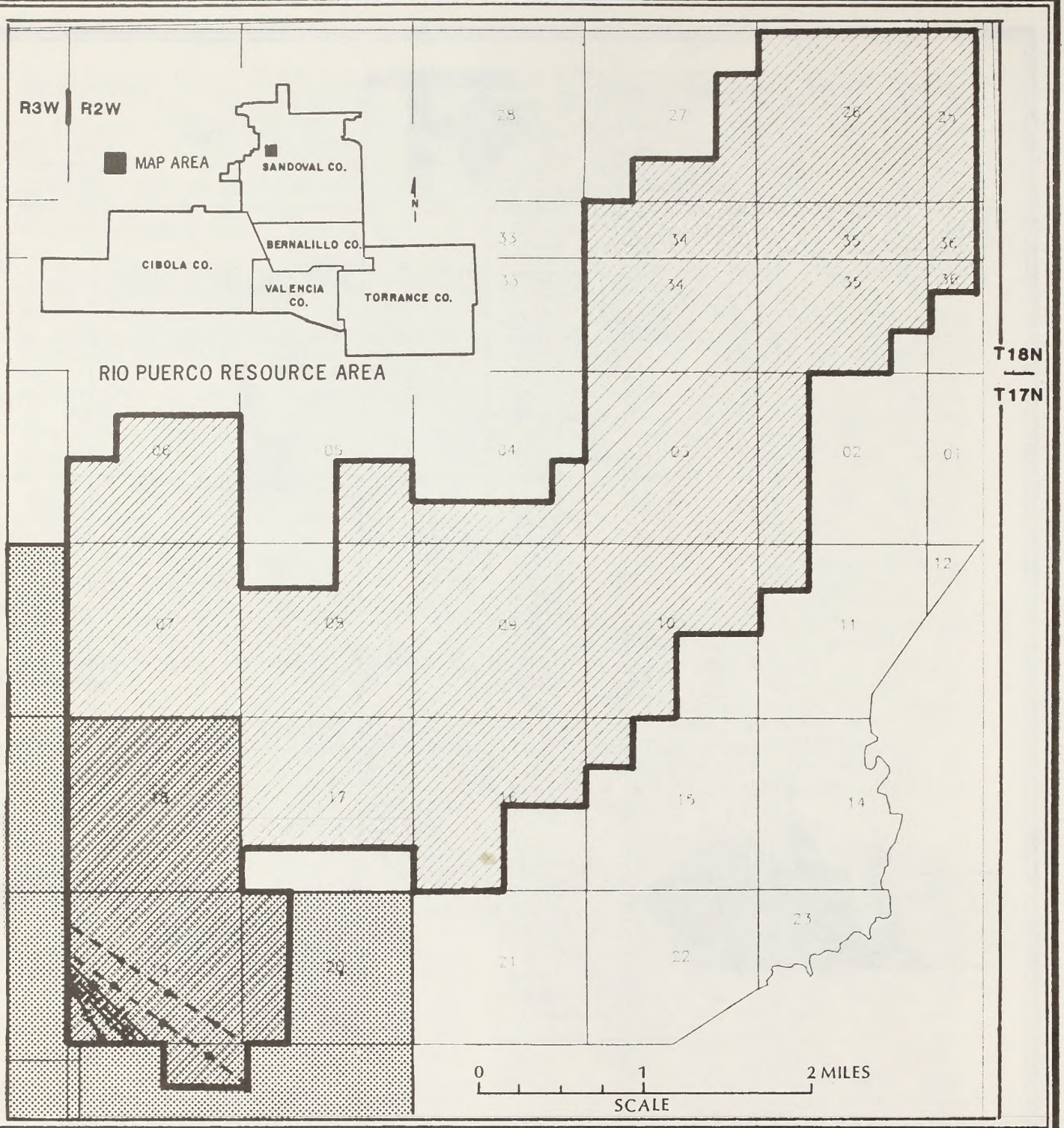
PUBLIC LAND

ALTERNATIVE C

NORTH

0 5 10 MILES

SCALE



MAP 2-13
COAL LEASING SUITABILITY ASSESSMENT
ALTERNATIVE C

ELECTRICAL TRANSMISSION LINES

PIPELINES

AREA OF MAXIMUM COAL DEVELOPMENT POTENTIAL

PROPOSED RIGHTS-OF-WAY WINDOW

N

for trials motorcycle riding, both as a "play-area" and for competitive events (Map 2-8). The other area would be designated for competitive dune-buggy events using existing routes (Map 2-9). Other motorized vehicle travel in the RPRA would be limited to the existing roads and trails areas defined on Map 2-14. The roads and trails in these areas have been delineated; this information is available in the MSA. About 124 miles of existing roads and trails would be designated as an ORV recreation trail system (see Pocket Map E).

3. Vegetative Uses: This alternative would provide for a balance of resource uses through a program of improved grazing management. Future changes in management would be developed in cooperation with all Resource Area specialists to resolve the resource conflicts identified in Appendix M. It is estimated that short-term reductions would be proposed for six allotments, with no reductions proposed for the remaining allotments. In the long-term, livestock grazing use would return to currently allowable levels of use as resource conflicts are resolved as a result of improved grazing management. Estimates of the short- and long-term adjustments in allowable livestock grazing use to be proposed under this alternative are displayed on Table 2-1. The actual short- and long-term adjustments implemented would be based on current vegetative data and on a five-year program of vegetative monitoring studies. Appendix P displays estimated short- and long-term AUM's by alternative for the "M" and "I" allotments.

4. Land Ownership Adjustment: About 58,000 acres of public land identified on Table 2-6 are scattered and isolated tracts within the issue area considered potentially available for ownership adjustment. Under this alternative, exchange of these public lands for State trust and private lands identified for acquisition as planned actions in SMA's or to benefit other resource management programs would be considered the preferred method of ownership adjustment. To expedite land ownership adjustments, exchanges for State trust lands would be processed as a first priority. Exchanges for private lands, a more time-consuming process, would be processed as a second priority.

It has not been feasible to identify in this RMP/EIS all of the State and private lands whose acquisition would benefit BLM resource management programs. As they are identified in the future, their acquisition would be examined through the NEPA process, including full public involvement.

Adjustment of land ownership patterns by exchange is such a slow, expensive, and labor intensive process that it is difficult for the BLM, the State of New Mexico, and private landowners to keep appraisals current. Under this alternative, Recreation and Public Purposes Act disposals and public land sales would be considered as acceptable methods of ownership adjustment as third and fourth priorities. All public sale actions would be thoroughly examined under the NEPA process, including public participation. The planning criteria (see Chapter 1) would be considered when analyzing public sale actions.

As long as any future ownership adjustments conform to the theme of this alternative, such actions would be considered consistent with the RMP.

5. Fuelwood Supply: Fuelwood would be available to the public through commercial or home-use sales from approximately 9,320 acres of public land under this alternative (see Map 2-10). Small additional amounts of fuelwood would also be made available to the public as a result of wildlife habitat improvement projects, right-of-way clearings, and as dead-and-down wood.

6. Rights-of-Way Corridors: Rights-of-way corridors and windows (Pocket Map B) would be designated as the preferred locations for future transmission line placements in the RPRA. The rights-of-way windows have been identified in areas where topographic or land ownership constraints make it advantageous to locate transmission lines on public land. For the most part, they lie within the rights-of-way corridors identified on Pocket Map B. Multiple use of the public lands within these windows would continue; however, discretionary developments which would complicate or increase the cost of right-of-way development would be prohibited. Future rights-of-way developments would be situated to minimize conflicts with coal resources. This would be accomplished by requiring the placement of future transmission lines in the southwestern portion of the corridor, and by placing them as close to each other as safety and technology allow. The coal leasing area would therefore be avoided until this portion of the corridor is saturated with

transmission lines. Also, coal leases issued within the rights-of-way corridor would have special stipulations attached which would make the lessee financially responsible for the relocation of any right-of-way that would create bypass coal. In addition, special stipulations would be attached to any fluid mineral leases in the windows to minimize conflicts in these critical placement areas.

7. Coal Leasing Suitability Assessment: Approximately 8,020 acres of public coal would be identified as acceptable for further consideration for coal leasing under this alternative (Map 2-11). The twenty unsuitability criteria (where the information was available) have been applied to the area of maximum coal development potential (Appendix E). The area of maximum coal development potential (Appendix D) has also been scrutinized using the multiple use screens (see Issues and Criteria, Chapter 1). Following surface owner consultation and the application of the unsuitability criteria and multiple use screens (Appendix E), only areas with no known conflicts were brought forward for further consideration under this alternative. This acreage would be inventoried for cultural resources during activity planning.

ASSUMPTIONS

Some general assumptions have guided the analysis of this Resource Management Plan. They include the following:

1. The continuing management guidance is considered to be the existing situation for resource values that are not at issue and therefore receives no impact analysis. The Continuation of Current Management Alternative analyzes the existing management within the issue areas.

2. The long-term for this document is considered to be twenty years. This is also considered to be the life of the plan. The short-term for this RMP is considered to be about five years.

3. It is assumed that there will be a trend toward increased demand in the RPRA (e.g., fuelwood needs, oil and gas development, powerlines and pipelines).

4. The major land use planning decision concerning the coal resource is the identification of areas acceptable for further consideration for leasing. This RMP delineates coal study areas which will be the focus of future activity planning.

   The principal impact of the coal issue determination is on the coal resource. The RMP decision will not be a determination of how much coal will be leased, but rather how much coal will not be considered for leasing. The delineation of a coal study area has no impact on other resources or commodities. The impacts of leasing coal will be analyzed during activity planning.

   Quantification of the coal issue impacts is expressed in terms of acres of coal lands not acceptable for further consideration for leasing and tons of coal not available for production.

5. In order to arrive at the coal study areas, a screening process has been employed which focused the issue by systematically eliminating coal lands from consideration. These screens are the criteria for Issue 7 in Chapter 1. The outcome of the application of the four screens is located in Appendix E.

6. There are no coal mines operating in or which will be operating in the Rio Puerco Resource Area which will require emergency leasing during the twenty year life of this plan. Therefore, the unsuitability and multiple use screens have been applied to new leasing areas only.

7. The following allotment category definitions were used in the range analysis for this RMP: Custodial Allotments--Those allotments on which intensification of management would not result in significantly improved ecological condition or resolution of resource conflicts, and/or for which the cost of implementing necessary changes in management would be prohibitive. Therefore, no changes in management are proposed for these allotments. Maintain Allotments--Those allotments on which current management has resulted in satisfactory ecological condition, or has produced improving ecological condition that is approaching satisfactory levels, and which have no significant resource conflicts. Therefore, no changes in management are proposed for these allotments. Improve Allotments--Those

allotments on which intensification of management would improve ecological condition and/or resolve resource conflicts. Therefore, intensification of management is proposed for these allotments (USDI, BLM 1982c).

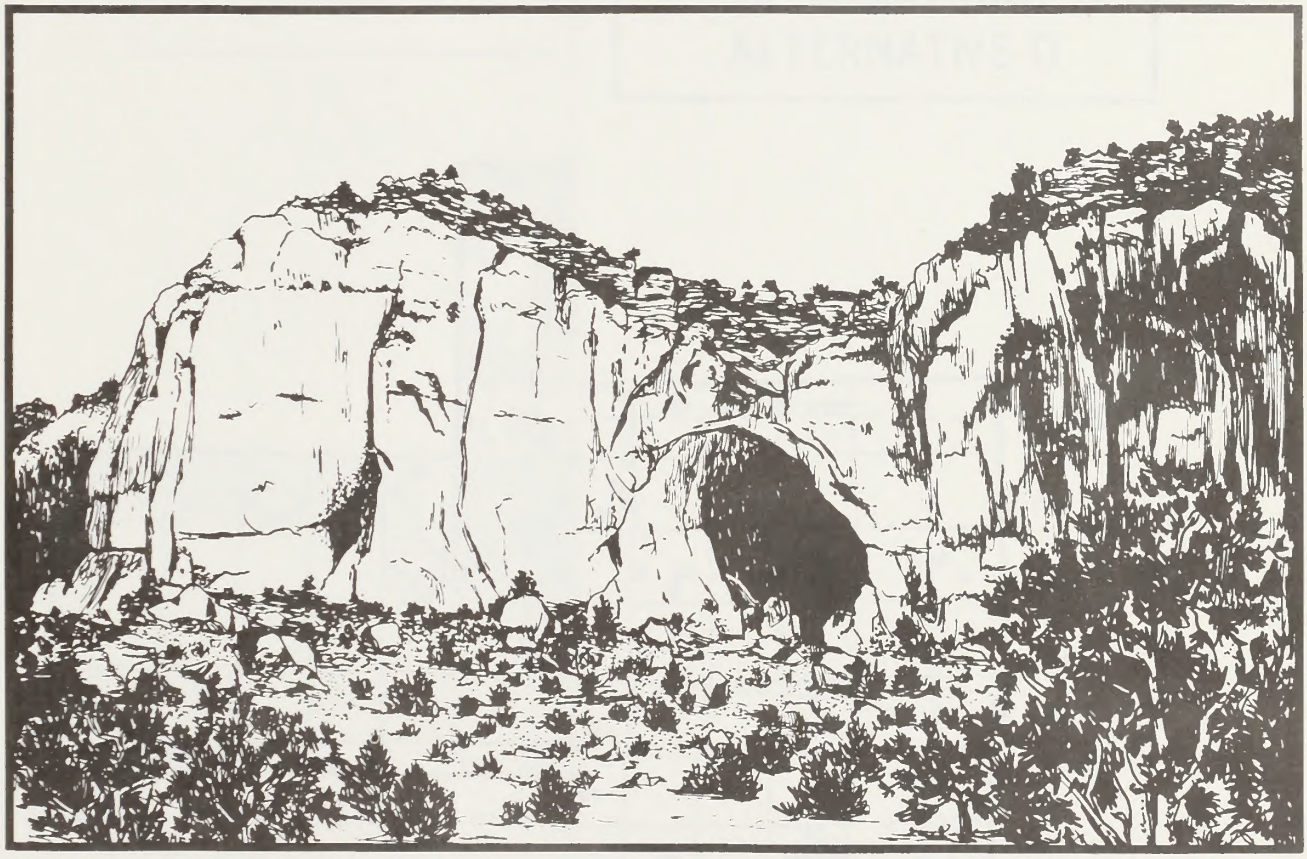
8. No assumptions have been made on the outcome of the recommendations for the five Wilderness Study Areas, the seven Wilderness Inventory Units which are involved in the split estate issue, or the El Malpais Wilderness Instant Study Area. Recommendations for all of these areas except El Malpais will be analyzed in the Statewide Wilderness EIS. No actions inconsistent with the Wilderness Interim Management Policy (USDI, BLM 1979b) will occur unless and until an area is released from interim management.

9. Lands not identified for land ownership adjustment under this RMP generally will be retained in compliance with Section 102(a)(1) of the Federal Land Management and Policy Act. Any lands not presently identified for disposal or exchange but which are selected for disposal in the future will be removed from public ownership only if the action is consistent with the planning criteria (see Chapter 1) and the theme of the RMP alternative selected.

10. Any land ownership adjustment action can be reversed; however, for the purposes of this document such actions are considered to be irreversible.

11. Land exchanges or disposals would include the transfer of water rights whenever possible.

12. Public lands in a wetlands or floodplain category will be retained in Federal ownership.

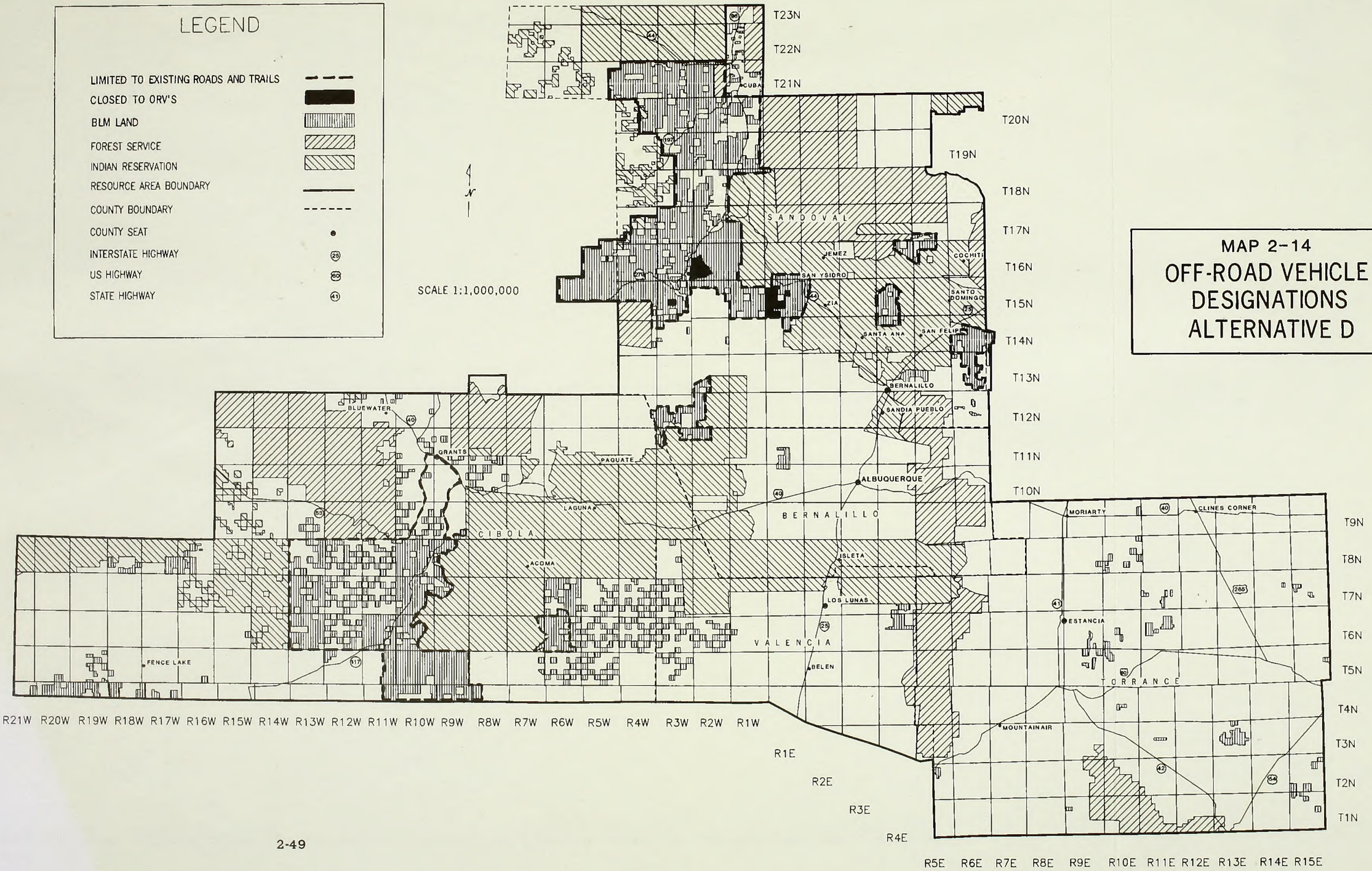


RIO PUERCO RESOURCE AREA

LEGEND

- LIMITED TO EXISTING ROADS AND TRAILS
- CLOSED TO ORV'S
- BLM LAND
- FOREST SERVICE
- INDIAN RESERVATION
- RESOURCE AREA BOUNDARY
- COUNTY BOUNDARY
- COUNTY SEAT
- INTERSTATE HIGHWAY
- US HIGHWAY
- STATE HIGHWAY

SCALE 1:1,000,000



MAP 2-14
OFF-ROAD VEHICLE DESIGNATIONS ALTERNATIVE D

TABLE 2-7

SUMMARY OF ANTICIPATED IMPACTS BY ALTERNATIVE

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Geology, Energy, and Minerals	Issues having no impact: 2, 3, 4, 5, and 6. (1) Short-term impacts: -Failure to establish the Ojito SMA would prevent the application of needed restrictions on locatable minerals exploration and development in the Las Milpas Gas Storage Facility, and the San Ysidro anticline. Long-term impacts: -Same as short-term (7) Short-term impacts: -About 8,020 acres having maximum coal development potential would not be considered for coal leasing. -No emergency coal leases would be issued and coal lease re-adjustment could be impacted. Long-term impacts: -Same as short-term	Issues having no impact: 3 and 5. (1) Short term impacts: The establishment of 22 SMA's would result in: -Fluid minerals leasing withdrawals on 4,558 acres -No surface occupancy stipulations on 1,946 acres. -Seasonal restrictions placed on 61,380 acres. -267,440 acres would be unavailable for mineral material sales. -12,438 acres would be withdrawn from mineral entry. -Plans of operation and preparation of environmental assessments would be required for mining claim development on 50,877 acres within ACEC's. -Restrictions would be placed on locatable minerals exploration and development to protect the Las Milpas Gas Storage Facility and the San Ysidro anticline portions of the Ojito SMA. Long-term impacts: -Same as short-term (2) Short-term impacts: -Closing areas to motorized vehicle use would require mining claimants to file plans of operations. -Area closures within SMA's would be incompatible with mineral material sales or other mineral development involving surface disturbance.	Issues having no impact: 3 and 5. (1) Short-term impacts: The establishment of 16 SMA's would result in: -Fluid mineral withdrawals on 2,623 acres. -No surface occupancy stipulations on 1,297 acres. -Seasonal restrictions would be placed on 8,364 acres. -195,592 acres could be unavailable for mineral material sales. -Mineral entry would be withdrawn on 9,854 acres. -Plans of operations and preparation of environmental assessments would be required for mining claim development on 38,033 acres within ACEC's. -Restrictions to protect geological resources in the Ojito SMA would be the same as those described in Alternative B. Long-term impacts: -Same as short-term (2) Short-term impacts: -Impacts associated with ORV designation would be similar to those described in Alternative B, except that no road segments would be closed. Long-term impacts: -Same as short-term impacts (4) Short-term impacts: -Impacts associated with land ownership adjustments would be similar to those described in Alternative B. Long-term impacts: -Same as short-term	Issues having no impact: 3 and 5. (1) Short-term impacts: -Same as Alternative B. Long-term impacts: -Same as short-term (2) Short-term impacts: -Same as Alternative B. Long-term impacts: -Same as short-term (4) Short-term impacts: -Same as Alternative B. Long-term impacts: -Same as short-term (6) Short-term impacts: -Future transmission lines placed in the ROW corridor in the area acceptable for further consideration for coal leasing could be relocated at the coal lessees' expense -Future transmission line placement in San Luis Cliffs window would be located in a manner that would minimize conflicts with coal resources. -About 100 acres having maximum development potential for coal and located under the de facto corridor would be unacceptable for further consideration for coal leasing.

TABLE 2-7 (Continued)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Geology, Energy, and Minerals (Cont'd)		-Access problems and added development expense for drillers and miners could result from closing road segments. Long-term impacts: -Same as short-term (4) Short-term impacts: -Public land with little or no minerals potential would be offered for disposal. Long-term impacts: -Same as short-term (6) Short-term impacts: -Mineral material sales would be permitted within ROW corridors and windows if they did not interfere with future ROW construction. -Fluid mineral leasing would be prohibited within the ROW windows, removing about 17,620 acres. -About 2,300 acres located in ROW corridors and windows having maximum coal development would be unacceptable for further consideration for coal leasing. Long-term impacts: -Same as short-term (7) Short-term impacts: -About 5,720 of the approximately 8,020 acres having maximum coal development potential would be recommended for further consideration for coal leasing. Long-term impacts: -Same as short-term	(6) Short-term impacts: -Mineral material sales within the ROW windows would be permitted as described in Alternative B. -Fluid mineral leasing would be allowed within the ROW windows with stipulations attached designed to minimize conflicts with ROW's. Long-term impacts: -Same as short-term (7) Short-term impacts: -About 8,020 acres having maximum coal development potential would be recommended for further consideration for coal leasing Long-term impacts: -Same as short-term	Long-term impacts: -Same as short-term (7) Short-term impacts: -About 8,020 acres with maximum coal development potential would be acceptable for further consideration for coal leasing. Long-term impacts: Same as short-term

TABLE 2-7 (Continued)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Paleontological Resources	Issues having no impact: 3, 4, 5, 6, and 7. (1) Short-term impacts: -Failure to establish the Elk Springs and Torrejon Fossil Fauna SMA's could result in the destruction of two internationally recognized paleontological study areas. Long-term impacts: -Same as short-term (2) Short-term impacts -Continuation of "open" ORV designation could result in the degradation or destruction of the two fragile paleontological study areas. Long-term impacts: -Same as short-term	Issues having no impact: 2, 3, 4, 5, 6, and 7 (1) Short-term impacts: -Establishment of the Elk Springs and Torrejon Fossil Fauna SMA's would protect two internationally recognized paleontological study areas from disturbance and possible destruction. Long-term impacts: -Same as short-term	Issues having no impact: 3, 4, 5, 6, and 7. (1) Short-term impacts: -Failure to establish the Elk Springs SMA could result in the destruction of the Juana Lopez Reference Section, an internationally recognized paleontological study area. Long-term impacts: -Same as short-term (2) Short-term impacts: -Failure to limit motorized vehicle use to existing roads and trails could result in the degradation and/or destruction of the Juanc Lopez Reference Section. Same as short-term Long-term impacts: -Same as short-term	Issues having no impact: 2, 3, 4, 5, 6, and 7. (1) Same as Alternative B.
Soils and Water	Issues having no impacts: 4, 5, and 7. (1) Short-term impacts: -Failure to establish the Pelon Watershed, San Luis Mesa Raptor Area, and Ojito SMA's would result in continued surface disturbing activities that would adversely affect the data collected for the Rio Puerco Hydrology Study. Long-term impacts: -Same as short-term (2) Short-term impacts: -No significant impacts would be expected from the continuation of current levels of motorized vehicle use. Long-term impacts: -Long-term increases in ORV use would result in accelerated erosion and sediment production from areas of concentrated use and formation of new roads and trails.	Issues having no impact: 4 and 7. (1) Short-term impacts: -Surface disturbance would decrease by establishing 22 SMA's, resulting in reduced soil erosion and sediment production. -By establishing the Pelon Watershed, San Luis Mesa Raptor Area, and Ojito SMA's surface disturbing activities would decrease in three Hydrology Study watersheds resulting in improved uninterrupted data collection. Long-term impacts: -Same as short-term (2) Short-term impacts: -No significant impacts would be expected from the motorized vehicle restrictions that would be applied to the majority of the RPRA. Long-term impacts: -Restrictions on motorized vehicle use would result in decreased erosion and sediment yield.	Issues having no impact: 4 and 7. (1) Short-term impacts: -Surface disturbance would decrease by establishing 16 SMA's, resulting in reduced soil erosion and sediment production. -Three Hydrology Study watersheds would be protected from surface disturbing activities as a result of SMA establishment. Long-term impacts: -Same as short-term (2) Short-term impacts: -Same as Alternative B. Long-term impacts: -Reduced erosion and sediment yield would result from the closure of 10,248 acres to motorized vehicle use, while the impacts to the rest of the RPRA would be the same as Alternative A.	Issues having no impact: 4 and 7. (1) Same as Alternative B. (2) Same as Alternative B. (3) Short-term impacts: Same as Alternative C. Long-term impacts: -Increases in livestock grazing use on 32,233 acres would increase surface disturbance, but improved grazing management would result in improved ecological condition, reducing erosion and sediment production. (5) Short-term impacts: -Same as Alternative B, except 41 acres would be harvested each year. Long-term impacts: -Same as Alternative B. (6) Same as Alternative B.

TABLE 2-7 (Continued)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Soils and Water (Cont'd)	(3) Short-term impacts: -Changes in grazing management to reduce soil erosion and sediment yield from the vegetative uses issue area would not be implemented. Long-term impacts: -Same as short-term (6) Short-term impacts: -The impacts to and water would be greater from unconfined placement of transmission lines than placement in corridors and windows. Long-term impacts: -The impacts to soil and water would decrease as a result of the rehabilitation stipulations on the ROW's.	(3) Short-term impacts: -Improved grazing management and reductions in livestock grazing use on 42,233 acres would slightly reduce erosion and sediment yield due to improved vegetative vigor. Long-term impacts: -Improved grazing management and reductions in livestock grazing use would significantly reduce erosion and sediment yield due to improved ecological condition. (5) Short-term impacts: -Slight increases in erosion and sediment yield would result from surface disturbing activities associated with fuelwood harvest on 33 acres per year. Long-term impacts: -Natural revegetation would reduce the erosion and sediment yield from disturbed areas. (6) Short-term impacts: -Increased erosion and sediment yield would result from transmission line placement. -Concentration of transmission lines into the ROW corridors and windows would result in less erosion and sediment yield than random transmission line placement. Long-term impacts: -Same as Alternative A.	grazing use on 32,233 acres would slightly reduce erosion and sediment yield, due to improved vegetative vigor. Long-term impacts: -Increases in allowable livestock grazing use on 62,781 acres would increase surface disturbance but erosion would be generally decreased as a result of intensified grazing management. (5) Short-term impacts: -Same as Alternative B, except 133 acres would be harvested each year. Long-term impacts: -Same as Alternative B. (6) Short-term impacts: -Increased erosion and sediment yield would result from transmission line placement. -Concentration of transmission lines into ROW windows would result in less erosion and sediment yield than from random placement, but more than from placement into ROW corridors. Long-term impacts: -Same as Alternative A.	

TABLE 2-7 (Continued)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Range Resources	Issues having no impact: 1, 4, and 7. (2) Short-term impacts: -No significant impacts. Long-term impacts: -Increased motorized vehicle use could significantly decrease vegetative vigor, productivity, and ecological condition. -Increased motorized vehicle use would result in expanded road and trail networks which increase opportunity for more widespread harassment and theft of livestock, and vandalism of private property. (3) Short-term impacts: -Nine allotments would remain in unacceptable ecological condition and 10,842 acres would remain in poor ecological condition. Long-term impacts -Increasing amounts of non-use would be authorized to to offset declines in vegetative vigor and productivity on 9 allotments. -By increasing authorized non-use, overall ecological condition for the 9 allotments would be maintained. (5) Short-term impacts: -Forage production would decline on approximately 10 acres harvested for fuelwood each year. -No reductions allowable in livestock grazing use would be required as a result of the fuelwood harvests. Long-term impacts: -Forage production would increase as a result of fuelwood harvests and reduced competition with pinyon and juniper. -Increased forage production would not result in any increases in allowable livestock grazing use.	Issues having no impacts: 1 and 7. (2) Short-term impacts: -Same as Alternative A. Long-term impacts: -ORV restrictions would be applied to the majority of the Resource Area and prevent declines in vegetative vigor, productivity, and ecological condition. (3) Short-term impacts: -Reductions in allowable livestock grazing use would result in improved vegetative vigor on 9 allotments. -Reductions would be phased in over a 5-year period to allow livestock operators to gradually adjust their operations. Long-term impacts: -Ecological condition would improve to acceptable levels for 9 allotments. (4) Short-term impacts: -Exchanges of lands identified as suitable for disposal would have only a slight impact on the grazing allottees because these public lands only consititute a small part of their total livestock operations. These slight impacts could be mitigated if the lands are exchanged with a land management agency that allows livestock grazing use. Long-term impacts: -Same as short-term (5) Short-term impacts: -Same as Alternative A, except 33 acres per year would be available for for fuelwood harvest. Long-term impacts: -Same as Alternative A.	Issues having no impacts: 1 and 7. (2) Short-term impacts: -Same as Alternative A. Long-term impacts: -10,248 acres would have restrictions on motorized vehicle use that would protect vegetative vigor, productivity, and ecological condition. -The remainder of the public lands in the RPRA would be subject to the long-term impacts defined in Alternative A. (3) Short-term impacts: -Reductions in allowable livestock grazing use would result in improved vegetative vigor on 6 allotments. -The reductions would be implemented as described in Alternative B. Long-term impacts: -Ecological condition would improve to acceptable levels for 9 allotments. -As a result of intensified grazing management, 2,003 AUMs of additional livestock forage would be made available for 12 allotments. (4) Short-term impacts: -Same as Alternative B, except the allottees would have to purchase the public lands in their allotments or made arrangements with the purchaser to continue grazing livestock on these lands. Long-term impacts: -Same as short-term (5) Short-term impacts: -Same as Alternative A, except 133 acres per year would be available for fuelwood harvest. Long-term impacts: -Same as Alternative A.	Issues having no impacts: 1 and 7. (2) Same as Alternative A. (3) Short-term impacts: -Same as Alternative C. -Reductions would be implemented as described in Alternative B. Long-term impacts: -Ecological condition would improve to acceptable levels on 9 allotments. -As a result of improved grazing management, 850 AUM's of additional livestock forage would be made available for 6 allotments. (4) Short-term impacts: -If lands were sold, the impacts would be the same as described in Alternative C. -If lands were exchanged, the impacts would be the same as Alternative B. Long-term impacts: -Same as short-term (5) Short-term impacts: -Same as Alternative A, except 41 acre per year would be available for fuelwood harvest. Long-term impacts: -Same as Alternative A. (6) Same as Alternative B.

TABLE 2-7 (Continued)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Range Resources (Cont'd)	(6) Short-term impacts: -Unrestricted placement of transmission lines could result in a larger area of disturbance to vegetation than for ROW corridors and windows. -No reductions in allowable livestock grazing use would result from the disturbance to vegetation resulting from transmission line placement. Long-term impacts: -Short-term negative impacts to vegetation would be reversed by the establishment of the rehabilitation stipulations attached to ROW's.	(6) Short-term impacts: -The acreage outside the ROW corridors and windows would be protected from vegetative disturbance associated with transmission line placements. -Short-term disturbance to vegetation would result from transmission line placements within the ROW corridors and window, but no adjustments in allowable livestock grazing use would be required. Long-term impacts: -Same as Alternative A.	(6) Short-term impacts: -Concentrating transmission lines into the ROW windows would prevent transmission lines from being randomly located throughout the issue area. ROW windows alone would not be as confining as corridors, but would provide for greater protection from vegetative disturbance than currently exists. -No reductions in allowable livestock grazing use would be needed as described in Alternative A. Long-term impacts: -Same as Alternative A.	
Wildlife Habitat	Issues having no impact: 4 and 7. (1) Short-term impacts: -76,321 acres of important wildlife habitat in the Ignacio Chavez, Elk Springs, San Luis Mesa Raptor Area, Tent Rocks, and Jones Canyon SMA's would go without additional management. -350,159 acres of wildlife habitat in 17 other SMA's would be left without additional protection. Long-term impacts: -Same as short-term (2) Short-term impacts: -Unrestricted motorized vehicle use could result in increased degradation to wildlife habitat and increased disturbance of wildlife. -Roads are being created on the Ignacio Chavez Grant by motorized vehicle users, creating new access for poachers and decreasing forage. Long-term impacts: -Same as short-term, except impacts would increase as motorized vehicle use increases.	Issues having no impact: 7. (1) Short-term impacts: -76,321 acres of important wildlife habitat in 5 SMA's would receive additional management. -350,159 acres of wildlife habitat in 17 other SMA's would receive additional protection. Long-term impacts: -426,480 acres of wildlife habitat would improve as a result of added management and protection. (2) Short-term impacts: -The restrictions on motorized vehicle use would protect wildlife from harassment and habitat from degradation thoughout most of the RPRA. Long-term impacts: -Same as short-term (3) Short-term impacts: -Reductions in livestock grazing use and changes in management would result in no significant changes in wildlife-livestock conflicts.	Issues having no impact: 7. (1) Short-term impacts: -4 areas proposed as SMA's to provide protection and management of wildlife habitat would not be established. -366,377 acres in 16 SMA's would improve as wildlife habitat. Long-term impacts: -Same as short-term (2) Short-term impacts: -Habitat would be protected from motorized vehicle use in four areas (Azabache Station Cabezon Peak, Guadalupe Ruin, and Ojito SMA's, while wildlife habitat in the rest of the RPRA would be subject to impacts described in Alternative A. Long-term impacts: -Impacts would be the same as Alternative A, except for the protection of 4 SMA's. (3) Short-term impacts: -Same as Alternative B. Long-term impacts: -Ecological condition and	Issues having no impact: 7. (1) Short- and long-term impacts: -Same as Alternative B. (2) Short- and long-term impacts: -Same as Alternative B, except a smaller area would be protected. (3) Short-term impacts: -Same as Alternative B. Long-term impacts: -Same as Alternative C, except the impacts from increased grazing use would be significantly reduced. (4) Short- and long-term impacts: -If lands were exchanged, the impacts would be same as Alternative B. -If lands were sold, the impacts would be the same as Alternative C.

TABLE 2-7 (continued)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Wildlife Habitat (Cont'd)	(3) Short-term impacts: -No changes or livestock use grazing management would be proposed to resolve wildlife-livestock conflicts on 14 allotments Long-term impacts: -Same as short-term (5) Short-term impacts: -Disturbance of wildlife would result from harvest of approximately 10 acres of woodlands in ponderosa pine areas each year. Long-term impacts: -Ponderosa pine habitat would be protected and enhanced by the woodlands management. -Edge-effect and available forage would be increased. (6) Short term impacts: -Surface disturbance associated with rights-of-way development would impact forage and vegetative cover for wildlife. -Unconfined placement of transmission lines would have more significant impacts to wildlife habitat than would placement in corridors and windows. Long-term impacts: -Would be mitigated by the revegetation stipulations placed on ROW's.	Long-term impacts: -Changes in grazing management and use would reduce wildlife-livestock conflicts. (4) Short-term impacts: -The lands identified for disposal have limited wildlife management potential and could be used to exchange for private or State lands that are more manageable as habitat. Long-term impacts: -Same as short-term (5) Short-term impacts: -Harvesting 33 acres per year would cause disturbance to wildlife during cutting operations. Long-term impacts: -Edge-effect and available forage would be increased. (6) Short-term impacts: -ROW corridors and windows would channel transmission lines away from higher quality habitat. -Surface disturbance would be concentrated into the corridors and windows, resulting in disturbance and loss of forage to wildlife. -Vehicular access would probably increase into the corridor and window areas resulting in reduced value as wildlife habitat. Long-term impacts: -Same as Alternative A.	wildlife habitat would improve under grazing management on 32,233 acres. -Increase in AUMs for livestock would result in increased forage competition between wildlife and livestock, and a high degree of nest tramplings would be expected. (4) Short-term impacts: -58,000 acres of scattered terrestrial habitat with little management potential would be offered for disposal by public sale. Long-term impacts: -Same as short-term (5) Short-term impacts: -Same as Alternative B, except 133 acres per year would be available for harvest. Long-term impacts: -Same as Alternative B. (6) Short-term impacts: -Although less habitat would be impacted, the impacts would be the same as those described in Alternative A. Long-term impacts: -Same as Alternative A.	(5) Short-term impacts: -Same as Alternative B except 41 acres per year would be available for harvest. -Ponderosa pine habitat management would result in improved wildlife habitat on the Ignacio Chavez SMA. Long-term impacts: -Same as Alternative B. (6) Short- and long-term impacts: -Same as Alternative B.

TABLE 2-7 (continued)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Threatened, Endangered and Rare Species	Issues having no impacts: 2, 4, 5, 6, and 7 (1) Short-term impacts: -No protection would be provided for rare plant species on the Ball Ranch, Cabezon Peak, Ojito, and Ignacio Chavez SMA's. Long-term impacts: -Same as short-term (2) Short-term impacts: -Rare plant mortality and habitat degradation would continue Long-term impacts: -Same as short-term, except increased motorized vehicle use would increase impacts. (3) Short-term impacts: -Rare plant mortality and habitat degradation would continue. Long-term impacts: -Same as short-term	Issues having no impacts: 4, 5, 6, and 7. (1) Short-term impacts: -There would be protection for rare plants on 21,317 acres (4 SMA's listed in Alternative A). -Protection of habitat on all SMA's would benefit bald eagles, peregrine falcons, and State-listed grey vireos, if present. Long-term impacts: -Same as short-term (2) Short-term impacts: -Threatened and endangered animals and plants, and rare plants would be protected by motorized vehicle restrictions. Long-term impacts: -Same as short-term (3) Short-term impacts: -None Long-term impacts: -Improved ecological condition would result in protection for threatened, endangered, and rare species habitat.	Issues having impacts: 4, 5, 6, and 7. (1) Short-term impacts: -There would be no protection for rare plants on the Ball Ranch SMA. Long-term impacts: -Same as short-term (2) Same as Alternative A. (3) Short-term impacts: -None Long-term impacts: -Same as Alternative B, except mortality could increase with higher levels of grazing use.	Issues having impacts: 4, 5, 6, and 7. (1) Same as Alternative B. (2) Same as Alternative B. (3) Same as Alternative B.

Issues: (1) Special Management Areas (SMA's), (2) ORV designstion, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Woodlands	Issues having no impacts: 3, 4, 6, and 7. (1) Short-term impacts: -Fsilure to establish any SMA's would result in a continustion of unauthorized fuelwood harvest from 28,170 acres of woodlands contained in the SMA's. -Unauthorized fuelwood harvest on proposed SMA's could result in overcutting, damage to sites and stands, improper slash and litter placement,and possible increases in illegal cutting on adjacent private lands. Long-term imapcts: -Unauthorized fuelwood harvesting combined with no silvicultural practices for the benefit of the woodland resource could result in the initiation of a shift to a shrub-grasslands vegetative community as existing pinyon-juniper is not replaced. (2) Short-term impacts: -No significant impacts. Long-term impacts: -Expected increases in motorized vehicle use would result in an expanded road and trail network, increasing access to woodland areas. -Increased access would result in an increase in unauthorized fuelwood harvesting and would have the same impacts as in (1) above. (5) Short-term impacts: -Fuelwood would continue to be provided from about 10 acres annually from the removal of pinyon-juniper from ponderosa pine stands in the issue area. -A decreasing amount of dead-and-down wood would be available from the issue ares. Approximately 120 cords are sold annually.	Issues hsving no impacts: 3, 4, 6, and 7. (1) Short-term impacts: -Identification of SMA's that contain woodland resources would keep 28,170 acres of pinyon-juniper from any future silvicultural practices to benefit fuelwood supply, and remove 126 acres/year from fuelwood harvest. -Specisl management attention for the SMA's would provide greater protection for 28,170 acres from unauthorized fuelwood harvest. Long-term impacts: -Same as short-term, except that lack of silvicultural practices to benefit fuelwood supply on 28,170 acres could result in impacts as described for Alternative A. (2) Short-term impacts: -No significant impacts. Long-term impacts: -ORV designations would limit the expansion of roads and trails. -Controlled access to woodlands would reduce the amount of illegal fuelwood harvesting. (5) Short-term impacts: -About 33 acres of woodlands would be available for fuelwood harvest annually on a sustained yield basis. -Widespread unauthorized fuelwood harvest would decline slightly as a result of making more acreage available for harvest. -Demand would exceed supply, but by less than the current situation. Long-term impacts: -7,620 acres of woodland resources outside proposed SMA's would be available for silvicultural practices to benefit fuelwood supply, resulting in proper stocking levels, increased stsnd vigor,	Issues having no impacts: 3, 4, 6, and 7. (1) Short-term impacts: -Identification of SMA's containing woodland resources would keep 5,860 acres of pinyon-juniper from any future silvicultural practices to benefit fuelwood supply, and remove 26 acres/year from fuelwood harvest. -Special management attention for the SMA's would provide for protection for 5,860 acres from unauthorized fuelwood harvest. Long-term impacts: -Same as Alternative B, except 5,860 acres would be impacted. (2) Short-term impscts: -No significant impacts. Long-term impacts: -Same as Alternative B, except that the ORV designations would occur only in the proposed SMA's. (5) Short-term impacts: -Same as Alternative B, except about 133 acres/year would be available for fuelwood harvest. Long-term impacts: -Same as Alternative B, except 29,930 acres would be available, and 5,860 acres not available for silvicultural treatment to benefit fuelwood supply.	Issues having no impacts: 3, 4, 6, and 7. (1) Short-term impacts: -Identification of 22 SMA's containing woodland resources would keep 9,170 acres of pinyon-juniper from any future silvicultural practices to benefit fuelwood supply, and remove about 40 acres/year from fuelwood harvest. -1,700 acres would receive silvicultural practices to benefit fuelwood supply in the Ignacio Chavez SMA. -17,300 acres of woodlands in the Ignacio Chavez SMA would receive silvicultural practices to benefit other resources, supplying some fuelwood as a result. -Special management attention for the SMA's would provide for protection of 28,170 acres from unauthorized fuelwood harvest. Long-term impacts: -Same as Alternative B, except 9,170 acres would be impacted. (2) Short-term impacts: -No significant impacts. Long-term impacts: -Same as Alternative B. (5) Short-term impacts: -Same as Alternative B, except 41 acres/year would be available for fuelwood harvest and 17,300 acres would supply fuelwood from silvicultural practices conducted to benefit other resources. Long-term impacts: -Same as Alternative B, except that 9,320 acres would be available, and 9,170 acres not available for silvicultural trestment to benefit fuelwood supply, and 17,300 available for treatment to benefit other resources.

TABLE 2-7 (continued)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Woodlands (Cont'd)	-Small amounts of fuelwood would be available from cuts established to benefit other resources. -Public demand would continue to be greater than supply. Long-term impacts: -35,790 acres of woodland resources in the issue area would have no silvicultural practices directed at the protection or enhancement of fuelwood supplies. -Combined with continued unauthorized fuelwood harvest [see (1) and (2) above], lack of silvicultural practices would hinder the regeneration of all woodlands and possibly encourage the transition to a shrub-grasslands vegetative community. -Other impacts would be the same as short-term.	and infestation. The 28,170 acres not receiving any treatment would experience hindered regeneration and possibly the start of a shift to a shrub-grasslands vegetative community. -Demand would exceed supply, but by less than for Alternative A.		

TABLE 2-7 (continued)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Recreation	Issues having no impacts: 3 and 7. (1) Short-term impacts: -None. Long-term impacts: -SMA areas would not be established. These areas could deteriorate and recreational opportunities would be limited. (2) Short-term impacts: -None Long-term impacts: -More roads and trails would be created. This would reduce the number of recreational areas with few or no roads. -No trial bike or dune buggy areas. ORV recreation trail would not be created. (4) Short-term impacts: -None Long-term impacts: -Limited opportunities to consolidate recreation areas. (5) Short-term impacts: -None Long-term impacts: -Fuelwood cutting to enhance wildlife could improve recreational experiences such as hunting and photography. (6) Short-term impacts: -None Long-term impacts: -Not consolidating ROW corridors would reduce the number of recreational areas with few or no roads and limited development.	Issues having no impacts: 7. (1) Short-term impacts: -None Long-term impacts: -22 SMA areas would be established. This, would help to improve the management and recreational opportunities in these areas. (2) Short-term impacts: -Unrestricted ORV travel would be eliminated. This would reduce the ORV opportunity. -A primitive recreation opportunity would be created. -Dune buggy and trials bike event areas, and 124 miles of ORV trails would be designated. -Less developed forms of recreation would be better protected. Long-term impacts: -Same as short term. (3) Short-term impacts: -None Long-term impacts: -Improving ecological condition would improve wildlife habitat and would improve wildlife-related recreational opportunities. (4) Short-term impacts: -None Long-term impacts: -Areas with good recreational opportunities could be consolidated (5) Short-term impacts: -None Long-term impacts: -Same as Alternative A. (6) Short-term impacts: -None Long-term impacts: -Consolidating ROW corridors would help to maintain the recreational areas.	Issues having no impacts: 3 and 7. (1) Short-term impacts: -None Long-term impacts: -16 SMA areas would be designated. -6 SMA areas would not be designated. (2) Short-term impacts: -"Open" ORV area would be reduced by 10,248 acres in SMA's. Long-term impacts: -Same as short-term (4) Short-term impacts: -None Long-term impacts: -Limited opportunity to consolidate areas. (5) Short-term impacts: -None Long-term impacts: -Shift of non-roaded recreational areas to a more developed and roaded opportunity. (6) Same as Alternative A.	Issues having no impacts: 7. (1) Same as Alternative B. (2) Short-term impacts: -More area would be open for motorized vehicle travel than under Alternative B. Long-term impacts: -Same as short-term. (3) Same as Alternative B. (4) Same as Alternative B. (5) Same as Alternative A. (6) Same as Alternative B.

TABLE 2-7 (continued)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Visual Resources	Issues having no impacts: 3, 5, and 7. (1) Short-term impacts: -None Long-term impacts: -Reduction of visual resource in SMA areas. (2) Short-term impacts: -None Long-term impacts: -Deterioriation of visual resources due to motorized vehicle use. (4) Short-term impacts: -None Long-term impacts: -Not consolidating lands constrains ability to control surface modifications on contiguous lands. (6) Short-term impacts: -None Long-term impacts: -ROW's would not be consolidated, making a larger area available for ROW development and affected by the resulting visual impacts.	Issues having no impacts: 5 and 7. (1) Short-term impacts: -None Long-term impacts: -9 SMA's would be managed for visual resource considerations. (2) Short-term impacts: -None Long-term impacts: -Reducing motorized vehicle activities would maintain visual resources. (3) Short-term impacts: -None Long-term impacts: -Improving ecological condition would enhance visual resources. (4) Short-term impacts: -None Long-term impacts: -Blocking up SMA's would assist in visual resource management. (6) Short-term impacts: -None Long-term impacts: -Consolidating ROW's would limit area for transmission development, thus reducing the probability of impacting sensitive visual resources.	Issues having no impacts: 5 and 7. (1) Short-term impacts: -None Long-term impacts: -5 SMA's would be managed for visual resource considerations. -21,573 acres of Visual Class II lands would receive no special management attention. (2) Same as Alternative A. (3) Same as Alternative B. (4) Same as Alternative A. (6) Same as Alternative A.	Issues having no impacts: 5 and 7. (1) Same as Alternative B. (2) Same as Alternative B. (3) Same as Alternative B. (4) Same as Alternative B. (6) Same as Alternative B.

TABLE 2-7 (continued)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Cultural Resources	Issue having no impacts: 3, 5, 6, and 7. (1) Short-term impacts: -No opportunity to manage special cultural resource areas as SMA's. Long-term impacts: -Same as short-term (2) Short-term impacts: -None Long-term impacts: -Increase in indirect impacts through ease of access to sites. Sites could be irretrievably and irreversibly disturbed. (4) Short-term impacts: -None Long-term impacts: -There would be limited opportunity to acquire private lands with cultural resource values.	Issues having no impacts: 3, 5, and 7. (1) Short-term impacts: -6 special cultural resource management areas would receive special mansgement attention and emphssis. Long-term impacts: -Same as short-term (2) Short-term impacts: -None Long-term impacts: -Closing and limiting motorized vehicle travel would limit access to cultural sites, substantially reducing indirect impacts to sites. (4) Short-term impacts: -None Long-term impacts: -There would be an opportunity to acquire private lands with cultural resource values. (6) Short-term impacts: -None Long-term impacts: -Corridors could be cleared once for cultural resources.	Issues having no impacts: 3, 5, 6, and 7. (1) Short-term impacts: -4 special cultural resource management areas would be managed and 2 areas would not. Long-term impacts: -Same as short-term (2) Short-term impacts: -None Long-term impacts: -Closing and limiting motorized vehicle travel in the SMA's would limit access to sites. -Other impacts same as Alternative A. (4) Short-term impacts: -None Long-term impacts: -Same as Alternative A.	Issues having no impacts: 3, 5, and 7. (1) Short-term impacts: -Same as Alternative B. Long-term impacts: -Same as Alternative B. (2) Short-term impacts: -Same as Alternative B. Long-term impacts: -Same as Alternative B, except less acreage would be limited for motorized vehicle use. (4) Short-term impacts: -None Long-term impacts: -Same as Alternative B. (6) Short-term impacts: -None Long-term impacts: -Same as Alternative B.

TABLE 2-7 (continued)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Lands	Issues having no impacts: 1, 2, 3, 5, and 7. (4) Short-term impacts: -No opportunity to consolidate land ownership pattern. Long-term impacts: -Same as short-term (6) Short-term impacts: -ROW's would not be consolidated. Incompatible development would not be prohibited in critical ROW placement areas. Long-term impacts: -Same as short-term	Issues having no impacts: 2, 3, 5, and 7. (1) Short-term Impacts: -None Long-term impacts: -15,865 acres of State and private land in SMA's would be acquired through exchange. -Public lands and resources would be consolidated. (4) Short-term Impacts: -None Long-term impacts: -15,865 acres of State and private land in SMA's would be acquired through exchange. -Public lands and resources would be consolidated. (6) Short-term impacts: -None Long-term impacts: -ROW's would be consolidated. -ROW windows would prevent incompatible development in critical placement areas.	Issues having no impacts: 1, 2, 3, 5, and 7. (4) Short-term impacts: -None Long-term impacts: -All scattered tracts would be available for sale, however only about 25% of the amount available would actually be sold. -Exchanges would not occur reducing the potential for a more desirable land ownership pattern. (6) Short-term impacts: -None Long-term impacts: -ROW placement would not be consolidated. -ROW windows would prevent incompatible development in critical placement areas.	Issues having no impacts: 1, 2, 3, 5, and 7. (4) Short-term impacts: -None Long-term impacts: -Lands would be available for exchange and sale. (6) Short-term impacts: -None Long-term impacts: -ROW corridor would be reduced in the potential coal region. -Other corridor and window impacts would be the same as Alternative B.

TABLE 2-7 (continued)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetstive uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Social and Economic Conditions	Issues having no impacts: 3, 4, and 7. (1) Short-term impscts: -None Long-term impacts: -Scientific, educational, and historic resource conditions would decline because SMA's would not be established. (2) Short-term impacts: -ORV use is associated with trespass wood-cutting, harassment of livestock, vandalism of range improvements, and loss of livestock. Long-term impacts: -The management problems listed under short-term could increase over time as more roads and trails are created. (5) Short-term impacts: -None Long-term impacts: -Increase in fuelwood prices. -More difficult to obtain traditional heating and cooking fuel in rural areas. (6) Short-term impacts: -None Long-term impacts: -Incompatible development could occur in critical transmission placement areas which would slightly increase development costs. -Scattered ROW placement could increase conflicts with surface owners. -Lack of corridors could slightly reduce costs by allowing shortest and least expensive routes.	Issues having no impacts: 7. (1) Short-term impacts: -Establishing SMA's would improve or maintain positive scientific, educstional, and historical values. Long-term impacts: -Same as short-term. -Limited positive economic values from increased tourism. (2) Short-term impscts: -Local motorized vehicle users would be restricted. Long-term impacts: -The off-road experience would be limited as more trails become roads due to increased use. (3) Short-term impacts: -AUM reductions would create no impacts to employment or income to small or large ranch operators. -AUM reductions would reduce the real estate values to small ranches by 29% and by 16% to larger ranches. This could also reduce ranch operators' borrowing power. -AUM reductions would result in a grester negative average net return for small operators, and they would rely more heavily on off-ranch income. Large operators would also have a decline in average net return and some could have a negative net return. Long-term impacts: -Same as short-term	Issues having no impacts: 7. (1) Short-term impacts: -Similar to Alternative B. Long-term impacts: -Similar to Alternative B. (2) Short-term impacts: -Less restrictions to ORV user. Long-term impacts: -Same as short-term (3) Short-term impacts: -AUM reductions would reduce real estate values to small ranches by 9% and large ranches by 6%. This would also reduce the borrowing power. Long-term impacts: -AUM's increases would increase real estate values to small ranches by 13% and large ranches by 18%. This would increase the rancher's borrowing power. (4) Short-term impacts: -None Long-term impacts: -Scattered parcels would be sold. Allottees would have to purchase the land to retain grazing. (5) Short-term impacts: -More fuelwood would be available, although not enough to meet demand. Long-term impacts: -Similar to Alternative A. (6) Short-term impacts: -No restrictions would be placed on ROW's. -No incompatible development would be allowed in critical transmission placement areas.	Issues having no impacts: 7. (1) Short-term impacts: -Same as Alternative B. Long-term impacts: -Same as Alternative B. (2) Short-term impacts: -Similar to Alternative B; however, more open sreas would be available. Long-term impacts: -Similar to Alternative B. (3) Short-term impacts: -AUM reductions would reduce real estate values to small ranches by 12%, and large ranches by 7%; this would reduce the borrowing power also. Long-term impacts: -AUM's would return to present levels over time. (4) Short-term impacts: -Some of the scattered lands would be exchanged, others would be sold. Long-term impacts: -Same as short-term (5) Same as Alternative B. (6) Same as Alternative B.

TABLE 2-7 (concluded)

Issues: (1) Special Management Areas (SMA's), (2) ORV designation, (3) Vegetative uses, (4) Land ownership adjustments, (5) Fuelwood supply, (6) Rights-of-way (ROW) corridors, and (7) Coal leasing suitability assessment

Resource	Alternative A - Current Management	Alternative B - Resource Conservation	Alternative C - Resource Production	Alternative D - Balanced Management
Social and Economic Conditions (Cont'd)		(4) Short-term impacts: -None Long-term impacts: -Scattered parcels would be exchanged with the State. State grazing fees are higher than BLM's. -Acquiring non-public land in SMA's would improve social values. (5) Short-term impacts: -Similar to Alternative A; however, more fuelwood would be available. Long-term impacts: -Same as Alternative A. (6) Short-term impacts: -None Long-term impacts: -Development costs could increase slightly if corridors are not the shortest and least expensive route. -Corridors could reduce environmental analysis needed and the cost of ROW construction.		

Chapter 3

AFFECTED ENVIRONMENT

CHAPTER 3

AFFECTED ENVIRONMENT

INTRODUCTION

This chapter describes those physical, biological and socioeconomic characteristics of the Resource Area which affect or are affected by the resolution of the seven issues identified in Chapter 1. Much of the information in this chapter summarizes more detailed material contained in the Rio Puerco Resource Area Management Situation Analysis (MSA), available for review at the Rio Puerco Resource Area Office. The Existing Resource Situation and the Resource Area Profile sections of the MSA are in-depth discussions of the environment in the Rio Puerco Resource Area.

GEOLOGY, ENERGY, AND MINERALS

Geology

The geology of the Rio Puerco Resource Area is extremely varied and is reflected in the region's topographic diversity. Igneous, metamorphic, and sedimentary rocks all crop out in the Resource Area's mountains, ridges, valleys and plateaus. The oldest rocks have been dated to the mid-Precambrian (1.8 billion years ago) while the youngest lava flows were erupted little more than 1,000 years ago.

Since Precambrian time, the RPRA has been alternately flooded by seas and elevated to expose the geologic terrain to erosion and deposition of continental sediments. There is evidence of at least five major episodes of such deformation in the last 1.8 billion years. The Nacimiento Uplift, the San Juan Basin, and the major elements of the Colorado Plateau and southern Rocky Mountains attained their present structural character during Laramide time about 70 million years ago.

Since then, in response to a pulling apart of the earth's crust, the region has experienced the development of the Rio Grande rift and contemporaneous volcanic activity, both within the rift and adjacent to it. The present physiography of the region is due mainly to this latest episode of deformation, with subordinate topographic expression of Laramide and middle-Tertiary (35 million years before present) structures.

The forces that have shaped the RPRA's topography throughout geologic time have also worked to concentrate a broad range of mineral commodities into mineable or extractable deposits. Significant deposits of energy minerals such as coal, oil and gas, geothermal steam, and uranium; metallic minerals such as gold, silver, manganese, and copper; and industrial minerals such as sand and gravel, carbonaceous shale, gypsum, and limestone occur at various localities throughout the area.

Leasable Minerals

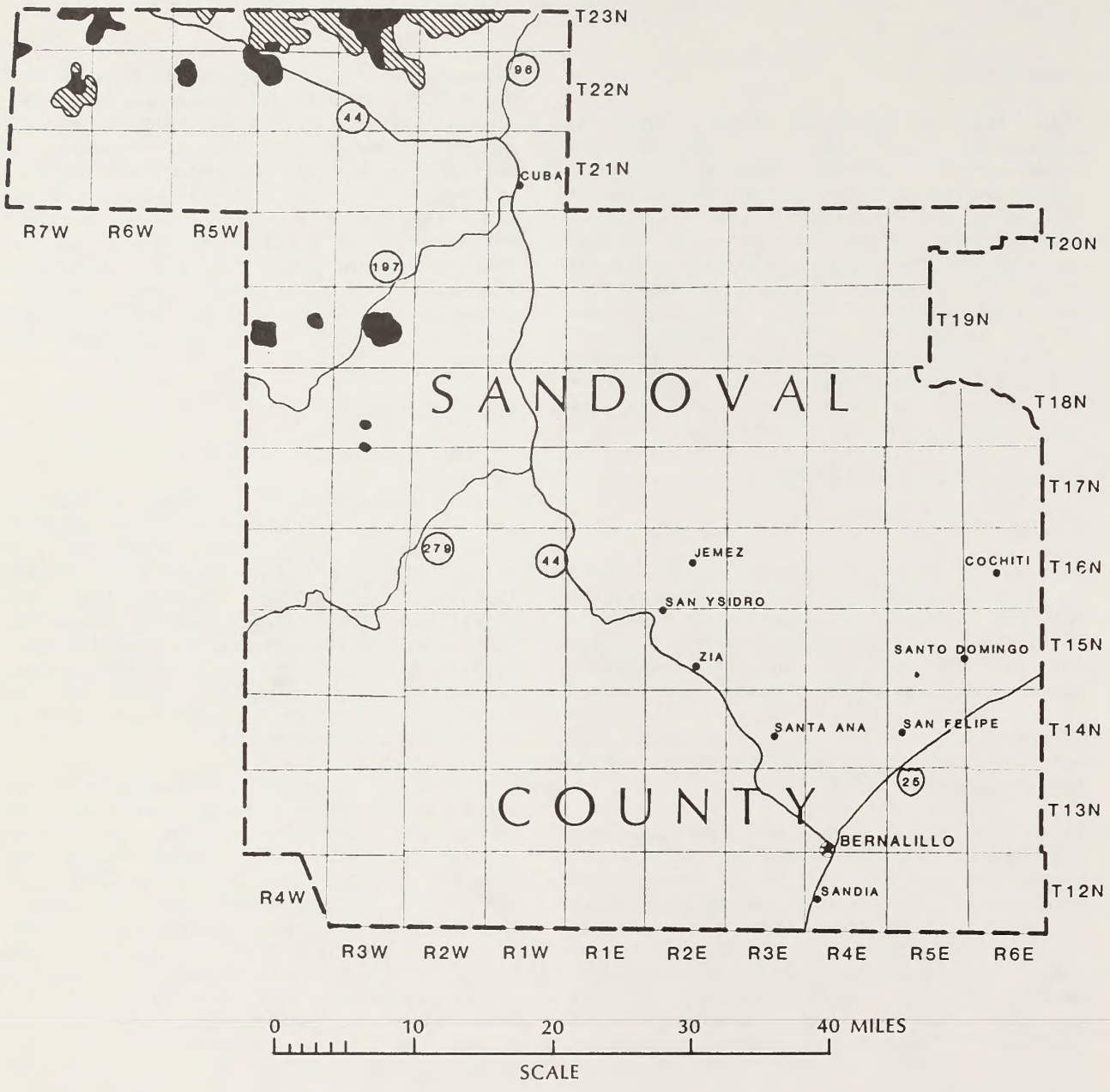
Oil and Gas

The BLM administers the rights to oil and gas beneath approximately 2.04 million acres within the RPRA. Most of the available acreage has already been leased; approximately thirty applications for permit to drill are received annually. Exploration is continuing at a steady pace with an average of two geophysical notices of intent filed annually, mostly in the northwestern portion of the Resource Area within the San Juan Basin.

Petroleum is produced from Jurassic and Cretaceous rocks in the Rio Puerco Resource Area, with production confined to the San Juan Basin portion of Sandoval County (see Map 3-1). Production began in 1953 when the Media Entrada Pool was discovered. Present Sandoval County production is from seventeen designated oil pools, three designated gas pools, and from several wells producing from undesignated pools. Five oil pools have either been abandoned or shut in. As of December 31, 1982, the seventeen oil pools and three gas pools had produced a total of 4.4 million barrels of oil, 24.4 billion cubic feet of nonassociated gas, and at least 7.8 billion cubic feet of casinghead gas. Additional information on oil and gas potential in the RPRA is available in the Sandoval and Bernalillo County Mineral Resource Assessment (McLemore, et al. 1984).

Coal

The Rio Puerco Resource Area contains extensive outcrops of Cretaceous rocks,



MAP 3-1
OIL AND GAS PRODUCTION AREAS

OIL PRODUCTION AREAS

N

GAS PRODUCTION AREAS

many of which are coal bearing. In addition to the major deposits of the San Juan Basin region, coal is found in the Gallup-Zuni Field, the Salt Lake Field, the Datil Mountain Field, the Rio Puerco Field, the Hagan Field, the Tijeras Field, and the Mount Taylor Field (see Map 3-2). Bernalillo and Sandoval Counties alone are estimated to contain measured, indicated, and inferred reserves of sub-bituminous coal amounting to more than 4.9 billion tons (Read, et al. 1950). The coal comprising these reserves is associated with seams which are greater than 30 inches thick and less than 3,000 feet deep. The United States Geological Survey is currently reviewing and revising their estimates of the coal resources of New Mexico; the pertinent results of this study will be included in the Final RMP/EIS. At the present time, only the coal deposits in the San Juan Basin and the Salt Lake Fields are considered to have development potential.

The Socorro Resource Area recently completed a Draft Management Framework Plan Amendment for the San Augustine Coal Area (SACA) (USDI, BLM 1984c) which included the portions of Cibola County which lie within the Salt Lake Coal Field. The coal zones in the Salt Lake Field are located in the Moreno Hill Formation which contains lower, middle, and upper members. The total thickness of the Moreno Hill Formation is about 860 feet and the unit dips gently (2-6 degrees) to the southeast.

There are four coal zones in the Moreno Hill Formation; the Antelope, Cerro Prieto, and Rabbit zones occur in the lower Moreno Hill, while the Twilight Zone occurs in the upper Moreno Hill. Coal thicknesses range from 1.9 to about 10 feet. The coal zones in the Moreno Hill Formation are of high volatile C bituminous rank. The coals are relatively low in sulfur (averaging about 0.8 percent), but have a high ash content of about 17 percent. The average heating value of the coals is 9,381 BTU/lb, equivalent to a moist, mineral-matter-free value of 11,229 BTU/lb.

In addition to several industry expressions of interest, the BLM has issued two coal exploration licenses within the SACA, one to the Salt River Project and the other to Dorado Energy Group. These two companies have conducted extensive drilling programs, with most of the holes being drilled in T. 3, 4, and 5N., and R. 16 and 17W. All of the lands within the SACA are considered to have coal development potential.

Due to anticipated changes in the coal leasing regulations, a Final Management Framework Plan Amendment for the San Augustine Coal Area will not be released. Instead, the suitability of the lands within the SACA for further consideration for leasing will be determined when a RMP is prepared for the Socorro Resource Area. The Socorro RMP will consider the entire Salt Lake Coal Field, including the small portion in the RPRA, since it would be uneconomical to mine that small portion separately.

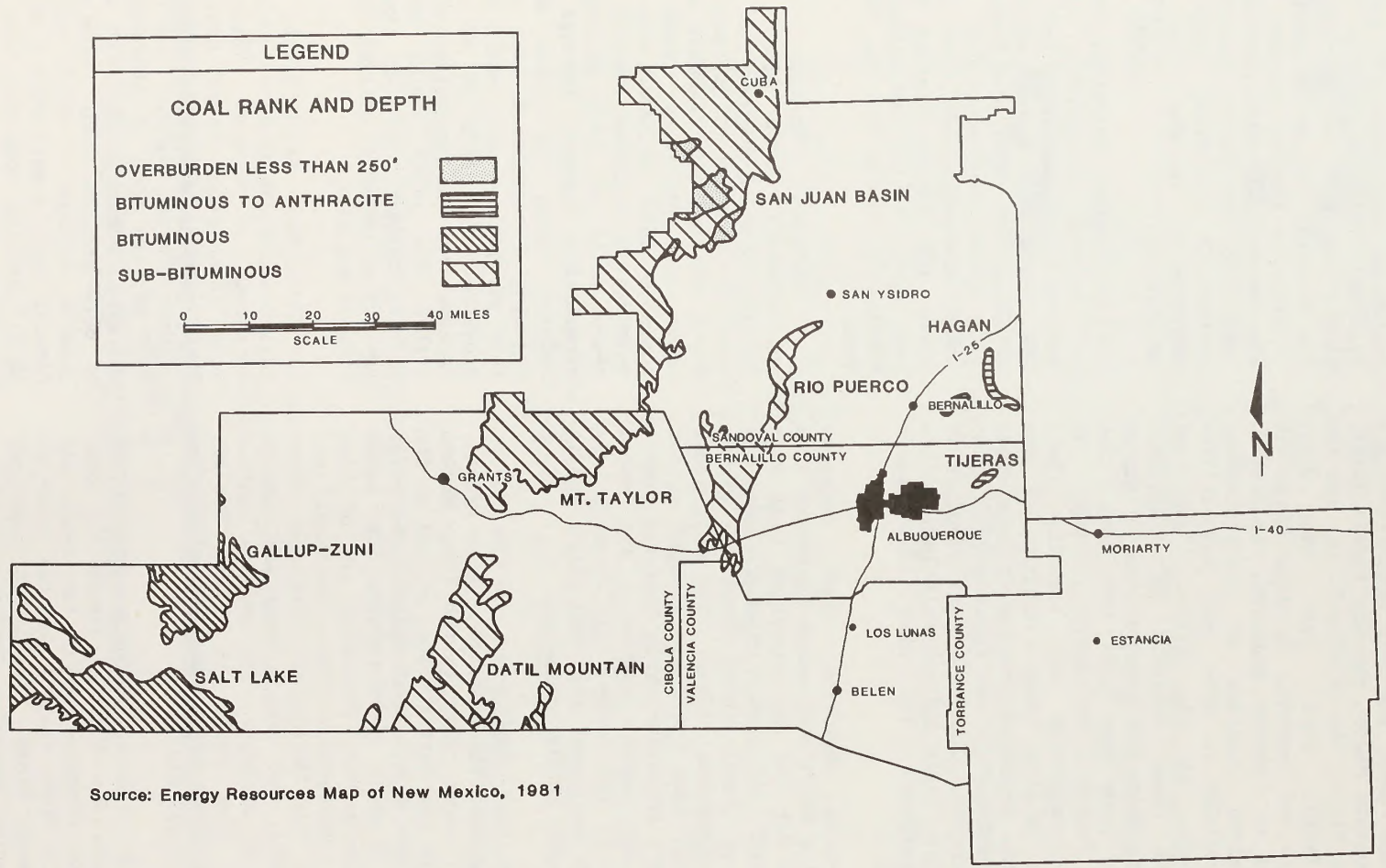
The development potential and suitability for leasing of several tracts in the eastern and southeastern portion of the San Juan Basin Coal Region were addressed in the Chaco MFP (USDI, BLM 1981b) and the San Juan River Regional Coal Environmental Impact Statement (USDI, BLM 1984d). Two of these, the Johnson Trading Post and Chico Wash South Tracts, are either partially or completely within the Rio Puerco Planning Area.

The Johnson Trading Post Tract, approximately 3,440 acres in size, is located 15 miles southwest of Cuba. Of the total 3,440 acres of surface estate, 2,480 acres are unleased Federal acres and 960 acres are privately owned. The tract contains 17.0 million tons of mineable reserves of unleased Federal coal, with a tract total of 18.0 million tons. The recoverable reserve tonnage of unleased Federal coal, is 14.0 million tons. Assuming a production rate of .4 million tons per year, a mine could operate with a projected mine life of 42 years. Total revenue from the production of Federal coal within the tract could amount to 280 million dollars, with an expected Federal royalty value of 35 million dollars for the life of the mine.

The Chico Wash South Tract, approximately 12,190 acres in size, is located 30 miles northeast of Grants. There are 11,670 acres of unleased Federal coal, 40 acres of State mineral interest, and 480 acres of private mineral rights. The tract contains 74.0 million tons of mineable reserves of unleased Federal coal, with a tract total of 80.0 million tons. With a recoverable reserve tonnage of 63.0 million tons of Federal coal, a mine with a production rate of 1.8 million tons per year would have a projected mine life of 42 years. Total expected revenue from such an operation would be 1.31 billion dollars with an expected Federal royalty value of 164 million dollars over the mine lifetime.

MAP 3-2

COAL FIELDS



Source: Energy Resources Map of New Mexico, 1981

Both the Chico Wash South Tract and the Johnson Trading Post Tract were evaluated for their suitability for coal leasing through the Chaco MFP (USDI, BLM 1981b); activity plans have been formulated in preparation for coal leasing. The Johnson Trading Post Tract was recommended for leasing under the target alternative but was not recommended under the minimum surface owner conflict alternative. Subsequent drilling under a coal exploration license has led to the conclusion that there is little if any commercial coal under the Chico Wash South tract and that the area presently lacks coal development potential.

Surface mineable coal in the issue area with identified development potential occurs in the Cleary Coal Member of the Menefee Formation, in an unnamed upper member of the Menefee Formation, and in the combined Kirtland-Fruitland Formation. These coals generally rank from sub-bituminous A to high volatile C bituminous. Four discrete areas with coal development potential have been identified (see Appendix D) and include surface mineable Cleary coals (Menefee Formation), underground mineable coals from the Padilla seam (upper Menefee Formation), surface mineable Hogback Mountain zone coals (upper Menefee Formation), and surface mineable Fruitland Formation coals.

The area of maximum near-future coal development potential in the issue area is the Cleary area to the north and northeast of the town of San Luis in Sandoval County. This area, containing about 100 million tons of surface mineable coal, would be ideal for small-scale mining operations which could provide coal for free-burning industrial uses, as well as for steam generation.

Cleary and Padilla coals were mined by underground methods from this area intermittently from the early part of the twentieth century until the 1960's and delivered to Albuquerque for home heating and industrial use. Over 100 Federal prospecting permits have been issued for this area since 1920. Federal leases are currently held by Ideal Basic Industries, Ametex Corporation, and Gilberto Padilla. A small surface mine, the Arroyo No. 1 Mine, was recently closed after several years of production for non-compliance with State lease stipulations. In addition, during the Energy Minerals Activity Recommendation System (EMARS) program, nominations were received from Consolidated Coal Company, Salt River Project, the National Generation and Transmission Managers Association, and the Arizona Public Service Company.

Areas considered to be strippable have less than 250 feet of overburden above the lowest stratigraphic interval known to contain a coal bed of at least 2.3 feet in thickness as evidenced by outcrop or drill hole data from a nearby area. The thickness of coal beds in the immediate vicinity of San Luis varies from a feather edge to more than 15 feet.

Coal beds are present in other formations ranging in age from Pennsylvanian to Tertiary, but have little economic value or potential for development. The coal potential for all of northwestern Sandoval County has been classified in the Sandoval and Bernalillo Mineral Resource Assessment (McLemore, et al. 1984).

Geothermal

Geothermal resources are natural concentrations of heat generated within the interior of the earth that can be extracted economically. The major thermal areas of the world are associated with volcanism and calderas, typically of Late Tertiary to Quaternary age (Godwin, et al. 1971). Other geothermal systems are associated with active tectonic sedimentary basins. In these active basins, geothermal energy probably results from waters that are heated by a moderate geothermal gradient, and are ascended from great depth along major faults without any apparent magmatic activity. Both types of geothermal systems occur in the northern Rio Puerco Resource Area (Callender 1981).

One Known Geothermal Resource Area (KGRA), the Baca Location #1, has been identified in the vicinity of the Valles Caldera. The New Mexico State Land Office has also identified two Known Geothermal Resource Fields (KGRF's) in the area. KGRF #2 is in the Jemez Mountains and includes the Baca Location #1. KGRF #4 is in the Rio Grande rift in western Bernalillo and Valencia Counties and eastern Cibola County. Other areas within the rift, especially near Albuquerque, may have geothermal potential even though they have not been designated.

Exploration activity has continued intermittently over the past several years with most of the exploration being conducted outside of leased areas. At the present time, the demand for new geothermal leases is non-existent and several old leases have been relinquished.

Locatable Minerals

Locatable minerals in the Resource Area include gold, silver, copper, manganese, uranium, high calcium limestone, barite, fluorite, and gypsum. Specific areas of interest include the Scholle District for stratiform copper deposits; the Marquez-Bernabe Montano/Grants District for uranium; Placitas and Tijeras Canyon Districts for gold; Sandia Mountains for barite; Hagan Basin for uranium; Cuba District for manganese; Cochiti District for gold and silver; and the La Ventana-Nacimiento Mountains District for uranium, gold, silver, and copper. Gypsum is currently being produced from two mines situated on White Mesa near San Ysidro. Finally, several claims have been located in Cibola County for high calcium limestone in the form of travertine for use in scrubbers at nearby coal-fired power plants.

Mining activity and mineral potential throughout the Resource Area is examined in several mineral resource inventory and assessment documents available in the RPRA MSA.

Saleable Mineral Material

Saleable mineral material includes common varieties of rock and stone, sand and gravel, limestone, fill material, and carbonaceous shale (humates). At the present time, there are two active contracts for humates, one for limestone aggregate, and one for sand and gravel. Mineral material trespass has been a problem in the past because of the extensive amount of split-estate acreage in the Resource Area. The resolution of several outstanding trespass cases may result in the issuance of additional mineral material sales contracts.

A more extensive assessment of the potential for saleable mineral materials is available in the Rio Puerco Resource Area MSA.

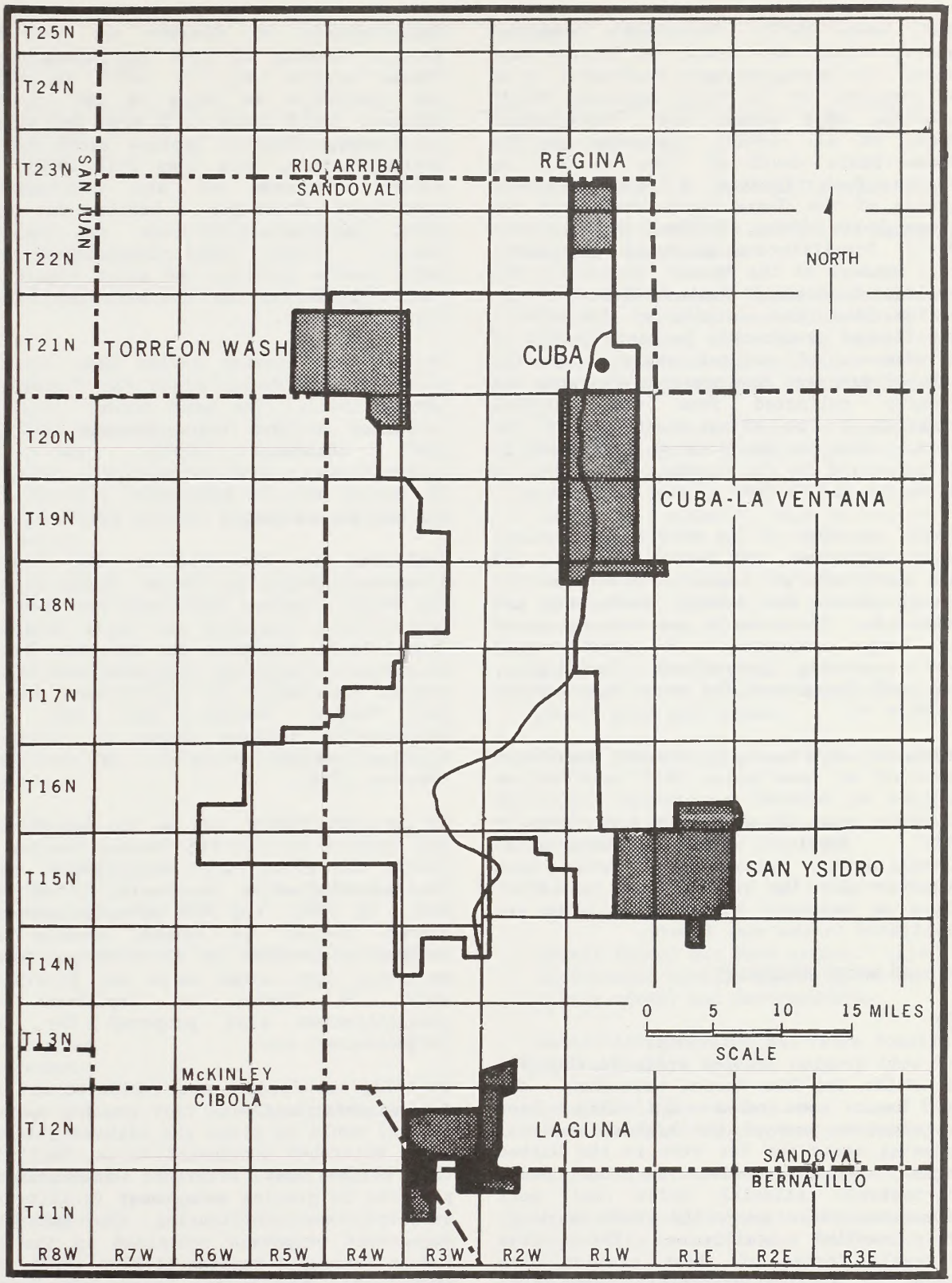
PALEONTOLOGICAL RESOURCES

Both plant and animal fossils are known to occur within several geological formations exposed in the RPRA. A variety of important and significant paleontological materials has been collected from these sedimentary rock outcrops. Although the areal exposure of these fossil-bearing strata is quite large, only a limited number of paleontological assessments have been completed.

The earliest of these assessments, a 1975 literature review in support of the Rio Puerco Grazing ES, assessed the relative value of paleontological deposits within the ES area, and evaluated the impacts of grazing on the fossil resource (Froelich, et al. 1975). Twenty-nine localities were identified either within or immediately adjacent to the ES area, at least four of which have international paleontological significance. Three of these are proposed for special management in this RMP in the Torrejon Fauna, Elk Springs, and Ojito SMA's. See Appendix C for details of their significance and proposed management.

In November 1978, a paleontological survey, resource assessment, and mitigation plan was prepared for lands that included the southern half of the Rio Grande Resource Area (now the Taos Resource Area), portions of which are now within the northern boundary of the Rio Puerco Resource Area (Kues, Ingersoll, and Lucas 1978). The Albuquerque District Office of the BLM contracted with the University of New Mexico to provide information concerning the nature, extent, location, and significance of the paleontological remains, as well as appropriate methods for mitigating the adverse impacts of population growth and mineral development on paleontological resources. The report identified a small area along the Arroyo del Tuerto where late Eocene fossil mammals have been found in an outcrop of the Galisteo formation. The fauna of the Galisteo is important because it is the only early Tertiary vertebrate fauna known to occur in central New Mexico. This locality is proposed for special management in this RMP in the Ball Ranch SMA (see Appendix C).

The most recent paleontological survey was conducted in November 1979 (Ash, Lucas, and Tidwell 1979). As with the other assessments, the purpose of the survey was to provide an evaluation of the scientific and cultural value of the paleontological resources on public lands. Approximately 1100 square miles (704,000 acres) were evaluated and about 675 square miles (432,000 acres) in northwestern Sandoval County were found to be fossiliferous to some degree. The 1979 survey identified five critical areas in the RPRA which merit either further study or mitigation (see Map 3-3). Exposures of the San Jose Formation near Regina, Lindrith, and Llaves have contributed virtually all of the vertebrate fossils known from this formation. This is also the area that has yielded two classic North American Early Eocene faunas (Simpson



MAP 3-3
CRITICAL PALEONTOLOGICAL AREAS

1948, Lucas 1977). Nacimiento Formation outcrops along the cuestas in Torreon Wash contain the mammal fossils considered to be the standard for the North American Middle Paleocene land mammal age "Torrejonian" (Wood, et al. 1941). Outcrops of the Mancos Shale south of Cuba as far as Cabezon Peak include a key reference section of the Juana Lopez Member of the Mancos Shale (Dane, Cobban, and Kauffman 1966). Fossiliferous exposures of several other members of the Mancos, especially the Semilla Sandstone Member (whose type section lies just outside of the RPRA), have figured prominently in past studies of the Mancos. A partial skeleton of the sauropod dinosaur Camarasaurus supremus was recently collected from the Morrison Formation a few miles southwest of San Ysidro. This is the first such skeleton to be discovered in the Morrison Formation in New Mexico and is thus of some importance.

Lastly, outcrops of the Morrison Formation, Dakota Sandstone, and Mancos Shale in the area northeast of Laguna are a favorite hunting ground for amateur collectors and rockhounds. The area is particularly noted for large ammonites. A stratigraphic section showing generalized lithologies, ages, and fossils of the area is presented on Table 3-1.

Additional site-specific surveys have been conducted in association with construction projects and mineral development activities but their areas of assessment are generally quite small. No large-scale paleontological assessments have been authorized for the public lands in either Cibola or Valencia Counties and none are anticipated in the near future.

SOIL AND WATER RESOURCES

Soil

Most soil erosion problem areas in the RPRA lie within the Rio Puerco watershed. The Rio Puerco watershed has long been recognized as one of the highest sediment producing areas for its size in the United States. Water erosion in the deep, fine-textured alluvial soils and soft sedimentary rocks generally produces deep, straight-walled gullies. The less noticeable forces of sheet erosion have reduced or eliminated topsoil over large areas. The Rio Puerco Grazing Environmental Statement (USDI, BLM 1978b) identified 34,254 acres in Critical Erosion Condition (1 to 5 tons/acre/year) and 6,149 acres in Severe Erosion Condition (greater than 5 tons/acre/year).

Approximately 50 percent of the East Socorro Grazing ES area in Valencia and Cibola Counties (Map 2-1) (USDI, BLM 1979a) was identified as being in the critical sediment yield class (1-3 acre feet/square mile/year). Erosion problem areas in the Divide Planning Unit (Map 2-1) (USDI, BLM 1983b) are few and are confined to individual drainages. Little is known about erosion conditions in Torrance County. Recent range inventories have noted severe gullying and sheet erosion on public lands in the southern portion of Sandoval County.

Three major erosion cycles have occurred along the Rio Puerco since the Pleistocene (Bryan 1941). The most recent cycle is estimated to have begun between 1870 and 1900 (Calkins 1937), and was contemporaneous with the military defeat of the Navajo and the subsequent settlement of the Rio Puerco Valley (Elliot 1979).

Beginning in the 1930's, the Federal government began to invest funds through the Works Progress Administration (WPA) to rehabilitate rangeland and apply rangeland conservation measures in the Rio Puerco watershed. Following the WPA, the United States Department of Agriculture through the Forest Service and the Soil Conservation Service began to construct erosion control projects in the area (Burkham 1966).

In the late 1950's, all of the public land now covered by the Rio Puerco Grazing ES (USDI, BLM 1978b) were consolidated under the administrative responsiblity of the BLM. In 1962, the BLM approved the Rio Puerco Project to reduce erosion and sediment yield from the Rio Puerco. It was estimated that seven years and $1,116,300 would be needed to implement the rehabilitation plan proposed for this project.

In 1972, the Project was evaluated and the determination was made that grazing systems (AMP's) would be given the highest priority among watershed management tools, beginning the shift from watershed stabilization projects to grazing management facilitating projects, and influencing the watershed management proposals contained in the Rio Puerco Watershed Management Plan (USDI, BLM 1974b), the Rio Puerco Grazing ES (USDI, BLM 1978b), and the East Socorro Grazing ES (USDI, BLM 1979a).

The large number of erosion control structures built during the 1960's pose several problems. Many of these dams have

TABLE 3-1

SUMMARY OF THE FOSSILS AND SIGNIFICANT
ROCK-STRATIGRAPHIC UNITS THAT CROP OUT IN THE RPRA

Rock-Stratigraphic Units	Age	Fossils
Alluvium	Quaternary	None reported.
Zia Sand	Miocene	Fossil mammals, principally rodents.
Upper part of Galisteo Formation	Late Eocene	Some petrified wood and fossil mammals, mostly titanotheres.
San Jose Formation	Early Eocene	Diverse vertebrate faunas of primitive mammals, turtles, crocodiles, fish, lizards, snake, and a bird. Some fresh water gastropods and unionids. Rare fossil leaves and some petrified wood.
Nacimiento Formation	Early to middle Paleocene	Diverse vertebrate faunas of mammals, etc. Some fresh water invertebrates, wood, and leaves.
Ojo Alamo Sandstone	Earliest Paleocene	Rare fossil mammals. Much petrified wood.
Kirtland Shale	Late Cretaceous	Dinosaurs, turtles, crocodiles, and other vertebrates. Leaves and wood locally abundant. Some fresh water invertebrates.
Fruitland Formation	Late Cretaceous	Similar to Kirtland but also some brackish water invertebrates, and much fossil wood and leaves.
Pictured Cliffs Sandstone	Late Cretaceous	Marine invertebrates and trace fossils.
Lewis Shale	Late Cretaceous	Bivalves, ammonites, and other marine invertebrates. One mosasaur.
Cliff House Sandstone	Late Cretaceous	Marine invertebrates and trace fossils, sharks teeth.
Menefee Formation	Late Cretaceous	Fossil leaves and wood common. Rare vertebrates (mostly sharks teeth and turtle scrap) and invertebrates.
Point Lookout Sandstone	Late Cretaceous	Marine invertebrates and trace fossils, sharks teeth.
Crevasse Canyon Formation	Cretaceous	Some fossil leaves and wood. Rare lower vertebrate and invertebrate fossils.
Gallup Sandstone	Cretaceous	Marine invertebrates, some fossil leaves.
Mancos Shale	Cretaceous	Great diversity of marine invertebrates, especially ammonites and bivalves.
Dakota Sandstone	Lower(?) Cretaceous	Marine invertebrates, plants.
Morrison Formation	Late Jurassic	Some dinosaurs and petrified wood.
San Rafael Group	Jurassic	Marine invertebrates, fish in Todilto Limestone, rare fossil plants.
Chinle Formation	Late Triassic	Plant and lower vertebrate fossils locally abundant.

silted in and nearly all require some degree of maintenance. Two recent surveys show that the drawdown pipes on many dams have been deliberately plugged, presumably to increase livestock water. The number of dams washing out increases each year, adding more sediment to the Rio Grande. Encino Dam Number 49 above Johnson's Trading Post is the only structure known at this time to threaten life and property in case of dam failure. An Emergency Action Plan for Encino Dam Number 49, directing notification, evacuation, and preventive measures, has been implemented.

Soil survey information for the entire Rio Puerco is available, although not all surveys have been published and some are scheduled for updating. Soil surveys generally cover entire counties of the RPRA except in the northwest section of Sandoval County where several small surveys were completed specifically for BLM planning purposes. Older soil surveys (six to twelve years old) will continue to be updated to provide current data.

Water

The Rio Puerco RMP area lies within four river basins: the Rio Grande, San Juan, Little Colorado, and Pecos. The Rio Grande and its tributary, the Rio Puerco, drain most of the area. The North Plains area in central Cibola County is a closed basin. A small area in Sandoval County drains into the San Juan Basin. The western part of Cibola County drains into the Little Colorado Basin. Most of Torrance County is a closed basin except for the east side which lies in the Pecos River Basin.

Surface water is relatively scarce in the area. Most channels flow only during or after localized, high intensity rainstorms. Large storms occasionally generate run-off in all channels for several days. A few tributaries at high elevations flow intermittently during snowmelt. Stream flows vary widely from year to year and are high in total dissolved solids and sediment.

The total amount of groundwater within the area is unknown. Livestock and domestic water facilities continue to be developed. Economics is usually the deciding factor in groundwater development. Quality of groundwater varies greatly, ranging from good to extremely saline. Nearly all waters can be used by livestock.

Average annual water yields from most of the area fall between 0.1 and 0.5 inches per unit area. The gaging station records on the Rio Puerco above Guadalupe show a low winter flow and two peak periods of summer flow, April-May and August. The average discharge at this point is over 10,000 acre feet per year. A maximum daily discharge of nearly 7000 cubic feet per second occurred in 1967. Most stations on the Rio Puerco show no flows for many days. Station records below the confluence of Arroyo Chico have one peak period, August. The maximum discharge from Arroyo Chico of over 15,200 cubic feet per second occurred in 1972. Within the Rio Puerco Resource Area, over 70 percent of the average annual stream flow generally occurs in July, August, and September. During this rainy season the channels are alternately flooded and nearly dry. From water years 1948 to 1980, the total annual discharge on the Rio Puerco at Bernardo ranged from 2045 cubic feet per second in 1978 to 43,345 cubic feet per second in 1957.

Sediment yields from the San Luis Watershed Study, 1967 to 1971 (Aldon and Garcia 1973), declined from 0.77 tons per acre per year to 0.22 tons per acre per year. The decline was the result of increased plant size and litter production on alluvial flood plains. Despite this potential for drastic reductions in erosion and sediment, the Rio Puerco remains the major contributor of sediment to the Rio Grande above Elephant Butte Reservoir. From water years 1948 to 1980, the total annual suspended sediment load discharged at Bernardo ranged from a low of 478,526 tons in 1978 to a high of 18,315,560 tons in 1955. The Rio Puerco regularly contributes about 64 percent of the average suspended sediment load passing San Acacia.

RANGE RESOURCES

Vegetation

Vegetation in the Rio Puerco Resource Area is classified within six Major Land Resource Areas (MLRA's) as described by the USDA Soil Conservation Service (1982). The six MLRA's involved are the New Mexico and Arizona Plateaus and Mesas (WP), San Juan River Valley, Mesas and Plateaus (ND), Arizona and New Mexico Mountains (AN), Southern Desertic Basins, Plateaus and Mountains (SD), Southern Rocky Mountains (RM), and Pecos-Canadian Plains and Valleys (CP). The majority of the RPRA is located within the New Mexico and Arizona Plateaus and Mesas (WP) and Pecos-Canadian Plains and Valleys (CP) MLRA's. Appendix R contains a general description of the

topographic features and potential natural vegetation for each MLRA.

The Western Plateaus MRLA is located west of the Rio Grande in the RPRA. The lower elevations of the WP area are dominated by Desert Grassland vegetation. The dominant grasses found in this area are blue grama and galleta, with alkali sacaton occurring in the valleys and major drainages. The shrub component of this area is predominantly snakeweed, with Bigelow sage found on the steep rocky mesa ledges and the small rocky mesa tops, and four-wing saltbush, greasewood, and shadscale occurring in the valleys and drainages. Scattered one-seed juniper are also found on the ridges and rocky areas.

As elevation increases within the WP MRLA, vegetation changes to a mixture of Great Basin Sage and Desert Grassland. The presence of big sage on the side slopes, and the increased size and density of one-seed juniper on the higher rocky areas are the most noticeable changes in this area. Rubber rabbitbrush and Western wheatgrass begin to appear in the valleys and drainages.

The higher elevations of this MLRA support a combination of Woodland and Great Basin vegetation. Big sage is found primarily in the valleys and bottomlands. The side slopes and ridges are dominated by pinyon and juniper, with ponderosa pine on the higher ridges and rock outcrops. Blue grama is the dominant understory species in this part of the WP MLRA.

The Canadian-Pecos Plains MLRA, located east of the Rio Grande, is primarily a shortgrass prairie vegetation type. Changes in elevation and vegetation are not as dramatic as in the WP MRLA. Blue grama and galleta are the predominant grasses. Alkali sacaton, four-wing saltbush, and rabbitbrush are found in the valleys and drainages. Scattered one-seed junipers dot the ridges and side slopes of the lower elevations. Pinyon and juniper are dominant on the higher ridges and rock outcrops.

The Arizona and New Mexico Mountains MLRA in the Resource Area represents the lower elevational protrusions from Mount Taylor and the Manzano and Zuni Mountains. Pinyon dominates this MLRA, although ponderosa pine is present on the higher ridges. Blue grama is the dominant grass, with pine dropseed, prairie junegrass, and mountain muhly found in the understory of the pines. Typical shrubby species in this portion of the MLRA are Gambel's oak, grey horsebrush, and fringed sage.

Presence of the three remaining MLRA's in the Resource Area, the Southern Desert, San Juan River Valley, Mesas and Plateaus, and Southern Rocky Mountains, is minimal and primarily transitional to the adjoining WP and CP MLRA's; influence on prevailing vegetation is minor.

For further vegetation information for the RPRA, refer to the Rio Puerco, East Socorro, and West Socorro Grazing EIS's (USDI, BLM 1978b, 1979a, 1982b).

Inventories

Four range inventories have been conducted in the Rio Puerco Resource Area since 1975:

1. 1975 - Rio Puerco inventory (see Rio Puerco Grazing ES, USDI, BLM 1978b)

2. 1975-1976 - East Socorro inventory (see East Socorro Grazing ES, USDI, BLM 1979a)

3. 1979 - West Socorro inventory (see West Socorro Grazing EIS, USDI, BLM 1982b)

4. 1983 - Rio Puerco RMP/EIS inventory (see MSA)

The Rio Puerco RMP/EIS range inventory utilized the Soil Conservation Service (SCS) range site methodology, as directed by BLM Instruction Memorandums WO-83-340 and 83-394 (USDI, BLM 1983j, 1983f). The SCS inventory was completed on the Section 3 permit lands only. (Section 3 permit lands are public lands within Grazing Districts for which livestock grazing is authorized under Section 3 of the Taylor Grazing Act. These are generally the better blocked up, more manageable areas.) The Section 15 leased lands were not inventoried because a decision was made not to invest public funds on lands being considered for disposal or having limited potential for improved resource condition. (Section 15 leased lands are public lands outside Grazing Districts for which livestock grazing is authorized under Section 15 of the Taylor Grazing Act.)

The inventory data collected for the Section 3 permit lands were used to calculate an ecological condition rating for each allotment. An ecological

condition rating is the comparison of the current vegetative production to the potential vegetation of a range site (an area possessing the capacity to produce a distinct and unique vegetative community), and is expressed as a percentage of the potential vegetation. The ecological condition ratings were used to determine the Selective Management Category (Maintain, Improve, or Custodial) for each allotment (see Appendix S and Chapter 1, Issue 3).

A stocking rate analysis was performed for the Section 15 leased lands to indicate where forage allocation problems might exist. This analysis involved the comparison of the current stocking rates determined from the grazing case files to an estimation of the potential stocking rate for each leased area. An assumption was made that all range sites in the leased areas were in high fair ecological condition and the stocking rates recommended in the individual SCS Range Site Guides for the high fair ecological condition were used to represent potential stockings for this analysis. The results of the stocking rate comparisons were used as the basis for the establishing selective management categories for the Section 15 leased lands.

Grazing Management

Presently, there are 283 livestock operators within the Resource Area on 215 allotments, 114 Section 3 and 101 Section 15 allotments. The current allowable livestock grazing use for the Resource Area is 126,452 AUM's, of which 1966 AUM's are suspended and 124,486 AUM's are available for livestock grazing. Of the livestock operators in the RPRA, 93 are within the vegetative uses issue area on 92 allotments, 16 Section 3 and 76 Section 15 allotments. The current allowable livestock grazing use in the issue area is 18,639 AUM's, with 15,593 of these AUM's authorized for livestock grazing use (based on the average of the last five years of authorized livestock grazing use.) Appendix S summarizes the condition and use for these allotments.

The class of livestock and type of livestock operations in the RPRA have remained relatively unchanged over the past 10 years and are expected to continue unchanged. Major problems associated with livestock production and management in the RPRA are lack of dependable water, uneven livestock distribution, poor condition of range improvements (including non-functional base properties), unauthorized (trespass) livestock, and occasional losses to poisonous plants.

WILDLIFE

Habitat

Wildlife species on public land in the RPRA are generally common varieties of the Great Basin Conifer Woodland, Plains Grassland, Great Basin Desert Shrub, and Montane Conifer Forest biomes. Population sizes and species diversity in most of the area are moderate to low. A list of species occurring in these biomes by county is in the Rio Puerco MSA Wildlife section, on file in the Rio Puerco Resource Area Office.

Riparian habitat on lands administered by the RPRA is limited to the Rio Puerco, Rio Salado, Bluewater Canyon, and a few other drainages and small areas around stock ponds and springs. Generally, the vegetation in these riparian zones consists of salt cedar, alkali sacaton, and in some areas sparsely scattered cottonwoods. Except for Bluewater Canyon, riparian habitats in the RPRA are not significant wildlife habitat because of the lack of vegetative diversity and distance from major migration corridors. Because these areas border water sources, they are affected by livestock use. Bluewater Canyon in Cibola County contains large cottonwoods and dense vegetation unique to BLM-managed lands in the area.

The only habitat considered to be wetland are the areas of playa lakes in Torrance and Cibola Counties. These lakes are ephemeral, depending on annual precipitation. Wildlife surveys during the winter and migration periods of 1983 failed to show significant wildlife use of the playas, although they are a unique land form and could become significant at some time in the future. The Cibola County playas receive waterfowl use during migration. Bald eagles have been reported during the waterfowl use period.

Bluewater Canyon in Cibola County and Chiuilla pond west of Cuba are the only aquatic habitat with fish populations in the RPRA. BLM administers approximately three-quarters of a mile of stream containing rainbow and brown trout in Bluewater Canyon. This area has been designated as an Area of Critical Environmental Concern because of the aquatic-riparian system. Chiuilla pond has

been stocked at various times in the past by the New Mexico Department of Game and Fish.

Major Species

Mule deer range throughout the RPRA. Populations are down, consistent with the trend with mule deer throughout northern New Mexico. Major concentration areas are the northern part of the Rio Puerco Grazing ES area (Map 2-1), the Ignacio Chavez Grant, Tent Rocks, and the El Malpais-Chain of Craters area. A map of occupied deer, elk, and antelope ranges and critical winter ranges has been adapted from the New Mexico Game and Fish Comprehensive Plan (N.M. Department of Game and Fish 1980) (see Map 3-4).

Rocky Mountain elk reside on public land in the northern portion of the Rio Puerco Grazing ES area on the Ignacio Chavez Grant and in the Tent Rocks area. All herds are expanding and are competing with cattle for forage in all of these areas.

Pronghorns occur in sagebrush and plains grassland in the southern and middle portions of the Rio Puerco Grazing ES area (approximately 75-100 animals), in the plains grasslands in the southern portions of Cibola and Valencia Counties (200-300 animals), and on scattered tracts in Torrance County.

Black bear and mountain lions occur in limited numbers near major mountains in the RPRA. One tract of public land is within the range of the Manzano Rocky Mountain bighorn herd. Barbary sheep occur on tracts of public land near Grants.

The most common medium-sized mammal is the coyote, considered to be abundant throughout the RPRA. Other common medium-sized mammals are bobcat, badger, gray fox, and kit fox.

Small mammal productivity and diversity varies from low in the Rio Puerco Grazing ES area to high in Torrance County. Common small mammals are deer mouse, Gunnison's prairie dog, white-throated woodrat, Botta's pocket gopher, rock squirrel, spotted ground squirrel, and white-tailed antelope squirrel. Cottontails and jackrabbits are found in most areas.

Upland gamebirds include mourning dove, which are numerous and widespread throughout the RPRA, scaled quail in the plains grassland and desert shrub communities, and Merriam's turkey, which is restricted to ponderosa-oak communities. Band-tailed pigeons have been sighted on the Ignacio Chavez Grant. Waterfowl and shore birds use stock tanks and ephemeral drainages for resting and feeding during migration season. Some nesting does occur in areas where cover is sufficient.

Birds of prey (raptors) vary in abundance depending on the available prey base. The numerous mesa bluffs and volcanic plugs throughout the RPRA provide nesting areas for golden eagles, red-tailed hawks, kestrels, great-horned owls, and prairie falcons. Swainson's, red-tailed, and ferruginous hawks are abundant in the plains grasslands of Torrance County. Burrowing owls have been seen in several of the prairie dog towns in the Rio Puerco Grazing ES area.

Surveys have been conducted to monitor bird populations and densities in the Rio Puerco Grazing ES area (Brewer 1978, 1981). Densities were generally higher in the summer than in the winter. Common species of songbirds in the RPRA are listed in Table 3-2.

A survey of the herpetofauna (reptiles and amphibians) of the RPRA (Diener 1981) reports seven genera and 15 species of amphibians, and 30 genera and 54 species of reptiles. Species collected or sighted in the RPRA include tiger salamander, plains spadefoot toad, western spadefoot toad, canyon treefrog, collared lizard, leopard lizard, Texas horned lizard, eastern fence lizard, side-blotched lizard, New Mexico whiptail, bullsnake, western diamondback rattlesnake, and western rattlesnake.

Rare, Threatened, and Endangered Species

Lists of threatened and endangered species in the RPRA were received from the U.S. Fish and Wildlife Service (personal communication, April 11, 1984) and the New Mexico Department of Game and Fish (personal communication, September 11, 1984). The Federally-listed species are bald eagle, whooping crane, peregrine falcon, and black-footed ferret. One candidate species, the Pecos sunflower, was reported. The State-listed species not already listed above are meadow jumping mouse, olivaceous cormorant, Mississippi kite, common black hawk, gray vireo, McCown's longspur, bluntnosed shiner, and Mississippi silvery minnow.

The bald eagle winters in the vicinity of reservoirs and along the Rio Grande. BLM

MAP 3-4

MAJOR BIG GAME CONCENTRATION AREAS ON BLM ADMINISTERED LANDS

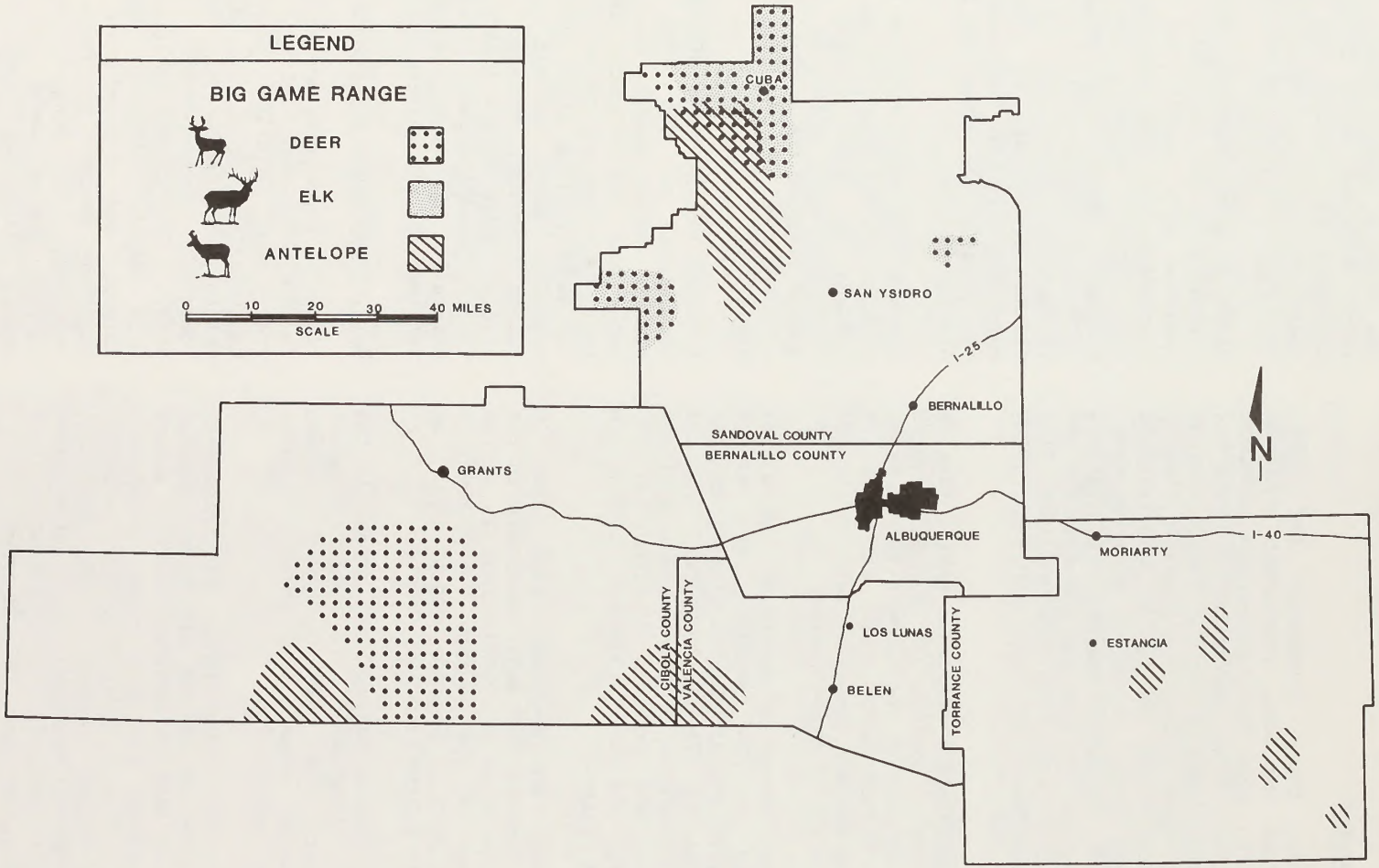


TABLE 3-2

COMMON SONGBIRDS IN THE RIO PUERCO RESOURCE AREA

Species	Habitat	Season
Pygmy nuthatch	Pinyon-juniper, ponderosa	Summer
Mountain chickadee	Pinyon-juniper, ponderosa	Summer
Pinyon jay	Pinyon-juniper	Summer
Slate-colored junco	Pinyon-juniper, shrub	Winter
Townsend's solitaire	Pinyon-juniper	Winter
Horned lark	Grassland	Yearlong
Western meadowlark	Grassland	Yearlong
Black-throated sparrow	Shrub	Yearlong
Western bluebird	Shrub	Yearlong
Chipping sparrow	Shrub	Yearlong
White-crowned sparrow	Shrub	Winter
Oregon junco	Shrub	Winter
Mountain bluebird	Shrub	Winter

administers very little of its range within the RPRA. It does migrate through and feed in the uplands. A few sightings have been reported by BLM employees west and south of Cuba and in southern Cibola County.

Whooping cranes winter in the Rio Grande valley in agricultural fields, riparian areas, and wetlands, very little of which is administered by BLM. Peregrine falcons occur in forest, woodland, and grassland. No sightings have been reported on BLM-administered lands. The black-footed ferret occurred historically in prairie dog towns in the RPRA. A survey by the U.S. Fish and Wildlife Service for the Rio Puerco Grazing ES (USDI, FWS 1976) located no sign of ferrets. Hubbard and Schmitt (1983) list several reported sightings which may have been on BLM-administered lands in the RPRA. Findley and others (1975) believe that the northwestern part of the state would be the most likely area if black-footed ferrets do survive in New Mexico.

Of the State-listed species, the meadow jumping mouse, Mississippi kite, olivaceous cormorant, common black hawk, bluntnose shiner, and Mississippi silvery minnow are associated with riparian and aquatic habitats. The gray vireo occurs in pinyon-juniper and scrub communities. The McCown's longspur may occur in short grasslands in the RPRA. In addition to the Pecos sunflower, a number of plants which occur in the RPRA are also rare and are carried on the New Mexico Heritage Program's Special Concern List (see Table 3-3).

Five areas have been proposed as Special Management Areas for wildlife concerns--Jones Canyon, San Luis Mesa, Ignacio Chavez, Elk Springs, and Tent Rocks. Three areas are being proposed as SMA's for protection of rare plants--Ball Ranch, Ojito, and Cabezon Peak. These areas are described in Appendix C.

WOODLAND RESOURCES

The Rio Puerco Resource Area contains approximately 233,000 acres of woodlands (pinyon-juniper) and 14,000 acres of productive forest land (ponderosa pine). A Landsat survey (Appendix H) was conducted to identify woodland stands in the issue area. Approximately 52,000 acres of the issue area were identified by the survey as pinyon-juniper, of which 35,790 acres were classified as potential fuelwood stands. Map 3-5 illustrates the general location of the woodlands in the issue area. Approximately 197,210 acres of pinyon-juniper exist outside the issue area, of which 164,800 acres are estimated to contain fuelwood-sized pinyon-juniper. Acreage estimates for woodlands outside the issue area are based on the Ladron and Divide Management Framework Plans (USDI, BLM 1977, 1983b).

There are approximately 5,200 acres of ponderosa pine stands in the issue area and 8,800 acres outside the issue area. The Ignacio Chavez Grant contains the majority of the ponderosa pine in the issue area. The El Malpais area, south of Grants, contains the majority of the ponderosa pine outside the issue area.

An allowable cut estimate for the woodlands has been established on an area regulation system, based on the Landsat and Divide MFP data. It is estimated that the RPRA could support a sustained yield harvest cut of 130 acres per year of pinyon-juniper in the issue area and 732 acres per year outside the issue area if no restrictions are placed on the woodland stands, if funding and personnel are available, and if the general woodland data used actually represent harvestable trees. This is consistent with the Ladron and Divide MFP's (USDI, BLM 1977, 1983b). Volume removed each year would fluctuate depending on the site harvested.

RECREATION

The RPRA provides recreational opportunities for the two largest metropolitan areas in New Mexico, Albuquerque and Santa Fe. The majority of the public land in the RPRA is located within an hour and a half drive from Albuquerque. Population projections for the next twenty years forecast significant growth for these two cities, with the major increases in the Albuquerque metropolitan area. These population increases and the proximity of these population centers to the RPRA will result in an increased demand for the recreation opportunities provided by the RPRA during the life of this land use plan.

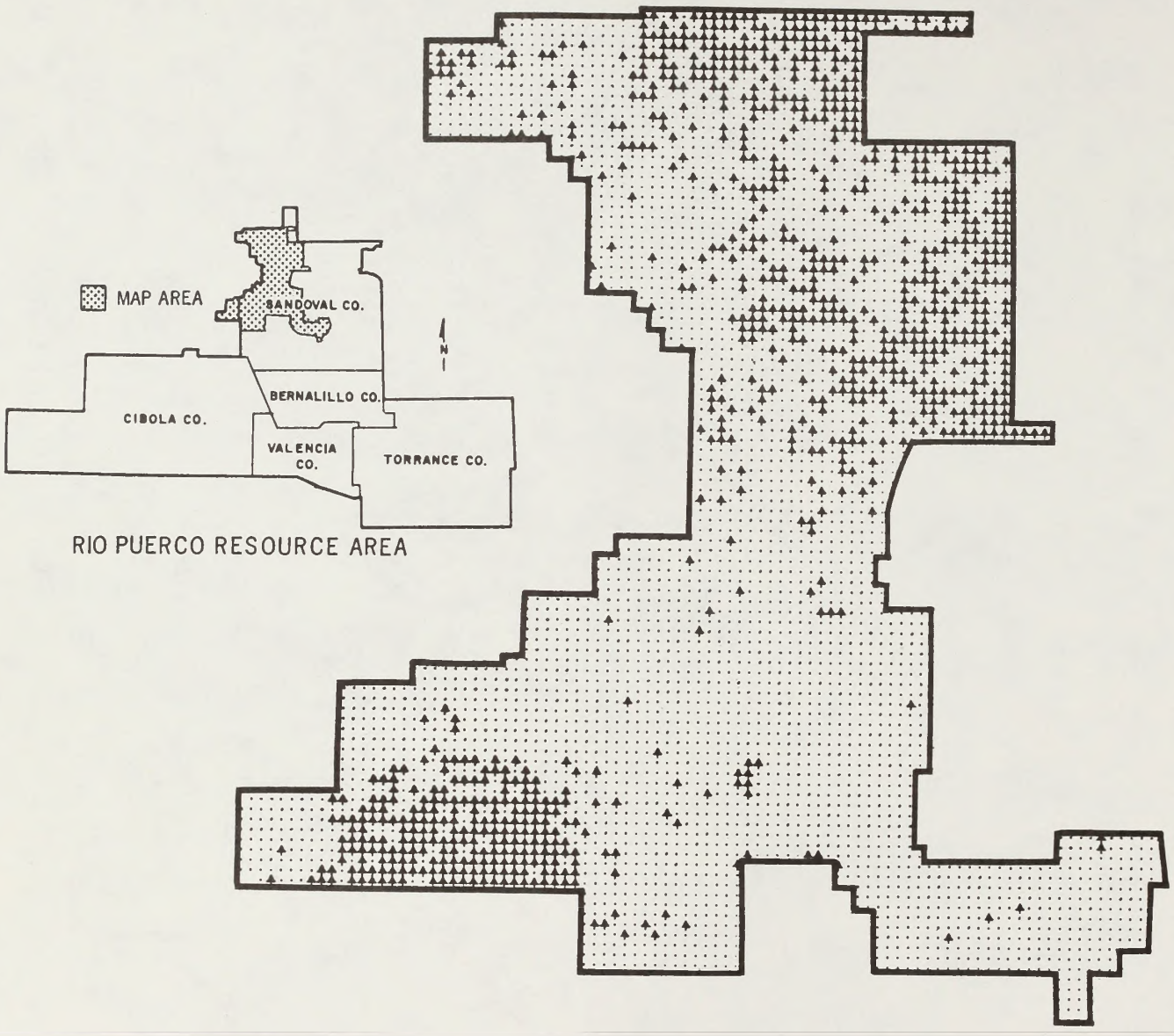
The majority of recreation use in the RPRA is dispersed in nature. A wide variety of recreation activities including hunting, camping, picnicking, backpacking, horseback riding, climbing, caving, hang gliding, motorcycling, four wheel driving, observing nature, rockhounding and photography are practiced in the RPRA. A higher

TABLE 3-3

RARE PLANTS IN THE RIO PUERCO RMP AREA

Common Name	Scientific Name	Status	County
Pecos sunflower	Helianthus paradoxus	State Concern, Federal Register Category 1 a/	Torrance, Cibola
Grama grass cactus	Pediocactus papyracanthus	State Concern, Federal Register Category 2 b/	All counties in RMP Area
Tufted sand verbena	Abronia bigelovii	State Concern, Federal Register Category 3 c/	Sandoval
Santa Fe milkvetch	Astragalus feensis	State Concern	Bernalillo, Torrance
Spiny-leafed milkvetch	Astragalus kentrophyta var. neomexicana	State Concern	Bernalillo, Cibola, Valencia
Knight's milkvetch	Astragalus knightii	State Concern, Federal Register Category 2 b/	Sandoval
Mathews' woolly milkvetch	Astragalus mollissimus var. mathewsii	State Concern	Cibola, Sandoval
--	Oenothera caespitosa spp. navajoensis	State Concern	Sandoval
Cyanic milkvetch	Astragalus cyaneus	State Concern	Bernalillo
Wright's pincushion cactus	Mammillaria wrightii	State Concern	Bernalillo, Sandoval, Torrance, Valencia
--	Selinocarpus lanceolatus	State Concern	Sandoval
--	Erigeron pulcherrimus	State Concern	Sandoval
--	Asplenium septentrionale	Endemic d/	Cibola
--	Asplenium trichomanes	Endemic d/	Cibola
--	Carex pityophylla	Endemic d/	Cibola

a/ Category 1 species are to be proposed for listing as threatened or endangered ("candidate species") (Federal Register, November 28, 1983).
b/ Category 2 species may be appropriate for listing if indicated by further information.
c/ Category 3 species are no longer being considered for listing.
d/ These species are reported by Spellenberg (1979) to be endemic to this area.



MAP 3-5
POTENTIAL WOODLAND MANAGEMENT AREAS

LEGEND

▲ WOODLAND

· OTHER VEGETATION

EACH CELL EQUALS 125 ACRES

N

0 5 10 15 MILES

SCALE

concentration of these uses occurs in several of the areas proposed as SMA's (see Appendix C).

The recreational opportunities available in the RPRA are predominantly undeveloped in nature in a low elevation semi-arid landscape. Although some are similar to opportunities provided by other land management agencies, the character of the landscape in the RPRA provides a different type of setting which provides an expanded range of recreation opportunities. The lower elevation of the RPRA also permits the continuation of certain types of recreation activities precluded in mountainous areas by seasonal climatic changes.

The Rio Puerco Grazing ES (USDI, BLM 1978b) listed popularity ratings for thirty-five activities occurring in the five counties of the RPRA, twenty-seven of which are dependent on a predominantly natural setting. The RPRA offers a natural recreation setting which accommodates nineteen of these listed activities (see Table 3-4). Six of the ten most popular activities presently occur on public land within the RPRA.

The RPRA has the potential to provide numerous interpretive services for public land users. However, to date, interpretive services have been confined to a limited signing program and a few brochures.

The following areas of local and national significance for recreation are located in the RPRA: the El Malpais National Natural Landmark, the El Malpais Outstanding Natural Area, the El Malpais Wilderness Instant Study Area, the El Malpais Natural Environmental Area, portions of the Continental Divide National Scenic Trail, the Bluewater Area of Critical Environmental Concern, five Wilderness Study Areas, and seven Wilderness Inventory Units with public surface but private subsurface ownership (split estate).

An inventory has been conducted utilizing the Recreation Opportunity Spectrum (ROS) principles to quantify and define the recreation opportunities available in the RPRA. This system classifies recreation opportunities into six classes. See Appendix I for a description of the ROS survey and definitions of these classes. The ROS survey is contained in the MSA and is available for review at the Rio Puerco Resource Area Office. The public land acreage in each category is: primitive 43,034 acres (4.8 percent of the RPRA), semi-primitive non-motorized 149,142 acres (16.7 percent of the RPRA), semi-primitive motorized 577,702 acres (64.4 percent of the RPRA), roaded natural 124,774 acres (13.9 percent of the RPRA), rural 1,838 acres (.2 percent of the RPRA), and urban 0 acres.

VISUAL RESOURCES

Visual management objectives have been determined for all public lands in the RPRA. An inventory has been conducted utilizing current BLM Manual procedures and has been documented in the MSA. Four management objectives have been established. The acreage in the RPRA for each objective is: VRM Objective I--100,000 acres; VRM Objective II--158,100 acres; VRM Objective III--125,500 acres; VRM Objective IV 363,000 acres. See Appendix J for a description of these four VRM classes.

CULTURAL RESOURCES

To date 48,737 acres, or 5.5 percent of the public land in the RPRA have been intensively inventoried for cultural resources. A total of 3,847 sites--3,270 prehistoric sites (85%), 269 historic sites (7%), and 308 sites of unknown date (8%) have been recorded. There are three sites, Guadulupe Ruin, the Dittert Site and Big Bead Mesa, on the National Register of Historic Places. Big Bead Mesa has also been designated a National Historic Landmark. Six sites on the New Mexico State Register of Cultural Properties are on lands managed by the RPRA.

Recent analysis of the RPRA cultural resource inventory file indicates that a very high percentage of the known sites (perhaps 3,000 sites) are probably eligible for inclusion in the National Register of Historic Places. Over 30,000 eligible sites have been projected for the unsurveyed lands. In comparison, there are currently 205 National Register-listed sites on non-BLM lands within the boundaries of the RPRA.

Known sites fall into the following classes (see Appendix K): PaleoIndian (76 or 2%), Archaic (1001 or 26%), Prehistoric Pueblo (2,039 or 57%), Historic (269 or 7%), and Unknown (308 or 8%).

Site types range from PaleoIndian hearth and lithic sites, through many kinds of Archaic special activity sites, the full

TABLE 3-4

MOST POPULAR FAMILY ACTIVITIES

Activity	Ranking
**Picnicking	1
Park Visits	2
Attending Sporting Events	3
**Pleasure Walking	4
Pool Swimming	5
Bicycling	6
**Sightseeing	7
*Fishing	8
**Visiting Historical Sites	9
**Camping	10
Tennis	11
**Hiking	12
Jogging	13
**Photography/Painting	14
Baseball	15
**Big Game Hunting	16
Golfing	17
**Horseback Riding	18
*Snow Skiing	19
*Boating	20
Football	21
**Small Game Hunting	22
**Backpacking	23
*Sledding	24
*Lake or River Swimming	25
**Rock Hounding	26
*Water Skiing	27
**Trailbiking/Four-Wheeling	28
**Sport Shooting	29
**Rock Climbing	30
**Birdwatching	31
+Caving	32
+Cross-Country Skiing	33
Rodeos	34
+Snowmobiling	35

* These activities occur on public lands.
** These activities occur on public lands and are common activities within the Rio Puerco Resource Area.
\+ These activities occur on public lands and are occasional activities within Rio Puerco Resource Area.

Source: Final Environmental Statement on Grazing Management in the Rio Puerco ES Area (USDI, BLM 1978b: Table 11)

range of Basketmaker and Pueblo sites, Navajo, Apache and other Athapascan sites, to early Spanish, late Hispanic and contemporary Hispanic and Anglo sites. The southeastern portion of the Chacoan Interaction Sphere falls within the RPRA. Several Chacoan outliers determined eligible for the National Register of Historic Places, as well as other associated sites eligible for the Register, are documented in the Resource Area. In addition, many Chacoan-related features such as road systems, shrines, and special function areas have been located.

LANDS AND REALTY

The Rio Puerco Resource Area administers approximately 896,490 acres of public surface estate. Public lands are fairly well consolidated in Sandoval County, while a checkerboard pattern predominates in Cibola and Valencia Counties. Over 100 small tracts are scattered throughout Torrance County. The public lands in McKinley County administered by the RPRA are limited to the western portion of the Ignacio Chavez Grant and a block of thirty-four sections adjacent to the northern boundary of the Grant. A thin strip of public land in Santa Fe County is administered by the RPRA along the Resource Area's northeastern boundary. Table 1-1 shows how these public acres are distributed throughout the counties of the RPRA.

The public lands in eastern Sandoval County and those public lands in Santa Fe County administered by the RPRA are considered to be traditional use areas by various Indian pueblos. Santa Ana Pueblo is requesting legislation to acquire the public lands in Townships 14, 15, and 16 North and Ranges 4, 5, and 6 East, New Mexico Principal Meridian (NMPM). Cochiti Pueblo has expressed an interest in acquiring the public lands in Townships 16 and 17 North, Range 5 East. San Felipe and Santo Domingo Pueblos have identified the public lands in Townships 14 and 15 North, Ranges 4, 5, 6, and 7 East, as traditional use areas that they would like to acquire. Cochiti, San Felipe, and Santo Domingo Pueblos have not made any formal requests for these public lands at this time.

Various tracts of public land have been identified as potentially suitable for disposal or identified for further study within the land ownership adjustment issue area (Map 1-5). Table 2-5 identifies these public lands. The isolated and scattered tracts of public land within the issue area lend themselves to identification as potentially suitable for disposal because no outstanding resource values are documented on these tracts. Those public lands in Torrance County that have been identified for further study are lands that the National Park Service at Salinas National Monument has expressed an interest in studying for historical values. The public lands in the La Jara area identified for further study have been identified by the New Mexico Department of Game and Fish as winter habitat for elk.

Over the past fifteen years, two de facto rights-of-way corridors have been established in the RPRA . These de facto corridors are included in the rights-of-way corridors proposed in the Resource Conservation and Balanced Use Alternatives of this RMP/EIS (see Pocket Map B).

Corridor I on Pocket Map B generally conforms to the outside boundaries of the proposed right-of-way corridor described in the Final New Mexico Generating Station EIS (USDI, BLM 1983c). The boundaries have been adjusted to avoid the proposed Cabezon Peak and Ojito SMA's. Corridor II is located in the Placitas area.

The de facto corridors were established by the placement of numerous transmission lines in the same areas as a result of topographic and land ownership constraints. The proposed corridors include all of the existing transmission lines in the de facto corridors with enough space to allow additional placements.

Along these existing corridors, topographic and land ownership restrictions have caused certain tracts of public land to be of critical importance to future transmission line placement. The Resource Production and Balanced Management Alternatives of this RMP/EIS propose these areas as rights-of-way windows to be left open for rights-of-way development, with conflicting uses prohibited. The proposed rights-of-way window along the San Luis Cliffs (see Pocket Map B) would assure that the critical topographic restriction for transmission lines would remain open for transmission line placement. The rights-of-way windows to the east and west of the Ojito SMA (Pocket Map B) provide protection to an area where transmission line placement would be difficult on adjacent Indian and private lands.

SOCIAL AND ECONOMIC CONDITIONS

Zone of Influence

For purposes of economic and social analysis, the Rio Puerco Resource Area includes Bernalillo, Cibola, Sandoval, Torrance, and Valencia Counties. Much of the data for Cibola County is shown as Valencia County data since Cibola county was only recently created from western Valencia County. Since there are only about ten inhabitants in the small portions of McKinley and Santa Fe Counties administered by the RPRA, population, employment, and income statistics for these counties are not included in this chapter. The social and economic analysis in this chapter considers all consequences on a Resource Area-wide basis. Due to the significance of the impacts associated with some issues, the consequences of resolution of these issues have also been given local consideration.

Population

The total population of the five counties in the Resource Area reported by the 1980 census was 523,565. The five-county area is growing at a faster rate than the State as a whole; however, the growth rates for the individual counties vary considerably (see Table 3-5). The population figures reported by the 1980 census for the largest communities in the Resource Area are Albuquerque, 331,767; Grants, 11,439; and Belen, 5,617. The census also reported population figures for Albuquerque's South Valley, 38,916; North Valley, 13,006; and Rio Rancho Estates, 9,985. Changes in numbers of housing units are shown on Table 3-6.

Employment and Income

The changes from 1970 to 1980 in total employment for each county are displayed on Table 3-7. The increase in employment (74.7%) for the five-county area was considerably higher than for the State as a whole (54.4%).

The changes in per capita income from 1970 to 1980 are displayed on Table 3-8. Of the five counties, only Bernalillo County had a smaller increase in per capita income than the State. The percentage increases in employment for all five counties exceeded their percentage increases in population for the decade from 1970 to 1980.

Ranch Budgets

Of the 205 grazing allotments in the RPRA, the consequences of livestock grazing use on 121 have been previously been analyzed, including social and economic analysis, in the Rio Puerco, East Socorro and West Socorro Livestock Grazing EIS's (USDI, BLM 1978b, 1979a, 1982b). The remaining eighty-four allotments are considered in this RMP/EIS.

Sixty-eight of the allotments considered in this document are Section 15 leased lands (small, isolated, and scattered tracts of public land). No changes in grazing management are proposed for the Section 15 allotments because no cost-effective improvement in resource conditions would result from implementation of management changes. Since currently available data are inadequate for the development of ranch budgets for these allotments, no further descriptions of operations are included in this chapter.

The remaining sixteen allotments in the vegetative uses issue area were divided into two size groups and ranch budgets developed for each. Because five allotments are controlled by one allottee and are considered to be part of one operation, only twelve operations are considered in the two budget size groups. Some of the data used in developing these budgets and some of the data from the budgets are summarized on Table 3-9.

Both the regional and local significance of the consequences of the proposed changes in grazing management have been analyzed. The regional consequences were derived by considering the twelve operations collectively, while local consequences were determined by considering each operation individually.

Social Setting

The Rio Puerco Resource Area has a long history of habitation by Native Americans, Hispanics, and non-Hispanic Whites. Each group holds social and cultural values distinctly its own, but each group has been required to make accomodations for others, resulting in a colorful and diverse social setting. The RPRA's population has had a consistent and substantial growth over the the last several decades with some shifts between rural and urban. The Albuquerque metropolitan area has shown consistent and

TABLE 3-5

POPULATION CHANGE BY COUNTY 1970 to 1980

	Bernalillo County	Cibola County	Sandoval County	Torrance County	Valencia County	5-County Total	New Mexico State
Population 1980	420,164	30,402	34,799	7,491	30,713	523,569	1,303,445
1970	315,774	20,125	17,492	5,290	20,451	379,132	1,017,055
Change 1970 to 1980	104,390	10,277	17,307	2,201	10,262	144,437	286,390
Percent Change	33.1	51.2	98.9	41.6	50.2	38.1	28.2

Source: New Mexico Progress 1982 Economic Report (N.M. Progress 1983)

TABLE 3-6

HOUSING CHANGE BY COUNTY 1970 to 1980

	Bernalillo County	Cibola County	Sandoval County	Torrance County	Valencia County	5-County Total	New Mexico State
Total Housing Units 1980	162,126	1/	12,286	3,309	22,353	200,074	505,513
1970	98,638		4,785	1,919	11,554	116,896	325,722
Change 1970 to 1980	63,488		7,501	1,390	10,799	83,178	179,791
Percent Change	64.4		156.8	72.4	93.5	71.2	55.2

1/ Cibola County was created after the 1980 census from a part of Valencia County; the Valencia County figures therefore include the area which is now Cibola County.

Source: 1970 and 1980 Census of Housing (USDC, Bureau of Census 1970a, 1980a)

TABLE 3-7

EMPLOYMENT CHANGE BY COUNTY 1970 to 1980

Bernalillo County	Cibola 1/ County	Sandoval County	Torrance County	Valencia County	5-County Total	New Mexico State	
Agriculture Employment							
1980	1,594	-	303	298	662	2,857	16,119
1970	1,177 2/	-	149 2/	330 2/	523 2/	2,179	15,352 2/
Change 1970 to 1980	944 2/	-	251 2/	13 2/	247 2/	1,429 2/	3,465 2/
Percent Change	80.2	-	168.5	3.9	47.2	65.6	22.6
Forestry and Fisheries Employment							
1980	527	-	97	19	108	751	2,698
1970 3/	- 3/	- 3/	- 3/	- 3/	- 3/	- 3/	- 3/
Change 1970 to 1980 3/	-	-	-	-	-	-	-
Percent Change 3/	-	-	-	-	-	-	-
Mining Employment							
1980	1,500	-	198	27	5,105	6,830	28,697
1970	370	-	29	5	2,608	3,012	17,943
Change 1970 to 1980	1,130	-	169	22	2,497	3,818	10,754
Percent Change	305.4	-	582.8	440.0	95.7	126.8	59.9
Construction Employment							
1980	13,355	-	1,321	299	2,029	17,004	42,769
1970	7,691	-	460	175	849	9,175	23,774
Change 1970 to 1980	5,664	-	861	124	1,180	7,829	18,995
Percent Change	73.6	-	178.2	70.9	139.0	85.3	79.9
Manufacturing Employment							
1980	17,128	-	1,387	179	1,171	19,865	37,737
1970	8,302	-	591	29	741	9,663	21,832
Change 1970 to 1980	8,826	-	796	150	430	10,202	15,905
Percent Change	106.3	-	134.7	517.2	58.0	105.6	72.9
Transportation, Communication, and other Public Utilities Employment							
1980	13,603	-	904	248	1,715	16,470	37,362
1970	7,407	-	195	125	1,167	8,894	21,819
Change 1970 to 1980	6,196	-	709	123	648	7,576	15,543
Percent Change	83.7	-	363.6	98.4	55.5	46.0	71.2
Wholesale Trade Employment							
1980	8,608	-	405	62	602	9,677	17,024
1970	5,511	-	113	26	185	5,835	10,392
Change 1970 to 1980	3,097	-	292	36	417	3,842	6,632
Percent Change	56.2	-	258.4	138.5	225.4	65.8	63.8

TABLE 3-7 (Concluded)

	Bernalillo County	Cibola [1] County	Sandoval County	Torrance County	Valencia County	5-County Total	New Mexico State
Retail Trade Employment							
1980	33,383	-	1,721	467	3,265	38,836	88,529
1970	20,294	-	461	264	1,630	22,649	57,484
Change 1970 to 1980	13,089	-	1,260	203	1,635	16,187	31,045
Percent Change	64.5	-	273.3	76.9	100.3	71.5	54.0
Finance, Insurance, and Real Estate Employment							
1980	12,715	-	691	94	864	14,364	26,445
1970	6,476	-	69	28	271	6,844	13,398
Change 1970 to 1980	6,239	-	622	66	593	7,520	13,047
Percent Change	96.3	-	901.4	235.7	218.8	109.9	97.4
Services Employment							
1980	66,982	-	3,817	469	5,361	76,629	167,828
1970	41,752	-	1,550	362	3,210	46,874	147,761
Change 1970 to 1980	25,230	-	2,267	107	2,151	29,755	20,067
Percent Change	60.4	-	146.3	29.6	67.0	63.5	13.6
Public Administration							
1980	14,971	-	1,228	261	1,589	18,049	43,030
1970	10,331	-	357	149	751	11,588	28,725
Change 1970 to 1980	4,640	-	871	112	838	6,461	14,205
Percent Change	44.9	-	244.0	75.2	111.6	55.8	49.8
Total							
1980	184,366	-	12,072	2,423	22,471	221,332	508,238
1970	109,311	-	3,974	1,493	11,935	126,713	322,837
Change 1970 to 1980	75,055	-	8,098	930	10,536	94,619	185,401
Percent Change	68.7	-	203.8	62.3	88.3	74.7	57.4

[1] Cibola County was created after 1980 census from a part of Valencia County, therefore, the Valencia County figures include the area which is now Cibola County.

[2] Includes forestry and fisheries

[3] Included in Agriculture

Source: 1970 and 1980 Census of Population (USDC, Bureau of Census 1970b: Tables 66 and 123, 1980b: Tables 69 and 178)

TABLE 3-8

PER CAPITA INCOME 1/ BY COUNTY 1970 to 1980

	Bernalillo County	Cibola County	Sandoval County	Torrance County	Valencia County	5-County Total	New Mexico State
Per Capita Income 1980	7,136	- 2/	5,117	4,691	5,850	6,772 3/	6,119
Per Capita Income 1970	2,872	-	1,557	1,797	1,970	2,695 3/	2,449
Change 1970 to 1980	4,264	-	3,560	2,894	3,880	4,077 3/	3,670
Percent Change	148.5	-	228.6	161.0	197.0	151.3 3/	149.9

1/ Per Capita Income of Persons
2/ Cibola County was created after the 1980 census from a part of Valencia County; the Valencia County figures therefore include the area which is now Cibola County.
3/ Calculated Estimate

Source: 1970 and 1980 Census of Population (USDC, Bureau of Census 1970b: Tables 57 and 124, 1980b: Tables 103 and 180)

TABLE 3-9

AFFECTED PERMITTEES, DEPENDENCY, RANCH INCOME,
AND PERMIT VALUE

Factor	Small Ranches	Large Ranches
Ranch Size Category (in cows)	0-99	100-300
Number of Ranches in Category	8	4
% Ranches in Category	67	33
Average Herd Size	26	210
Dependency on BLM Grazing:		
0-15% of Total AUM's (Number of Ranches)	1	1
16-30% of Total AUM's (Number of Ranches)	0	0
31-49% of Total AUM's (Number of Ranches)	2	0
50-80% of Total AUM's (Number of Ranches)	3	2
Over 80% of Total AUM's (Number of Ranches)	2	1
Average % of Total AUM's	51	51
Average Number of BLM AUM's per ranch	319	1,857
Income from Livestock Portion of Business (Avg. Per Ranch)*	-$2,267	$4,276
Average Permit Value**	$31,900	$185,700

* Net income to rancher's labor, management and capital
** Assumes a value of $100 per AUM

rapid growth and has been the service center for an area much broader than the RPRA. With the resources of the RPRA in close proximity to this large population center, there is a growing need for recreation and other resources available on public lands.

Attitudes

Attitudes expressed by groups and individuals who have been involved in BLM's planning process are as diverse as their social values. Most of these attitudes have been in favor of a continuation of the use of the public land already being made by that person or group. All issues had both support and opposition.

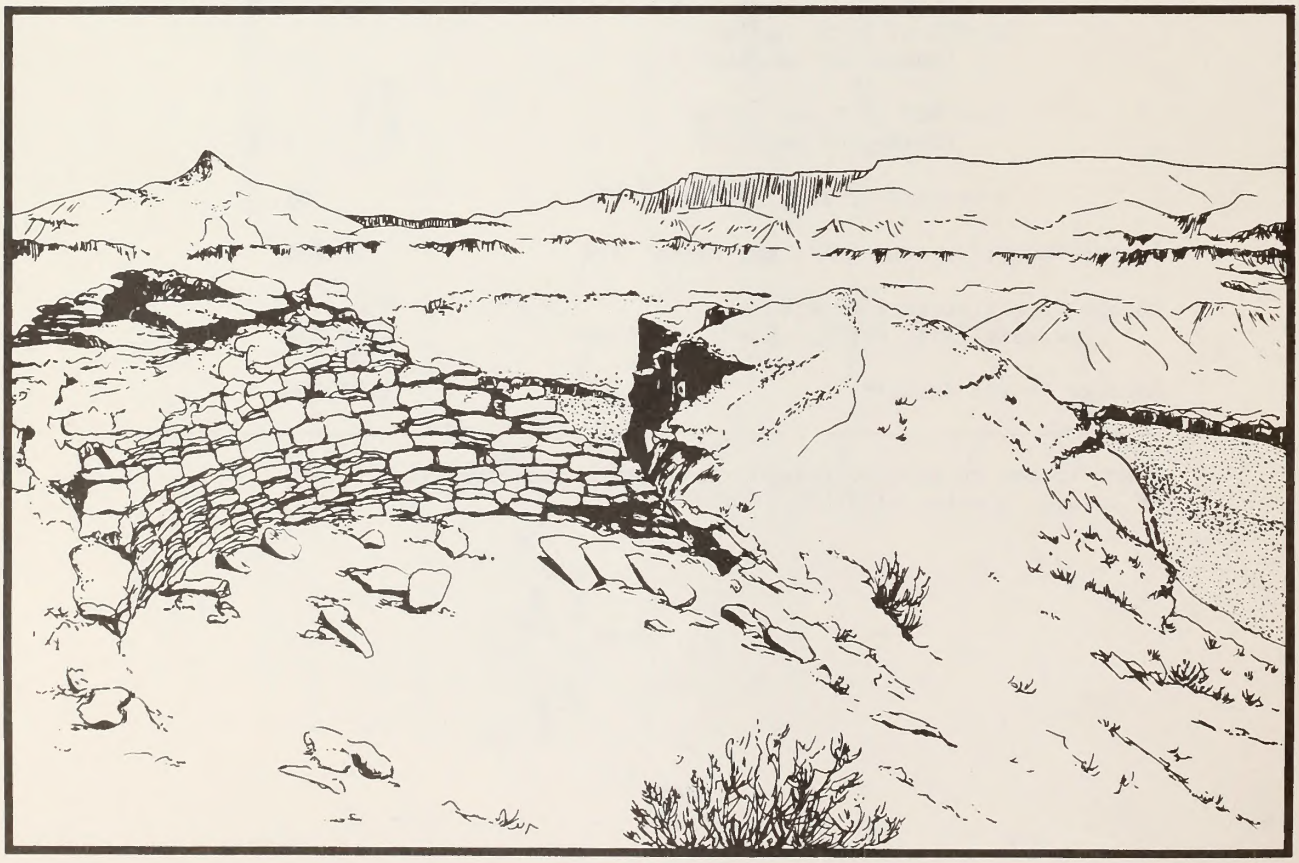
Special management areas were generally supported for the protection they would provide for cultural resources, recreational opportunities, and other resources. Concern was expressed that SMA's might restrict present uses.

The ORV designation issue was supported because areas would be designated for recreational ORV use and ORV special events. Designations were also supported because protection for conflicting resource uses such as livestock management would be provided. "Closed" and "limited" designations were opposed by some ORV recreationists if recreational ORV's were restricted from areas presently used and readily accessible. "Open" and "limited" designations were opposed by some ranchers if areas where ORV use conflicts with grazing were left open to ORV use.

The attitudes of the local population toward land ownership adjustments are not fully known. However, there does seem to be general support for maintaining a land base for general public use. There is concern on the part of landowners whose lands are adjacent to tracts that might be sold, especially if they use the public land along with their own.

Fuelwood supply is of concern especially to those who have had access to a free supply of heating and cooking fuel for many years and now find that fuelwood has become expensive and that the supply is much smaller and much less accessible than it used to be.

Local attitudes toward coal leasing seem favorable, perhaps because some local residents burn coal and a few are employed in coal production. Many people not immediately within the area express concern that mining could destroy other significant resources.



Chapter 4

ENVIRONMENTAL CONSEQUENCES

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter analyzes the impacts which would result from implementing the four alternative Resource Management Plans. The alternatives under consideration are Continuation of Current Management in which there would be no change from the present management, Resource Conservation which would provide management to enhance nonconsumptive resource values, Resource Production which would emphasize development of the public lands and resources, and Balanced Management which would protect important environmental values and sensitive resources while allowing development of resources. The Balanced Management Alternative is the preferred alternative for all issues.

This chapter analyzes the cumulative impacts of implementing each plan within the issue areas. The plans provide general guidance only; following selection of an RMP, activity plans with environmental analyses will be developed to implement the RMP and provide specific guidance for management of affected areas. The emphasis of this chapter is on the general resource allocation issues rather than site-specific impacts.

There would be no impacts to air quality under any of the alternatives. The principal impact of the coal leasing suitability assessment determination would be on the coal resource itself since a recommendation of lands suitable for further consideration for coal leasing does not commit the BLM to mining coal. That commitment would result from leasing, which cannot occur until after the preparation of a site-specific environmental analysis done in conjunction with activity planning. The delineation of a "coal study area" in this RMP will have no impact on any other resource or commodity. Therefore, the impacts of the coal leasing suitability assessment issue are discussed only in the Geology, Energy, and Minerals section of this chapter.

The analysis of unavoidable adverse impacts, short-term versus long-term productivity, and irreversible and irretrievable impacts is discussed by alternative in the impact analysis for each resource rather than under a separate heading.

ALTERNATIVE A: CONTINUATION OF CURRENT MANAGEMENT

Geology, Energy, and Minerals

There would be no impacts under this alternative for the following issues: ORV designation, vegetative uses, land ownership adjustments, fuelwood supply, and rights-of-way corridors. This alternative would provide for the continuation of geology, energy, and minerals management at approximately the same level of resource use as is presently occurring.

This alternative would make no recommendation as to lands that are acceptable for further consideration for coal leasing. Because current policy and regulations permit future coal leasing and development only through the land use planning system, failure to recommend lands as being acceptable would prevent new coal development (i.e., development not associated with existing leases) for the life of the plan or until the plan is amended.

Adoption of this alternative would have the short- and long-term impact of prohibiting emergency coal leasing associated with existing leases and restricting future coal lease readjustments. In addition, approximately 100 million tons of Federally-owned coal on about 8,020 acres in the San Juan River Coal Region would be made unavailable for leasing. Coal production would be restricted to existing and proposed mines.

Failure to provide special management attention to the Ojito area could result in negative impacts to two geologically significant areas. Non-discretionary locatable mineral development in the vicinity of the Las Milpas Gas Storage Facility could result in injury and destruction of property in the event of an uncontrolled release of high pressure gas. There are currently no restrictions on locatable mineral exploration or development in this area. Secondly, an area used for geological instruction by several universities, the San Ysidro

anticline, could be significantly degraded by uncontrolled mineral development. The area will retain its educational value only so long as the existing geological relationships remain unchanged. Impacts associated with mineral development could significantly reduce the value of the area for geological instruction.

Summary

Adoption of this alternative would have no significant short- or long-term impacts on fluid mineral development, the sale of mineral materials, or entry onto the public lands for mineral location. These commodities would continue to be made available to meet user needs.

One of the most significant impacts associated with this alternative affects the long-term development of the coal resource. An area having maximum near-future coal development potential (Appendix D) would be removed from further consideration for leasing. Although the acreage is relatively insignificant in a regional context, substantial coal reserves amenable to small business development would remain unavailable for leasing.

Finally, the failure to provide special management consideration to the Las Milpas Gas Storage Facility in the proposed Ojito SMA could result in inadvertent penetration of a high pressure natural gas reservoir by locatable mineral developers. An uncontrolled penetration of this sort could result in serious injury or death and substantial property loss. Also, a unique geological resource, the San Ysidro anticline would remain without protection from locatable mineral development.

Paleontological Resources

Continuation of current management practices associated with the vegetative uses, land ownership adjustments, fuelwood supply, and rights-of-way corridors issues would have no impact upon paleontological resources.

Existing statutes, regulations, and policy guidance are directed primarily at the protection and preservation of paleontological resources. Continuation of current management practices would allow limited response, in the form of mitigation, to degradation associated with development. Long-range activity planning for resource protection would not be considered under this alternative.

Failure to provide special management attention and to identify ACEC's or Research Natural Areas could result in the deterioration or destruction of significant paleontological resources. Ultimately, this alternative could result in the destruction of two internationally recognized paleontological study areas representing an irreplaceable resource (Torrejon Fossil Fauna and Juana Lopez Reference Section, see Appendix C, SMA's 1 and 14). Therefore, development could result in an irreversible and irretrievable commitment of paleontological resources.

Under this alternative, no new ORV closures or limitations would be implemented and most public land would remain open to motorized vehicle use. Unrestricted use, with resulting vehicle-caused damage, would have the potential for the degradation or destruction of fragile paleontological study areas. The short- and long-term impacts of unrestricted motorized vehicle use would be essentially the same as those identified above.

Soil and Water Resources

Resolution of the following issues would create no significant impacts under this alternative: fuelwood supply and land ownership adjustments.

Surface disturbing activities other than grazing would continue on the three Rio Puerco Hydrology Study watersheds (Pelon Watershed, Empedrado Watershed, and Querencia Watershed) if they do not receive special management attention, adversely affecting the hydrologic data.

In the short term, erosion and sediment production would not be significantly affected by continuation of current levels of motorized vehicle use. In the long term, motorized vehicle use would increase in the RPRA as the population grows and urban areas expand. Increased motorized vehicle use would be particularly harmful to the erosive, fragile soils of the Rio Puerco watersheds. Increased motorized vehicle use would result in the creation of new roads and trails, with subsequent increases in erosion and sediment production. Expansion of the road and trail networks would also provide access to areas where none existed previously, resulting in increased surface disturbance, erosion, and sediment production.

No rights-of-way corridors or windows would be established by this alternative.

Transmission line placement would be allowed anywhere in the issue area. Short-term increases in erosion and sediment production would result from each new transmission line placement. The combined erosion and sediment production from unconfined transmission line placements would be greater than for placement of transmission lines in corridors and windows. Long-term impacts would be mitigated by revegetation requirements stipulated on the rights-of-way.

Continued loss of soil to wind and water erosion constitutes an irretrievable commitment of resources. Increasing motorized vehicle use, no changes in grazing management, and the need for dam maintenance increasing faster than current program capability would result in short- and long-term impacts on soil erosion and sediment production. Loss of the continuing data from any or all of the three Rio Puerco Hydrology Study watersheds would reduce the BLM's ability to detect watershed changes that are due solely to grazing management.

Range Resources

There would be no impacts under this alternative for the special management areas and land ownership adjustments issues.

Under this alternative, motorized vehicle use would not be restricted. In the short term, no significant impacts to the range resources would be associated with unrestricted motorized vehicle use. In the long term, however, increased motorized vehicle use could have significant impacts on vegetative vigor, vegetative productivity, and ecological condition. In addition, increased motorized vehicle use would result in an expanded road and trail network, providing access into areas where currently none exists. Increased vehicular access would create the opportunity for more widespread harassment and theft of livestock, as well as vandalism of privately owned property such as windmills, livestock watering facilities, and cabins.

Under this alternative, no changes in current grazing management and no short- or long-term adjustments in livestock Animal Unit Months (AUM's) would be proposed in the vegetative uses issue area. Nine "I" allotments would remain in unacceptable ecological condition and 10,842 acres in these allotments (17 percent of the total area considered) would remain in poor ecological condition.

For the short term, it is assumed that livestock grazing use would continue at present levels. Present level is considered to be the average of the last five years of use or 7,990 AUM's (20 percent below current allowable livestock grazing use). In the long term, it would be anticipated that, depending on climatic conditions, larger amounts of non-use would be authorized for nine allotments to offset declines in vegetative vigor and productivity occurring on portions of these allotments. Authorization of non-use would prevent declines in overall ecological condition on these allotments. The allottees would have to locate alternative pastures or reduce their herd size during periods of non-use. No changes in livestock grazing use would be anticipated for the "M" and "C" allotments in the long term.

In the short term, livestock forage production would decrease as a result of surface disturbance associated with fuelwood harvest. In the long term, increased production of livestock forage would result from fuelwood harvest as a result of decreased competition. However, no significant short- or long-term effect on the range resources and no changes in livestock grazing use would be authorized as a result.

No rights-of-way corridors or windows would be designated under this alternative. In the short term, unrestricted placement of transmission lines could result in a larger area of surface disturbance than would result from placement in corridors and windows. These impacts would probably not be of a sufficient magnitude to require any reductions in livestock grazing use. Long-term impacts would be mitigated by the revegetation requirements associated with the granting of the rights-of-way.

Summary

There would be no significant changes in ecological condition on Maintain ("M"), Improve ("I"), or Custodial ("C") allotments. Nine "I" allotments would remain in unacceptable ecological condition and 10,842 acres of public land in these allotments would remain in poor ecological condition. No irretrievable or irreversible impacts would be associated with implementing this alternative.

Wildlife

Wildlife Habitat

There would be no impacts under this alternative for the land ownership adjustments and rights-of-way corridors issues.

If the Ignacio Chavez, Elk Springs, San Luis Mesa Raptor Area, Tent Rocks, and Jones Canyon Special Management Areas are not established, 76,321 acres of important wildlife habitat would go without additional management. An additional 350,159 acres of wildlife habitat in 17 other SMA's would be left without additional protection. Failure to establish these SMA's would prevent implementation of management changes which would provide short- and long-term protection and enhancement of wildlife habitat.

Without restrictions on motorized vehicle use, wildlife habitat throughout the RPRA could be subject to increased degradation, and wildlife subject to increased disturbance in the long term. At present, roads on the Ignacio Chavez Grant are being created as motorized vehicle users, including hunters, woodhaulers, and pinyon nut gatherers, drive off of established roads, creating new access for poachers and decreasing forage. In the long term, road and trail networks would be expanded throughout the RPRA, resulting in increased negative impacts to habitat and wildlife.

Currently, there is a high level of conflict between livestock uses and wildlife uses on four allotments, a medium amount of conflict on eight allotments, a low amount of conflict on two allotments, and no conflict on two allotments (Table 4-1). In all cases, this conflict includes reduced cover for small animals and non-gamebird nest trampling. In the I-14 block (Allotments 0110, 0111, 0112, 0113, 0114, 0115, 0116, see Pocket Map C), cover is reduced and nest trampling probably affects scaled quail. On the La Jara (0066), Tent Rocks (0122), and Peralta (0123) allotments, there is competition for forage between livestock and elk, and to a lesser degree, mule deer. No changes in grazing management or livestock use would be proposed to resolve these conflicts.

Protection and enhancement of approximately ten acres of ponderosa pine habitat per year would result from the removal of the pinyon-juniper understory. Short-term disturbance to wildlife would occur during harvest operations. In the long term, edge-effect and available forage would be increased.

Wildlife habitat, both for game and non-game species, could be impacted if rights-of-way corridors and windows are not designated. Short-term surface disturbance associated with right-of-way development would impact forage and vegetative cover requirements for wildlife. Unconfined placement of future transmission lines through the rights-of-way corridors issue area would have a more significant short-term impact to wildlife habitat than would placement in corridors and windows. In the long term, the impacts to wildlife habitat would be mitigated by the revegetation stipulations placed on the rights-of-way.

None of the impacts identified for wildlife is considered to be irreversible. If management were to be reversed at some future time the impacts would reverse.

Threatened, Endangered, and Rare Species

No significant impacts would be associated with resolution of the land ownership adjustments, fuelwood supply, or rights-of-way corridors issues. No Federally-listed species would be significantly impacted by any action in this alternative.

Rare plant habitat in need of additional protection would remain open to destruction on the proposed Ball Ranch, Cabezon Peak, Ojito, and Ignacio Chavez SMA's (21,317 acres).

Habitat for the State-listed McCown's longspur has been adversely affected by grazing in New Mexico (Hubbard, et al. 1979). This alternative offers no means for upgrading habitat for this species in the vegetative uses issue area. Rare plant mortality and habitat degradation resulting from grazing and motorized vehicle use would continue and increase in the long term with the continuation of current grazing use and increased motorized vehicle use.

Woodland Resources

There would be no impacts under this alternative for the following issues: vegetative uses, land ownership adjustments, and rights-of-way corridors.

TABLE 4-1

LEVELS OF ANTICIPATED WILDLIFE-LIVESTOCK CONFLICT
AND ACRES OF HABITAT IMPROVED UNDER ALTERNATIVES

Allotment Name	Allotment Number	Alternative A		Alternative B		Alternative C		Alternative D	
		Conflict Level	Acres Improved	Conflict Level	Acres Improved	Conflict Level	Acres Improved	Conflict Level	Acres Improved
Agua Salado	0110	Medium	0	None	2,296	Low	1,480	Low	1,480
Canada Alamos	0111	High	0	Low	4,603	Low	4,603	Low	4,603
Pino Spring	0112	Medium	0	Low	928	Low	928	Low	928
Cocina	0113	Medium	0	None	3,395	Low	2,651	Low	2,651
Arch Mesa	0114	High	0	High	0	High	0	High	0
Standing Rock	0115	High	0	High	0	High	0	High	0
Canada del Ojo	0116	Medium	0	None	6,095	Low	5,383	Low	5,383
Ortiz Mountain	0118	None	0	None	0	None	0	None	0
Herrera	0119	Low	0	Low	0	Low	0	Low	0
Diamond Tail	0120	Low	0	None	1,054	None	455	Low	0
Armijo	0121	None	0	None	0	None	0	None	0
Tent Rocks	0122	High	0	None	2,104	Low	2,104	Low	2,104
Baca	0552	Medium	0	Medium	0	Medium	0	Medium	0
La Jara	0066	Medium	0	Low	4,491	Medium	0	Medium	0
Peralta	0123	Medium	0	Low	2,008	Low	2,008	Low	2,008
Santa Ana Mesa	0124	Medium	0	None	12,946	Low	12,946	Low	12,946
TOTAL ACRES IMPROVED			0		39,920		32,558		32,103

Identification of no Special Management Areas would result in a continuation of unauthorized fuelwood harvest from 28,170 acres of woodlands contained in these proposed SMA's. The short- and long-term impacts would include overcutting, damage to the sites and stands, slash and litter left at the trespass site, and possible increases in illegal cutting on adjacent private lands. In the long term, this would lead to a shift toward a shrub-grassland vegetative community as the pinyon-juniper was removed more quickly than it can be replaced under natural conditions.

Continuation of the "open" ORV designation in the RPRA would have no significant short-term impact on woodland resources. In the long term, increased motorized vehicle use would result in an expanded road and trail network, providing access to isolated areas of harvestable fuelwood. Increased access could result in increased unauthorized fuelwood harvest.

Under this alternative, fuelwood would continue to be provided from about ten acres annually through the removal of pinyon-juniper from ponderosa pine stands in the fuelwood supply issue area. More ponderosa pine acreage is being encroached upon than is being treated, so that with no pinyon juniper removal, the ponderosa would begin to disappear and be unavailable for timber harvest. The time frame for this impact is more than the twenty years defined as long term in this document. Approximately 120 cords/year of dead-and-down wood are made available from the issue area from vegetative manipulations no longer conducted. This amount is expected to decline as existing accumulations are exhausted. The small amounts of fuelwood that would be made available from harvest areas established to benefit other resources, combined with the ten acre per year of ponderosa pine treatment, would continue to be smaller than the demand for fuelwood in the short and long term. In the long term, the woodland resources in the issue area (35,790 acres) would receive no silvicultural practices intended to protect or enhance fuelwood supplies from disease, infestation, or understocking, and the woodlands would begin the transition to shrub-grassland.

Recreation

Continuing current management of vegetative uses would have little impact on recreation resources.

Identification of no Special Management Areas would ultimately result in the deterioration of, and in some cases the destruction of, a wide variety of special values. These include historic and prehistoric cultural resources, paleontological and geological resources, visual resources, and wildlife habitat, as well as the interpretive-educational opportunities related to these special values.

The treadway for the Continental Divide National Scenic Trail would not be established, and the associated recreation opportunities would not be realized. The 1870's Wagon Road Trail would not be developed and its recreation opportunities lost. The RPRA is very popular for undeveloped recreation opportunities; however, only 43,034 acres of primitive recreation opportunities located in the Grants are, as categorized by the ROS system (see Appendix I), available in the RPRA on BLM-administered surface. No additional acreage would be provided under this alternative. The RPRA currently serves many of the recreation needs of Albuquerque, the largest metropolitan area in New Mexico. If no additional SMA's are established, a significant opportunity to meet a wide variety of expanding recreation needs will be lost in the long term.

The entire RPRA (except the Bluewater ACEC and lands under Wilderness Interim Management, Maps 2-4 and 2-6) would continue to be open for motorized vehicle recreation opportunity. In the long term, if motorized vehicle activity were not limited, there would be a reduction of the existing primitive and semi-primitive non-motorized recreation opportunities within the RPRA. The creation of more roads and trails (both authorized and unauthorized) would reduce the number of acres available for primitive and semi-primitive non-motorized recreation opportunities, currently 21.5 percent of the RPRA. Semi-primitive motorized and roaded natural opportunities would increase. However, semi-primitive motorized and roaded natural opportunities currently exist in abundance (78.3 percent of the RPRA).

No special use areas for trial bikes or dune buggies would be established nor would a backcountry ORV trail system be established. However, permits for organized ORV events would continue to be processed on a case-by-case basis. The "open" ORV recreation opportunity would be

maintained under this alternative. In the long term, dispersed ORV activity could damage other resources and primitive and semi-primitive non-motorized recreation opportunities by increasing the number of roads and trails in these areas.

Retaining public lands in public ownership would not affect recreation resources. However, not processing land exchanges would limit the ability to improve the recreation resources of the public land by acquiring desirable adjacent lands.

The small amount of fuelwood which would be made available would have no direct impact on the recreation resource. Extraction of fuelwood as a tool to enhance wildlife habitat would result in a beneficial secondary impact on the recreation resource since observing, hunting, and photographing wildlife populations are all popular recreation activities in the RPRA.

Not designating rights-of-way corridors would result in the majority of the issue area being available for right-of-way development, including areas with less developed primitive, semi-primitive non-motorized, and semi-primitive motorized recreation opportunities (see Appendix I) and Special Management Areas proposed in other alternatives. Such areas are especially vulnerable to increased development. Actual impacts to these resources would be assessed on a case-by-case basis at the time of application for a new right-of-way.

Summary

The recreation needs of many of those who use the RPRA might not completely be met by continuation of current management. The RPRA will continue to experience a distinct trend toward greater and greater recreation demand. If this increased demand is not met with additional management efforts, the RPRA can anticipate an increase in user conflicts both among recreation users and with other resource users, as well as deterioration of the resource base. Primitive and semi-primitive non-motorized recreation opportunities are particularly vulnerable to increased recreation use as well as to increased development. Since these resources seldom return to their previous condition, recreation opportunities generally tend to move irreversibly toward the more developed forms of activity and more primitive forms are displaced or eliminated. This would constitute a significant negative impact since there is presently four times the amount of more developed recreation opportunities as opposed to undeveloped opportunities available in the RPRA.

Not developing SMA's would, over the long term, result in the deterioration of the resources in the proposed SMA's. Not meeting the expressed demand for a variety of ORV opportunities would probably result in increased resource damage. A positive impact would result for those recreationists preferring an entirely "open" ORV recreation opportunity.

Visual Resources

Continuing current management of vegatative uses and not proceeding with a program of land ownership adjustments would have little impact on visual resources in the long term. No significant impacts would occur from harvest of the small amount of fuelwood which would be made available under this alternative.

Not identifying Special Management Areas could easily result in the deterioration of visual values. The proposed SMA's currently contain 170,508 acres of Scenic Quality A, 242,394 acres of Scenic Quality B, and 13,578 acres of Scenic Quality C (Appendix J). Nine of the twenty-two SMA's (Canon Jarido, Jones Canyon, Cabezon Peak, Ignacio Chavez, Elk Springs, Tent Rocks, Ojito, El Malpais, and Petaca Pinta) contain specific management objectives to manage for the maintenance of the existing high quality visual resources (Table 2-3). Without this stated management commitment, the visual resource would be much more vulnerable to the pressures created by the maximization of other resource values.

Not limiting motorized vehicle activity would ultimately reduce the overall visual quality of the RPRA in the long term. Motorized vehicle activity (both authorized and unauthorized) is expected to accelerate in the RPRA. Since additional roads encourage increased surface disturbance and increased cultural modification of the visual resource, an expanded network of roads, particularly those caused by dispersed motorized vehicle activity, would tend to shift visual resources from high Scenic Quality A and B to lower Scenic Quality C and D. Not acquiring scenic areas would constrain efforts to control surface modifications and maintain the scenic quality of these areas.

Not designating new rights-of-way corridors and windows would result in the majority of the issue area being available for rights-of-way development. Although actual impacts to visual resources would be assessed on a case-by-case basis at the time application was made for a new right-of-way, impacts to visual resources would generally be negative.

Cultural Resources

There would be no impacts to cultural resources under the vegetative uses and fuelwood supply issues for this alternative.

Existing management mechanisms (policy, procedure, and regulation) are directed toward the protection, preservation, and enhancement of cultural resources. Continuation of current management practices would provide minimal patrol, surveillance, and antiquity signing protection.

Under this alternative the opportunity to effectively and efficiently manage high value, high site density locations as geographic areas would not be realized. In addition, long term planning for maximizing cultural resource utilization would not be considered.

Direct impacts from "open" ORV designation, although slight, would increase in the long term as user demand grows. Indirect impacts (the effects not directly caused by vehicles themselves) contribute substantially to loss of cultural resources by facilitating ease of discovery, access, tool and equipment transport, artifact transport, and speed of action. These indirect impacts would increase dramatically under this alternative.

Disturbing cultural resource sites could, depending on the amount of disturbance, irreversibly and irretrievably eliminate the opportunity to study cultural sites in situ.

Retention of all public lands would seriously restrict the opportunity to acquire cultural resources through exchange or other means (unless allowed by plan amendment).

Avoidance and/or mitigation of cultural resources within the rights-of-way corridors issue area would be processed on a case-by-case basis.

Lands and Realty

There would be no impacts under this alternative for the following issues: special management areas, ORV designation, vegetative uses, and fuelwood supply.

There would be no long-term adjustment of the existing land ownership pattern, with no opportunity to consolidate ownership. The BLM would continue to be responsible for many small, isolated tracts of land. Land would still be available to government agencies and non-profit organizations for public parks and building sites under the Recreation and Public Purposes Act.

No rights-of-way corridors and windows (critical transmission line placement locations) would be designated under this alternative. Placement of transmission lines in the rights-of-way corridors issue area would continue on a case-by-case basis. There would be no attempt to consolidate right-of-way locations, or to prohibit incompatible development in critical placement areas.

Social and Economic Conditions

There would be no impacts under this alternative for the following issues: ORV designation, vegetative uses, and land ownership adjustments.

No Special Management Areas would be identified under this alternative. Consequently, no short-term social or economic impacts would occur on those areas identified for special management in other alternatives. However, in the long term, scientific, educational, and historic resource conditions would probably decline if these social values were not protected.

"Open" ORV use was specified by ranchers and at least one pueblo as having caused serious management problems. These individuals and groups have identified motorized vehicle use with trespass wood cutting, harassment of livestock, and vandalism of range improvements. They complained that livestock have been lost because gates were left open and fences cut. These problems could increase over the long term as the population increases, and more routes and trails are created.

Fuelwood supply under this alternative would not change. Around 120 cords of green and dead-and-down wood would continue

to be removed from BLM lands each year. In the short term, this would result in no change in economic or social factors. Fuelwood prices would increase in the long term as a result of increased demands from the area's expanding population. Rising prices would have only a slight economic effect on the urban fuelwood user. However, the social and economic impacts on the local resident users in Cuba and the surrounding rural areas would be greater. These rural users would find it increasingly more difficult and expensive to obtain their traditional heating and cooking fuel.

Rights-of-way corridors and windows would not be designated in the issue area under this alternative. In the long term, incompatible development could occur in the critical transmission placement areas, which could eventually interfere with transmission line construction, increasing development costs. Future transmission lines could be scattered throughout the rights-of-way corridors issue area, resulting in increased conflicts with owners of non-public lands. The lack of corridors could reduce costs slightly by allowing transmission line construction in the shortest and least expensive routes.

ALTERNATIVE B: RESOURCE CONSERVATION

Geology, Energy, and Minerals

This alternative provides management direction to enhance non-consumptive resource values at the expense of mineral resource development. Non-renewable resource use would be allowed only to the extent compatible with the emphasis on resource conservation.

The issue prescriptions for the fuelwood supply and vegetative uses issues would have no impact on mineral resource development. The remaining issue prescriptions discussed below would have significant short- and long-term impacts on energy and mineral development.

The identification of 22 Special Management Areas totalling 426,636 acres would result in restrictions on leasable, saleable, and locatable mineral development (see Tables 4-2 and 4-3). Approximately 4,558 acres of the RPRA would be withdrawn from fluid mineral leasing. An additional 1,946 acres would be stipulated for no surface occupancy, and 61,380 acres would have seasonal or other restrictions placed on development. The short- and long-term impacts of these actions would be to reduce the land available for fluid mineral development and to increase the expense of development on the affected lands.

Mineral material sales probably would not be compatible with SMA management objectives. Therefore, 267,440 acres would be unavailable for the disposal of industrial mineral commodities except under exceptional circumstances. The proposal to withdraw 12,438 acres from mineral entry would decrease the locatable mineral land base only slightly. The regulatory burden on mining claimants who have staked or may stake claims on the 50,877 acres within ACEC's would increase. Development of claims within ACEC's requires the filing of plans of operation and the preparation of environmental assessments (43 CFR 3809).

Motorized vehicle restrictions would not affect licensed users except for the requirement that mining claimants file a plan of operations in areas closed to motorized vehicle use. Additionally, the closures for SMA's would probably be incompatible with mineral material sales or other mineral resource development involving surface disturbance. Closure of road segments could create access problems for drillers and miners and could result in added development expense.

Because the planning criteria for this RMP limit the creation of additional split estate acreage (see Chapter 1), only those lands with little or no mineral potential would be offered for exchange or disposal in fee simple title. Overriding public interest could create exceptions to this criterion (see Appendix G). Any encumbering leases and contracts would be managed by the BLM until their expiration.

The management prescription for the rights-of-way corridors issue under this alternative involves the identification of several corridors and three rights-of-way development windows (see Pocket Map B). The resource conservation emphasis dictates that the lands included within the corridors and windows be reserved for right-of-way construction and protected from conflicting mineral development. The most restrictive criteria would apply to the development windows where, because of topography and land ownership patterns, conflicts with rights-of-way placement must be kept to a minimum.

Fluid mineral leasing would continue to be permitted within the designated corridors

TABLE 4-2

SUMMARY OF PLANNED ACTIONS FOR SMA's AFFECTING MINERALS

SMA Number	SMA Name	Affected Mineral Acreage*	Planned Actions Affecting Minerals
1	Torrejon Fossil Fauna	2,981	Mineral lease development will be subject to the terms and conditions of the lease Require a plan of operations under 43 CFR 3809 for present and future claims Prohibit the sale of mineral materials under all but exceptional circumstances
2	Pelon Watershed	858	Withdraw the land, under FLPMA authority, from the operation of the mining, mineral leasing, and mineral material sales laws
3	Historic Homesteads	16	Mineral lease development subject to the terms and conditions of the lease Prohibit the sale of mineral materials under all but exceptional circumstances
4	Canon Jarido**	1,803	Mineral lease development subject to the terms and conditions of the lease Prohibit the sale of mineral materials under all but exceptional circumstances

TABLE 4-2 (continued)

SMA Number	SMA Name	Affected Mineral Acreage*	Planned Actions Affecting Minerals
5	Jones Canyon**	649	Stipulate no surface occupancy for oil and gas and geothermal lease development Withdraw the land, under FLPMA authority, from the operation of the mining laws Require a plan of operations under 43 CFR 3809 for existing claims Prohibit the sale of mineral materials under all but exceptional circumstances
6	Headcut Prehistoric Community**	2,274	Mineral lease development subject to the terms and conditions of the lease
7	San Luis Mesa Raptor Area	9,004	Withdraw the land in the Empedrado Watershed area, under FLPMA authority, from the operation of the mining, mineral leasing, and mineral material sales laws (640 acres) Require a plan of operations under 43 CFR 3809 for existing and future claims Stipulate that surface disturbing activities associated with mineral leasing be allowed only from July 1 through January 31 Mineral lease development will be subject to the terms and conditions of the lease Prohibit the sale of mineral materials outside of the Empedrado Watershed under all but exceptional circumstances

TABLE 4-2 (continued)

SMA Number	SMA Name	Affected Mineral Acreage*	Planned Actions Affecting Minerals
8	Azabache Station	80	Stipulate no surface occupancy for oil and gas and geothermal lease development Mineral lease development will be subject to the terms and conditions of the lease Withdraw the land, under FLPMA authority, from the operation of the mining and mineral material sales laws
9	Cabezon Peak	5,053	Mineral lease development will be subject to the terms and conditions of the lease Require a plan of operations under 43 CFR 3809 for existing and future claims Prohibit the sale of mineral materials under all but exceptional circumstances
10	Ignacio Chavez**	43,134	Standard lease stipulation areas will be defined during activity planning. Any of the fourteen standard stipulations may be applied to leases offered after the development of the activity plan (see Appendix F) Mineral lease development will be subject to the terms and conditions of the lease Prohibit the sale of mineral materials under all but exceptional circumstances

TABLE 4-2 (continued)

SMA Number	SMA Name	Affected Mineral Acreage*	Planned Actions Affecting Minerals
11	Big Bead Mesa	311	Stipulate no surface occupancy for oil and gas and geothermal lease development Mineral lease development will be subject to the terms and conditions of the lease Withdraw the land from the operation of the mining and mineral material sales laws
12	Canon Tapia	906	Stipulate no surface occupancy for oil and gas and geothermal lease development Mineral lease development will be subject to the terms and conditions of the lease Require a plan of operations under 43 CFR 3809 Prohibit the sale of mineral materials under all but exceptional circumstances
13	Guadalupe Ruin and Community	485	Withdraw the land, under FLPMA authority, from the operation of the mining, mineral leasing, and mineral material sales laws

TABLE 4-2 (continued)

SMA Number	SMA Name	Affected Mineral Acreage*	Planned Actions Affecting Minerals
14	Elk Springs**	9,722	Withdraw the Juana Lopez Research Natural Area from the operation of the mining, mineral leasing, and mineral material sales laws Stipulate that surface disturbing activities associated with mineral leasing outside of the Research Natural Area will be allowed only from May 15 through November 15 Mineral lease development will be subject to the terms and conditions of the lease Require a plan of operation under 43 CFR 3809 Prohibit the sale of mineral materials outside of the Research Natural Area under all but exceptional circumstances
15	Tent Rocks	10,504	Mineral lease development will be subject to the terms and conditions of the lease Require a plan of operations under 43 CFR 3809 for those portions of the SMA that are proposed to be managed as an ACEC Prohibit the sale of mineral materials under all but exceptional circumstances
16	Ojito	12,230	Withdraw the Las Milpas Gas Storage Facility from the operation of the mining laws

TABLE 4-2 (continued)

SMA Number	SMA Name	Affected Mineral Acreage*	Planned Actions Affecting Minerals
			Withdraw the Querencia Watershed Study Area, under FLPMA authority, from the operation of the mining, mineral leasing, and mineral material sales laws Require a plan of operations under 43 CFR 3809 for all of the lands in the ACEC that have not been withdrawn Mineral lease development will be subject to the terms and conditions of the lease Prohibit the sale of mineral materials outside of the Querencia Watershed under all but exceptional circumstances
17	Ball Ranch**	1,895	Withdraw the land, under FLPMA authority, from the operation of the mining, mineral leasing, and mineral material sales laws Require a plan of operations under 43 CFR 3809 for all existing mining claims
18	Pronoun Cave Complex	938	Mineral lease development will be subject to the terms and conditions of the lease Prohibit the sale of mineral materials under all but exceptional circumstances

TABLE 4-2 (concluded)

SMA Number	SMA Name	Affected Mineral Acreage*	Planned Actions Affecting Minerals
19	Continental Divide Trail	715	Mineral lease development will be subject to the terms and conditions of the lease Prohibit the sale of mineral materials under all but exceptional circumstances
20	1870's Wagon Road Trail	630	Mineral lease development will be subject to the terms and conditions of the lease Prohibit the sale of mineral materials under all but exceptional circumstances
21	El Malpais	302,611	Mineral lease development will be subject to the terms and conditions of the lease Prohibit the sale of mineral materials under all but exceptional circumstances
22	Petaca Pinta	5,363	Mineral lease development will be subject to the terms and conditions of the lease Prohibit the sale of mineral materials under all but exceptional circumstances

* Affected Mineral Acreage is the total area of Federally-managed minerals within the Special Management Area. One or more of the planned actions may affect all or part of this acreage.

** These SMA's are not recommended under Alternative C. No SMA's are recommended under Alternative A.

TABLE 4-3

ACREAGE OF FEDERAL MINERALS AFFECTED BY
SPECIAL MANAGEMENT AREA IDENTIFICATION

SMA Number	SMA Name	Locatable Mineral Withdrawal	Saleable and Leasable Mineral Withdrawal	3809 or 3802 Plan of Operations	Development Subject to Lease Terms and Conditions	Exceptional Sales of Mineral Materials	No Surface Occupancy Stipulations	Seasonal Occupancy Stipulations	Other Standard Lease Stipulations
1	Torrejon Fossil Fauna	0	0	2,981	2,981	2,981	0	0	0
2	Pelon Watershed	858	858	0	0	0	0	0	0
3	Historic Homesteads	0	0	0	16	16	0	0	0
4	*Canon Jarido	0	0	0	1,803	1,803	0	0	0
5	*Jones Canyon	649	0	649	649	649	649	0	0
6	*Headcut Prehistoric Comm.	0	0	0	2,274	2,274	0	0	0
7	*San Luis Mesa Raptor Area	640	640	9,004	8,364	8,364	0	8,364	0
8	Azabache Station	80	80***	0	80	0	80	0	0
9	Cabezon Peak	0	0	5,053	5,053	5,053	0	0	0
10	*Ignacio Chavez**	0	0	0	43,134	43,134	-	-	43,134
11	Big Bead Mesa	311	311***	0	311	0	311	0	0
12	Canon Tapia	0	0	906	906	906	906	0	0
13	Guadalupe Ruin and Comm.	485	485	0	0	0	0	0	0
14	*Elk Springs	40	40	9,722	9,682	9,682	0	9,682	0
15	Tent Rocks	0	0	10,504	10,504	10,504	0	0	0
16	Ojito	7,480	640	12,230	11,590	11,590	0	0	0
17	Ball Ranch	1,895	1,895	1,895	0	0	0	0	0
18	Pronoun Cave Complex	0	0	0	938	938	0	0	0
19	Continental Divide Trail	0	0	0	715	715	0	0	0
20	1870's Wagon Road Trail	0	0	0	630	630	0	0	0
21	El Malpais	0	0	69,729	162,838	162,838	0	0	0
22	Petaca Pinta	0	0	5,363	5,363	5,363	0	0	0
Total	12,438	12,438	4,949	128,036	267,831	267,440	1,946	18,046	43,134

* These SMA's are not recommended under Atlernative C. No SMA's are recommended under Alternative A.
** Any of 14 standard stipulations may be applied to all or portions of this SMA following activity planning.
*** Withdrawal for saleable minerals only.

but would not be permitted within the rights-of-way windows. The prohibition of fluid mineral leasing within the windows is required due to relatively small window size and critical geographic location. The decision not to lease within the windows would remove about 17,620 acres of land with high to moderate oil and gas potential from the fluid minerals leasing base. A no surface occupancy stipulation was considered for these areas, but because slant drilling is generally uneconomical at depths of less than 5,000 feet, this stipulation was determined not to be feasible.

Under the Resource Conservation Alternative, only those lands which have been determined to be both suitable and acceptable for coal development following application of the surface owner consultation, multiple use, and unsuitability criteria screens (see Appendix E) would be recommended for further consideration for leasing. Those areas within the rights-of-way corridors and windows would be considered to be unacceptable for leasing. Of a total of 8,020 acres having maximum coal development potential (Appendix D), about 5,720 acres would be carried forward to the coal activity planning stage. Approximately 2,300 acres having maximum near-future development potential would be considered to be unacceptable under this alternative, about a 30 percent reduction in the maximum potential coal base. Under this alternative, about 30 million tons of coal would be made unavailable for further leasing consideration and would not be mined unless a plan amendment were prepared.

Although more coal could be leased under this alternative than under the Continuation of Current Management Alternative, this proposal represents the most restrictive prescription for coal development of all the alternatives which apply the coal leasing suitability criteria.

Mineral material sales within the rights-of-way corridors and windows would be permitted only if the sales did not interfere with future right-of-way construction. Sale applications would be handled on a case-by-case basis.

Locatable mineral development would be unaffected by window and corridor identification. No withdrawals are proposed for designated rights-of-way corridors and windows, and there would be no recommendation for additional protection under the surface management regulations (43 CFR 3800).

The Resource Conservation Alternative proposes management protection for two important geological resources located within the boundaries of the Ojito SMA, the San Ysidro anticline and the Las Milpas Gas Storage Facility. The area of the San Ysidro anticline is frequently used for geologic instruction. It would be protected from non-discretionary mineral development through its inclusion in an ACEC, with the resulting requirement under the surface management regulations for the filing of a plan of operation and the preparation of an environmental analysis under the surface management regulations prior to surface disturbance. In addition, lease development activities would be closely monitored and mineral material sales would be prohibited under all but exceptional circumstances.

The designation of rights-of-way corridors and windows under this alternative could have an adverse effect on the preservation of the San Ysidro anticline. Future rights-of-way construction could seriously disturb the geological relationships in this area and could significantly compromise the area's value for geological instruction.

The underground Las Milpas Gas Storage Facility represents a potential geological hazard and would receive added protection through a locatable mineral withdrawal. No mining claims would be permitted on 7,480 acres of this area. As is the case with the San Ysidro anticline, leasing would be permitted, but lease development activities would be intensely monitored. No mineral material sales would be authorized from the storage facility area.

Summary

In the short term, significant acreage would be determined to be unacceptable for further consideration for coal leasing and the acreage encumbered by no surface occupancy and other special stipulations on leases would increase dramatically. Additionally, a total of 267,440 acres of the RPRA's mineral lands base would be removed from consideration for mineral material sales. Although some coal might later be made available for lease, approximately 30 percent of the coal lying beneath the area of maximum coal

development potential would be rendered undevelopable. The designation of a rights-of-way corridor through the area of maximum coal development potential would limit coal production in the long term and would result in the modification of logical mining units and the creation of bypass coal. The impact of this alternative management prescription upon mineral resource development would be negative and would result in decreased mineral resource availability and increased development expense. Additionally, substantial acreage would be withdrawn from mineral location, and increased regulatory burden would be placed on claimants who locate within ACEC's.

Universities would continue to have assured access to a unique, local geological study area and the operators of the Las Milpas Gas Storage Facility would receive an added measure of protection from unauthorized penetration of the gas reservoir.

Paleontological Resources

No significant impacts would result from management prescriptions proposed for the vegetative uses, fuelwood supply, and rights-of-way corridors issues.

This alternative places primary emphasis on maintaining or improving the condition of important paleontological values through the identification of the Torrejon Fossil Fauna SMA and Elk Springs SMA which would protect the Juana Lopez Member (see Appendix C, SMA's 1 and 14). Because the detrimental effects of uncontrolled motorized vehicle use and unrestricted mineral development would largely be mitigated under this management prescription, little or no negative impact to the RPRA's significant paleontological resources is anticipated.

Substantial positive resource impacts would be derived from protection afforded by the various types of special management designations. ACEC designation would require the filing of a plan of operations under the surface management regulations (43 CFR 3809). Locatable mineral development would be allowed to continue in the ACEC's, but the requirement for an environmental analysis would ensure compatibility with protective resource management. Mineral withdrawal is proposed for those areas where no form of mineral development is considered to be safe or compatible. Withdrawal proposed for paleontological values associated with the Juana Lopez Member is limited to a total of forty acres. The protection recommended for these significant areas would ensure that important paleontological benchmarks would remain undisturbed and available for future scientific study. Lands containing important and significant paleontological resources would not be offered for sale or exchange under this proposal. With regard to the operation of the disposal criteria under this alternative (see Chapter 1), paleontological resources would receive the same consideration as cultural resources.

Soil and Water Resources

No significant impacts would result from resolution of the land ownership adjustments issue.

Under this alternative, soil and watershed protection would be enhanced by placing 426,480 acres in SMA's, and by designating the majority of the RPRA as "limited" for motorized vehicle use. In addition, 90,993 acres and 16 miles of road would be closed to motor vehicle use. Livestock grazing would be reduced on 42,233 acres. Surface disturbance would occur on twenty-three additional acres annually from fuelwood activities. The continuous loss of soil to wind and water erosion constitutes an irretrievable commitment.

Overall, this alternative would benefit the soil and water resources in both the short and the long term. A reduction in erosion and sediment production would be expected as more land is protected from surface disturbing activities in Special Management Areas. Including the three Rio Puerco Hydrology Study watersheds in the Pelon Watershed, San Luis Mesa Raptor Area, and Ojito SMA's (see Appendix C) would ensure uninterrupted data collection.

In the short term, no significant impacts would be expected from motorized vehicle restrictions. In the long term, controlling and limiting motorized vehicle use would reduce erosion resulting from the creation of new roads and trails. Any roads closed would be stabilized to prevent future erosion problems. Increased erosion would occur in areas where ORV, equestrian, and foot trails are designated, and use increases.

In the short term, changes in grazing management and use would slightly reduce erosion and sediment yields. However, in the long term, adjustments in grazing would allow improvement in vegetative cover and

would result in decreased runoff and erosion.

Short-term increases in erosion and sediment production would occur as a result of fuelwood harvest and transmission line placement in rights-of-way corridors and windows. Permit stipulations for mitigation of impacts and rehabilitation of disturbed areas would provide long-term erosion control.

Range Resources

There would be no impacts under this alternative from the special management areas issue.

The motorized vehicle restrictions proposed under this alternative would provide protection for the majority of public land in the RPRA from possible declines in vegetative vigor, vegetative production, and ecological condition.

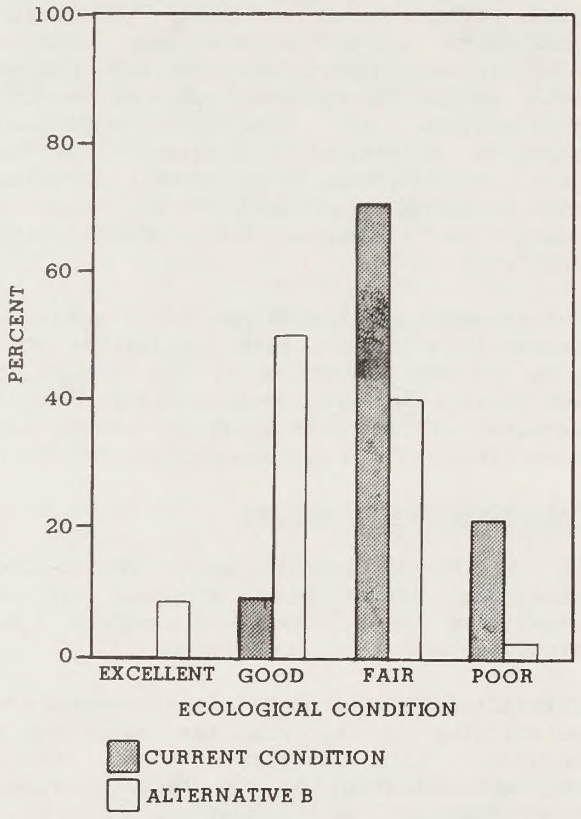
Based on current data, it is estimated that a reduction of 1,898 AUM's would be required in the short term for the nine "I" category allotments. The proposed reductions would range from 17 to 61 percent of the current allowable livestock grazing use on the "I" allotments. These reductions in livestock grazing would be phased in over a five year period to decrease the adverse impacts on the livestock operations by allowing the allottees to gradually decrease their herds and/or locate alternate pasture. No long-term increases in AUM's would be proposed.

Increases in vegetative production on the "I" allotments would occur in the long term as a result of the livestock reductions, changes in grazing management, and installation of range improvements. However, these increases in vegetative production would not result in increased AUM's allocated to livestock grazing use but would result in improved watershed condition and enhanced wildlife habitat.

In the short term, vigor of preferred livestock forage would improve on the "I" allotments as a result of decreased livestock use. No significant changes in vegetation on the "M" and "C" allotments would occur in the short term.

In the long term significant improvements in ecological condition would occur on the "I" allotments. No significant changes in ecological condition would be expected on the "M" and "C" allotments. Figure 4-1 illustrates the expected long-term changes in ecological condition.

FIGURE 4-1
LONG-TERM CHANGES IN ECOLOGICAL CONDITION
ALTERNATIVE B



Those allottees on the public lands identified for exchange under this alternative would lose their grazing privileges if the exchanges were consummated. Generally, the impacts on these allottees would be slight since the public lands constitute only a small part of their total livestock operations. If the lands are offered for exchange to other land management agencies, the impacts would be mitigated if these agencies continued to grant livestock grazing use to the allottees.

Although twenty-three additional acres of fuelwood would be available for harvest under this alternative, the impacts would be the same as described for the Continuation of Current Management Alternative.

Designation of the rights-of-way corridors and windows proposed under this alternative could provide protection from surface disturbing activities associated with

right-of-way development for the large portion of the RPRA's range resources outside of the designated corridors. However, short-term impacts to the range resource would still result from right-of-way developments placed in the corridors, although these impacts would not be of a sufficient magnitude to require reductions in livestock grazing use. In the long term, the impacts to the range resource would be mitigated by the revegetation requirements associated with the granting of rights-of-way.

Summary

It is estimated that a reduction of 1,898 AUM's would be required in the short term for the "I" category allotments. The increased vegetative production that would occur in the long term on the "I" category allotments would be reserved for improved watershed condition and enhancement of wildlife habitat. No increase in forage allowed for livestock grazing use would be considered until watershed and wildlife habitat needs were satisfied. Short-term improved vigor of preferred livestock forage and long-term improvement in ecological condition would be anticipated on the "I" category allotments.

Wildlife

Wildlife Habitat

The management prescriptions and protection measures outlined for SMA's in Appendix C would specifically benefit wildlife habitat on 76,321 acres of the Ignacio Chavez, Elk Springs, Tent Rocks, San Luis Mesa Raptor Area, and Jones Canyon SMA's. Wildlife habitat in the 17 other SMA's (350,159 acres) would also receive increased protection as a result of proposed management changes in these areas.

The restrictions on motorized vehicle use under this alternative would protect wildlife from harrassment and habitat degradation in the long term throughout most of the RPRA.

In the short term, reductions in livestock grazing and changes in grazing management would have no significant impacts on wildlife-livestock conflicts. The anticipated improvement in ecological condition from livestock adjustments on 39,925 acres would benefit wildlife by reducing competition for forage and increasing the cover available for small animals in the long term. Ground nest trampling would probably be somewhat reduced. See Table 4-1 for the level of wildlife-livestock conflict anticipated under this alternative.

Under this alternative, wildlife habitat now in private or State ownership could be brought under public administration through exchanges. The lands given up to acquire these lands would generally be of lesser quality for wildlife habitat since scattered tracts with limited wildlife management potential would be offered for exchange.

An estimated 7,620 acres of pinyon-juniper woodland would be open for fuelwood harvest. Authorized harvesting at a maximum rate of thirty-three acres per year would cause short-term disturbance to wildlife during cutting operations, a slight increase over the Continuation of Current Management Alternative. In the Chiuilla Mesa and Mesa Portales areas, past chainings and fuelwood sales have reduced pinyon-juniper stands to a point where any further loss would significantly affect big game and woodland-dwelling bird populations. The fuelwood sales in the Ignacio Chavez SMA would be designed for wildlife needs. In the long term, edge-effect and forage would increase as a result of woodland management.

Assuming that the same number of rights-of-way with the same amount of surface disturbance would occur whether or not corridors are established, wildlife would benefit from corridor establishment since rights-of-way would be channeled through lesser quality habitat rather than through high quality areas such as the Ignacio Chavez Grant. Surface disturbance would be concentrated in the rights-of way corridors and windows. While this would initially cause disturbance to wildlife and a loss of forage, as ecological succession progressed, the disturbed surface would go through a forb stage which would benefit some wildlife species, eventually returning to the original vegetation community. Vehicular access would probably increase in the corridors, decreasing their value as wildlife habitat.

Summary

The impacts to wildlife identified for this alternative are long term in nature. They are neither irreversible or irretrievable since a reversal in management, rehabilitation, or ecological succession would return the land to its original

state. Following is a summary of the impacts to wildlife from this alternative: about 426.480 acres of wildlife habitat within SMA's would be protected from mineral development and other surface disturbing activities. Habitat would be improved by the estimated livestock adjustments, although some conflicts would still exist between livestock and wildlife. Habitat for wildlife would be protected by motorized vehicle restrictions. Cover could be lost during fuelwood sales, but forage and habitat diversity would increase.

Threatened, Endangered, and Rare Species

No significant impacts would result from the land ownership adjustments, fuelwood supply, or rights-of-way corridors issues.

Special Management Areas with specific goals for protecting rare plants would include 21,317 acres in the Cabezon Peak, Ojito, and Ball Ranch SMA's. Rare plants would be protected if they occur in SMA's identified for other resources. The protection for habitat on all SMA's would benefit bald eagles, peregrine falcons, and State-listed gray vireos, when present. Generally, SMA's would provide short- and long-term protection to threatened, endangered, and rare species.

Threatened and endangered animals and plants and rare plants would also be protected through motorized vehicle restrictions in the short and long term.

Improved ecological condition due to livestock adjustments would result in long-term protection, while no short-term benefits to threatened, endangered, or rare species would result. As it is not feasible to implement grazing management on BLM tracts in Torrance County, any impacts grazing may have on the State-listed McCown's longspur are not be addressed.

Woodland Resources

No significant impacts would be associated with the vegetative uses, land ownership adjustments, and rights-of-way corridors issues.

The identification of SMA's (see Map 1-6) containing woodland resources would provide more intensive management attention in the form of patrol and surveillance, which would assist in the short- and long-term control of unauthorized fuelwood harvest on 28,170 acres in the SMA's. In addition, it would prevent the initiation of any silvicultural practices directed at enhancing or protecting fuelwood supply in these SMA's in the future. This would tend to shift these areas away from pinyon-juniper and toward a shrub-grasslands vegetative community in a time frame greater than the twenty year life of this plan. Approximately 126 acres of pinyon-juniper would be unavailable for fuelwood harvest each year in both the short and long term.

In the short term, ORV designations would not significantly impact woodland resources. In the long term, such designations would control the expansion of roads and trails, which would aid in reducing access to unauthorized fuelwood harvesting areas.

By providing silvicultural practices to benefit fuelwood supplies on 7,620 acres of woodlands outside the SMA's, about 33 acres/year would be available for fuelwood harvest on a sustained yield basis. As a result of making more acreage available for harvest than is currently available, it is anticipated that wide-spread unauthorized fuelwood harvest would decline. Demand would exceed supply, but by less than under Continuation of Current Management Alternative. These are short- and long-term impacts. The long-term impacts of not providing silvicultural practices to benefit fuelwood supply for the 28,170 acres in the SMA's would be a tendency to shift the woodlands toward shrub-grassland after many decades.

Recreation

Identifying twenty-two SMA's would significantly enhance the recreation opportunities in the RPRA. About 66,621 acres of primitive recreation opportunity would be protected, as would 128,389 acres of semi-primitive non-motorized opportunity, 163,359 acres of semi-primitive motorized opportunity, and 67,880 acres of roaded natural opportunity. About 23,587 additional acres of primitive recreation opportunity would be available in the Rio Puerco Grazing ES area. The quality of the recreation opportunities would be enhanced by several management actions proposed for the SMA's (see Table 2-3 and Appendix C). Many of the proposed actions, including managing to protect scenic values, closure to motorized vehicle activity, limiting motorized vehicle activity to existing roads and trails, mineral withdrawal, allowing no

surface occupancy, closure to mineral leasing, and protection of wildlife habitat, rare plants, and cultural and paleontologic values, would encourage the maintenance of these special recreation opportunities as they currently exist. Identification of SMA's followed by site-specific activity plans would define the scope and priorities for management of recreation resources, resulting in visitor services and a level of protection for these recreation resources which do not currently exist. Identification of the 1870's Wagon Road Trail for equestrian and foot travel and defining a treadway for the Continental Divide National Scenic Trail, would help meet both national and State trail objectives.

Totally "open" motorized vehicle recreation opportunity would be eliminated in the RPRA. About 15,574 acres in SMA's and the Bluewater ACEC would be "closed" and motorized vehicles would be limited in the rest of the RPRA to existing roads, trails, and special use areas. In the long term, this would result in a moderate impact to those recreationists preferring a totally "open" ORV opportunity. There would be, however, 860 miles of routes available for ORV recreation ranging from primitive to graded to paved routes. In addition, large expanses of the RPRA are unsuitable for cross-country travel because of rugged terrain.

The ORV "closed" and "limited" designations would significantly enhance the preservation of primitive, semi-primitive non-motorized, and semi-primitive motorized recreation opportunity. The designation of a trials use area, dune buggy competitive use area, and 124 miles of ORV recreation trail system would partially mitigate the impact of eliminating all "open" motorized vehicle recreational opportunity in the RPRA. The closure of BLM Inventory Road 15-1-18 in the Ojito SMA (see Appendix C) would necessitate the re-routing of a race course often used by the annual "Oh-My-God-100" motor-cross race. One alternate site has already been utilized for this race. The race could be accommodated elsewhere. Closure of roads 5-5-15, 5-5-17, and 16-5-23 (except to authorized users) in the Ignacio Chavez SMA (see Appendix C) would allow two contiguous semi-primitive non-motorized recreation areas to be combined and managed as a primitive recreation opportunity to help meet the expressed demand for this type of opportunity (Appendix I).

Improving ecological condition for the enhancement of wildlife habitat and improved watershed resources would enhance the recreation opportunities in the long term on 43,233 acres in the vegetative uses issue area by protecting and enhancing the natural setting in which all types of recreation take place.

Public lands identified for land ownership adjustment could be exchanged for lands identified as suitable for acquisition in the Ladron and Divide MFP's and the SMA's, contributing significantly to more effective management of recreation resources.

Selective cutting of fuelwood in the Ignacio Chavez SMA for the benefit of wildlife values would improve recreation opportunities associated with wildlife. Fuelwood harvest from semi-primitive non-motorized areas in support of woodlands management would tend to shift the recreation opportunities to those which most often occur in roaded natural settings. The greater the amount of fuelwood cutting, the greater the shift from the more primitive to the roaded natural opportunity because of an increased road network.

The rights-of-way corridors and windows proposed for this alternative would have little impact on the recreation resource. Right-of-way development would be encouraged through areas most appropriate to right-of-way needs, thus reducing impacts to the remainder of the RPRA. Some protection of sensitive recreation resources, such as those located in the SMA's, would be an indirect benefit.

Summary

Overall, this alternative would have a beneficial impact on recreation opportunities in the RPRA. Both short-term and long-term beneficial impacts would accrue and would result in visitor services and a level of protection for recreation opportunities which do not currently exist. The motorized vehicle opportunities provided by a trials use area, dune buggy competitive area, and ORV trail system would help mitigate the impact of eliminating totally "open" motorized vehicle opportunity in the RPRA, as well as reduce conflicts between motorized and non-motorized recreation needs.

Visual Resources

Nine of the twenty-two SMA's which would be established under this alternative contain specific management objectives for the maintenance of the existing high quality visual resources. These areas are Canon Jarido, Jones Canyon, Cabezon Peak, Ignacio Chavez, Elk Springs, Tent Rocks, Ojito, El Malpais, and Petaca Pinta. About 167,669 acres of Scenic Quality A and 235,830 acres of Scenic Quality B would be protected (see Appendix J). Site-specific activity plans to be completed at a later date would define the scope and priorities for the visual resources. Adequate protection of sensitive visual resources in these nine SMA's would be assured under this alternative.

The curtailment of illegal routes and the ancillary activities that often accompany them would help in reducing impacts to visual resources.

Improving ecological conditions for the enhancement of wildlife habitat and improved watershed resources would generally enhance the visual resource. The elements of texture and color would most likely be improved.

The exchange of public lands identified as suitable for land ownership adjustment for those lands identified in the Ladron and Divide MFP's and the proposed SMA's as suitable for acquisition would significantly assist in more effective management of visual resources by providing control of surface modification on contiguous lands.

There would be little impact to visual resources from selective cutting for fuelwood. The impacts of fuelwood harvest from thirty-three acres would be assessed annually on a site-specific basis.

Although the impacts associated with right-of-way development would be assessed on a site-specific basis, the cumulative impacts to visual resources would be less if transmission lines were placed through the corridors and windows than if they were placed randomly through the issue area.

Cultural Resources

There would be no impacts under the vegetative uses and fuelwood supply issues for this alternative.

High density, high value cultural resources located within the identified SMA's would receive special management attention and emphasis under this alternative.

Direct impacts to cultural resources from motorized vehicle use would be slightly reduced and indirect impacts would be substantially reduced in the long term by closing some areas to motorized vehicle use and generally limiting vehicle use to existing roads and trails. This would help to limit access to cultural resource sites.

The advantage of acquiring non-BLM lands containing high value cultural resources through land exchanges or other means could be realized. BLM lands having high density, high value cultural resources would be retained and not exchanged unless the adverse effects of the exchange were mitigated.

Avoidance and/or mitigation of cultural resources within specific rights-of-way corridors and windows could be addressed in single projects or staged to preclude treatment on a case-by-case basis. The establishment of rights-of-way corridors would allow completion of inventory, evaluation, and mitigation of cultural resources within the corridor area independent of a particular project. Once these actions were completed no additional considerations for cultural resources would normally be necessary for future projects within the corridor.

Lands and Realty

There would be no impacts under this alternative for the following issues: ORV designation, vegetative uses, and fuelwood supply.

Acquisition of approximately 8,879 acres of State and private surface located in SMA's would be authorized under this alternative, representing about 14 percent of the total surface acreage of the SMA's. The impacts of acquiring non-public lands are summarized on Table 4-4. Other exchanges could be identified in the future to enhance management in the long term. In the long term, consolidation of the public lands would improve management efficiency and effectiveness in the SMA's and would have a significant positive impact. Exchanges would tend to balance the impacts of disposal with those of acquisition, a major benefit. By regulatory requirement,

TABLE 4-4

IMPACTS OF ACQUIRING NON-PUBLIC LANDS

Positive	Negative
Improves resource values of existing public land.	Can displace existing authorized users if current use conflicts with management plans for the area.
Can provide improved public access to important resource values.	Substantial costs in processing cases.
Improves manageability of existing public land by eliminating private and State inholdings with potential for conflicting uses.	May adversely affect the tax base of one or more counties.
Creates more manageable land ownership patterns.	May sacrifice one or more private interests to benefit other public interests.
Improved manageability can decrease administrative costs.	

exchanges should result in a net increase in public values. Large-scale and rapid land ownership adjustments through exchanges with the State and other entities are unlikely. This should be considered a long-term program lasting the entire life of this RMP.

Designation of the rights-of-way corridors and windows identified on Pocket Map B would facilitate the orderly placement of future transmission lines. Proposed Corridor I is located within the corridor analyzed in the New Mexico Generating Station EIS (USDI, BLM 1983c) (see Pocket Map B), which could simplify the environmental analysis of future transmission line placement because site-specific resource conflicts have already been identified in this EIS. To avoid the Cabezon and Ojito WSA's, the proposed corridor is narrower than the New Mexico Generating Station EIS corridor. In the long term, transmission lines generally would be constructed in defined corridors. Placement of transmission lines outside of corridors would occur only in unusual circumstances and would be handled on a case-by-case basis. Development that is incompatible with critical transmission line placement areas (windows) would be prevented.

The special stipulations attached to rights-of-way granted in the area of overlap between the Ojito SMA and the Ojito East Window would be designed to protect SMA values. The application of these stipulations could result in impacts to transmission line placement. For example, transmission lines may have to be placed in other than the most logical location to avoid impacts to Mound Springs and to minimize impacts to the San Ysidro anticline.

Social and Economic Conditions

Under this alternative, twenty-two Special Management Areas would be established. The special management proposed would result in short-term, positive social impacts with no change in economic values. In the long term, impacts would be positive due to the preservation of social values and could be positive for economic values. For example, an area managed for recreation could have positive economic benefits resulting from increased tourism.

No economic impacts would be expected as a result of motorized vehicle restrictions. The RPRA has received about 200 letters protesting any change in the current "open" ORV status. These individuals feel that limiting motorized vehicles to existing roads and trails would seriously restrict their recreation opportunities. In the long term, there would be more intensive motorized vehicle recreation use on the existing roads and trails, and more trails would become roads. This could eventually limit the off-road recreational experience. This alternative would provide for the issuance of special permits for group events, which could mitigate some ORV user objections to these restrictions. Limiting motorized vehicles to existing roads and trails would reduce the incidences of livestock harassment, vandalism, and trespass fuelwood cutting in the long term.

Two ranch budgets were prepared for use in making an economic analysis of the livestock grazing for this and the other alternatives. The eight smaller livestock operators use family labor on a part-time basis and produce an average negative net return to the operator's labor, capital, and management of $2,267 after all operating expenses and other costs are covered. Since the reductions in AUM's proposed under this alternative would not reduce the available AUM's below the number used in budget preparation, no change in employment or income would be expected. However, a value of approximately $100 per AUM has accrued to BLM permits in the real estate market. The average smaller operator has a permit value of approximately $31,900. The proposed reductions in BLM AUM's would reduce this value to approximately $22,650, a 29 percent decrease.

The four larger livestock operators use some part-time non-family labor and produce an average net return to the operator's labor, management, and capital of $4,276 after all operating expenses and other costs are covered. Here again, the reductions in AUM's proposed under this alternative would not reduce the available AUM's below the number used for budget preparation. No change in employment or income would be expected. Permit value for this group averages $186,200. The proposed reduction in BLM AUM's would reduce this value to approximately $157,200, a 16 percent reduction. Regionally, these impacts are negligible. As they affect the individual operator, however, they could be substantial. Reductions could be as much as 49 percent for one of the smaller operators. It is important to note that

the permit value not only affects an operator's worth (value of his assets), but also affects his borrowing power.

The small operators are in the livestock business for reasons other than economic gain--probably because of social values associated with a ranching lifestyle. Therefore, the small operators are not likely to leave the business because of reductions in livestock grazing. However, these reductions would make it more costly for them to maintain these social values.

Two of the larger operations are part of multi-venture enterprises and the operators are not solely dependent on these grazing operations. The other two may be trying to make a living from their livestock grazing operations and could come under financial pressure if grazing reductions are implemented. It is estimated that only one of these two would be proposed for reductions.

The impacts on the seven individual operators who could receive reductions could be significant. It is estimated that five of the eight small operators would receive reductions ranging from 30 to 49 percent. Two large operators would receive estimated reductions of 17 and 35 percent. However, when the last five-year average authorized use is considered, the impacts of the estimated reductions decrease. The total five-year average authorized use for these seven operations is 1,318 AUM's less than the allowable livestock grazing use, while the estimated reductions would be 1,872 AUM's less.

Average yearly receipts and net returns would decline for the seven individual operators upon implementation of these estimated reductions. The current average yearly net return for the small operators is estimated to be a negative $2,267. The proposed reductions would result in a greater negative average net return for five small operators. These five operators would have to rely more on their off-ranch income to support their ranch operations. For the four large operators, the current yearly average net return is estimated to be $4,276. For two large operators, the proposed reductions could result in a decline in average yearly receipts and could result in negative average yearly net return. Negative yearly net returns would result in the reliance on off-ranch incomes to support the ranch operations.

In addition to reduced receipts and net returns, borrowing power would decrease in direct relation to the size of the reductions implemented for the seven individual operators. Equity value would also decline as a result of changes in the ratio of owned to leased assets.

In summary, the impacts on these twelve operations collectively would be insignificant. However, for seven individual operators, the estimated reductions in allowable livestock grazing would result in declines in yearly net returns and receipts, leading to an increased reliance on off-ranch income subsidies. These economic impacts could threaten the continuation of the lifestyles practiced by these operators.

The lands proposed for exchange under this alternative are small, scattered, and isolated tracts. The exchange of these lands could result in slight economic and social impacts.

Livestock grazing privileges could be lost on public lands exchanged. However, since emphasis in this alternative is on exchange with the State, which would likely extend grazing leases to the present users, and since these small tracts are not critical parts of any grazing operations, the impacts would be negligible. State land grazing fees are considerably higher than BLM fees. However, since the land to be exchanged is a small part of a total livestock operation, this rate change would have a negligible impact.

The lands proposed for exchange could be used in exchanges to acquire non-public land in the SMA's, resulting in slight positive long-term social and economic impacts. Consolidating the lands in the proposed SMA's under public ownership would improve resource management and could result in a small increase in recreation and tourism in these areas.

Under this alternative, the impacts associated with fuelwood supply would be the same as those described for the Continuation of Current Management Alternative.

Restriction of transmission lines to the rights-of-way corridors and windows proposed under this alternative could slightly increase development costs if the corridors did not provide the most direct

and least expensive route. However, utilization of the corridors would reduce the requirements for extensive environmental analysis and would result in a decrease in development cost.

Summary

Special management for twenty-two areas with valued resources would bring positive short-term social impacts and should not result in changes in economic values. Long-term social and economic impacts would be positive, depending on the degree of public use of the Special Management Areas.

Motorized vehicle use would be restricted, but special-use areas would be available. Special-use permits would be issued for group events. No short- or long-term economic or social impacts would result.

The estimated reductions in allowable livestock grazing use would have negligible impacts on economic returns to the livestock operators because their actual use in the past has been less than allowable use. However, their borrowing power would decrease as would the value of their assets as a result of the loss of permit values.

The land ownership adjustments proposal would result in slight social and economic impacts to current and future resource users.

The impacts of the fuelwood supply proposal would be the same as those defined for the Continuation of Current Management Alternative.

The rights-of-way corridors and windows proposal would limit the duplication of extensive environmental analysis and reduce surface owner conflicts, resulting in a slight decrease in development cost. The right-of-way corridor north of Placitas was placed to avoid the Las Huertas Valley. Over the long term, conflicts with surface owners could be reduced. Development costs could increase if corridors did not provide the most cost-effective route.

ALTERNATIVE C: RESOURCE PRODUCTION

Geology, Energy, and Minerals

The Resource Production Alternative provides management direction emphasizing the use of public land and resources for development. Although the principles of multiple use and sustained yield would be observed, and environmental values protected to the extent required by law, mineral resource development would be maximized.

The prescriptions for the fuelwood supply and vegetative uses issues would have no impact on mineral resource development. The remaining issue prescriptions would be less restrictive of energy and mineral exploration and development than those proposed for the Resource Conservation Alternative, but would be more restrictive than the Continuation of Current Management Alternative.

The identification of 16 Special Management Areas totaling 366,377 acres would result in greater restriction of mineral commodity development than for the Continuation of Current Management Alternative, but less than for the Resource Conservation and Balanced Management Alternatives (see Tables 4-2 and 4-3). Approximately 2,623 acres of the RPRA land base would be designated as withdrawn from fluid mineral leasing, while an additional 1,297 acres would be stipulated for no surface occupancy. About 8,364 acres would have seasonal restrictions placed on development. The impact of these actions would be to reduce the land available for fluid mineral development and to increase the expense of exploration and production on lands stipulated for no surface occupancy.

Mineral material sales would probably not be compatible with SMA management objectives; therefore, 3,014 acres could be unavailable for the disposal of industrial mineral commodities and 192,578 acres would be available for mineral material sales only under exceptional circumstances. The proposal to withdraw 9,854 acres from mineral entry would slightly decrease the locatable mineral land base, particularly in Sandoval County. The regulatory burden on mining claimants who have staked or may stake claims within ACEC's would increase since development of claims within ACEC's requires the filing of plans of operation and the preparation of environmental assessments. Under this alternative 50,877 acres in ACEC's would require the filing of a plan of operation under 43 CFR 3809.

The impacts of motorized vehicle restrictions would be reduced under this alternative. Saleable, leasable, and locatable mineral development would be restricted in some form on 368,272 acres or about 12 percent of the RPRA's mineral land base.

The impacts of land ownership adjustment proposals under this alternative would be similar to the Resource Conservation Alternative.

Because the Resource Production Alternative maximizes mineral resource development, the area identified as having maximum near-future development potential would be managed to minimize conflicts with coal development. The principal multiple-use resource conflict is related to the placement of rights-of-way within the area of maximum coal development potential. Because of the limitation on rights-of-way developments, virtually the entire 8,880 acres identified as having maximum near-future development potential (see Pocket Map D) would be considered acceptable for further consideration for coal leasing.

Fluid mineral leasing would be permitted within the windows and corridors under this alternative. Due to the critical nature of the rights-of-way windows, leases issued within the windows would carry special stipulations designed to minimize conflicts with right-of-way construction. Specific mitigation measures would be applied on a case-by-case basis as the leases were developed.

Mineral material sales would be authorized under the same criteria identified for the Resource Conservation Alternative. Sales would be permitted only if not in conflict with present or future right-of-way development.

Geological resources would receive the same protection proposed for the Resource Conservation Alternative--the Ojito area would be managed as an SMA.

Summary

Except for the Continuation of Current Management Alternative, the proposed actions identified for this alternative would create the fewest constraints and have the least restrictive impact on mineral resource development. Although the acreage proposed for mineral withdrawal is not significantly different from the Resource Conservation Alternative, the area requiring plans of operation under 43 CFR 3809 has been reduced by about 12,800 acres. Similarly, the acreage targeted for restricted sale of mineral material would be reduced by nearly 75,000 acres from that proposed under the Resource Conservation Alternative. The most significant difference involves the increased acreage of coal considered to be acceptable for further consideration for leasing. Under this alternative, nearly the entire 100 million tons of coal reserves with maximum near-future development potential would be made available for further consideration for leasing.

Paleontological Resources

The management prescription proposed for this alternative would place primary emphasis on making public lands and non-renewable resources available for development under the principles of sustained yield and multiple use. Generally, by shifting management priorities to resource use and production, the possibilities of damage to paleontological resources resulting from surface disturbance would increase. Much of the unavoidable disturbance could be mitigated by salvage operations or by analysis prior to disruption. While most of the significant paleontological values would receive some form of protective management under this alternative, the general level of resource conservation would be reduced from that proposed for the Resource Conservation Alternative.

No significant impacts to paleontological resources would result from the management prescriptions proposed for the following issues: vegetative uses, land ownership adjustments, fuelwood supply, and rights-of-way corridors.

Because the Elk Springs area would not be proposed for special management consideration, the Juana Lopez Reference Section would be left without protection from both non-discretionary and leasable mineral development. Any surface disturbance on this forty acre tract would seriously compromise the usefulness of the area as an internationally recognized time-stratigraphic reference section. This would be an irreversible and irretrievable commitment of significant paleontological resources. The Torrejon Fossil Fauna SMA would be identified under this alternative and would receive special management attention.

Impacts to paleontological resources from motorized vehicles would be less than for the Continuation of Current Management Alternative, but more than for the Resource Conservation and Balanced Management Alternatives.

Soil and Water Resources

No significant impacts would result from resolution of the land ownership adjustments issue.

Generally, erosion and sediment production in both the short and long term would be less than under the Continuation of Current Management Alternative, but more than under the Resource Conservation Alternative.

Under this alternative, soil and watershed protection would be enhanced by placing 366,375 acres in SMA's and by closing 10,248 acres to motorized vehicle use. Identification of the three Rio Puerco Hydrology Study watersheds as SMA's would ensure uninterrupted data collection.

Motorized vehicle impacts would be greater in this alternative than for the Resource Conservation Alternative because fewer areas and road segments would be "closed" or "limited" in use.

Continued loss of soil to wind and water erosion would constitute an irretrievable commitment.

In addition, 32,233 acres would receive short-term grazing reductions, resulting in slightly decreased erosion and sediment production. Long-term increases in allowable livestock grazing use would increase surface disturbance on 62,781 acres, but erosion would generally decrease as a result of intensive grazing management.

Fuelwood would be harvested from approximately 133 acres each year, resulting in a short-term increase in surface disturbance and a subsequent increase in erosion and sediment production. In the long term, erosion and sediment production would decrease as vegetation recovered from the disturbance, and road reclamation and revegetation projects became established.

The establishment of rights-of-way windows would place more restrictions on the placement of future transmission lines than the Continuation of Current Management Alternative, but less than the Resource Conservation Alternative. A short-term increase in erosion and sediment yield would follow the development of rights-of-way. Cumulative impacts to erosion and sediment yield from future transmission line placements would be less significant than the Continuation of Current Management Alternative, but more significant than the Resource Conservation Alternative. In the long term, mitigation and rehabilitation measures for disturbed areas, as stipulated in the rights-of-way, would reduce erosion and sediment yield.

Range Resources

There would be no impacts under this alternative for the special management areas issue.

The motorized vehicle restrictions proposed under this alternative would provide protection from possible declines in vegetative vigor, vegetative production, and ecological condition for only 10,248 acres of public land. The remainder of the RPRA would have no motorized vehicle limitations. In the short term, no significant impacts on the range resource would be associated with motorized vehicle use. Long-term impacts for the area proposed to be "open" to motorized vehicle use would be the same as those described for the Continuation of Current Management Alternative.

Under this alternative, it is estimated that a reduction of 698 AUM's would be required in the short term for 6 "I" allotments, 15 percent of the current allowable livestock grazing use for each of these allotments. These reductions would be implemented in the same manner and the impacts would be the same as described for the Resource Conservation Alternative.

Increased vegetative production would result on all "I" and "M" allotments from improved grazing management and installation of range improvements. These increases in vegetative production would result in an estimated long-term increase of 2,003 AUM's for the "I" and "M" category allotments. These long-term increases would reverse the impacts imposed by the short-term reductions on the six "I" allottees' livestock operations.

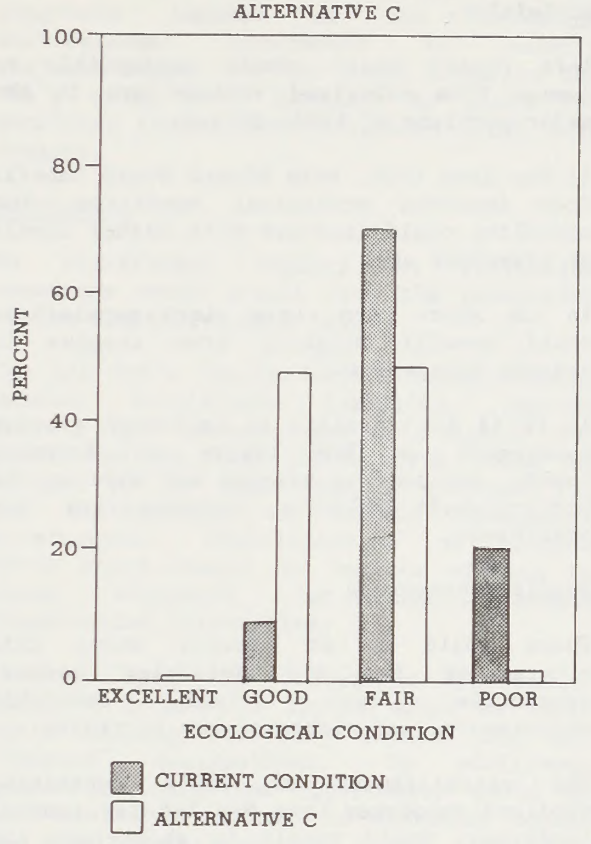
In the short term, the impacts on the range resources would be the same as described for the Resource Conservation Alternative except that improved vigor of preferred livestock forage would be expected on six "I" allotments.

In the long term, improvements in ecological condition would occur on the "I" and "M" allotments. No changes in ecological condition would be expected on the "C" allotments. Figure 4-2 illustrates the expected long-term changes in ecological condition.

FIGURE 4-2

LONG-TERM CHANGES IN ECOLOGICAL CONDITION

ALTERNATIVE C



Those allottees on public lands identified for sale would lose their grazing privileges when the sales were completed. Generally, the impacts on these allottees would be slight because the public lands constitute only a small part of their total livestock operations. In all cases, these allottees would have the option of purchasing the public land in their allotments through competitive sale, mitigating any impacts to their livestock operations.

Although 100 additional acres of fuelwood would be available for harvest under this alternative, the impacts would be the same as those described for the Continuation of Current Management Alternative.

The designation of the rights-of-way windows proposed under this alternative would provide range resources with protection from surface disturbing activities associated with right-of-way developments since future rights-of-way would be encouraged to pass through these windows. By concentrating the rights-of-way into the windows instead of allowing them to be spread throughout the RPRA, a large area of the range resources would be protected. The impacts associated with rights-of-way developments would be the same as those described for the Resource Conservation Alternative.

Summary

It is estimated that a reduction of 698 AUM's would be required in the short term for 6 "I" allotments. A long-term increase of 2,003 AUM's would result for the "I" and "M" category allotments. These increases would reverse the impacts of the short-term reductions on the six "I" allottees' livestock operations. In the short term, improved vigor of preferred livestock forage would occur on the six "I" allotments. In the long term, improvement in ecological condition would be anticipated on the "I" and "M" category allotments. No irretrievable or irreversible impacts on the range resources would result under this alternative.

Wildlife

Wildlife Habitat

Four of the six SMA's not proposed under this alternative, Canon Jarido, Jones Canyon, Ignacio Chavez, and Elk Springs, were to be identified specifically for the protection and management of wildlife habitat. The Elk Springs area is one of the more critical wildlife areas in the RPRA. Short- and long-term habitat protection in the 16 SMA's (366,377 acres) would improve as a result of proposed management changes.

Habitat would be protected from motorized vehicle use in only four areas (the Azabache Station, Cabezon Peak, Guadalupe Ruin, and Ojito SMA's). Habitat in areas with no motorized vehicle restrictions would receive impacts similar to those described for the Continuation of Current Management Alternative. These impacts are expected to be minor in the short term, becoming more significant in the long term.

In the short term, reductions in livestock grazing use and changes in grazing management would result in no significant changes in wildlife-livestock conflicts. However, in the long term, ecological condition and wildlife habitat would improve under grazing management on 32,558 acres. However, long-term increases in AUM's for livestock would result in competition between wildlife and livestock

for forage. A higher degree of nest trampling would also be expected. See Table 4-1 for the anticipated levels of conflict between livestock and wildlife under this alternative.

About 58,000 acres of terrestrial habitat could be removed from public ownership through public sales in the long term. However, these lands are scattered tracts with little habitat management potential.

Under this alternative, 29,930 acres of pinyon-juniper woodland would be open to fuelwood sale. A maximum of 133 acres per year of pinyon-juniper would be harvested, resulting in short-term disturbance of wildlife habitat. Application of intensive woodlands management practices on the Ignacio Chavez Grant could protect and enhance the ponderosa pine habitat. In the long term, edge-effect and forage would be increased as a result of woodlands management.

Rights-of-way windows would provide wildlife habitat with greater protection from disturbance from transmission line placement than the Continuation of Current Management Alternative, but less protection than confining placements to the corridors and windows as proposed in the Resource Conservation and Balanced Management Alternatives. Although a smaller area of wildlife habitat would be impacted under this alternative, the short- and long-term impacts are of the same nature as those described for the Continuation of Current Management Alternative.

Summary

Impacts from land ownership adjustment would generally be irreversible and irretrievable. Protection of wildlife habitat in SMA's would drop to 16 areas (366,377 acres). The negative impact would be most significant in the Elk Springs area. Although wildlife habitat would improve under intensified grazing management, there would still be conflicts with livestock. Wildlife habitat could potentially be removed from public ownership through land ownership adjustments.

Threatened, Endangered, and Rare Species

No significant impacts would be associated with the land ownership adjustments, fuelwood supply, and rights-of-way corridors issues.

The Ball Ranch SMA would not be identified, leaving rare plant habitat open to mineral development and other surface disturbing activities.

Rare plants would remain susceptible to damage from motorized vehicle use in the major portions of their ranges.

In the long term, rare plants would benefit from improved ecological condition, but mortality could increase with higher levels of livestock use.

In the short term, rare plant populations would benefit slightly from changes in grazing management.

As it is not feasible to implement grazing management on BLM tracts in Torrance County, any impacts grazing may have on the State-listed McCown's longspur are not addressed.

Woodland Resources

There would be no impacts under this alternative for the following issues: vegetative uses, land ownership adjustments, and rights-of-way corridors.

The establishment of SMA's containing woodland resources (see Map 1-6 for general locations) would result in short-term and long-term control of unauthorized fuelwood harvest for 5,860 acres of woodlands, since there would be more patrol and surveillance in the SMA's. This alternative would prevent the initiation of any silvicultural practices directed at enhancing or protecting fuelwood supply in these SMA's in the long term. In addition, twenty-six acres per year would be unavailable for fuelwood harvest in the short and long term.

In the short term, the ORV designations would have no significant impacts on woodlands. In the long term, motorized vehicle use would increase in the woodlands, except on the 5,860 acres in the SMA's. The impacts would be similar to those discussed for the Continuation of Current Management Alternative.

By providing silvicultural treatment for 29,930 acres of woodlands outside of the SMA's for the benefit of fuelwood supplies, about 133 acres of fuelwood would be available for harvest each year on a sustained yield basis. This would result in a decline in unauthorized fuelwood

harvest as more wood was available to help meet the increasing demand. These are short- and long-term impacts. The long-term impacts of not providing silvicultural treatments to benefit fuelwood supply for the 5,860 acres in the SMA's would be a tendency to shift the woodlands toward shrub-grassland after many decades.

Recreation

No significant impacts on recreation resources would result from the resolution of the vegetative uses issue.

The six SMA's (Canon Jarido, Jones Canyon, Headcut Prehistoric Community, Ignacio Chavez, Elk Springs, and Ball Ranch) not identified in this alternative would be subject to the same impacts outlined for the Continuation of Current Management Alternative. Identification of sixteen SMA's would result in impacts similar to those discussed for the Resource Conservation Alternative.

Totally "open" ORV recreation opportunity would be reduced by 10,248 acres in those SMA's calling for ORV "closed" and ORV "limited" designations. No additional primitive recreation opportunity would be made available although an expressed demand has been established.

Recreation opportunities generally would be eliminated on lands that left public ownership, unless ownership was transferred to another Federal agency, a State agency, or a city or county government that would maintain these opportunities. There would be a very limited opportunity to consolidate desirable recreation areas.

Cutting of fuelwood in semi-primitive non-motorized areas has a tendency to shift the recreation opportunities to those which most often occur in roaded natural settings. The greater the amount of fuelwood cutting, the greater the shift from the more primitive to semi-primitive motorized and roaded natural opportunity. Supply of these opportunities is currently abundant in the RPRA. Hunting pressure generally increases with increased road access, as do pressures from driving for pleasure, ORV use, and similar activities. Most non-motorized activities are reduced or completely displaced.

The impacts of not designating rights-of-way corridors and windows would be the same as described for the Resource Conservation Alternative.

Summary

Impacts from resolution of most issues would be essentially the same as those in the Continuation of Current Management Alternative. Cutting of fuelwood would tend to shift the recreation opportunities from semi-primitive non-motorized to semi-primitive motorized and roaded natural settings in the long term.

Visual Resources

There would be no impacts under this alternative for the following issues: vegetative uses land ownership adjustments, and rights-of-way corridors.

Four SMA's (55,934 acres) with objectives to manage for visual resources (Ignacio Chavez, Jones Canyon, Elk Springs, and Canon Jarido) would be dropped from consideration because of conflicts with commodity resources, while five others with visual resource objectives would be identified under this alternative. Under this alternative, 21,573 acres of Visual Class II lands (Appendix J) would receive no special management attention. Impacts to the visual resources in the four SMA's with visual objectives not proposed in this alternative would be similar to those described for the Continuation of Current Management Alternative. Those five SMA's with visual management objectives that would be proposed (Cabezon Peak, Tent Rocks, Ojito, El Malpais, and Petaca Pinta), would result in impacts as outlined in the Resource Conservation Alternative.

The negative impacts of fuelwood extraction outside of the SMA's would be dependent on site-specific details and would be assessed after receiving a site-specific proposal.

Summary

Management of 21,573 acres of Visual Class II lands containing visual resources which have been identified for specific management attention would be secondary to resource production objectives. This management emphasis, along with no restraint on motorized vehicle activity would, in the long term, contribute to the deterioration of visual resources in the RPRA.

Cultural Resources

There would be no impacts to cultural resources under the vegetative uses and fuelwood supply issues for this alternative.

Cultural resources located within those four SMA's containing high density, high cultural resources as the primary value would receive special management attention under this alternative. No special management emphasis would be provided for the Headcut Prehistoric Community and Jones Canyon areas.

Direct long-term impacts from motorized vehicle use and indirect impacts related to motprozed vehicle use would increase through time to moderate levels as user demands grew except in the four SMA's which would be identified (Azabache Station, Big Bead Mesa, Canon Tapia, and Guadalupe Ruin and Community).

The opportunity to acquire non-BLM lands containing high value cultural resources through land exchanges or other means would be substantially reduced. BLM lands containing high density, high value cultural resources would be retained and not sold (unless mitigated).

Avoidance and/or mitigation of cultural resources within specific windows could be addressed as single projects or staged to preclude treatment on a case-by-case basis. The establishment of rights of-way windows would allow completion of inventory, evaluation, and mitigation of cultural resources within the window area independent of a particular project. Once these actions are completed no additional considerations for cultural resources would normally be necessary for future projects within the window area.

Lands and Realty

There would be no impacts under this alternative for the following issues: special management areas, ORV designations, vegetative uses, and fuelwood supply.

This alternative would result in a more active public land sale program. Most of the small scattered tracts in the land ownership adjustments issue area have remained in public ownership because of physical characteristics such as steep slopes, location in playa lakes, and rock outcrops that reduce their value for agricultural use, and most of these tracts are located far from commercial or residential areas. It is therefore unlikely that even 25 percent of the public lands identified as potentially suitable for disposal would actually be sold. The general impacts of selling public lands are summarized on Table 4-5. Large-scale and rapid sales of public land in the issue area are highly unlikely. This should be considered a long-term program lasting the entire life of this RMP.

Sale often offers a simpler, quicker method of land ownership adjustment than exchange, but decreases the long-term potential for creating a more desirable land ownership pattern by depleting the land base available for future exchanges. This is considered a significant negative impact to the public.

Designation of the rights-of-way windows identified on Pocket Map B and Map 2-13 would aid in the placement of future transmission lines. Prohibiting and discouraging developments that are incompatible with transmission line placement could lower the cost of future transmission line construction.

Transmission line placement through the area of maximum coal development potential would be restricted to the de facto corridor which is approximately 1/2 mile wide (see Map 2-13). This could limit the number of transmission lines that could be placed through the window or could make placement technically more difficult and expensive due to transmission line concentrations.

The special stipulations attached to rights-of-way granted in the area of overlap between the Ojito SMA and the Ojito East Window would be designed to protect SMA values. The application of these stipulations could result in impacts to transmission line placement. For example, transmission lines might have to be placed in other than the most logical location to avoid impacts to Mound Springs and to minimize impacts to the San Ysidro anticline.

Social and Economic Conditions

The Special Management Areas proposed under this alternative should result in short-term, positive social values with little change in economic values. The long-term impacts should be positive in the preservation of social values and may be positive for economic values. The impacts would be similar to those outlined for the Resource Conservation Alternative.

The motorized vehicle restrictions proposed under this alternative would result in no significant short- or long-term social impacts. The establishment of the areas

TABLE 4-5

IMPACTS OF SALE

Positive	Negative
Potential for placing land in a higher use such as agricultural, commercial, or residential.	Potential loss of resource values, primarily wildlife and cultural.
One time payment to U.S. Treasury.	Loss of future revenues from land use authorizations.
Decreased management costs for the BLM.	High cost of processing disposal.
Increase in local property tax revenues.	Loss of future exchange potential as disposable tracts are depleted.
Could relieve current user of user fees.	Loss of Payments in Lieu of Taxes.
Can provide additional land for residential development in urban areas.	Potential economic strains on person who currently uses land but cannot afford to purchase it.
Opportunity for ranchers to block up their holdings.	Possible additional encumbrance and development costs of mineral rights.

"closed" or "limited" to motorized vehicle use could result in short-term social concerns for ORV users as discussed for the Resource Conservation Alternative. However, motorized vehicle use would be limited to existing roads and trails only in SMA's. Therefore, a much smaller area would have a "limited" ORV designation placed on it. As the RPRA population grows, demands for ORV use would increase, resulting in positive long-term economic impacts. For example, the purchase of ORV's and operating expenses for ORV's would contribute to the local economies. However, current data are insufficient to indicate the magnitude or significance of these impacts.

No changes would be expected in employment or income resulting from livestock grazing. The total AUM's available after the estimated reductions would still be more than the average use over the past five years. It is estimated that some of the individual operators would have reductions in the short term of as much as 13 percent. In the long term, however, all reduced AUM's would be restored, and some increases, up to 22 percent, would be allowed.

A value of approximately $100 per AUM has accrued to BLM permits in the real estate market. The average smaller operator has a permit valued at $31,900. The reduction estimated for this alternative would reduce this value to approximately $29,100 or 9 percent in the short term and increase it to $36,700 or 18 percent in the long term.

The current permit value is $186,200 for the larger operators. Estimated short-term changes would reduce this value to $174,300 or 18 percent. It would increase to $226,600 or 18 percent in the long term.

The impacts of land ownership adjustments proposed under this alternative would be similar to those described for the Resource Conservation Alternative. However, since the lands would be offered for public sale instead of exchange, the grazing lessees would have to buy these lands or make arrangements with the purchaser to ensure the continuation of their current grazing operations.

The impacts on recreation uses would be similar to those described for the Resource Conservation Alternative.

Although more fuelwood would be available to the public, the impacts would be similar to those described for the Continuation of Current Management Alternative.

The rights-of-way windows proposed under this alternative would provide for short- and long-term economic efficiency in transmission line placement. Since cultural sites would be protected, there should be no negative social impacts from the windows.

Summary

Special Management Areas should provide positive social impacts through the preservation of resources having social value. Positive economic values could also result from long-term uses of these resources. There would be no significant short- or long-term social impacts as a result of the ORV proposals under this alternative. Long-term economic impacts would occur, but are not quantifiable at this time.

Resolution of the vegetative uses issue would require some changes in allowable use. It is estimated that two small operators would experience short-term decreases in allowable livestock grazing use of up to 12 percent below their five-year average authorized use, resulting in decreases in cash receipts, borrowing power, and equity. Short-term allowable livestock grazing use decreases would also occur for two other small operators and two large operators. While allowable livestock grazing use would still be higher than the average five-year use and receipts would not decrease, borrowing power and equity would decrease. In the long term, it is estimated that BLM allowable livestock grazing use would increase 15 percent and 22 percent respectively for small and large operators.

Land ownership adjustments would have social and economic impacts on adjoining owners, present users, and potential users.

Although more fuelwood would be made available to the public under this alternative than under the other three alternatives, the impacts would be similar to those described for the Continuation of Current Management Alternative.

Rights-of-way windows should provide short-term and long-term positive economic impacts. No negative social impacts should occur since cultural sites would be protected.

None of the economic or social impacts expected under this alternative are considered to be irreversible and irretrievable.

ALTERNATIVE D: BALANCED MANAGEMENT

Geology, Energy, and Minerals

The Balanced Management Alternative is designed to protect important environmental values and sensitive resources while allowing the development of mineral resources. The impacts of planned actions dealing with Special Management Areas and ORV designations would be essentially the same as those identified for the Resource Conservation Alternative. Vegetative uses and fuelwood supply management prescriptions would have no impact on mineral resource development. Proposed land ownership adjustments would have the same impacts on geological resources and energy and mineral development as those identified for the Resource Conservation Alternative.

The impacts of the proposed management prescription for the rights-of-way corridors issue are similar to the Resource Conservation Alternative with several modifications. In the area of maximum near-future coal development potential, new rights-of-way would be located so as to minimize impacts to the coal resource. Under this management prescription, the majority of the coal resource in the area of maximum development potential, about 8,020 acres, would be considered acceptable for further consideration for leasing. Only the coal underlying the established de facto corridor would be considered unacceptable.

The designation of the rights-of-way corridor would be used to define the controlling date for the establishment of valid existing rights. Any coal leases issued subsequent to approval of this RMP would be subject to special stipulations. The stipulations would require the coal lease holder to be financially responsible for any relocation of rights-of-way done to avoid the creation of bypass coal.

Locatable mineral development would not be impacted by rights-of-way corridor and window designation but mineral material sales within the corridors would be permitted only if they were not in conflict with future rights-of-way construction. The impacts to geological resources under this management prescription would be the same as those identified for the Resource Conservation Alternative.

The impacts to fluid mineral leasing would be the same as the impacts identified for the Resource Production Alternative. Leasing would be permitted with stipulations to minimize conflicts with present and future rights-of-way construction.

Paleontological Resources

Under the Balanced Management Alternative, the most important and significant of the RRPA's paleontological values would receive management attention and protection. The impacts associated with this management prescription would be essentially the same as those identified for the Resource Conservation Alternative.

Soil and Water Resources

No significant impacts would occur as a result of resolution of the land ownership adjustments issue.

The impacts under this alternative would be similar to those in the Resource Conservation Alternative. As more land is protected from surface disturbing activity through SMA identification and through motorized vehicle restrictions, erosion and sediment production would decrease over time. Identification of the three Rio Puerco Hydrology Study Watersheds in the Pelon Watershed, Ojito, and San Luis Mesa Raptor Area SMA's (see Appendix C) would ensure uninterrupted data collection. Controlling and limiting motorized vehicle use would reduce erosion from roads. Increased erosion would be expected in those areas where ORV, equestrian, and foot trails are designated, and total use increases.

In addition, it is estimated that short-term grazing reductions on 32,233 acres would be proposed. Surface disturbance would increase as grazing returns to current levels over the long term; however, improved grazing management would decrease erosion and sediment production.

Short- and long-term impacts associated with the fuelwood supply and rights-of-way corridors issues would be the same as those described for the Resource Conservation Alternative.

Summary

Short-term impacts would be slightly greater than under the Resource Conservation Alternative because less area would be immediately protected. However, the long-term impacts would be similar to the Resource Conservation Alternative. Continued loss of soil to water and wind erosion constitutes an irretrievable commitment. These losses could be reversed under all alternatives. The length of time to reverse the process is shortest (ten to twenty years) under the Resource Conservation Alternative, followed (in increasing time) by the Balanced Management Alternative, Continuation of Current Management Alternative, and the Resource Production Alternative. The Balanced Management Alternative would increase slightly the amount of surface disturbing activity over the current situation; however, the treatment of existing erosion problems would also increase compared to the Continuation of Current Management Alternative.

Range Resources

There would be no impacts under this alternative for the special management areas issue.

The motorized vehicle restrictions proposed under this alternative would provide protection for the majority of the public land in the RPRA from possible declines in vegetative vigor, vegetative production, and ecological condition.

Under this alternative, it is estimated that a reduction of 850 AUM's would be required in the short term for six "I" allotments. These estimated reductions would be at least 15 percent of the current allowable livestock grazing use for each of these allotments. These reductions would be implemented in the same manner and the impacts would be the same as described for the Resource Conservation Alternative.

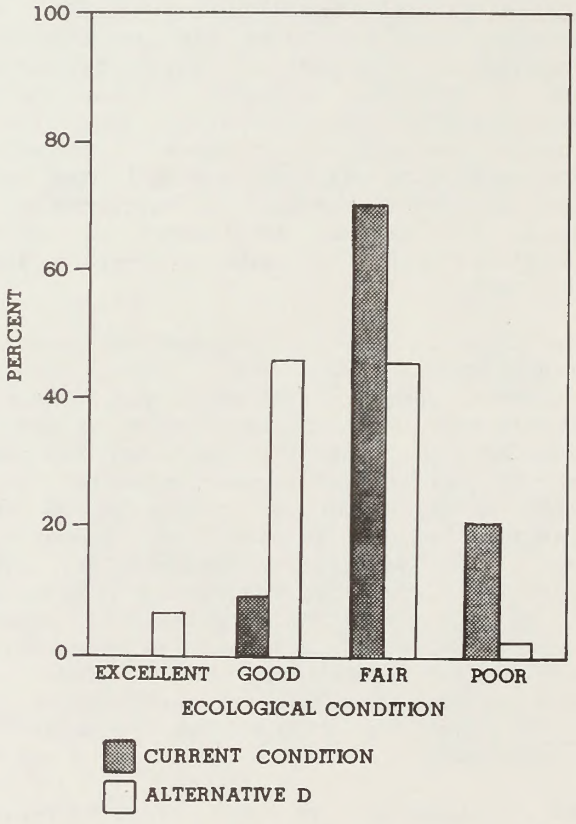
Increased vegetative production and resolution of resource conflicts on all "I" allotments would occur as a result of improved grazing management and installation of rangeland improvements. In the long term, an estimated increase of 850 AUM's for livestock use would reverse the short-term reductions of AUM's on the six "I" allotments. In the short term, the impacts on the range resources would be the same as described for the Resource Conservation Alternative except that improved vigor of preferred livestock forage would be expected on six "I" allotments.

In the long term, improvements in ecological condition would occur on the "I" and "M" allotments. No changes in ecological condition would be expected on the "C" allotments. Figure 4-3 illustrates the expected long-term changes in ecological condition.

FIGURE 4-3

LONG-TERM CHANGES IN ECOLOGICAL CONDITION

ALTERNATIVE D



The lands identified for disposal by public sale or Recreation and Public Purposes Act (R&PP) leases would be subject to the same impacts as described for the Resource Production Alternative, with the exception that lands leased under the R&PP Act would no longer be open to livestock grazing. The lands identified for disposal by exchange would have the same impacts as those described for the Resource Conservation Alternative.

Although forty-one acres of fuelwood would be available for harvest each year under this alternative, the impacts would be the same as those described for the Continuation of Current Management Alternative.

Designation of the rights-of-way corridors proposed under this alternative would have the same impacts as those described in the Resource Conservation Alternative. Designation of rights-of-way windows would have the same impacts as those discussed under the Resource Conservation and Resource Production Alternatives.

Summary

It is estimated that a reduction of 850 AUM's would be required in the short term for six "I" allotments. In the long term, the reduced AUM's would be restored, reversing the impacts of those reductions on the livestock operations of the allottees. In the short term, vigor of preferred livestock forage would improve on the six "I" allotments. In the long term, resolution of resource conflicts would be anticipated on the "I" category allotments. No irretrievable or irreversible impacts on the range resources would result under this alternative.

Wildlife

Wildlife Habitat

In the short and long term, the management prescriptions and protection measures for this alternative would specifically benefit wildlife on 76,321 acres in the Ignacio Chavez, Elk Springs, Tent Rocks, San Luis Mesa Raptor Area, and Jones Canyon SMA's. An additional 350,159 acres of wildlife habitat would receive additional management protection in the remaining 17 SMA's identified primarily for other resource values.

The motorized vehicle restrictions under this alternative would protect wildlife from disturbance and habitat degradation throughout the majority of the RPRA in the short and long term.

It is estimated that ecological condition would improve in the long term on seven of the sixteen Section 3 grazing allotments. There would still be competition between big game and livestock on the La Jara allotment. Habitat conditions would not change in the Section 15 areas. Where there is improvement in ecological condition, forage and cover availability would increase. Trampling of ground nests would be reduced somewhat. See Table 4-1 for the level of wildlife-livestock conflicts anticipated under this alternative. No significant changes in wildlife-livestock conflicts would occur in the short term.

Under this alternative, wildlife habitat on private and State land in SMA's could potentially be brought under public ownership through land exchanges. The lands given up to acquire these lands would generally be of lesser quality wildlife habitat, usually scattered tracts with limited wildlife management potential.

Fuelwood sales under this alternative would be designed to correspond to long-term habitat improvement objectives by creating small openings and through selective cuts to increase forage and habitat diversity on 17,300 acres of woodlands in the Ignacio Chavez SMA. There would be a short-term increase in access and disturbance to wildlife during the fuelwood removal. Some illegal cutting might continue after the sale period, causing loss of cover and disturbance to wildlife. Ponderosa pine habitat might improve on a limited scale. In addition, an estimated 9,320 acres of pinyon-juniper woodland would be open for fuelwood harvest. Authorized harvesting at a maximum rate of forty-one acres per year would cause short-term disturbance to wildlife during cutting operations, a slight increase over the Continuation of Current Management Alternative. In the Chiuilla Mesa and Mesa Portales areas, past chainings and fuelwood sales have reduced pinyon-juniper stands to a point where any further loss would significantly affect big game and woodland-dwelling bird populations. In the long-term, edge-effect and forage would be increased as a result of woodlands management.

The impacts of rights-of-way corridors would generally be the same as the Resource Conservation Alternative.

Summary

The impacts of disturbance from fuelwood cutting and rights-of-way construction are short term. The remaining impacts summarized below are long term. SMA's would provide additional protection to wildlife habitat on 426,480 acres. Restrictions on motorized vehicle use would benefit wildlife habitat. Improved ecological condition would benefit wildlife on seven allotments. Conditions would not change on the remaining grazing allotments. Fuelwood sales would increase forage and habitat diversity. Rights-of-way corridors would concentrate impacts in the corridors and away from

better quality habitat areas. Land exchanges could trade less valuable for more valuable habitat, an irreversible and irretrievable positive impact.

Threatened, Endangered, and Rare Species

The land ownership adjustments, fuelwood supply, and rights-of-way corridors issues would leave no significant impact on Federal or State threatened and endangered species.

Special Management Areas with specific goals for protecting rare plants would cover 21,317 acres in the Cabezon Peak, Ojito, and Ball Ranch SMA's. Rare plants would be protected if they occur in the other SMA's. The protection of habitat on all SMA's would benefit bald eagles, peregrine falcons, and gray vireos, if present.

Threatened and endangered species and rare plants would benefit from the motorized vehicle restrictions as well as from improved ecological condition resulting from livestock management. Habitat conditions would remain the same on nine Section 3 allotments and on all Section 15 allotments.

As it is not feasible to implement grazing management on BLM tracts in Torrance County, any impacts grazing may have on the State-listed McCown's longspur are not addressed.

Woodland Resources

There would be no impacts under this alternative for the following issues: vegetative uses, land ownership adjustments, and rights-of-way corridors.

The identification of SMA's containing woodland resources would result in control of unauthorized fuelwood harvest on 28,170 acres of woodlands, since more patrol and surveillance would be given to the area. This alternative would prevent the initiation of any silvicultural practices on 9,170 directed acres at enhancing or protecting fuelwood supply in these SMA's for the life of the plan. In addition, forty acres per year would be unavailable for fuelwood harvest in the short- and long-term. On the Ignacio Chavez SMA, 1,700 acres would be available for silvicultural practices aimed at improving the fuelwood supply. An additional 17,300 acres of woodlands in the Ignacio Chavez SMA would receive silvicultural practices to benefit other resources, producing some fuelwood that would be available to the public. These impacts would be felt in the short and the long term, with the exception that, in the long term, not providing for any kind of silvicultural treatment to 9,170 acres could have a tendency to shift the woodlands toward shrub-grassland after many decades.

The impacts for the Balanced Management Alternative would be the same as for the Resource Protection Alternative for the resolution of the ORV designation issue.

Under the Balanced Management Alternative, 9,320 acres of woodlands (7,620 acres outside proposed SMA's) and 1,700 in the proposed Ignacio Chavez SMA) would receive silvicultural treatment to benefit the fuelwood supply, making about 41 acres a year available for fuelwood harvest. Combined with the fuelwood that would be made available from the 17,300 acres that could receive treatment to benefit other resources (wildlife, range, or ponderosa pine management projects), the supply of authorized fuelwood would increase, and result in an expected decline in trespass cutting. These would be both short- and long-term impacts to the woodland resources. In the long term, 9,170 acres would not receive any silvicultural treatment, while a total of 26,620 acres would receive some form of treatment. As a result, the treated acres would be expected to have healthier sustaining stands of pinyon-juniper, while the untreated stands could experience hindered regeneration and a possible start of a shift to a shrub-grassland vegetative community.

Recreation

The impacts of resolution of the special management areas, fuelwood supply, vegetative uses, land ownership adjustments, and rights-of-way corridors issues under this alternative would be the same as those discussed for the Resource Conservation Alternative.

The impacts of the ORV designations under this alternative would be similar to the Resource Conservation Alternative; however, more of the RPRA would be "open" for motorized vehicle use.

The impacts of improving ecological conditions for livestock forage, wildlife habitat, and watershed protection by improving grazing management would result in the same impacts as for the Resource Conservation Alternative.

Summary

Impacts to recreation resources would be similar to those described in the Resource Conservation Alternative. Beneficial impacts to recreation opportunities, both short term and long term, would result from implementation of this alternative and would result in visitor services and a level of protection for recreation opportunities which do not currently exist. This alternative provides for the enhancement of a full spectrum of recreation opportunity, from primitive to more highly developed roaded natural opportunities (see Appendix I).

Visual Resources

Impacts to visual resources from most issues would be essentially the same as those described in the Resource Conservation Alternative. Beneficial impacts, both short term and long term, would result from this alternative.

Cultural Resources

There would be no impacts to cultural resources under the vegetative uses and fuelwood supply issues for this alternative.

High density, high value cultural resources located within the identified SMA's would receive special management attention and emphasis.

Direct and indirect impacts of motorized vehicle use to cultural resources would remain at approximately today's levels even though user demand within the Santa Fe/Albuquerque metropolitan area is expected to increase substantially through time.

The advantage of acquiring non-BLM lands containing high value cultural resources through land exchanges or other means could be realized under this alternative. BLM lands having high density, high value cultural resources would be retained and not exchanged unless mitigated.

Avoidance and/or mitigation of cultural resources within specific corridors could be addressed in single projects or staged to preclude treatment on a case-by-case basis. The establishment of rights-of-way corridors would allow completion of inventory, evaluation, and mitigation of cultural resources within the corridor area independent of a particular project. Once these actions were completed no additional considerations for cultural resources would normally be necessary for future projects within that corridor.

Lands and Realty

There would be no impacts under this alternative for the following issues: special management areas, ORV designations, vegetative uses, and fuelwood supply.

In implementing this alternative, the RPRA would be initiating a flexible program of land ownership adjustments. The impacts of implementing this alternative would be similar to those identified for the Resource Conservation and Resource Production Alternatives. The extent and intensity of the impacts would depend upon the final acreage exchanged or sold.

Impacts associated with rights-of-way would be the same as those described for the Resource Conservation Alternative, with one exception. In the area of maximum near-future coal development potential, new right-of-way developments would be located as close to the southwest edge of the corridor as possible. New rights-of-way would be situated as close to existing rights-of-way as is safe and technologically feasible. No significant impacts would be associated with filling the southwest part of the corridor adjacent to the coal area first. Placement of the transmission lines as close together as possible could result in increased development costs.

The special stipulations attached to rights-of-way granted in the area of overlap between the Ojito SMA and the Ojito East Window would be designed to protect SMA values. The application of these stipulations could result in impacts to transmission line placement. For example, transmission lines may have to be placed in other than the most logical location to avoid impacts to Mound Springs and to minimize impacts to the San Ysidro anticline.

Social and Economic Conditions

The Special Management Areas proposed under this alternative would result in short- and long-term positive social impacts due to the preservation and development of

resources. Little change in economic values would occur in the short term, while long-term economic impacts would be positive.

Impacts of ORV designation under this alternative would be similar to the Resource Conservation Alternative; however, more of the RPRA would be "open" for motorized vehicle use.

No changes are expected in employment or income resulting from livestock grazing since the total AUM's available after the estimated reductions would be greater than the average use for the past five years. Some of the individual operators would have reductions in the short term of as much as 20 percent. In the long term, however, reduced AUM's would be restored and some increases, up to 20 percent, would be allowed.

A value of approximately $100 per AUM has accrued to BLM permits in the real estate market. The average smaller operator's permit is valued at $31,900. The reductions estimated for this alternative would reduce this value to $28,200 or by 12 percent in the short term. In the long term there would be no change. The average current permit value for the larger operators is approximately $186,200. Short term changes would reduce average permit value to $172,300 or by 7 percent. In the long term there would be no change.

Impacts of land ownership adjustment under this alternative would combine the impacts of the Resource Conservation and Resource Production Alternatives.

Impacts associated with fuelwood supply would be the same as those described for the Continuation of Current Management Alternative.

Impacts of the rights-of-way corridors and windows would be the same as those described for the Resource Conservation Alternative.

Summary

The impacts associated with the special management areas and ORV designations issues would be the same as those described for the Resource Conservation Alternative.

Under this alternative, it is estimated that a short-term decrease in allowable livestock grazing would be proposed for four small operators and two large operators. Considering the twelve operators collectively, no significant impacts would result from the implementation of these estimated reductions. However, implementation of these reductions would have a significant short-term impact on six operators. For two of these six operators, yearly receipts and net return would decline, resulting in greater reliance on off-ranch income subsidies. For all six operators, borrowing power and equity value would decline. In the long term, these impacts would be mitigated and no significant social or economic impacts would result.

Land ownership adjustments would have social and economic impacts on adjoining owners, present users, and potential users.

Impacts associated with fuelwood availability would be the same as those described for the Continuation of Current Management Alternative.

The impacts associated with the rights-of-way corridors and windows proposal would be a combination of those described for the Resource Conservation and Resource Production Alternatives.

None of the economic or social impacts expected under this alternative are considered to be irreversible and irretrievable.

Chapter 5

CONSULTATION AND COORDINATION

CHAPTER 5

CONSULTATION AND COORDINATION

INTRODUCTION

The initial sections of this chapter are devoted to consultation and coordination activities carried out during the preparation of this Draft Resource Management Plan. Comments and responses will also be included in this chapter in the Final RMP/EIS.

Writing of the RMP/EIS document itself began in June of 1984; however, preceding the writing phase a complex process of data gathering and other preparatory activities began in 1979. This process included resource inventory, public participation, interagency coordination, and preparation of a Management Situation Analysis (MSA). The MSA is on file in the Rio Puerco Resource Area Office, as is documentation of the public participation and interagency coordination. Consultation and coordination with agencies, organizations, and individuals occurred in a variety of ways throughout the planning process.

CONSISTENCY

The BLM's planning regulations require that Resource Management Plans be "consistent with officially approved or adopted resource-related plans of other Federal agencies, state and local governments, and Indian tribes, so long as the guidance and resource management plans are also consistent with the purposes, policies and programs of Federal law and regulations applicable to public lands...." In order to ensure such consistency, thirty-eight letters were sent to Federal, State, and local agencies and groups. These same agencies and groups will receive copies of the Draft RMP and be asked to comment.

PUBLIC PARTICIPATION

A notice was published in the Federal Register on March 23, 1983 announcing the formal start of the planning process. A preliminary list of issues, together with an explanation of the planning process was sent to about 2000 individuals and groups in March 1983. The purpose of the mailing was to identify major issues in the RPRA and to invite the public to three public meetings in April. These three meetings were held to develop issues and planning criteria (see Table 5-1). In July 1983 a second mailing was sent asking for comments on the proposed planning issues and criteria (USDI, BLM 1983h). After the comments were received, the revised version of the planning issues and criteria was sent out in November 1983 (USDI, BLM 1983g). A tour of the Rio Puerco Resource Area for interested groups was made in February 1984. A fourth mailing in June 1984 contained the proposed management guidance and proposed alternatives (USDI, BLM 1984e). Three additional public meetings were held in July to help develop land use alternatives (see Table 5-2). A meeting with interested Indian tribes and pueblos was held in September 1984 to discuss American Indian concerns. The BLM later met with representatives of Acoma Pueblo and the Canoncito Navajo Band to discuss this RMP.

Informal coordination with the public has taken place throughout the planning process through personal contacts, phone calls, and letters.

TABLE 5-1

PUBLIC MEETINGS FOR ISSUES IDENTIFICATION AND PLANNING CRITERIA

LOCATION	DATE
Albuquerque	April 18, 1983
Cuba	April 19, 1983
Estancia	April 21, 1983

TABLE 5-2

PUBLIC MEETINGS FOR DEVELOPING LAND USE ALTERNATIVES

LOCATION	DATE
Cuba	July 9, 1984
Albuquerque	July 10, 1984
Estancia	July 12, 1984

Comments on this RMP/DEIS have been requested from the government agencies listed in Table 5-3 as well as from special interest groups and members of the interested public.

This Draft Rio Puerco Resource Management Plan and Environmental Impact Statement was prepared by an interdisciplinary team of resource specialists. Table 5-4 lists the names and qualifications of each team member.

Allottee Consultations

In compliance with Section 8 of the Public Rangelands Improvement Act of 1978, all permittees and lessees in the vegetative uses issue area have been contacted to initiate the required consultation, coordination, and cooperation process. For the "I" allotments, consultations with the affected allottees and parties were conducted in February 1985 to discuss the interrelationships of the range inventory, monitoring studies, and proposed management changes. Each of the remaining allottees was contacted by letter to inform them of their allotment's selective management category and the implications of this designation. Consultation meetings with these allottees are being scheduled at their request.

TABLE 5-3

DOCUMENT RECIPIENTS

Federal Government

Department of Agriculture

- Soil Conservation Service
- U.S. Forest Service

Department of the Army

- Corps of Engineers

Department of Commerce

Department of the Interior

- Bureau of Indian Affairs
- Bureau of Reclamation
- National Park Service
- Office of Surface Mining, Reclamation and Enforcement
- U.S. Fish and Wildlife Service
- U.S. Geological Survey

Department of Labor

Environmental Protection Agency

Tribal Government

- Santo Domingo Pueblo
- Sandia Pueblo
- Jemez Pueblo
- Isleta Pueblo
- Acoma Pueblo
- Santa Ana Pueblo
- San Felipe Pueblo
- Zia Pueblo
- Cochiti Pueblo
- Laguna Pueblo
- Zuni Pueblo
- Jicarilla Apache Tribe
- Ramah Navajo Tribe
- Canoncito Navajo Tribe
- Navajo Nation and Chapters
- All-Indian Pueblo Council

County Commissions and Planning Commissions

- Cibola County
- Valencia County
- Torrance County
- Santa Fe County
- Bernalillo County
- McKinley County
- Sandoval County

State Government

Bureau of Mines and Mineral Resources

Commerce and Industry Department

- Economic Development Division

Department of Finance and Administration

- Planning Division
  - Coordination/Clearinghouse Bureau
- Historic Preservation Bureau
  - State Historic Preservation Officer

Energy and Minerals Department

- Mining and Minerals Division
  - Coal Surface Mining Bureau

Governor Toney Anaya

Health and Environmental Department

- Environmental Improvement Division

Highway Department

Land Office

Natural Resources Department

Department of Game and Fish

State Engineer's Office

TABLE 5-4

LIST OF PREPARERS

Report Writers/Reviewers

Name	Assignment	Education	Experience
Angela Berger	Recreation, Visual Resources	BS Secondary Education MS Outdoor Planning	BLM - 5 yrs. Outdoor Recreation Planner, 2 yrs. District Wilderness Program Leader, 2 yrs. Supervisory Outdoor Recreation Planner
Don Brewer	Threatened and Endangered Species, Wildlife	BS Wildlife Management	BLM - 7 yrs. Wildlife Biologist, 2 yrs. Range Conservationist
Mike Fisher	Woodland Resources	BS Forest Management	BLM - 7 yrs., USFS - 3 yrs. Fire/Forestry
Kent Hamilton	Social and Economic Factors	BS Agricultural Economics	BLM - 6 yrs., BIA - 16 yrs. Economist and Land Use Planner
Tony Lutonsky	Cultural Resources	BA Anthropology	BLM - 11 yrs. Archeologist
Ron Montagna	Lands	BS Forest Recreation	BLM - 2 yrs. Supervisory Natural Resource Specialist, 6 yrs. Realty Specialist, 3 yrs. Recreation Technician
Gretchen Obenauf	Writer/Editor	BA Anthropology MA Anthropology	BLM - 5 yrs., BIA - 1 yr., NPS - 3 yrs. Archeologist
Betty Sladek	Planning Coordinator	BS Forestry MS Planning	BLM - 4 yrs. Community Planner, 6 yrs. Forester
Gene Tatum	Range Resources, Technical Coordinator	BS Range Science	BLM - 1 yr. Natural Resource Specialist, 6 yrs. Range Conservationist
Jim Turner	Minerals, Geology, Paleontology	BS Geology	BLM - 5 yrs., Bureau of Reclamation - 4 yrs. Geologist
Jerry Wall	Soil, Water and Air Resources	BS Forest Management MS Forest Soils	BLM - 7 yrs., USFS - 9 yrs. Soil Scientist
Mary Zuschlag	Team Leader	BS Natural Resource Conservation Science	BLM - 6 yrs. Environmental Coordinator, SCS - 2 yrs. Soil Conservationist

Support Personnel

Name	Experience (BLM)	Name	Experience (BLM)
John Arwood	15 yrs. Range Conservationist	Angie Medina	2 yrs. Supervisory Area Clerk
Judy Bidwell	2 yrs. Lands Clerk	Bill Overbaugh	2 yrs. Outdoor Recreation Planner, 1 yr. Recreation Technician
Myrna Finke	1 yr. Visual Information Specialist, 3 yrs. Cartographic Technician	Irene Rivera	2 yrs. Clerk Typist
Janice Hinds	5 yrs. Clerk Typist	Shirley Torres	3 yrs. Supervisory Editorial Assistant

Appendices

APPENDIX A

SUMMARY OF MANAGEMENT FRAMEWORK PLAN DECISIONS

INTRODUCTION

This appendix provides a summary of the Management Framework Plan (MFP) decisions which have been brought forward to be incorporated into this Resource Management Plan. The Divide, Ladron, Rio Grande, and Chaco MFP's cover portions of the Rio Puerco Resource Area (USDI, BLM 1983b, 1977, 1979c, 1981b) (see Map 2-1). The Divide and Ladron MFP's also cover portions of the Socorro Resource Area, the Rio Grande MFP covers portions of the Taos Resource Area, and the Chaco MFP covers portions of the Farmington Resource Area. Only decisions applicable to the RPRA are considered in this appendix. Some applicable MFP decisions have been dropped and have been superseded by new planning decisions adopted in this RMP. A listing of decisions not brought forward is available at the RPRA Office. No MFP decisions have been brought forward for resources not mentioned in this section.

Resource	Decision Number	Summary
DIVIDE MFP		
Watershed	W-1.1	Through consultation, implement watershed treatments on Allotments 205 and 210. Develop watershed plans in Trechado, Governor, Monte Seco, and San Jose watersheds.
Watershed	W-1.5	Identify treatment areas through Section 8 consultation; treated areas will be rested 1-2 years; treatments done solely in wildlife areas will be in conformance with wildlife recommendations (WL-2.4).
Watershed	W-3.2	Develop drinking water sources at El Malpais Recreation Area/Sandstone Bluffs Overlook and Natural Arch.
Range	RM-1.8	Construct a twenty acre exclosure on each of thirty-three range sites for vegetative condition and trend studies.
Range	RM-2.4	Perform seeding trials in each of thirty-three range sites to determine the potential forage production by reseeding, using a multiple-use approach.
Range	RM-2.5	Maintain existing land treatments to achieve maximum forage production primarily by prescribed burning. Other methods such as herbicide application, tree cutting, and chaining would be considered.
Wildlife	WL-1.2	Cooperate with New Mexico Department of Game and Fish to remove all barbary sheep from public lands in the Divide Planning Area.
Wildlife	WL-2.1	Burn and/or chain 10,000 acres in 50 to 100 acre irregularly-shaped plots of pinyon-juniper. Seed with browse grass forbs.
Wildlife	WL-2.2	Construct rainfall catchments.
Wildlife	WL-2.3	Continue wildlife/range studies to determine habitat capability to support wildlife and livestock numbers. Complete allotment evaluations by 1990.
Wildlife	WL-2.4	Design and implement livestock grazing systems to protect mule deer habitat by scheduling non-use of rest during critical periods in essential winter ranges and fawning areas.
Wildlife	WL-3.1	Construct antelope passes along the western boundary fence of the York Ranch No. 0076 Allotment. Allottee will be consulted prior to any fence modification.
Wildlife	WL-4.2	Construct rainfall catchments to provide water for antelope.
Wildlife	WL-4.3	Seed browse and forbs in 1,000 acre plots.

Resource	Decision Number	Summary
Forestry	F-2.1	Allow sales of firewood as well as other forestry vegetative sales on all areas of pinyon-juniper having a slight or low erosion classification.
Recreation	R-2.1	Abandon and rehabilitate the old CCC road located in Petaca Pinta area.
Recreation	R-2.2	Rehabilitate the Lacey W. Seis #1 and Seis #2 detention dams.
Recreation	R-5.1	Formulate a comprehensive interpretive plan on recreation resources, including four scenic observation points.
Lands	L-1.1	Designate utility corridors, to the extent practical or feasible, along existing power line and pipeline rights-of-way in the eastern portion of the planning unit. (Already implemented.)
Lands	L-3.1	Request the Bureau of Reclamation to review the powersite withdrawal along the Rio Puerco in FY 79 to see if it is needed. If not, ask the Bureau of Reclamation to relinquish the withdrawal. (This withdrawal is being reviewed.)
RIO GRANDE MFP		
Wildlife	WL-5.3	Maintain quail and other small game habitat in present condition and where appropriate develop waters.
Lands	L-4.1	Offer through exchange first to the U.S. Forest Service all parcels in T. 6 and 7 N., R. 3, 4, and 5 E., then to other interested parties.
Lands	L-6.1	All unauthorized occupancies on public lands in the planning unit will be mitigated by one of the following alternatives, based upon whether the public land occupied is or is not specifically identified and determined available for transfer from Federal ownership to other uses: PART A - Any occupancy established on public lands identified for transfer to other than Federal ownership will be mitigated by one of the following alternatives as appropriate: 1. Those occupants who possess a <u>strong</u> land title which indicates tenure and some type of title conveyance purchased in good faith and with full intent that the land described was in fact held in prior private ownership, and can meet the other criteria of the Color-of-Title Act, will be granted a title under that authority.

Resource	Decision Number	Summary
Forestry	F-4.3	Lay out other forest product sale areas in the following areas where at least 1,000 of the associated products would be available per year for individual or commercial sales. Area — Product Sand Canyon — Fence Posts Cebolla Canyon — Wildlings Land treatments identified in 2.5, WL-2.1, and W-1.5 will take precedence over fuelwood management.
Forestry	F-4.4	Cruise and mark ponderosa pine. Salvage and mortality timber sales as demand arises, the volume will be determined during activity planning, in the following areas: Chain of Craters Cebolla Canyon North Pasture Sandy Hill Land treatments identified in RM-2.5, WL-2.1, and W-1.5 will take precedence over fuelwood management.
Recreation	R-1.2	Retain all public lands with a B or higher Recreation Inventory System (RIS) rating in public ownership, specifically along Highway 117, Big Hole in the Wall, Chain of Craters, and Bluewater Canyon.
Recreation (ORV)	R-5.2	Close Bluewater ACEC to ORV use. (Already implemented.)
Recreation	R-6.2	Redevelop the Sandstone Bluffs Recreation Area, to include visitor contact station, picnic tables, barbecue grill, macadam surfacing of road area (implemented), hiking trails, and interpretive signs.
Recreation	R-6.3	Construct a parking area, day use interpretive site, and loop trail at Natural Arch site.
Recreation	R-6.4	Attempt to enter into a cooperative agreement with the Pueblo de Acoma for routing patrols and surveillance of the El Malpais area.
Recreation	R-6.5	Complete a descriptive brochure and interpretive areas for each quality geologic feature in Divide Planning area: El Malpais lava flow, Chain of Craters, and Zuni Salt Lake. (Pamphlets are now available for El Malpais and Chain of Craters.)
Recreation	R-7.1	Prohibit sale of commercial or home-use firewood permits, timber, or Christmas trees in Bluewater Canyon.
Recreation	R-9.1	Construct an interpretive area/scenic overlook with display at the rim of Bluewater Canyon.

Resource	Decision Number	Summary
Recreation	R-10.2	Develop a series of loop trails around Sandstone Bluffs and Natural Arch.
Recreation	R-14.1	Acquire private lands in Cebolleta Canyon (through exchange) and begin a stabilization, interpretation, and surveillance program of cultural resources in the Canyon.
Recreation	R-14.3	Attempt to acquire private lands within sensitive areas in Big Hole in the Wall, Chain of Craters, and Bluewater Canyon.
Recreation	R-14.4	Develop primitive campgrounds at Big Hole in the Wall.
Recreation	R-15.5	Close the Dominguez-Escalante trailhead/parking lot (implemented). The remainder of this decision will not be implemented.
Lands	L-1.1	Make 600 acres of land available for disposal within the extraterritorial boundaries of Grants and Milan.
Lands	L-1.2	Make available for disposal or land use authorization consideration about 200 acres of small, isolated tracts near Belen, Los Lunas, and Aragon, which are suited for urban and suburban expansion, but are not part of the Rio Grande Occupancy Resolution Program acreage.
Lands	L-2.1	Make 480 acres, surrounded by Laguna Indian Reservation lands, available for disposal or land use authorization consideration.
Lands	L-3.1	Make two tracts of public land available for disposal with the first option to Grants Municipal School System as school sites.
Lands	L-3.2	Make two 40 acre sites available for disposal with first option to the Valencia Board of County Commissioners. Make about 46 acres available for disposal for residential development near Los Lunas.
Lands	L-3.3	Provide 720 acres under R&PP to Grants and San Fidel.
Lands	L-4.2	Establish a north-south right-of-way corridor for future ROW needs, which will follow the two existing Tuscon Power and Electric 345 KV lines. (Already implemented.)
Lands	L-5.1	Dispose of an estimated 300 acres of public land near Los Lunas and Aragon which are located within the Rio Grande Occupancy Resolution Program area by 1995. Title transfer will be to those people who qualify under the provisions of the Color-of-Title Act of 1928.

Resource	Decision Number	Summary
Lands	L-6.1	Retain surface ownership of all lands in the San Augustine coal area that have the potential for surface coal mining. Dispose of the remainder of the isolated tracts. Lands identified are subject to change as the coal resource is further delineated. The preferred method of disposal would be by exchange, although disposal by sale or other appropriate means is acceptable. Establishment of total estates will be a priority for the lands identified for exchange.
LADRON MFP		
Watershed	W-1.2	Allocate sufficient live vegetation and litter through grazing management to increase average ground cover on seven Phase One watershed areas in the East Socorro ES area.
Watershed	W-2.1	Develop and implement watershed activity plans on the watersheds in the Ladron Planning Unit, in order of the Phase One priority rankings.
Watershed	W-2.2	Maintain water control structures 0454, 0470, 0429, 0431, and 0428 and any other structure that becomes a safety hazard.
Watershed	W-3.2	Participate in a cooperative plan with the Valencia County Commissioners to minimize watershed damage in road maintenance programs.
Wildlife	WL-1.1	Develop inverted umbrella type water catchments primarily for the benefit of deer.
Wildlife	WL-2.1	Install and fence ground level waters where needed on new pipelines.
Wildlife	WL-4.2	Acquire the Arroyo Salado and manage for wildlife.
Wildlife	WL-4.4	Acquire Ponia Creek riparian habitat.
Wildlife	WL-4.5	Acquire approximately 19,500 acres of private and State land in the planning unit that is valuable wildlife habitat.
Wildlife	WL-4.6	Obtain permanent legal access to public lands for improved wildlife management.
Forestry	F-1.2	Evaluate any land and vegetative treatments as well as vegetative and forestry sales which may be proposed on areas of pinyon-juniper having a moderate or higher erosion classification. Allow only projects which create no significant adverse disturbance to watershed conditions.

Resource	Decision Number	Summary
Forestry	F-2.1	Allow sales of firewood as well as other forestry vegetative sales on all areas of pinyon-juniper having a slight or low erosion classification.
Recreation	R-2.1	Abandon and rehabilitate the old CCC road located in Petaca Pinta area.
Recreation	R-2.2	Rehabilitate the Lacey W. Seis #1 and Seis #2 detention dams.
Recreation	R-5.1	Formulate a comprehensive interpretive plan on recreation resources, including four scenic observation points.
Lands	L-1.1	Designate utility corridors, to the extent practical or feasible, along existing power line and pipeline rights-of-way in the eastern portion of the planning unit. (Already implemented.)
Lands	L-3.1	Request the Bureau of Reclamation to review the powersite withdrawal along the Rio Puerco in FY 79 to see if it is needed. If not, ask the Bureau of Reclamation to relinquish the withdrawal. (This withdrawal is being reviewed.)
RIO GRANDE MFP		
Wildlife	WL-5.3	Maintain quail and other small game habitat in present condition and where appropriate develop waters.
Lands	L-4.1	Offer through exchange first to the U.S. Forest Service all parcels in T.6 and 7 N., R. 3, 4, and 5 E., then to other interested parties.
Lands	L-6.1	All unauthorized occupancies on public lands in the planning unit will be mitigated by one of the following alternatives, based upon whether the public land occupied is or is not specifically identified and determined available for transfer from Federal ownership to other uses: PART A - Any occupancy established on public lands identified for transfer to other than Federal ownership will be mitigated by one of the following alternatives as appropriate: 1. Those occupants who possess a strong land title which indicates tenure and some type of title conveyance purchased in good faith and with full intent that the land described was in fact held in prior private ownership, and can meet the other criteria of the Color-of-Title Act, will be granted a title under that authority.

Resource	Decision Number	Summary
		2. Those occupants who possess some land title, evidence tenure, a record of regular tax payments, and some type of title conveyance purchased in good faith prior to May 15, 1979 and with full intent that the land described was in fact held in prior private ownership, will be considered for direct sale, at fair market value of the claimed tract. PART B - Any occupancy established on public lands in the planning unit not identified for disposal or transfer to other than Federal ownership, will be resolved and dealt with by one of the following alternatives as appropriate: 1. Those occupants who meet the established criteria of the Color-of-Title Act will be granted a title under that authority. 2. Those occupants who do not meet the established criteria of the Color-of-Title Act, but who have lived at least ten years on the occupied land, may be granted up to a 20-year lease, not to exceed the life of the lessee. Upon expiration of the lease, the continued occupancy shall terminate unless the lessee negotiates a new lease with the Bureau. PART C - Any occupancy established on public lands in the planning unit after May 15, 1975, whether or not the lease is identified for transfer from Federal ownership, will be considered to be in trespass and subject to lawful eviction procedures. PART D - Unoccupied lands as of May 15, 1975 identified for transfer to other than Federal ownership will be sold under the R&PP Act or competitive sale at no less than the fair market value.
CHACO MFP		
Minerals	M-2.1	Maintain free of encumbrances those lands with federally owned surface in and around Known Geologic Structures (KGS's), and areas identified as "prospectively valuable for oil and gas" except where high value surface resources have been designated in this planning document as needing special consideration and protection. In these special areas, oil and gas exploration and development can occur if consistent with the requirements, stipulations, provisions, or restrictions of the Management Framework Plan decisions or Management Plan for that high value surface resource. Consistent with Minerals Decision M-1.1, where KGS's overlap coal resources, oil and gas production will be given priority. This is reflected in the wording of the Decision:

Resource	Decision Number	Summary
		"Category G--Overlap of Known Geologic Structures (KGS's) with medium to high potential coal resources. Carry forward for further consideration for leasing, but postpone coal leasing in producing oil and gas fields until (BLM) has determined that coal development will not interfere with the economic recovery of oil and gas."
Minerals	M-1.1	Carry forward as suitable for further consideration for leasing areas identified on the Chaco coal map; and drop from consideration those areas so designated.
Watershed	W-1.3	Develop coal lease stipulations or other methods for BLM secural of water wells used for reclamation or energy development after lease abandonment.
Wildlife	WL-1.2	Allow no rodent control on public lands near active eagle nests.
Forestry	F-2.1	Prohibit sales of ponderosa pine wildlings and Christmas trees. Allow harvest of mature trees for sanitation purposes. Seedbed preparation, fuel reduction, and thinning of ponderosa pine stands is also advocated.

APPENDIX B

RECORDS OF DECISION - RIO PUERCO, EAST SOCORRO, AND WEST SOCORRO GRAZING EIS'S

INTRODUCTION

The RPRA's three approved livestock grazing EIS's are being incorporated into this RMP to provide a comprehensive program for managing the range resources in the RPRA. The EIS decision documents provide the basis for the issuance of grazing decisions for these three areas. Contained in this appendix is a portion of the Record of Decision (ROD) for the Rio Puerco Grazing ES (USDI, BLM 1978d), the ROD for the West Socorro Grazing EIS (USDI, BLM 1983i), and the abstract from the East Socorro Grazing EIS Rangeland Program Summary (USDI, BLM 1980). A Rangeland Program Summary was developed for the East Socorro Grazing ES instead of a ROD. Due to the length of this RPS, only the abstract from this document is included here. An addendum has been attached to the Rio Puerco ROD describing the events which occurred subsequent to the issuance of the ROD affecting the implementation of the proposed action.

RIO PUERCO GRAZING ES RECORD OF DECISION

The BLM proposes an intensive grazing management system as is outlined in the Rio Puerco Grazing Environmental Statement. Under this proposal, 58 allotments would be combined to form 22 community allotments, and the total number of allotments would be reduced to 61, of which 57 would be grazed by livestock. Four areas totaling 520 acres would be excluded from livestock grazing. All allotments grazed by livestock will be managed under intensive grazing systems. Initial livestock number adjustments range from an increase of 33 percent to a reduction of 62 percent with an overall average of 13 percent reduction. The adjustment in livestock numbers translates to a reduction of 513 cattle yearlong. Planned expenditures for range improvements needed to implement the intensive grazing systems amount to $2 million. These improvements are scheduled for construction over a four-year period.

Of the 134 ranchers, 34 will receive increases in authorized livestock numbers, while 67 would initially receive reductions. Thirty-three livestock operations would remain unchanged. Under improved land management, forage is expected to increase by the year 2000, providing for 3,350 more cattle to graze yearlong. Forage equivalent to 276 cattle yearlong is reserved for wildlife; by the year 2000 the wildlife forage will be increased proportionately to insure that wildlife habitat needs are provided for. Soil erosion will increase slightly in the short term because of planned land treatments and range improvement work on about 2,800 acres. By the year 2000 the area will have increased vegetative ground cover, which will result in a 30 percent decrease of acreage in the critical and severe erosion classes. The basis for projections relating to the increased vegetative production was obtained from the San Luis Watershed Study which was conducted over an eighteen-year period by the U.S. Department of Agriculture's Rocky Mountain Experimental Station, in cooperation with the BLM.

The selection of the proposed action is based on obtaining a balance between socioeconomic and environmental impacts. The reduction of 513 cattle will result in some economic loss during the initial stage of the program. However, under present grazing practices, vegetative deterioration will continue.

To correct this situation, the proposed grazing management system was designed to ensure long-term vegetative improvement compatible with other resources. Such management was established with goals of improving wildlife habitat, vegetative production, and watershed conditions in addition to maintaining aesthetic and recreation values. This program, by the year 2000, would result in benefits to resources other than grazing (which would itself gain a forage equivalent of 3,350 head of livestock per year). Vegetation would increase by a forage equivalent of 4,362 head of livestock per year. Soils would undergo less wind and water erosion because of increased vegetation; sediment yield would drop from current rates of 630 to 1,620 tons per square mile per year to 450 to 1,170 tons per square mile per year. Visual resources would experience overall improvement through the increase in vegetation and decrease in soil disturbance on managed allotments. Increased forage would also provide support for additional

wildlife numbers (yearlong numbers would grow from 750 deer at present to 1,125 deer by the year 2000, 20 elk at present to 40, 85 antelope to 228, and 75 turkeys to 150). Storm runoff would decrease by 25 percent, benefitting the water resources of the area. The forestry resource would be aided by the establishment of vegetation which would provide shade and keep soil temperatures down so that seedlings could survive. Overall visitor use in the area would increase, expanding the recreation resource; visitor days for sightseeing alone are projected to increase from 324,000 days at present to 454,000 days by the year 2000. The economy of the area would be aided by the additional value of livestock sales, showing an increase from the current figure of $399,720 per year to $2,716,080 by the year 2000.

ADDENDUM--EVENTS OCCURRING SUBSEQUENT TO ISSUANCE OF THE RIO PUERCO ROD

In late 1978, the issuance of full force and effect decisions began for 134 Rio Puerco Grazing ES area allottees. A group of 34 of these allottees (plaintiffs) filed suit (Valdez, et al. v. Applegate, et al., Civil No. 78-944-C, USDC, DNM) in Federal court to prevent the implementation of this ES. Two separate restraining orders were issued by the courts enjoining the BLM from implementing the ES's proposed action on the plaintiff allotments.

During the litigation, the 1980 Interior Appropriations Bill containing the McClure Amendment limiting reductions in livestock grazing use on the public lands to 10 percent became law. This amendment resulted in the revision and reissuance of 35 decisions to Rio Puerco allottees and provided another opportunity for these allottees to protest and appeal. Fourteen of these allottees (appellants) appealed their decisions, adding further complications to continued efforts to implement the grazing ES.

The lawsuit was resolved by out-of-court settlement on February 5, 1981. The key points of this settlement were as follows: (1) prior full force and effect decisions would be vacated for the plaintiffs; (2) the BLM would enter into consultation, coordination, and cooperation with the individually named plaintiffs and the State of New Mexico concerning the development and implementation of a rangeland management program, as indicated by the ES and additional data obtained through vegetative monitoring studies, consistent with the applicable regulations; (3) upon completion of the consultation, coordination, and cooperation requirement, new grazing decisions would be issued to individually named plaintiffs.

The key points of settlement were also used to resolve the appeals received as a result of McClure Amendment provisions, and therefore provided consistent guidance for the development of decisions for both groups of protesting allottees. By December 31, 1981, the consultation, coordination, and cooperation process had been completed and decisions had been reissued to plaintiffs and appellants.

RECORD OF DECISION FOR THE WEST SOCORRO GRAZING EIS

The West Socorro Rangeland Management Program Environmental Impact Statement (EIS) was prepared to respond to requirements of the National Environmental Policy Act to analyze the impacts of proposed projects that significantly affect the quality of the human environment and to the Federal Land Policy and Management Act's mandate to provide for the orderly use and development of public rangelands and to conserve the land and its resources. The EIS proposed four programs (alternatives) for managing rangeland resources on 986,092 acres of public land administered by the Bureau of Land Management (BLM) Socorro District within the Divide Planning Area (DPA). This public land is located in Catron and Cibola Counties, a small portion of the extreme eastern part of Valencia County, and a portion of west-central and southwestern Socorro County, New Mexico. The programs analyzed within the scope of the EIS include Alternative 1 (the Preferred Alternative), Alternative 2 (No Action), Alternative 3 (Elimination of Livestock Grazing), and Alternative 4 (Maximization of Livestock Forage Production).

The result of implementing actions inherent to Alternative 1 (the Preferred Alternative) will be an environment that is improved in overall quality above the existing environment which will serve to maintain public lands for use of succeeding generations (this Alternative is considered by BLM to be the most environmentally preferable). Rangeland improvements and vegetative land treatments will be implemented to achieve the desired results of Alternative 1, however, strict adherence to implementation criteria and BLM Standard Operating Procedures will mitigate and/or

preclude environmental degradation; all practicable means to avoid or minimize environmental harm have been incorporated into this Alternative. BLM will also initiate a rangeland and wildlife habitat monitoring program to evaluate the effectiveness of the Alternative. Overall economics and the social environment will benefit from implementing the Preferred Alternative and the quality of life will increase proportionally, as well.

Generally, in Alternative 2 (No Action), rangeland resources will continue minor improvement. This improvement would ensure protection for future generations but will not attain the widest range of public benefit. Very little other environmental benefit will be realized through implementation of this Alternative. There will be neither beneficial nor adverse changes in the general structure of the DPA economy and no major sociological changes will result.

In Alternative 3 (Elimination of Livestock Grazing) the general overall quality of ecological range condition will improve and implementation will ensure that vegetation will be available in perpetuity for wildlife and other uses. However, implementation of this Alternative will impose extreme economic hardship on the majority of livestock operators that have public land allotments within the DPA. The elimination of livestock grazing on public lands will also create some significant changes in the size and composition of the ranching population within the DPA, will increase the demand for public social services, will alter the residential stability of communities, and will seriously disrupt the patterns of social interaction of communities of the DPA.

In Alternative 4 (Maximization of Livestock Forage Production) the environmental quality of the DPA will be greatly improved and the full production potential of forage will ultimately be achieved by the year 2000. The impact on the financial positions of those dependent on resources within the DPA will be beneficial. Social conditions will be improved and the quality of life within the DPA will be enhanced, as well. Implementation of this Alternative, however, is not administratively feasible due to BLM funding and manpower constraints.

The BLM finds that, after thorough review of the Draft and Final EIS and all public comment received during the appropriate comment periods, implementation of Alternative 1 (the Preferred Alternative) is warranted to improve ecological range condition, that the Alternative is economically justified, is socially acceptable, environmentally sound, and has been developed with public interface. It is, therefore, my judgement as District Manager that action taken by the BLM Socorro District in implementing the Preferred Alternative will be consistent with the intent of the National Environmental Policy Act. This action is also consistent with the BLM planning process, Management Framework PLan, Step 3 decision for Range Management within the Divide Planning Area.

ABSTRACT FROM THE EAST SOCORRO RANGELAND PROGRAM SUMMARY

This document describes a grazing management program to administer the public rangeland resources within the East Socorro Environmental Statement (ES) Area. It summarizes decisions reached to manage the natural resources of the ES area to improve, protect and maintain their productive capability to satisfy a full range of natural, social, economic and environmental needs. In developing the program, substantial supportive data was drawn from the East Socorro ES and can readily be identified throughout this document.

In selecting a program, major consideration was given to developing the long-term, natural resource capabilities of the ES Area, while reducing or mitigating any adverse environmental impacts and minimizing possible negative socio-economic impacts on the local community.

The proposed action was closest to responding to these factors since no single alternative or combination of alternatives considered provided a balance to achieve the above goals. The range management program described in this report incorporated major elements of the proposed action to provide the most essential components to help restore and enhance the quality of the human environment. It prescribes a plan of intensive management through the development of allotment management plans (AMPs), livestock adjustments and range improvements.

The major decision described in this document relates to the amount of grazing use that will be authorized. The 1975-77 range survey identifies 76,786 AUMs for apportionment on public lands (71,600

livestock AUMs, 4,802 wildlife AUMs, and 384 wild horse AUMs). The plan proposes to use this survey figure as a starting point to work out initial stocking levels with individual operators on those allotments not covered by AMPs, and studies to determine initial stocking levels for allotments currently under intensive management (AMPs). Studies conducted over a 5-year period will be used to make subsequent adjustments. The proposed schedule of adjustments and extent of grazing use authorized over the 5-year time frame is subject to approval by the Director of the BLM and Amendment of the Regulations entitled 43 CFR Part 4100. In addition, allottees with small tracts of public land will be consulted with to arrive at an agreeable stocking level to take effect in the 1980 grazing fee year; three allotments will have their forage apportioned to wildlife; and two others will be phased out.

The range program prescribes that those allotments scheduled for intensive management will have decisions issued on them by September 30, 1980, and will become effective March 1, 1981.

The implementation of range improvements including land treatment practices will be part of this program.

Close coordination, consultation, cooperation and on-site visits with a target group made up of permittees, landowners, the district grazing advisory board and any state or Federal agency, will play an important part in implementing the program and decisions. In addition, the plan proposes to use the experimental stewardship program under the Rangelands Improvement Act of 1978.

To insure that the selected management objectives will be attained, the Bureau of Land Management (BLM) will conduct utilization, trend, condition, actual use and precipitation studies on grazing allotments scheduled for intensive management. Studies on small tracts of public land not scheduled for intensive management will also be included in the monitoring process but on an as needed basis.

APPENDIX C

SPECIAL MANAGEMENT AREAS

INTRODUCTION

This appendix includes descriptions of the Special Management Areas (SMA's) proposed in this RMP. The narratives include a general description of the area proposed for special management, discuss the special values, and outline the management objectives proposed for the area. The detailed management plans for these areas will be developed later during activity planning.

"No surface disturbance" as it applies to Special Management Areas will be defined on a case-by-case basis when the activity plans for the areas are developed. In general, an activity would be allowed as long as it does not interfere with the management objectives for the area.

The Special Management Areas proposed in this RMP are listed below and discussed in the same order in the appendix. See Map 1-2 for locations of these areas.

1. Torrejon Fossil Fauna
2. Pelon Watershed
3. Historic Homesteads
4. Canon Jarido
5. Jones Canyon
6. Headcut Prehistoric Community
7. San Luis Mesa Raptor Area
8. Azabache Station
9. Cabezon Peak
10. Ignacio Chavez
11. Big Bead Mesa
12. Canon Tapia
13. Guadalupe Ruin and Community
14. Elk Springs
15. Tent Rocks
16. Ojito
17. Ball Ranch
18. Pronoun Cave Complex
19. Continental Divide Trail
20. 1870's Wagon Road Trail
21. El Malpais
22. Petaca Pinta

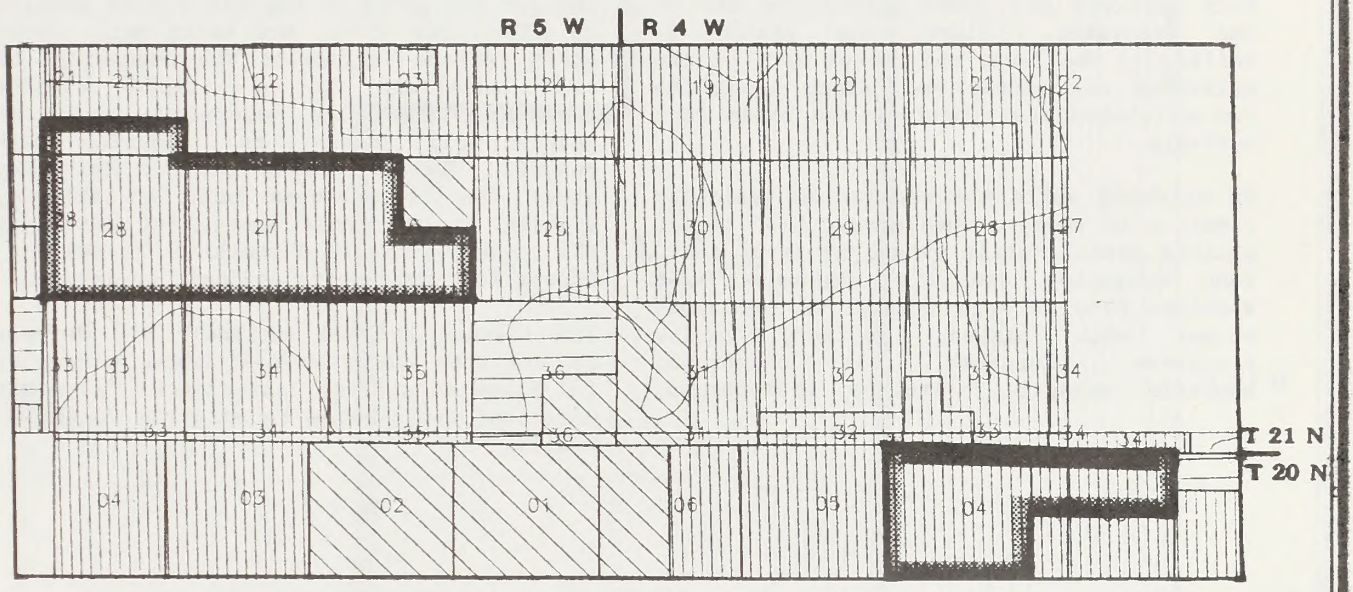
1. TORREJON FOSSIL FAUNA

General Description: Numerous authors, including Matthew (1937) and Wood and others (1941), have identified the area near the head of Torrejon Wash as a major collecting area for fossil mammals (see Map C-1). Wood and others formally defined this area as the type locality for Torrejon Fauna in an article in Volume 52 of the Bulletin of the Geological Society of America (Wood, et al. 1941).

A type locality is an important paleontological feature in that it represents the place at which a fossil assemblage is typically displayed and from which it derives its name. Type specimens of the Torrejon Fauna were originally recognized and described from this locale; thus the area represents a unique and irreplaceable resource.

Management Objectives: The goal of special management for the Torrejon Fauna Type Locality is to protect the area for scientific study. Access for scientific study will be maintained while unnecessary and undue degradation associated with mineral development will be prohibited.

The planned actions include: (1) Designate as an Area of Critical Environmental Concern; (2) Develop an activity plan; (3) Limit motorized vehicle use to existing roads and trails.



0 1 2 3 MILES

SCALE

MAP C-1
TORREJON FOSSIL FAUNA

SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE
- INDIAN

N

- PAVED OR GRADED ROAD
- PRIMITIVE ROAD OR TRAIL
- SMA BOUNDARY

ALL MOTORIZED USE WITHIN BOUNDARY LIMITED TO EXISTING ROADS & TRAILS

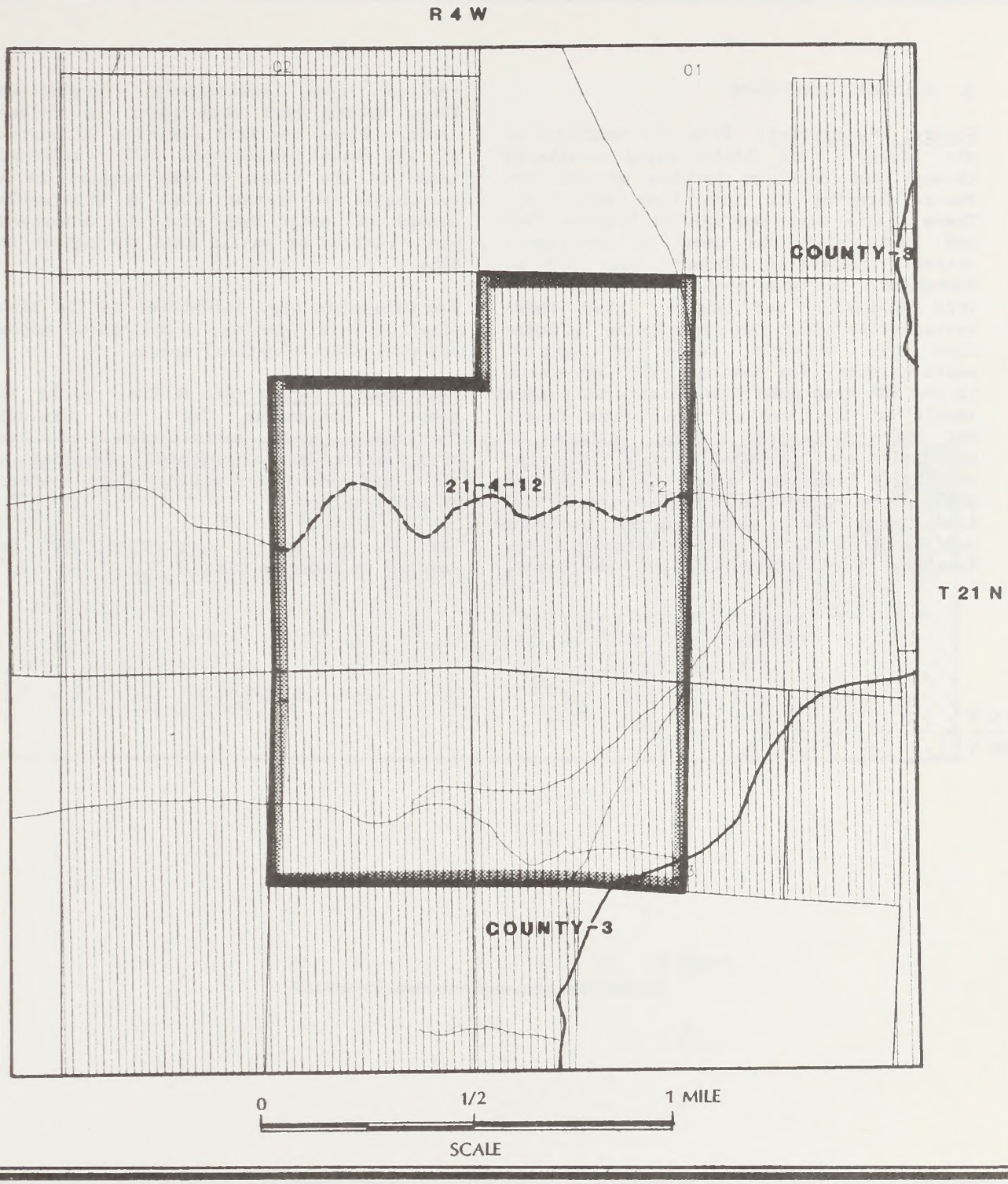
2. PELON WATERSHED

General Description: The Pelon Watershed, part of the Rio Puerco Hydrology Study, is approximately 436 acres in size (see Map C-2). Elevations range from 7120 to 7228 feet. Soils range from moderately fine textured in alluvial deposits to both coarse and fine textures on colluvial material derived from sandstone and shale. Rock outcrops are common along the rim of the watershed. Slopes are gentle to rolling in the lower and center part of the watershed but become very steep along the rim and below the sandstone and shale rock outcrops.

On alluvial soils the vegetation typically consists of western wheatgrass, blue grama, galleta grass, bottle brush, squirrel tail, sand dropseed, and big sagebrush. A woodland type is more typical on the upper slopes with pinyon, juniper, Indian ricegrass, bluegrama, big sagebrush, mountain mahogany, antelope bitterbrush, Gambel's oak, and yucca the dominant species.

Management Objectives: The objectives for all three watersheds in the Rio Puerco Watershed Study (Pelon, Empedrado, and Querencia) are to monitor hydrologic responses to the Rio Puerco grazing management programs. Only through such monitoring can a determination be made whether the goals of the Rio Puerco Grazing ES (USDI, BLM 1978b) are being met. These goals include increasing the percentage of each allotment in a stable erosion condition, improving vegetative cover to reduce soil losses, and reducing peak runoff. The objectives of the Hydrology Study can be achieved only by allowing grazing in the study areas, but excluding all other surface disturbing activities, except for instruments and data collection.

The planned actions include: (1) Develop an activity plan; (2) Withdraw minerals; (3) Allow no surface disturbance; (4) Limit motorized vehicle use to existing roads and trails.



MAP C-2
PELON WATERSHED

SURFACE OWNERSHIP

BLM

PRIVATE

N

PAVED OR GRADED ROAD

PRIMITIVE ROAD OR TRAIL

ROAD CLOSED TO VEHICULAR USE

SMA BOUNDARY

ALL MOTORIZED USE WITHIN BOUNDARY
LIMITED TO EXISTING ROADS & TRAILS

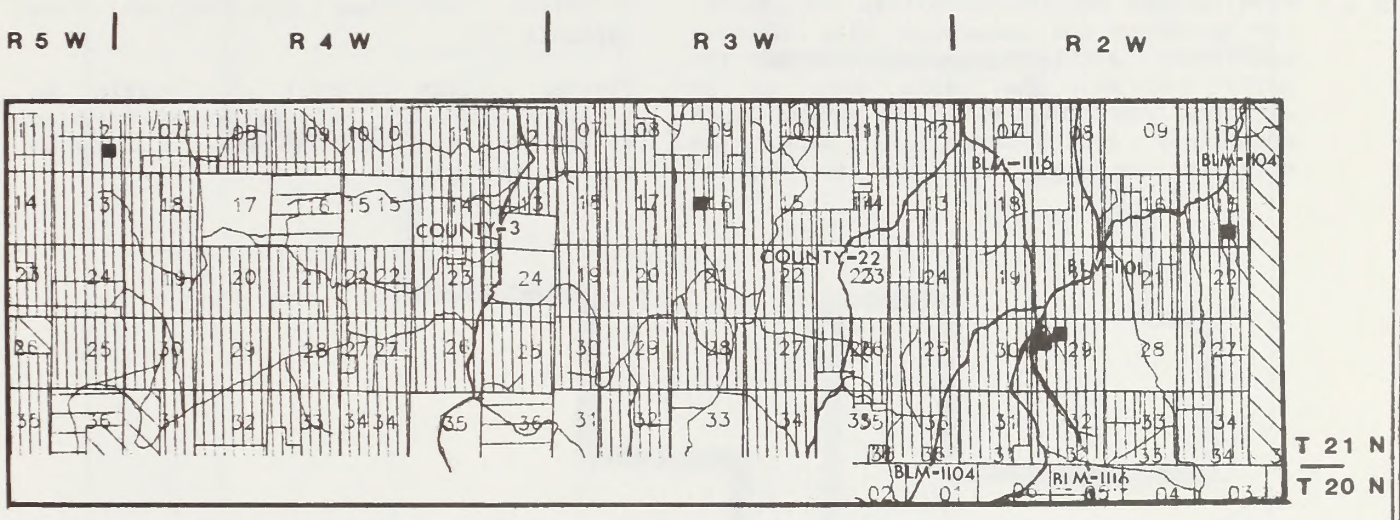
3. HISTORIC HOMESTEADS

General Description: This SMA consists of six historic log cabin sites scattered through the northern portion of the Rio Puerco Grazing ES Area (see Map C-3). These cabins were constructed between 1900 and 1940, with the peak of settlement activity occurring around the 1920's. Homesteads in this area were settled by both Hispanics and Anglos; thus these settlements offer an intriguing glimpse into the historic roots of modern, multi-cultural New Mexico. The homesteads in the SMA came into Federal ownership as a result of the Bankhead-Jones Farm Tenant Act which authorized Federal purchase of privately-owned farmlands if they had originally been homesteaded. Known as land utilization projects, these submarginal lands proved to be incapable of producing sufficient income to support a family. The families were relocated and the lands retired from agricultural production. These tracts were then added to Federal lands. Since the RPRA contains 80 percent of all Land Utilization (LU) (acquired) lands in the State of New Mexico, it is reasonable to assume that a substantial number of additional historic homesteads are scattered on public land throughout the RPRA.

One cabin has been identified as the birth place of Euell Gibbons, a well-known author and proponent of natural foods.

Management Objectives: The goals of special management for the Historic Homesteads are maximization of the interpretive and educational potential of the sites, while protecting their inherent cultural values.

The planned action for this SMA is: Develop an activity plan.



0 1 2 3 4 5 6 MILES

SCALE

MAP C-3
HISTORIC HOMESTEADS

SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE
- USFS

N

- PAVED OR GRADED ROAD
- PRIMITIVE ROAD OR TRAIL
- HISTORIC HOMESTEAD

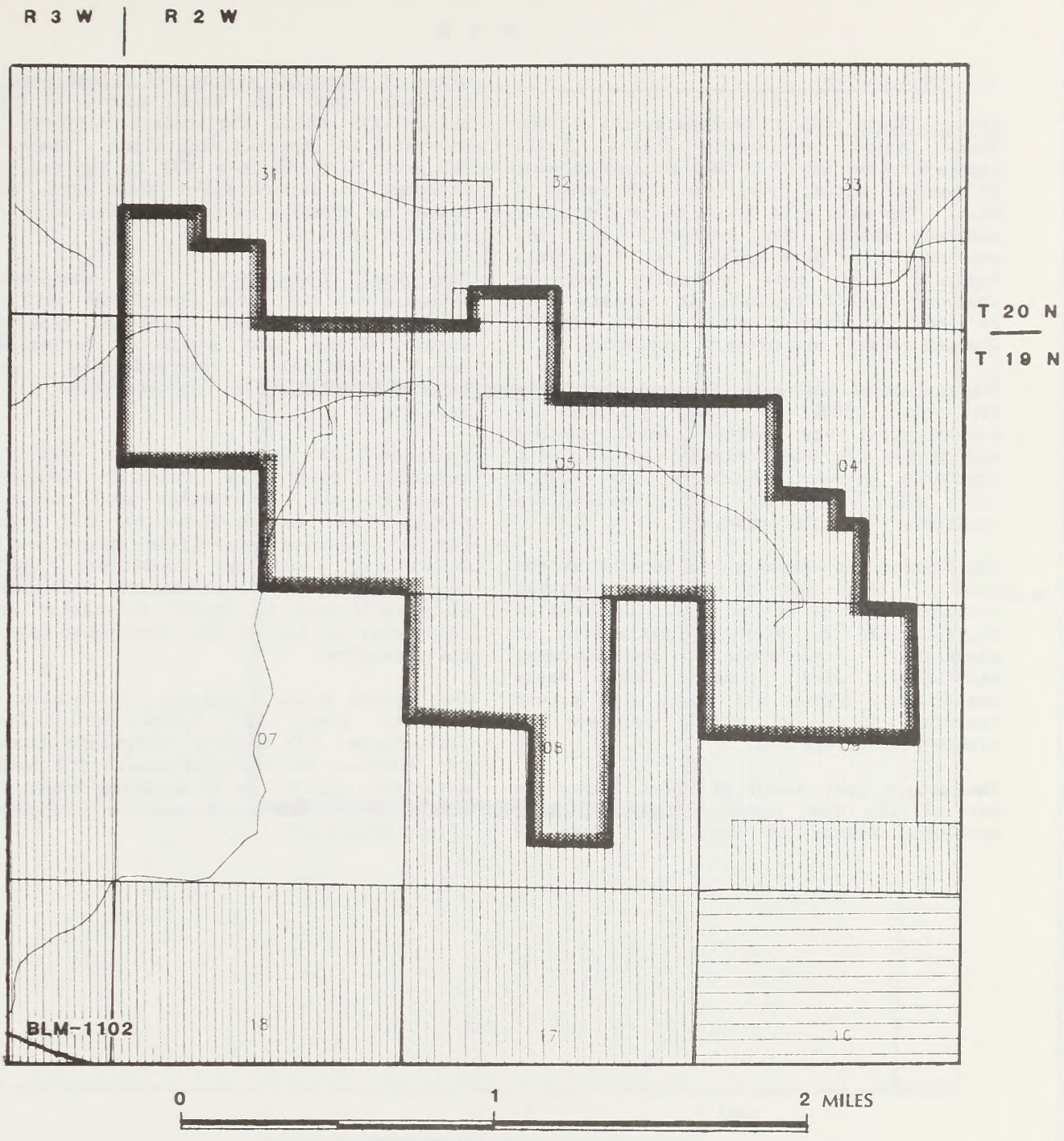
4. CANON JARIDO

General Description: Canon Jarido (see Map C-4) consists of a steep-sided sandstone canyon, approximately 100 feet deep, cut into Mesa Portales which provides raptor nesting sites. Lower elevations consist of sage cover interspersed with pinyon and juniper. This vegetative community progresses into ponderosa pine and Gambel's oak, also providing good mule deer habitat.

Five springs are located within the canyon, two of which are associated with historic homesteads settled sometime during the early 1900's. One cabin site is in excellent condition, while the second is in moderately good shape. To date, the deterioration has been due to natural causes, rather than vandalism. This relatively undisturbed cultural resource warrants immediate attention. Additional historic and prehistoric cultural materials have also been identified within Canon Jarido.

Management Objectives: Goals of special management for Canon Jarido emphasize management for scenic values, wildlife habitat, cultural values, and intensive recreation use, specifically semi-primitive motorized recreation opportunities (see Appendix I).

Planned actions include: (1) Develop an activity plan; (2) Limit motorized vehicles to existing roads and trails; (3) Allow no surface disturbance.



MAP C-4
CANON JARIDO

SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE

N

- PAVED OR GRADED ROAD
- PRIMITIVE ROAD OR TRAIL
- SMA BOUNDARY

ALL MOTORIZED USE WITHIN BOUNDARY LIMITED TO EXISTING ROADS & TRAILS

5. JONES CANYON

General Description: Reconnaissance of the Jones Canyon prehistoric Pueblo II-III community (see Map C-5) has documented over 25 masonry sites, some over 100 rooms in size. The main site location is centrally located within the community and may contain 200 or more rooms. Early analysis suggests that this community may be Chacoan-related; however, it appears that it does not display some of the classic Chacoan ceramic and masonry attributes.

Vegetation of the area is typical of the dry, high (6800 to 7200') plateaus of north-central New Mexico. Dense juniper and pinyon are the dominant species, with scattered grasses, Gambel's oak, cliff rose, sage, squawberry, yucca, cholla, and ponderosa pine also present.

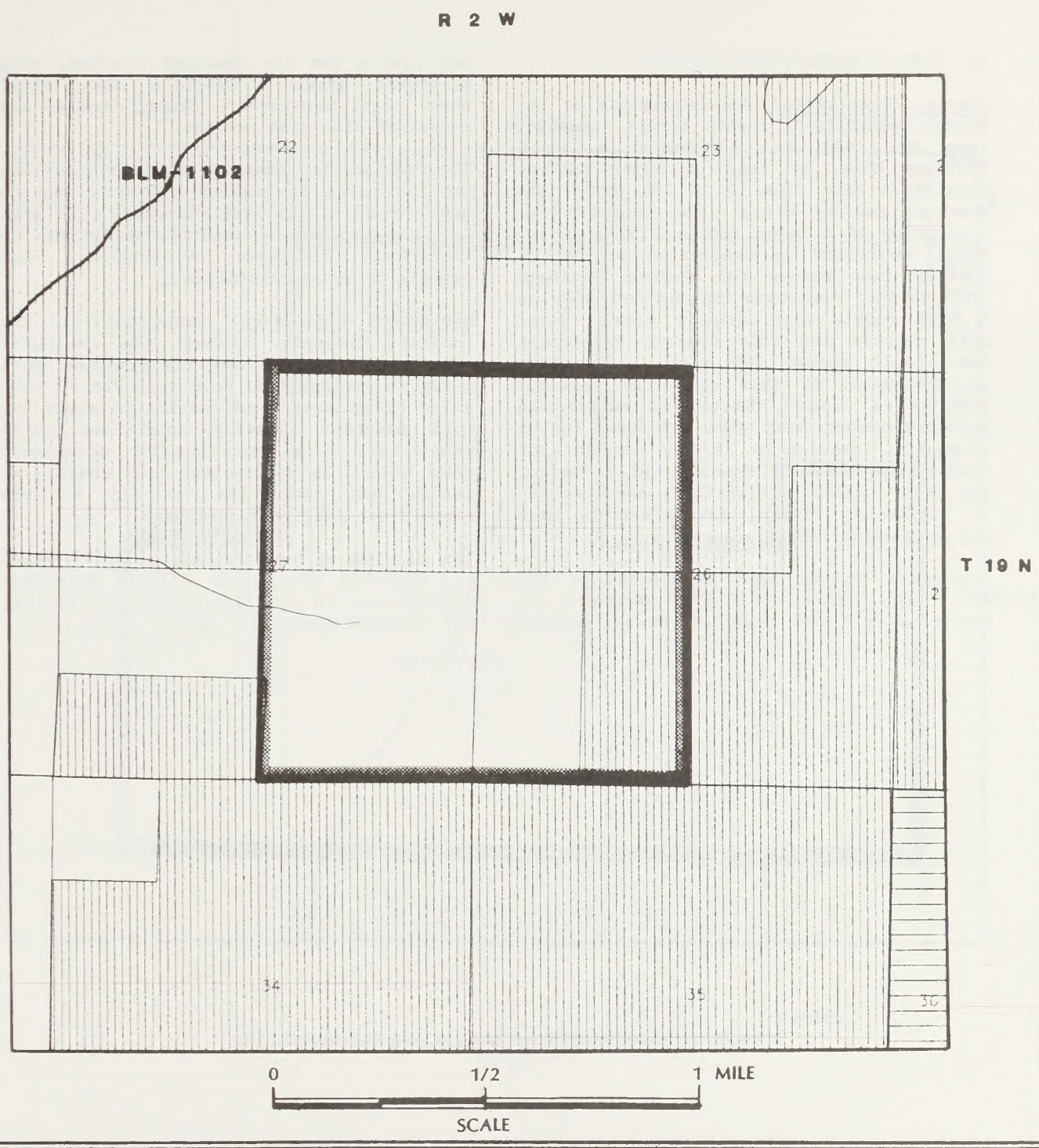
The prehistoric community is located at the head of Jones Canyon and along several tributary canyons in the area. The area is characterized by dramatic variations in elevation, sandstone outcroppings, stabilized sand dunes, and dense vegetation. Almost all local high ground contains sites or other evidence of prehistoric occupation.

The canyon just south of Jones Canyon is one of the few riparian zones in the northern portion of the Rio Puerco ES area. A perennial spring and stream feed a man-made pond in this canyon. This perennially moist environment supports a diversity of riparian vegetation. Gambel's oak grow 30 to 40 feet tall in the canyon. Although no surveys have been made, the canyon is surely a haven for a diversity of wildlife species.

Management Objectives: The management emphasis for the Jones Canyon SMA will be on cultural values, riparian habitat, scenic values, and intensive recreation use, specifically semi-primitive non-motorized recreation opportunities (see Appendix I).

Management of the Jones Canyon site and community under the cultural resource scientific and conservation goal category designations (see Appendix K) will allow further approved scientific study while maintaining existing conditions until completion of a comprehensive management plan sufficient in detail to assign use categories to all of the components within the community.

The planned actions include: (1) Develop an activity plan; (2) Allow no surface disturbance; (3) Acquire non-public lands; (4) Withdraw locatable minerals; (5) Limit motorized vehicle use to existing roads and trails; (6) Allow no surface occupancy (fluid minerals).



MAP C-5
JONES CANYON

SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE

N

- PAVED OR GRADED ROAD
- PRIMITIVE ROAD OR TRAIL
- SMA BOUNDARY

ALL MOTORIZED USE WITHIN BOUNDARY LIMITED TO EXISTING ROADS & TRAILS

6. HEADCUT PREHISTORIC COMMUNITY

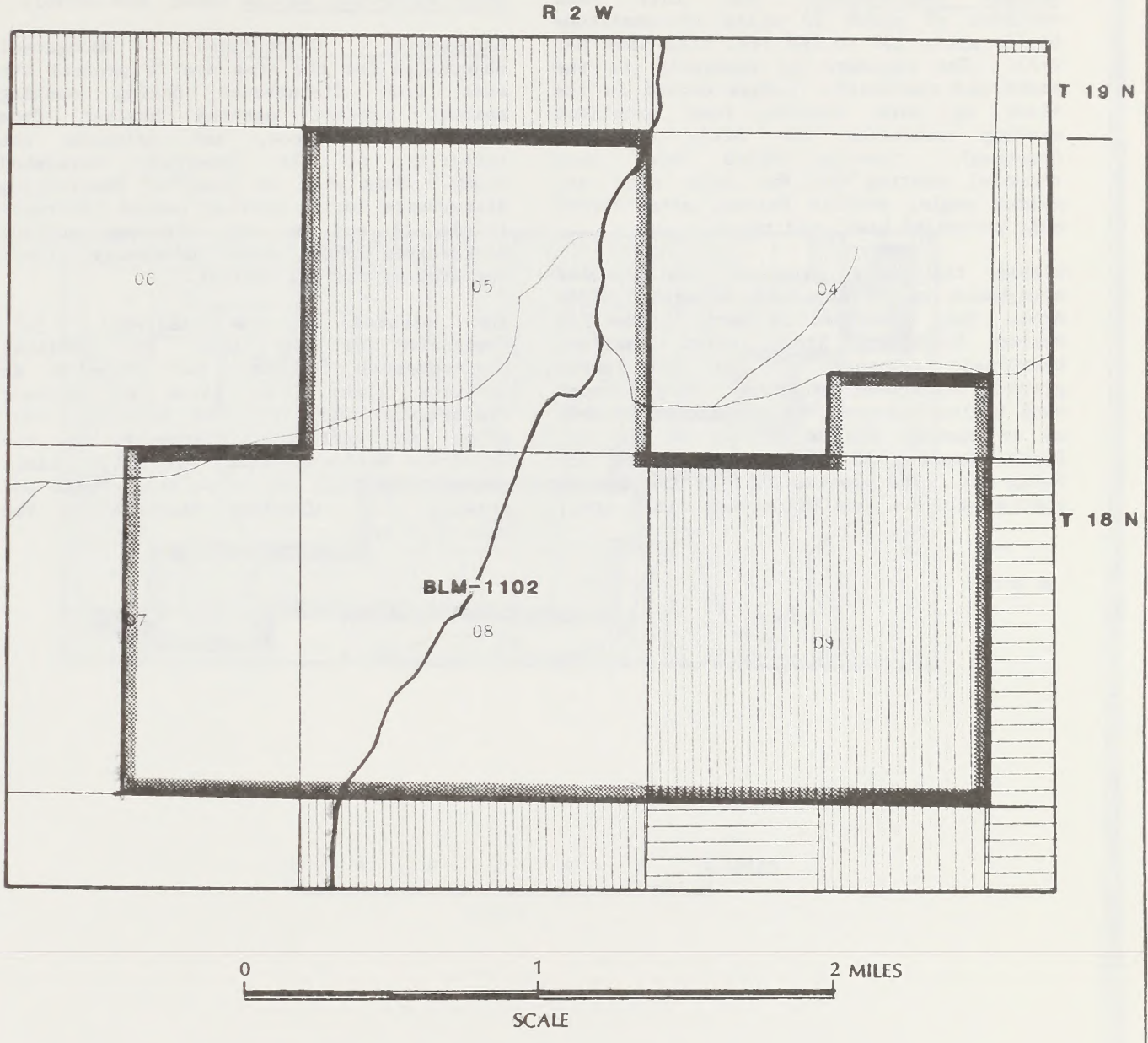
General Description: Reconnaissance of the Headcut prehistoric Pueblo II-III community (see Map C-6) has documented a large isolated kiva, at least 5 major pueblos ranging in size from 45 to 100 rooms, and numerous smaller sites. One concentration consisting of a large pueblo (150 rooms or more) surrounded by smaller structures is located just across the Headcut drainage from another concentration defined only as a high Pueblo site density area. Total site numbers for this Special Management Area could exceed 200 sites. The 1976 reconnaissance of this community suggests that it is classic Chacoan in nature and probably contemporary with the Jones Canyon community immediately to the north, but displaying different masonry and ceramics. The exact number, affiliation, and location of components within this community have not been established.

Vegetation of the area is typical of the dry, high (6700 to 7200') plateaus of north-central New Mexico. Dense juniper and pinyon are the dominant species, with scattered grasses, Gambel's oak, cliff rose, sage, squawberry, yucca, cholla, and ponderosa pine also present.

The prehistoric community is located within one half mile of Headcut reservoir on the high ground to the east and west. The area is characterized by dramatic variations in elevation, sandstone outcroppings, and pockets of dense vegetation.

Management Objectives: Management of the Headcut community under the cultural resource scientific and conservation goal category designations (see Appendix K) will allow further approved scientific study but will maintain existing conditions until completion of a comprehensive management plan which is sufficient in detail to assign use categories to all of the components within the community.

The planned actions include: (1) Develop an activity plan; (2) Limit motorized vehicle use to existing roads and trails; (3) Acquire non-public lands.



MAP C-6
HEADCUT PREHISTORIC COMMUNITY

SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE

N

- PAVED OR GRADED ROAD
- PRIMITIVE ROAD OR TRAIL
- SMA BOUNDARY

ALL MOTORIZED USE WITHIN BOUNDARY LIMITED TO EXISTING ROADS & TRAILS

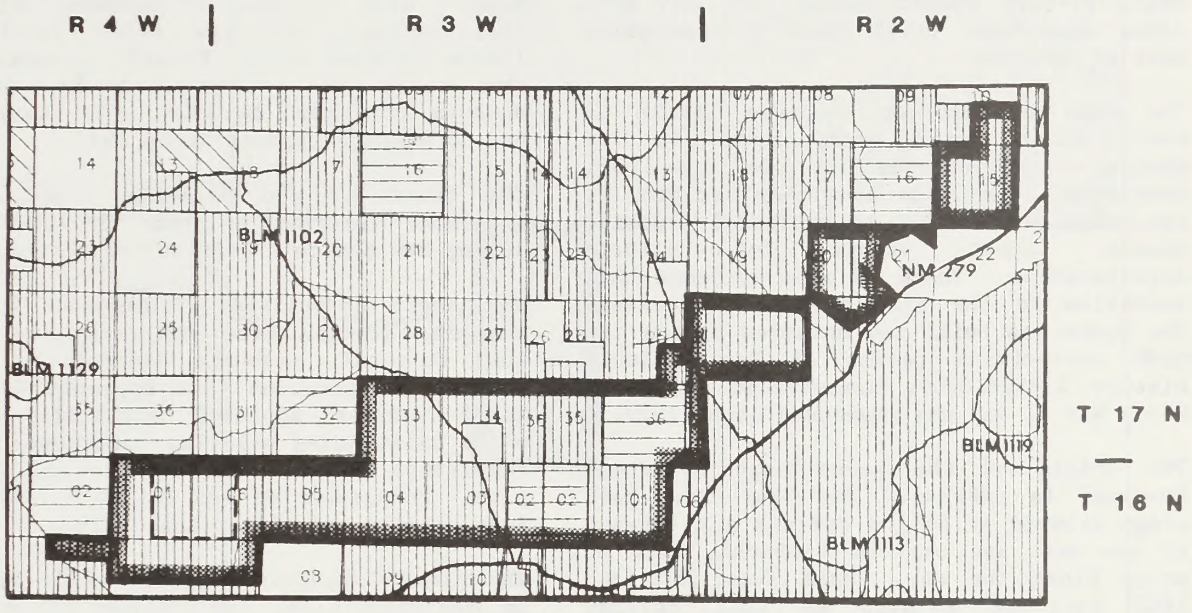
7. SAN LUIS MESA RAPTOR AREA

General Description: San Luis Mesa consists of about 20 miles of sandstone bluffs about 100 to 200 feet high (see Map C-7). The exposure is generally to the south and southeast. Ledges carved in the bluff by wind erosion form excellent nesting substrate for birds of prey (raptors). Species which have been recorded nesting at San Luis Mesa are golden eagle, prairie falcon, great-horned owl, redtailed hawk, and raven.

Within the area proposed for special management is the Empedrado Watershed Study Area. This watershed is part of the Rio Puerco Hydrology Study which monitors hydrologic responses to the Rio Puerco grazing management programs. Only through such monitoring can a determination be made as to whether the objectives of the Ric Puerco Grazing ES (USDI, BLM 1978b) are being met. The western half of the SMA is part of the La Lena Wilderness Study Area, currently being managed under the Interim Management Policy and Guidelines for Lands Under Wilderness Review (USDI, BLM 1979b).

Management Objectives: Management objectives for the area are to protect the area from disturbance during nesting season, protect nesting habitat from surface disturbance, and maintain the integrity of the Empedrado Watershed Study. This will be done by restricting disturbance during nesting season (February 1-July 1) and by not allowing surface disturbance which would adversely affect the area as nesting habitat.

The planned actions include: (1) Designate as an Area of Critical Environmental Concern; (2) Develop an activity plan; (3) Allow no surface disturbance February 1 to July 1; (4) Allow no surface disturbance in the Empedrado Watershed Study Area; (5) Limit motorized vehicle use to existing roads and trails; (6) Withdraw minerals in the watershed area.



0 1 2 3 4 5 6 MILES

SCALE

MAP C-7
SAN LUIS MESA RAPTOR AREA

SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE

N

- PAVED OR GRADED ROAD
- PRIMITIVE ROAD OR TRAIL
- SMA BOUNDARY
- EMPEDRADO WATERSHED

ALL MOTORIZED USE WITHIN BOUNDARY LIMITED TO EXISTING ROADS & TRAILS

8. AZABACHE STATION

General Description: The so-called Azabache Stage Station is an abandoned, four room, sandstone masonry ranch house with spring house, corral, and evidence of at least two other buildings built near the base of Mesa La Azabache, next to a small spring known as "Ojo Azabache" (see Map C-8). The ruin is located along the old Santa Fe-Fort Wingate wagon road and even older Zuni-Jemez trail about fifteen miles west of Cabezon.

The ruin is important because little is known about rural architecture in New Mexico, and because it is so well preserved. The ruins have been stripped of removable objects but the cultural deposits remain intact except for natural deterioration. There is some evidence that vandalism to the site may be increasing. The house was built and occupied during the late territorial period of New Mexico's history (1846-1880), homesteaded following World War I, and was abandoned about 1925.

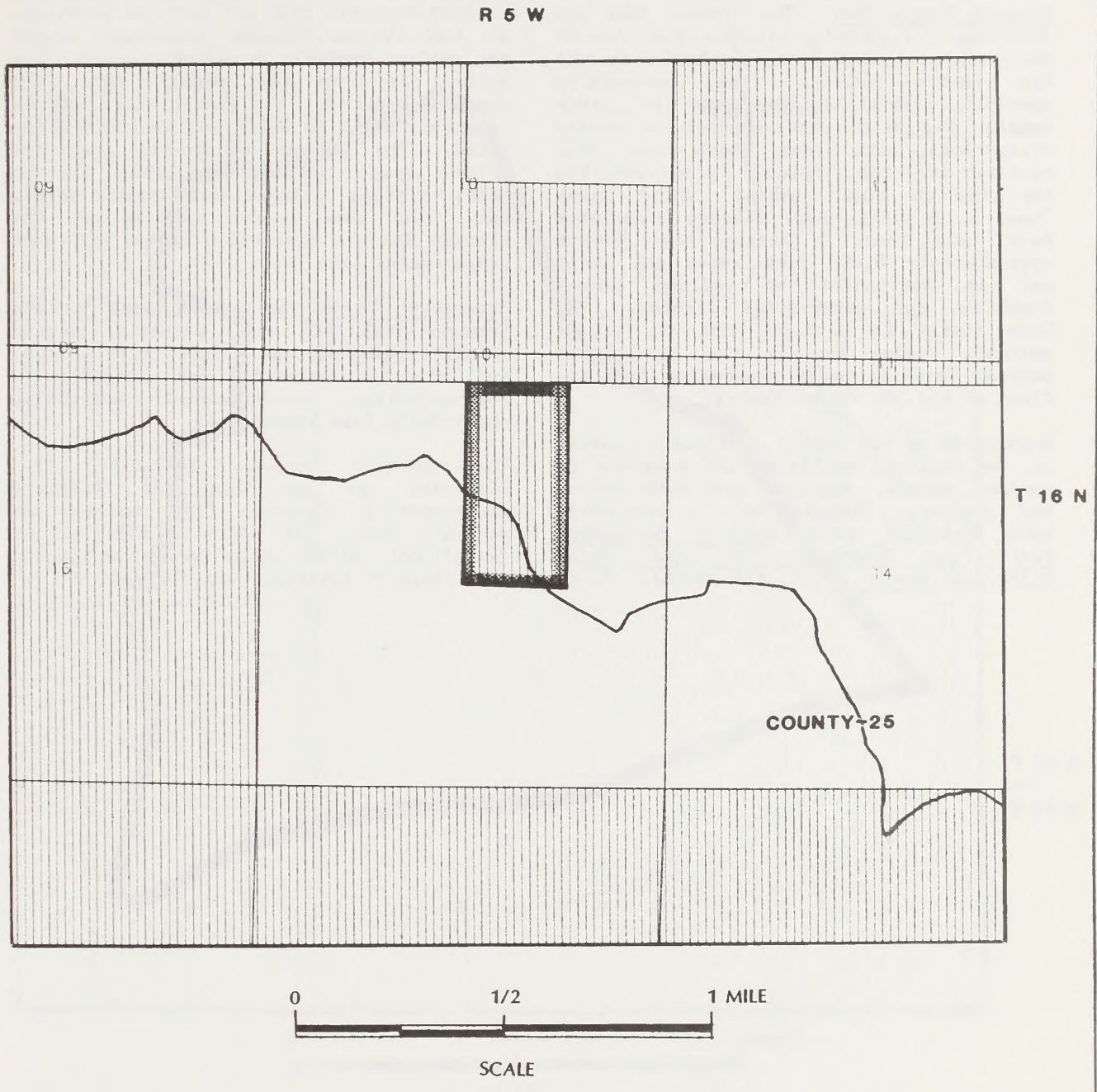
The origin of the term "Azabache Stage Station" is unknown. The Star Line Mail stage stopped at Willow Springs and Cabezon to the west and east of Azabache, with no stops along the way. Maps from 1879 and 1883 indicate a stop at Coal Spring, apparently located at the ruin one mile northeast of "Azabache Station." Since Azabache means "a compact velvet-black coal," it is likely that the place called Azabache by Bandelier in 1888 and the ranch shown as Coal Spring on the 1883 USGS topographic map are one and the same.

John Walker, U.S. Deputy Surveyor, who surveyed the area in 1901, reported that there were only four inhabited ranches in the area, the house at Ojo Azabache, the house a mile northeast of Azabache (the old Coal Spring), and two other ranches a little further east. Federal records show the ranch was homesteaded by Eduardo Montoya from 1916 to 1925. The house has had no known occupants since 1925.

The house at Ojo Azabache could yield important information about frontier life during New Mexico's territorial period.

Management Objectives: Management of the Azabache Station site and community under the cultural resource scientific goal category designation (see Appendix K) will allow further approved scientific study while maintaining existing conditions until completion of a comprehensive management plan. Management of the SMA will emphasize interpretive and educational values.

The planned actions include: (1) Develop an activity plan; (2) Allow no surface occupancy (fluid minerals); (3) Withdraw locatable and saleable minerals; (4) Close the area to motorized vehicle use.



MAP C-8
AZABACHE STATION

SURFACE OWNERSHIP

BLM

PRIVATE

N

PAVED OR GRADED ROAD

PRIMITIVE ROAD OR TRAIL

SMA BOUNDARY

SMA CLOSED TO MOTORIZED VEHICLE USE, EXCLUDING COUNTY ROAD 25

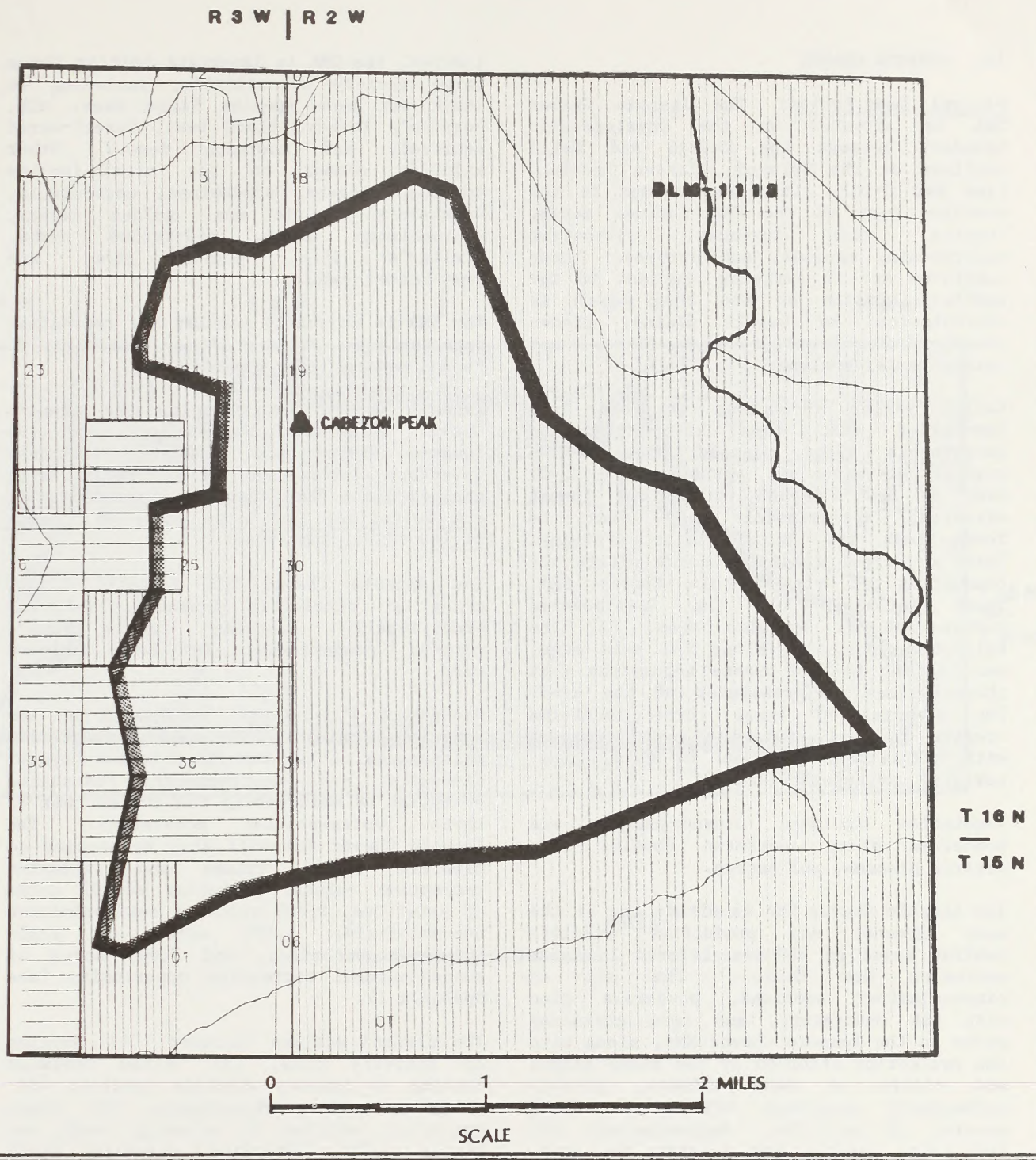
9. CABEZON PEAK

General Description: The Cabezon Peak SMA (see Map C-9) contains Cabezon Peak, one of the most prominent local landmarks in the Rio Puerco Valley. The surrounding low-lying foothills give way to large rugged shoulders that support a nearly cylindrical neck from which the peak receives its name. Cabezon is derived from the Spanish noun "cabeza" which means "head." In this case, Cabezon translates into "big head." Cabezon Peak towers approximately 8,000 feet above sea level and is surrounded by rolling grassy foothills and steep-sided arroyos. The Peak itself is part of the Mt. Taylor volcanic region and is the largest of several volcanic necks protruding from the floor of the Rio Puerco Valley.

Vegetation of the SMA is confined primarily to the rolling foothills, and consists of cactus, shrubs, grasses, and some pinyon and juniper. Cabezon Peak is currently being managed under Interim Management Policy and Guidelines for Lands Under Wilderness Review (USDI, BLM 1979b). It is a popular recreation site for casual visitation and for climbing. Over two hundred climbers from in- and out-of-State, as well as two foreign countries, signed the visitor register in a twelve month time span. The area also contains two rare cactus species, a prehistoric shrine (possibly still in use), and raptor nesting sites. The raptors using the area are golden eagle, red-tailed hawk, sparrow hawk, prairie falcon, and great horned owl. The rare plants growing in the Cabezon SMA are pincushion cactus and blue grama cactus (see Table 3-3).

Management Objectives: Management of the Cabezon Peak SMA will emphasize scenic values, socio-cultural values, rare cactus, and intensive recreation use, specifically semi-primitive non-motorized recreation opportunity (see Appendix I).

The planned actions include: (1) Designate as an Area of Critical Environmental Concern; (2) Develop an activity plan; (3) Acquire non- public lands; (4) Allow no surface disturbance; (5) Close to motorized vehicle use.



MAP C-9
CABEZON PEAK

SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE

N

- PAVED OR GRADED ROAD
- PRIMITIVE ROAD OR TRAIL
- SMA BOUNDARY
- SMA CLOSED TO MOTORIZED VEHICLE USE

10. IGNACIO CHAVEZ

General Description: The Ignacio Chavez SMA is situated on the physiographic boundary between the Navajo and Datil sections of the Colorado Plateau Province (see Map C-10). Landforms common to the northern part of the SMA include mesas, cuestas, rock terraces, retreating escarpments, canyons, and arroyos. These landforms are in striking contrast to the southern portion of the SMA, which is characterized by basalt plains, cinder cones, exhumed plugs and dikes, and extensive talus slopes.

Relief varies throughout the SMA from low-relief mesa tops to high-relief escarpments along plateau edges. The highest elevation is approximately 7,731 feet at Bear's Mouth, while the lowest elevation, approximately 6,000 feet, is found near the Arroyo Chico drainage. Three principal landforms occur within the boundaries of the Ignacio Chavez SMA. These include: (1) the lava-covered surface of El Banquito Mesa, (2) the talus-covered slopes along the mesa edge, and (3) the incised cuesta topography that characterizes the remainder of the area. The blending of these three landforms creates a highly valued visual resource, with significant contrast in form, line, texture, and color evident.

Vegetation includes pinyon-juniper and ponderosa pine, scattered Douglas fir, prairie grasses, and cactus.

The Ignacio Chavez SMA is within one of the most diverse and productive wildlife habitat areas on BLM-administered lands in northwest New Mexico. The mix of pinyon-juniper woodland, ponderosa pine with oak understory, and open grassland parks in the Ignacio Chavez SMA, along with the protection afforded by the steep slopes and cliffs of Mesa Chivato, provide potentially excellent habitat for many species of wildlife. Approximately 257 vertebrate species may inhabit the area, including 146 species of birds, 71 of mammals, 31 of reptiles, and 9 species of amphibians. Although use of the area by threatened or endangered species is limited, the SMA is important habitat for a large variety of wildlife, including at least six game species (mule deer, elk, Merriam's turkey, black bear, tassel-eared squirrel, and mourning dove.) Other wildlife common to the area include coyotes, badgers, porcupines, cottontails, Gunnison's prairie dog, golden eagles, sharpshinned hawks, red-tailed hawks, Stellar's jays, pinyon jays, and gray-headed juncos.

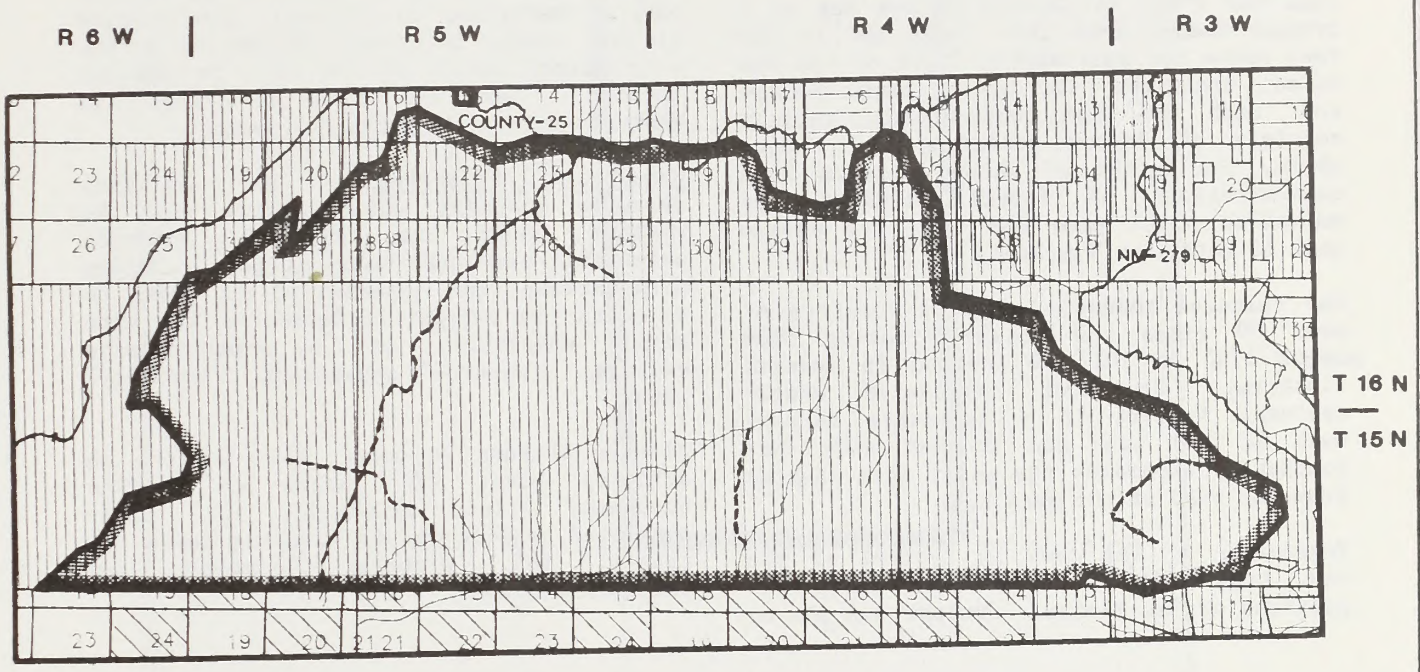
The SMA is currently popular for recreation opportunities ranging from primitive to roaded natural (see Appendix I).

Ignacio Chavez SMA contains the Ignacio Chavez Wilderness Study Area and the Ignacio Chavez and Chamisa Wilderness Inventory Units, and is currently being managed under the Interim Management Policy and Guidelines for Lands Under Wilderness Review (USDI, BLM 1979b).

The Ignacio Chavez SMA contains 17,300 acres of accessible fuelwood, and has traditionally sustained small scale cutting, predominantly for home fuelwood use.

Management Objectives: Management of the Ignacio Chavez SMA will emphasize maintenance of the current wildlife habitat diversity and environmental education potential by maintaining the current mix of three representative ecosystems. The Ignacio Chavez SMA will also be managed to maintain visual values and intensive recreation values, including 23,587 acres of primitive, 8,800 acres of semi-primitive non-motorized, 3,696 acres of semi-primitive motorized, and 7,065 acres of roaded-natural recreation opportunity (see Appendix I).

The planned actions include: (1) Develop an activity plan; (2) Allow fuelwood cutting to improve wildlife habitat; (3) Allow no surface disturbance; (4) Limit motorized vehicles to existing roads and trails, (5) Determine standard fluid mineral lease stipulations during activity planning; (6) Close certain routes (except for authorized users)(see Map 2-14); (7) Acquire non-public lands.



0 1 2 4 MILES

SCALE

MAP C-10
IGNACIO CHAVEZ

SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE
- USFS

N

- PAVED OR GRADED ROAD
- PRIMITIVE ROAD OR TRAIL
- SMA BOUNDARY
- ROUTE CLOSED TO VEHICULAR USE
- REMAINING VEHICULAR USE LIMITED TO EXISTING ROADS & TRAILS

11. BIG BEAD MESA

General Description: Big Bead Mesa, a well-known historic Navajo locality, is currently designated as National Historic Landmark. The original designation consisted of 750 acres; however, after examination of the site in 1975 by the National Park Service, it was reduced to 150 acres in 1981. The Big Bead Mesa SMA (see Map C-11) is located on the top of a cresent-shaped mesa that rises 150 to 200 feet above the surrounding floor of the Rio Salado drainage. The mesa, canyon walls, and much of the surrounding terrain consists of Dalton sandstone and Mancos shale, the latter of which contains high concentrations of fossil bivalves and univalves which give the mesa its Navajo name of Yotso or "Big Bead."

The cultural resource property consists of over 90 sites and features dating from about 1745 to 1812 AD located in several clusters. The most impressive architectural feature is a defensive masonry wall 12 feet high and 26 feet wide that completely separates the major site cluster from the rest of the mesa top.

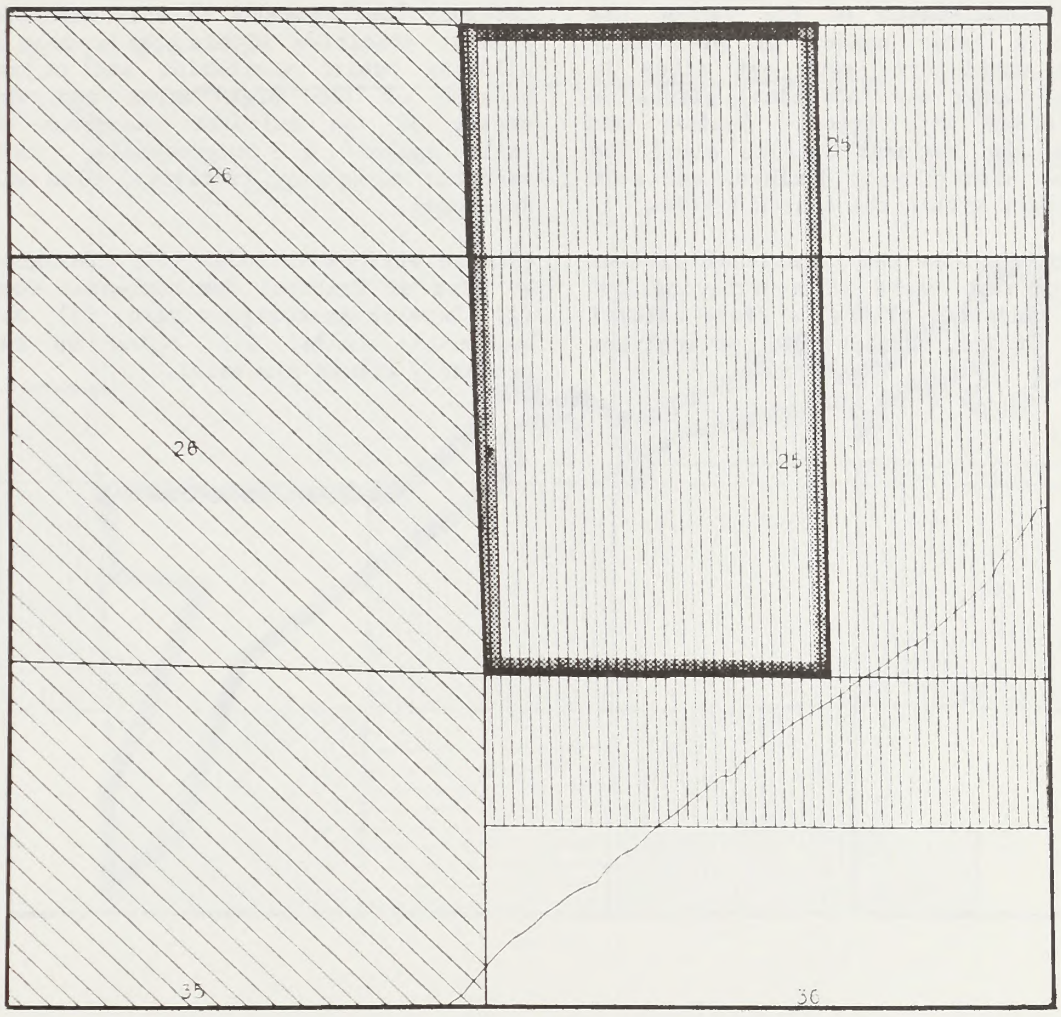
Vegetation of the area is typical of the dry, high (6400 to 6600 foot elevation) plateaus of New Mexico. Juniper and pinyon comprise the dominant ground cover with some scrub oak, cliff rose, squawberry, yucca, cholla, and an occasional ponderosa pine occurring.

Most of the cultural remains were completely excavated by Dorothy Keur in 1939 (Keur 1941). While Big Bead Mesa is very well known in the anthropological literature as an early Navajo site, current public visitation is extremely low because of its remote location. Consequently the only deterioration at the site is weather induced. There are areas of cracks and weakness within the defensive wall.

Management Objectives: This cultural resource property and vicinity will be managed under the cultural resource scientific and socio-cultural goal category designations (see Appendix K) in order to maintain the current condition of the site until completion of a comprehensive cultural resource management (activity) plan.

Planned Actions include: (1) Develop an activity plan; (2) Allow no surface occupancy (fluid minerals); (3) Limit motorized vehicle use to existing roads and trails; (4) Withdraw locatable and saleable minerals.

R 4 W



T 15 N

0 1/2 1 MILE

SCALE

MAP C-11
BIG BEAD MESA

SURFACE OWNERSHIP

BLM

USFS

PRIVATE

N

PRIMITIVE ROAD OR TRAIL

SMA BOUNDARY

ALL MOTORIZED USE WITHIN BOUNDARY LIMITED TO EXISTING ROADS & TRAILS

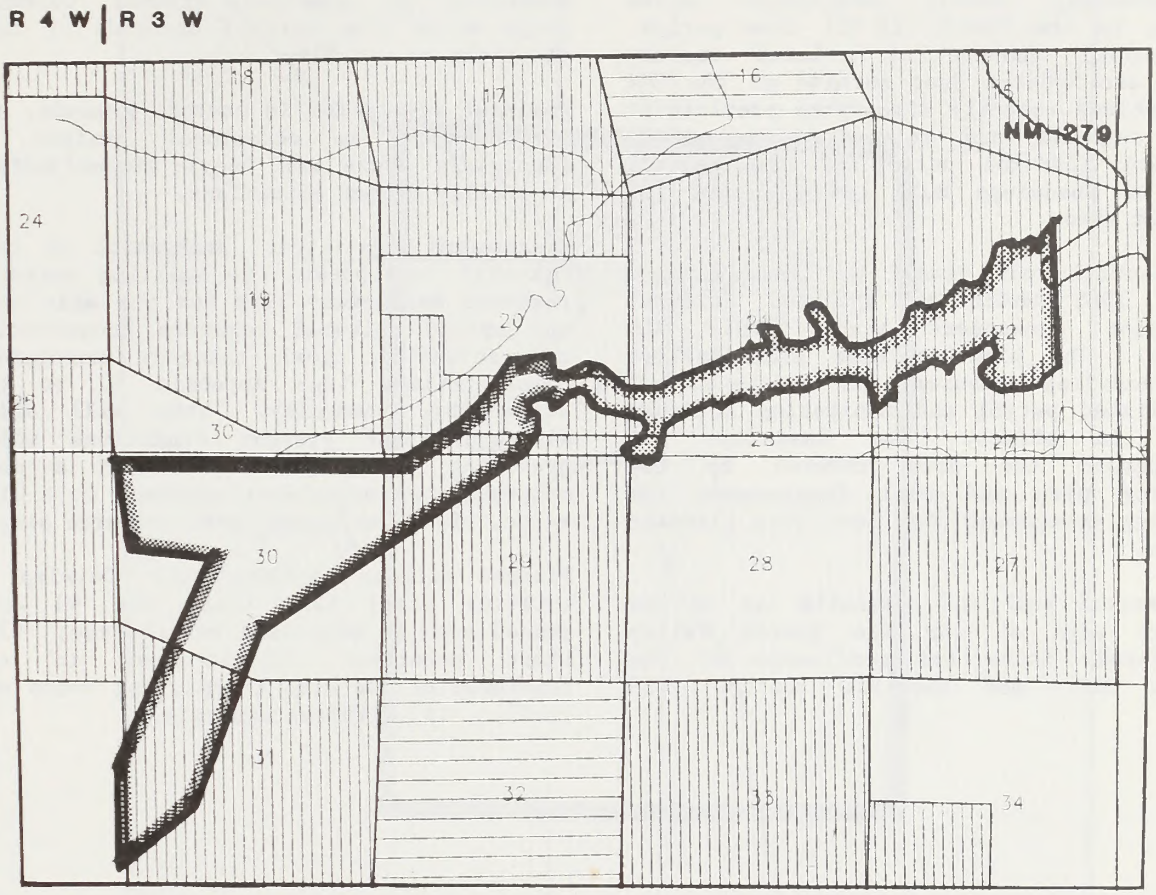
12. CANON TAPIA

General Description: The Canon Tapia SMA is located within a large secondary drainage that empties into the Rio Puerco south of the Village of Guadalupe (see Map C-12). Reconnaissance of the canyon has documented a large number of previously unrecorded prehistoric rock art sites in both large panels and individual glyphs as well as other site types. Juniper and pinyon are the dominant species along the canyon rim, with pinyon, juniper, and salt cedar dominant within the canyon itself.

The canyon provides the occasional visitor with spectacular views of contrasting red and brown sandstone cliffs, a large natural sandstone bridge, prehistoric petroglyphs reflecting a wide range of time, as well as remains of Navajo masonry sites, hogans, and storage structures.

Management Objectives: Management under the cultural resource scientific goal category (see Appendix K) will maintain the present condition within the canyon while allowing public visitation and enjoyment. Because of the high value and fragile nature of the cultural resources within this canyon a comprehensive cultural resource management (activity) plan will be developed.

Planned actions include: (1) Designate as an Area of Critical Environmental Concern; (2) Develop an activity plan; (3) Acquire non-public lands; (4) Allow no surface occupancy (fluid minerals).



0 1 2 MILES

SCALE

MAP C-12
CANON TAPIA

SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE

N

- PAVED AND GRADED ROADS
- PRIMITIVE ROADS AND TRAILS
- SMA BOUNDARY

13. GUADALUPE RUIN AND COMMUNITY

General Description: The Guadalupe SMA (see Map C-13) contains Guadalupe Ruin, a prehistoric Chacoan outlier of about forty-five rooms (of which about one-half have been excavated and stabilized), and approximately twenty additional sites dating to the Pueblo II-III time period. Substantial numbers of related masonry sites are located just outside of the SMA and include recently discovered prehistoric road segments and related features. A cultural resource survey of the general area of Guadalupe Ruin has recorded 157 related sites.

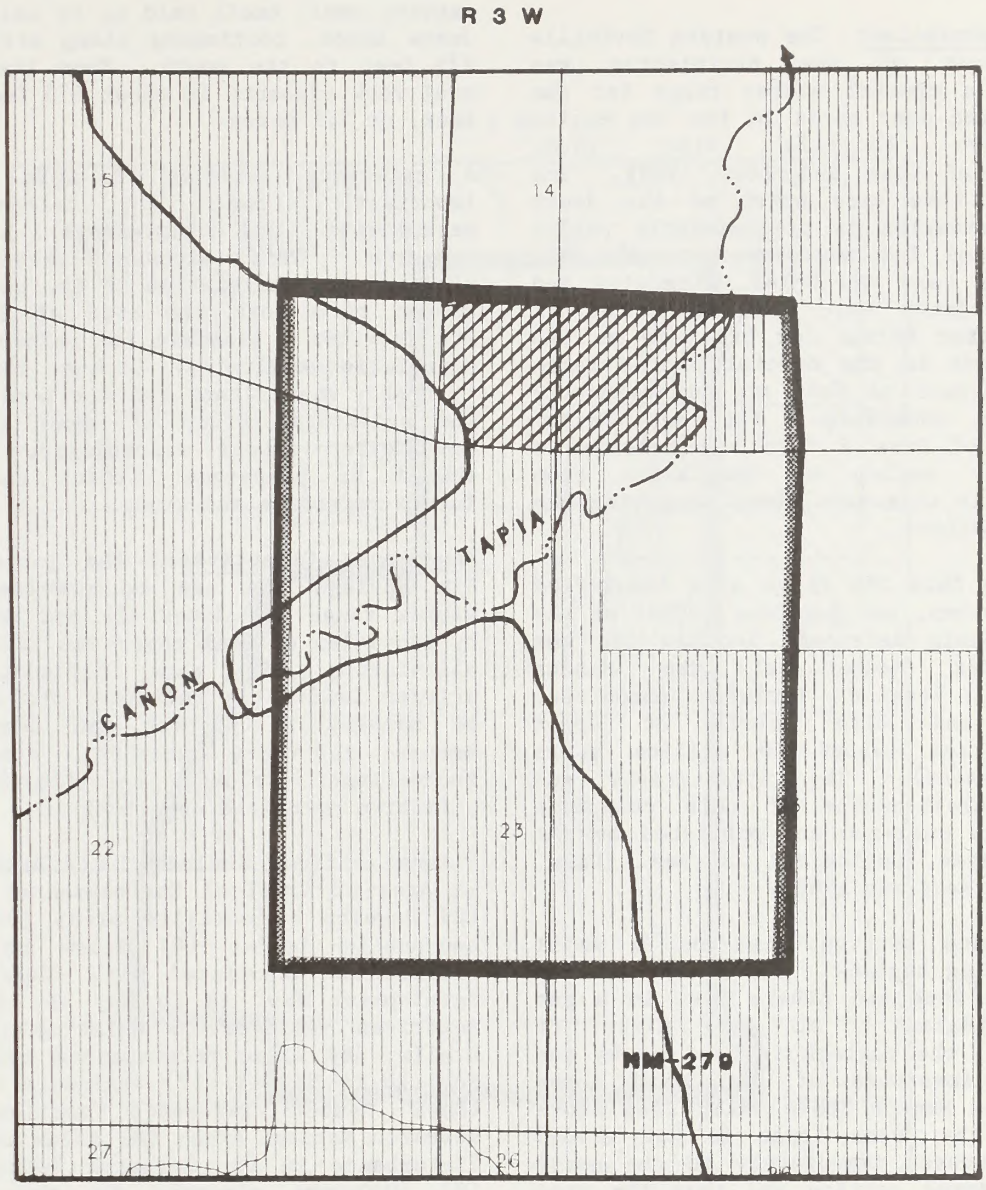
The central ruin itself has been managed since 1981 under an approved cultural resources management plan (USDI, BLM 1981a). The plan includes stabilization and recording measures, now complete, and established patrol and monitoring actions, still in effect. The Guadalupe SMA encompasses the area covered by the existing plan and will incorporate the existing management plan into this planning effort.

The central ruin and community lie on the western edge of the Rio Puerco Valley immediately below the confluence of the Arroyo Chico and the Rio Puerco. The surrounding highland areas include the Cebolleta Mountains to the west and Mesa Prieta to the east, both eroded remnants of an extensive basalt plateau. Several tributary arroyos enter the Rio Puerco floodplain near Guadalupe Ruin from steep-sided canyons. The topography is dominated by numerous exhumed volcanic plugs which rise several hundreds of feet above the valley floor.

Dominant vegetation is cactus, grasses, and shrubs with an occasional juniper in floodplain areas and heavy pinyon/juniper in locally higher elevations.

Management Objectives: Management of this SMA will incorporate the existing cultural resource management plan for the main ruin and extend cultural resource conservation and scientific goal category management considerations (see Appendix K) to the surrounding community. This will allow maintenance of present conditions while providing public visitation and a more comprehensive management approach to a high value, high density cultural resource area.

Planned actions include: (1) Develop an activity plan; (2) Close the 40 acre fenced area to motorized vehicle use; (3) Limit motorized vehicle use in the remainder of the area to existing roads and trails; (4) Withdraw minerals.



MAP C-13
GUADALUPE RUIN AND COMMUNITY

SURFACE OWNERSHIP

BLM

PRIVATE

N

PAVED OR GRADED ROAD

PRIMITIVE ROAD OR TRAIL

SMA BOUNDARY

CLOSED TO ALL VEHICULAR USE

ALL MOTORIZED USE WITHIN REMAINING AREA LIMITED TO EXISTING ROADS & TRAILS

14. ELK SPRINGS

General Description: The western foothills and piedmont of the Nacimientos was designated a crucial winter range for the Jemez elk and deer herds in the New Mexico Comprehensive Wildlife Plan (N.M. Department of Game and Fish 1980). The portion of this area north of the Jemez Indian Reservation is predominantly public land proposed for management as the Elk Springs SMA (see Map C-14). Chaining and seeding projects have been completed to improve winter forage for big game on BLM lands. Lands in the crucial winter range from San Miguel to Cuba are predominantly in private ownership. The New Mexico Department of Game & Fish has received a considerable number of complaints from landowners in this area about wintering big game depredations.

Also within this SMA is an area identified by Dane, Cobban, and Kauffman (1966) as the San Juan Basin Reference Section for the Juana Lopez Member of the Mancos Formation. Fossils include ammonites, molluscs, and fish debris of upper Cretaceous age (about 70 million years before present). The stratigraphy and regional relationships of this reference section were analyzed and published by the United States Geological Survey (Dane, Cobban, and Kauffman 1966).

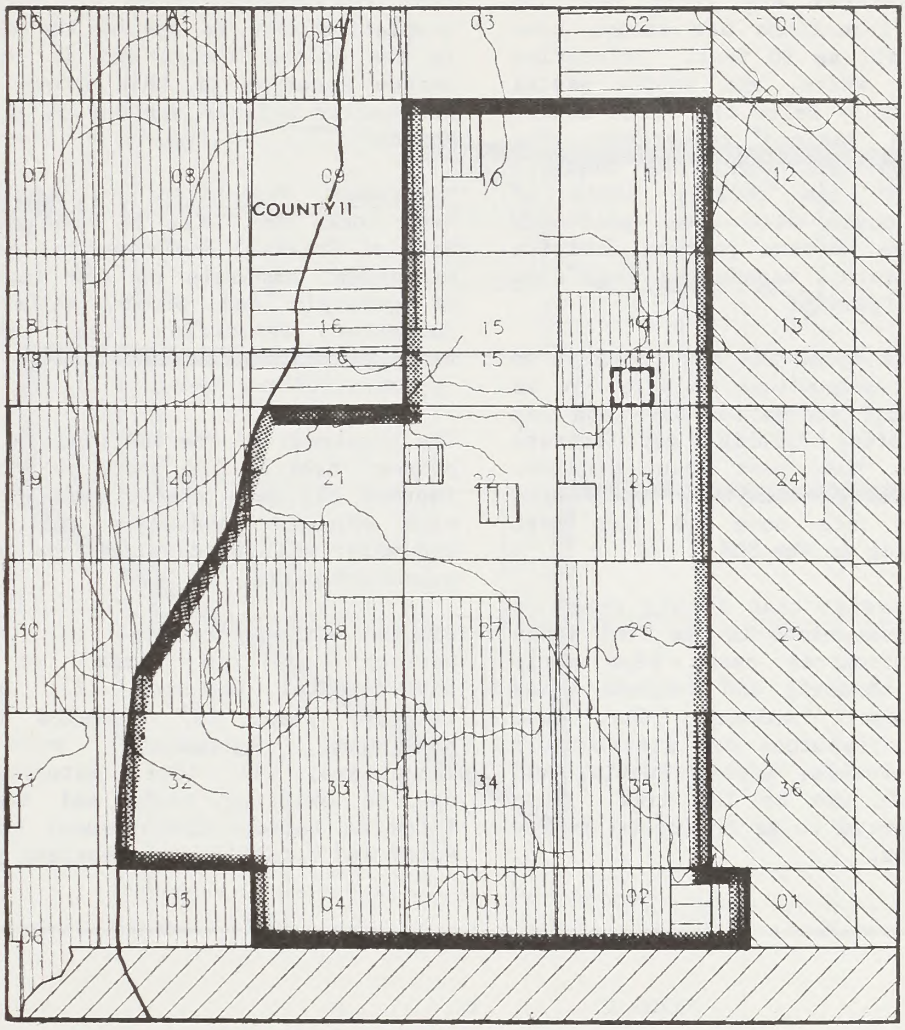
The reference section lies on a small north-trending hogback. The actual section measured by Dane and others lies in a gap in the hogback. At the place of measurement, the hogback is held up by the resistant limestones of the Juana Lopez Member. The Mancos Shale which lies above and below the Juana Lopez is not eroded from the hogback immediately to the north of the measured section and thus the area of good exposures extends only about 400 feet along strike in a northerly direction (San Filipo 1985). To the south lies another small knoll held up by well exposed Juana Lopez, continuing along strike about 275 feet to the south. Thus the area of good rock exposure is about 675 feet by 140 feet, or 2.2 acres.

A reference section of this type is important from a paleontological perspective and represents a unique resource. This exposure serves as a standard for correlation of the Juana Lopez Member throughout its area of deposition and provides a standard for paleontological correlation worldwide. Because this locale is highly significant and has been used for the scientific study of upper Cretaceous New Mexico faunal assemblages, the area should be preserved without change for future reference and study.

Management Objectives: The goals of the Elk Springs SMA are to provide quality winter range for Jemez elk and deer herds by providing optimal cover and forage, thus alleviating big game depredations on private lands. In addition, the SMA would be managed to protect the Juana Lopez Member reference section, scenic and recreational values, specifically semi-primitive motorized opportunities.

Planned actions include: (1) Designate as an Area of Critical Environmental Concern; (2) Develop an activity plan; (3) Acquire non-public lands; (4) Allow no surface disturbance associated with fluid mineral development Nov. 16 to May 14; (5) Limit motorized vehicles to existing roads and trails; (6) Close to motorized vehicle use Nov. 16 to May 14; (7) Designate the Juana Lopez Member reference section as a Research Natural Area; (8) Allow no surface disturbance in the Research Natural Area; (9) Withdraw minerals in the Research Natural Area.

R 1 W



T 19 N

T 18 N

0 1 2 3 MILES

SCALE

MAP C-14
ELK SPRINGS

N

SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE
- INDIAN
- USFS

- PAVED OR GRADED ROAD
- PRIMITIVE ROAD OR TRAIL
- SMA BOUNDARY
- JUANA LOPEZ MEMBER

ALL MOTORIZED USE WITHIN BOUNDARY LIMITED TO EXISTING ROADS & TRAILS AND SUBJECT TO SEASONAL RESTRICTIONS

15. TENT ROCKS

General Description: The northeast portion of the Tent Rocks SMA (see Map C-15) exhibits the unique volcanic tuft formations which give the SMA its name. Comparable formations are found only in Turkey. These formations are steep, cone formations as tall as 90 feet. Coloration is grey, black, white, and subtle pastel shades. Immediately below the "tent rocks" are more rounded "badland" topography. The remainder of the Tent Rocks SMA consists predominantly of low rolling hills of pinyon-juniper cover with some ponderosa pine cover. The western portion exhibits several small canyons meandering down from mountain breaks terrain.

Although the Tent Rocks SMA has received no other official designations to date, it is a popular regional recreation site and has received consistent public and private attention over the past two decades. Hiking, sightseeing, camping, picnicking and photography are some of the most popular activities in the SMA.

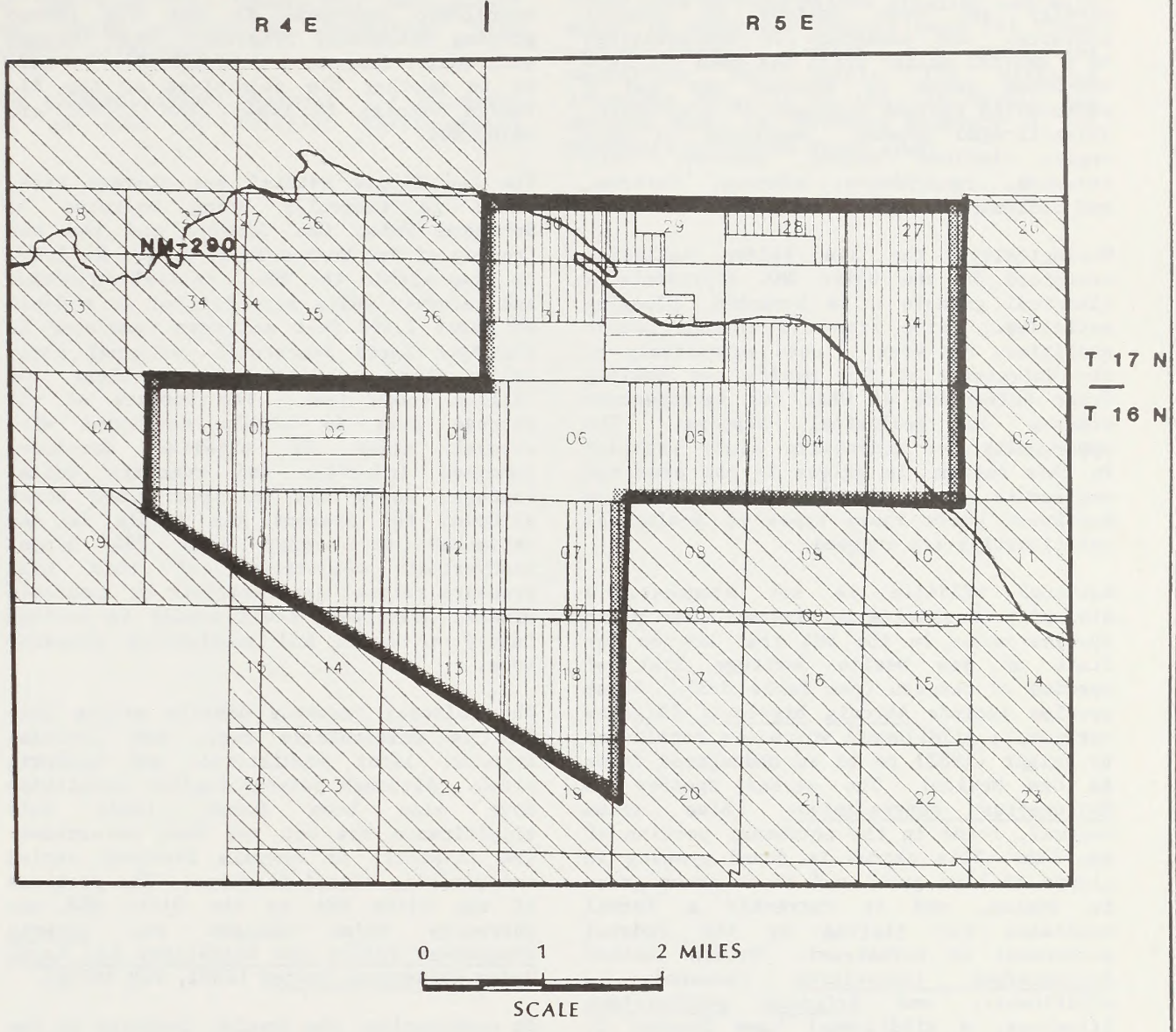
Existing data suggest that a full array of cultural resources exists in the Tent Rocks area. These resources range from early prehistoric to historic and include areas with socio-cultural values. The most common cultural resources are attributable to prehistoric Pueblo, modern Pueblo, and historic Hispanic use of the area. Site density is projected to be thirty to eighty sites per section.

The area has a wide plant diversity, including ponderosa pine, Apache plume, manzanita, blue grama, and side oats grama. The area contains a rather large and viable population of Arctostaphalus pungens, a shrubby species known primarily from the Sierra Madre of Mexico. This population site is one of the northernmost in the United States and it represents a unique genotype of this taxon adapted to the cooler moister weather of northern New Mexico.

Management Objectives: A portion of the Tent Rocks SMA will be designated as an Area of Critical Environmental Concern with management emphasis on the interpretation of geologic and scenic values, and on intensive recreation use, specifically semi-primitive non-motorized recreation opportunity (see Appendix I).

The remainder of the SMA will be managed to protect habitat for non-game birds and to improve big game winter range. Agreements with adjacent landowners will be pursued and water will be developed to rehabilitate grassland parks.

Planned actions include: (1) Designate a portion as an Area of Critical Environmental Concern; (2) Develop an activity plan; (3) Develop Cooperative Management Agreements with private landowners; (4) Limit motorized vehicle use to existing roads and trails; (5) Allow no surface disturbance; (6) Develop water and rehabilitate grassland parks.



MAP C-15
TENT ROCKS

SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE
- INDIAN

N

- PAVED OR GRADED ROAD
- SMA BOUNDARY

ALL MOTORIZED USE WITHIN BOUNDARY
LIMITED TO EXISTING ROADS & TRAILS

16. OJITO

General Description: Overall, the Ojito SMA (see Map C-16) has a particularly high density and wide variety of special features. The landscape is characterized by a central valley which has been cut into red-brown rocks of Permian age and a surrounding rimrock composed of gray-white, Jurassic-aged gypsum. Landforms in this region include mesas, cuestas, rock terraces, escarpments, canyons, arroyos, and badlands.

Geologically, the San Ysidro Anticline contained in the Ojito SMA represents a classical example of a breached, plunging anticline. Aside from its obvious scenic qualities, the area is used extensively by the University of New Mexico and Bowling Green University of Ohio for introductory classes in geological mapping. The opportunity for scientific study provided by this feature is unique to the area and represents one of the few locations in the Southwest where these types of geological relationships are exposed.

Although wildlife is not abundant, a diversity of species is present. Two plant species occur in the SMA that are on the State of New Mexico Heritage list of species of concern (see Table 3-3). These species include Abronia bigelovii (Bigelow verbena, a wildflower) which was considered by Knight (1982) to be an endangered taxon in New Mexico. The second species is Pediocactus papyracanthus (blue grama cactus), found in the northeast portion of the SMA. This cactus is found growing in clumps of blue grama and black grama grass in swales, and is currently a formal candidate for listing by the Federal government as threatened. Others include Selinocarpus lanceolatus (moonpod, a wildflower), and Erigeron pulcherrimus (fleabane, a wildflower) (see Chapter 3, Affected Environment, Wildlife.)

A number of bluffs and mesa edges in the SMA provide excellent nesting habitat for raptors, swallows, and swifts. Several stock ponds currently provide resting areas for migrating waterfowl. Scaled quail and mourning doves inhabit the brushy draws and rocky wooded hillsides. A few mule deer occupy the juniper-pinyon ecotype, and a small band of antelope ranges into the northwest corner of the SMA. Other wildlife common to the SMA include coyote, fox, rabbit, horned lark, raven, and kestrel. Bobcats have also been sighted in the SMA.

Within the area proposed for special management is the Querencia Watershed Study Area. This watershed is part of the Rio Puerco Hydrology Study which monitors hydrologic responses to the Rio Puerco grazing management programs. Only through such monitoring can a determination be made as to whether the objectives of the Rio Puerco Grazing ES (USDI, BLM 1978b) are being met.

The Las Milpas natural gas storage area, which is currently being operated by Southern Union Gas Company and the Gas Company of New Mexico in T. 15 N., R. 1 E., is also within the SMA. Initial injection and recovery wells were drilled to a depth of about 2,400 feet and were completed in the Agua Zarca Sandstone. Original plans called for peak storage of about 100 billion cubic feet. The surface of the storage area is highly developed with several miles of pipeline servicing numerous injection and recovery wells. Southern Union has unitized 7,680 acres although the present gas bubble is now estimated to occupy some 730 acres. Inadvertent penetration of this high pressure natural gas reservoir by locatable mineral developers could result in serious injury or death and substantial property loss.

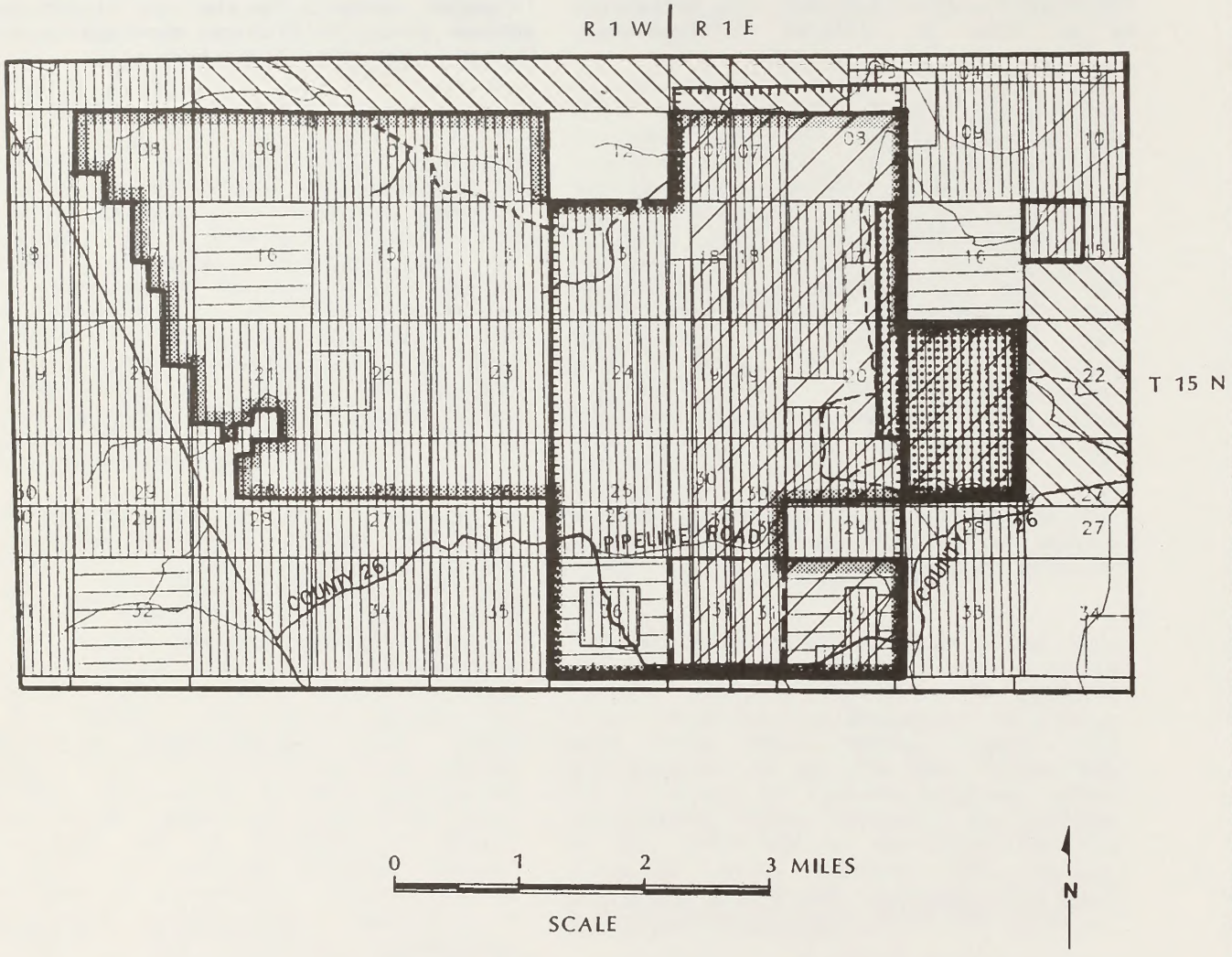
The cultural resource density within this SMA is particularly high, and includes Archaic, later prehistoric, and historic sites. Although paleontological localities have also been found, their full significance has not yet been determined. The diversity in terrain provides varied and striking visual features. The portions of the Ojito SMA in the Ojito WSA are currently being managed the Interim Management Policy and Guidelines for Lands Under Wilderness Review (USDI, BLM 1979b).

In combination, the special features in the Ojito SMA provide exceptional scientific and educational potential by providing a natural setting in which to observe a wide variety of natural systems. The SMA is currently being used for environmental education classes by the Albuquerque Public Schools.

Management Objectives: Goals for the Ojito SMA include management emphasis on geologic, visual, cultural, paleontological, plant, and wildlife values; scientific study; and intensive recreation use, specifically semi-primitive non-motorized opportunity (see Appendix I). The Las Milpas gas storage area

(6,840 acres) would be managed as a geologic hazard. The effect of these actions would be to allow access for educational use and scientific study while at the same time prohibiting unnecessary and undue degradation associated with mineral development.

The planned actions include: (1) Designate as an Area of Critical Environmental Concern; (2) Develop an activity plan; (3) Allow no surface disturbance; (4) Limit motorized vehicle use to existing roads and trails; (5) Close the Querencia Watershed Study Area and Las Milpas pipeline and well areas to motorized vehicle use; (6) Close certain roads (except for authorized users)(see Map 2-14); (7) Withdraw locatable minerals in the Las Milpas gas storage area; (8) Withdraw minerals in the Querencia Watershed Study Area.



MAP C-16
OJITO

SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE
- INDIAN

- LAS MILPAS GAS STORAGE FACILITY
- SAN YSIDRO ANTICLINE
- QUERENCIA WATERSHED

ALL MOTORIZED USE WITHIN BOUNDARY LIMITED TO EXISTING ROADS & TRAILS

- PAVED OR GRADED ROAD
- PRIMITIVE ROAD OR TRAIL
- ROUTE CLOSED TO MOTORIZED VEHICULAR USE
- AREA CLOSED TO MOTORIZED VEHICULAR USE
- SMA BOUNDARY

17. BALL RANCH

General Description: The Ball Ranch allotment (see Map C-17) was identified during the Rio Puerco RMP rare plant survey conducted by the New Mexico State Heritage Program, as containing unique communities of rare plants, geological and paleontological values (Knight 1983). The Nature Conservancy and the grazing allottees have expressed interest in the preservation of these communities.

Geologically, the Ball Ranch SMA is represented by Cenozoic conglomerates and gravels, and Mesozoic sandstones and clays. Paleontologically there are extensive deposits of finely preserved petrified wood, deposits of bivalve marine shells, and most importantly considerable quantities of Eocene mammal bones.

Botanically this area contains significant populations of Abronia bigelovii (tufted sand verbena), on the State of New Mexico Heritage list of species of concern. These locales represent the only known sites of this species on BLM lands.

Astragalus feensis (Santa Fe milkvetch), on the State list of species of concern, is an endemic taxon known only from the area between Santa Fe and Albuquerque. It is represented by a rather large population in the northern portion of the Ball Ranch SMA. Here it is locally common on alluvial hills composed of sandy soil and fragments of metamorphic rock.

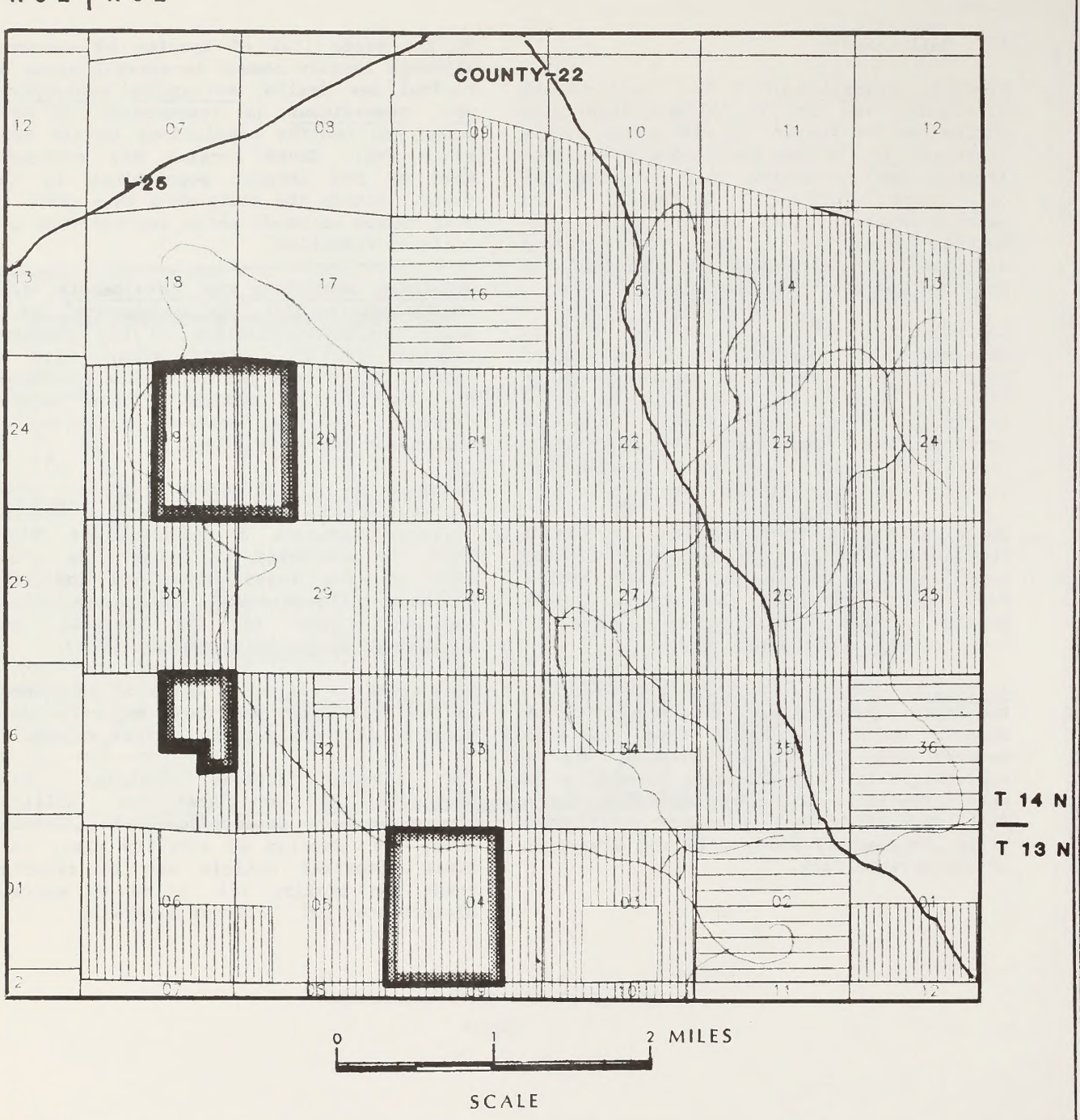
On the State list of species of concern, although locally common in several areas of central New Mexico, Astragalus kentrophyta var. neomexicana is represented by very large and healthy populations in the Ball Ranch SMA. These locales may represent some of the largest populations in the State. Within the study area this taxon is most common on sandy soils derived from the Galisteo Formation.

Oenothera caespitosa spp. navajoensis, also on the State list, is represented by a large healthy population in the southern portion of the study area. It is restricted to open barren knolls of Mancos clay and related shales. These locales represent the most eastern collection of this taxon presently known.

Pediocactus papyracanthus, grama grass cactus, on the State list and a Federal Register Category 2 species (see Table 3-3), is scattered throughout the study area on open desert grassland and clay badlands. The plants in these populations represent some of the largest and healthiest in the State (Knight 1983).

Management Objectives: Goals of management of the Ball Ranch SMA would emphasize rare plant habitat and paleontological values.

The planned actions include: (1) Designate as an Area of Critical Environmental Concern/Research Natural Area; (2) Develop an activity plan; (3) Limit motorized vehicle use to existing roads and trails; (4) Allow no surface disturbance; (5) Withdraw minerals.



MAP C-17
BALL RANCH

SURFACE OWNERSHIP

STATE

BLM

PRIVATE

N

PAVED OR GRADED ROAD

PRIMITIVE ROAD OR TRAIL

SMA BOUNDARY

ALL MOTORIZED USE WITHIN BOUNDARY
LIMITED TO EXISTING ROADS & TRAILS

18. PRONOUN CAVE COMPLEX

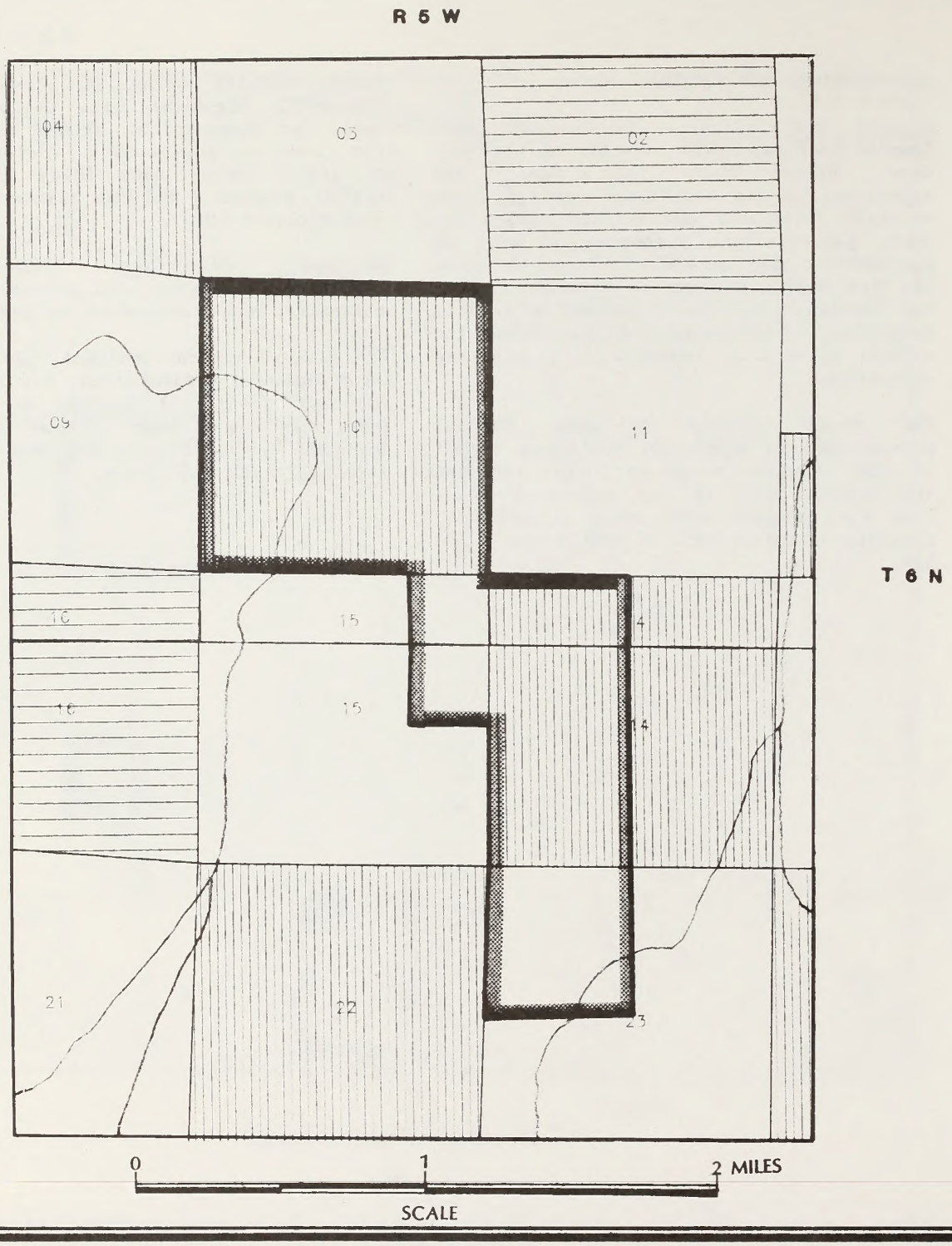
General Description: The Pronoun Cave Complex (see Map C-18) consists of the What Cave, Which Cave, That Cave, and approximately six additional caves. These vertical caves are particularly valued for their paleontologic resources as well as for habitat for several species of bats. The New Mexico Museum of Natural History has expressed interest in these scientific resources. Evidence of historic occupation exists, as well as remnants of prehistoric occupation.

The caves exhibit a late glacial paleontological fauna and contain a number of species whose range no longer includes New Mexico, such as the sagebrush vole. They also contain many other micro-faunal elements charasteristic of New Mexico's Ice Age.

Modern species using the caves include Townsend's big-eared bats which use the caves for hibernation. During the summer, the caves are populated by various species of little brown bats (Rick Smart, New Mexico Museum of Natural History, personal communication 1984).

Management Objectives: Management of Pronoun Cave Complex will primarily be for scientific and interpretive values.

The planned actions include: (1) Designate as a Research Natural Area; (2) Develop an activity plan; (3) Develop an agreement with the New Mexico Museum of Natural History; (4) Limit motorized vehicle use to existing roads and trails.



MAP C-18
PRONOUN CAVE COMPLEX

SURFACE OWNERSHIP

STATE

BLM

PRIVATE

N

PRIMITIVE ROAD OR TRAIL

SMA BOUNDARY

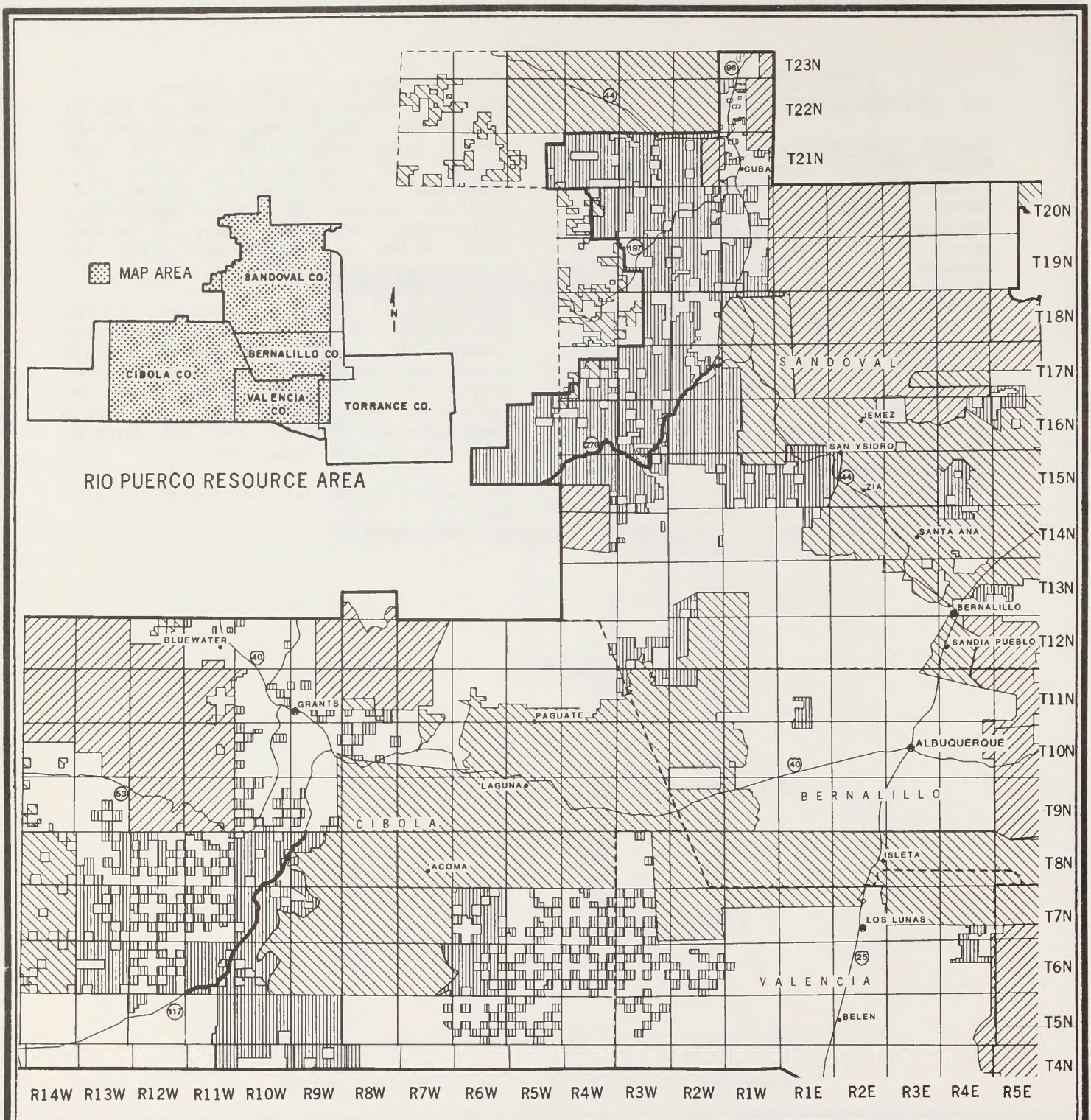
ALL MOTORIZED USE WITHIN BOUNDARY
LIMITED TO EXISTING ROADS & TRAILS

19. CONTINENTAL DIVIDE TRAIL

General Description: The Continental Divide National Scenic Trail has been designated by the Congress of the United States. Congress established a scenic corridor fifty miles on either side of the actual Continental Divide, with the treadway for the trail to be proposed through the planning of the respective land managing agency, and reviewed and approved by the Continental Divide Trail Committee. The treadway proposed in this RMP parallels New Mexico State Roads 279 and 117 and BLM Inventory Road 16-4-25 for approximately 62 miles (see Map C-19). It traverses a wide variety of topography, including rolling grasslands, pinyon-juniper and ponderosa pine covered mesas, retreating escarpments, extensive lava flows and spectacular sandstone bluffs. In addition it skirts the Cabezon and Ignacio Chavez SMA's, as well as traversing the center of the El Malpais SMA. The treadway also crosses the 1870's Wagon Road Trail SMA. A wide variety of opportunities exist for additional side trails and interpretive services because of the significantly contrasting ecosystems being traversed. These would be considered during the activity planning stage.

Management Objectives: Management of the Continental Trail SMA would emphasize Continental Divide National Trail objectives established by the Continental Divide Trail Committee and intensive recreation management. The RPRA would coordinate and cooperate with all involved public and private landowners.

The planned action is: Develop an activity plan.



MAP C-19
CONTINENTAL DIVIDE TRAIL

LEGEND

- CONTINENTAL DIVIDE TRAIL
- PUBLIC LANDS
- FOREST SERVICE
- INDIAN RESERVATION
- RESOURCE AREA BOUNDARY
- COUNTY BOUNDARY

N

0 1 2 3 4 5 6 MILES

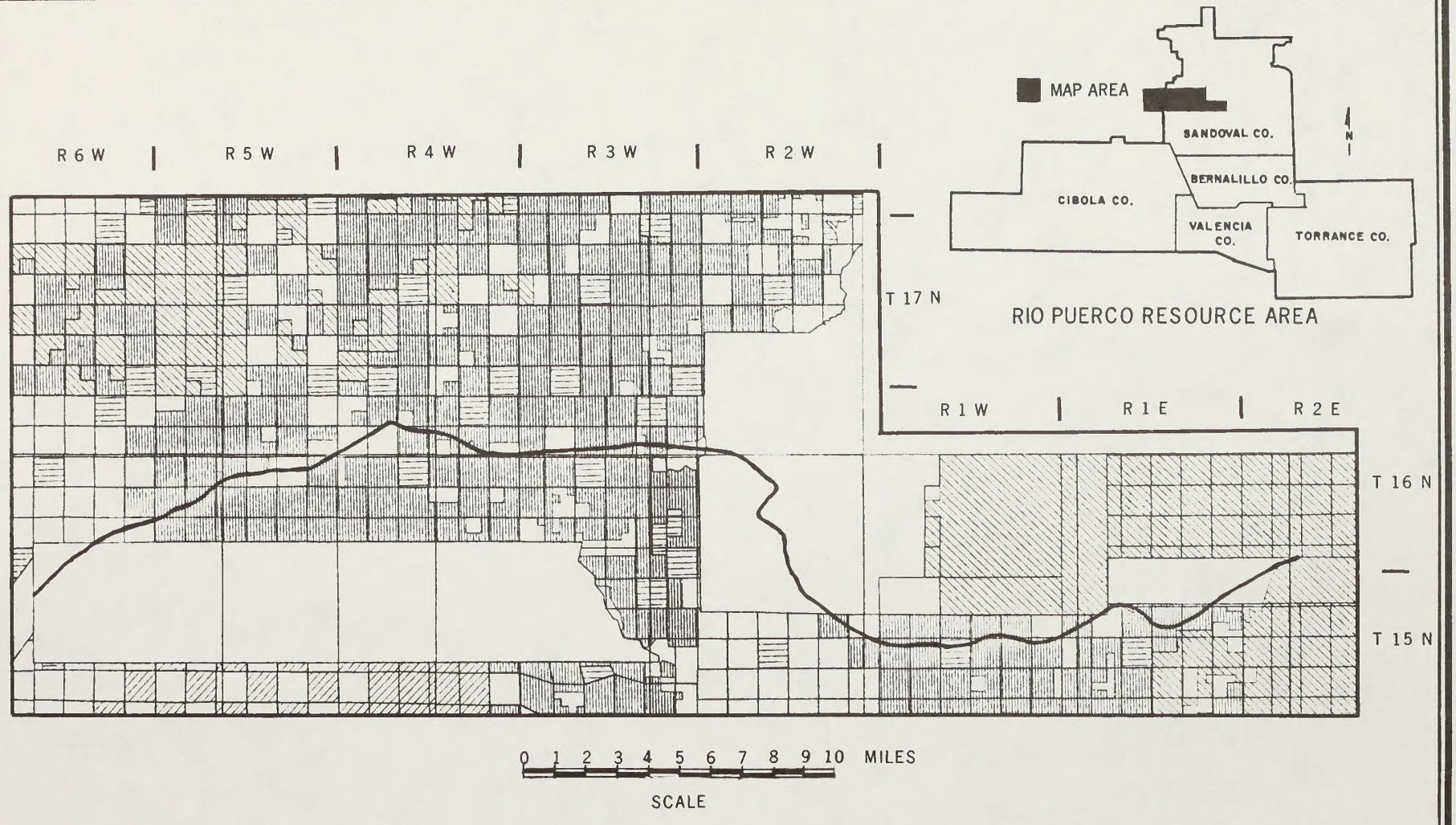
SCALE

20. 1870'S WAGON ROAD TRAIL

General Description: The 1870's Historic Wagon Road SMA (see Map C-20) traverses approximately 49 miles of the RPRA, and skirts the Ojito, Cabezon Peak, Ignacio Chavez, and Azabache Station SMA's. It was the main route linking Santa Fe with Fort Wingate in the early 1900's and was used for both supplies and troops. The trail was also used extensively as a wagon freight road, Star Route mail line, and for passenger coaches.

Management Objectives: Goals for the 1870's Wagon Road Trail SMA emphasize management for historic interpretive values and intensive recreation use.

The planned actions include: (1) Develop an activity plan; (2) Limit to pedestrian and equestrian use; (3) Develop an agreement with the State of New Mexico; (4) Arrange for inclusion in the New Mexico Trails System.



MAP C-20
1870'S WAGON ROAD TRAIL

SURFACE OWNERSHIP

STATE

BLM

PRIVATE

INDIAN

USFS

WAGON ROAD TRAIL

N

21. EL MALPAIS

General Description: El Malpais lava field and neighboring public lands (see Map C-21) include hundreds of thousands of acres of cinder cones, lava tubes, ice caves, sculptured sandstone formations, and ponderosa pine forests. El Malpais (the badlands) is the historic Spanish name given to the lava field, and in view of the brutally rugged nature of the terrain it is an accurate description.

Bounded by high sandstone bluffs and cliffs and sandhill country on the east, and by the appropriately named "Chain of Craters" on the west, El Malpais is an outstanding example of volcanic landscape. El Malpais consists of four distinct lava flows, which were spewed over the McCarty's Valley at different times over the last 3,000 years. Based upon archaeological evidence the most recent flows have been dated at less than 1,000 years in age.

The El Malpais SMA will consolidate a series of overlapping special designations. Portions have been designated as follows: (1) Wilderness Instant Study Area being recommended for wilderness designation, (2) four Wilderness Inventory Units, (3) Outstanding Natural Area, (4) Natural Environmental Area, (5) National Natural Landmark, and (6) Chaco Archeological Protection Site. The majority of the SMA is currently being managed under the Interim Management Policy and Guidelines for Lands Under Wilderness Review (USDI, BLM 1979b). Wildlife values for a portion of the SMA are being managed according to the objectives outlined in the El Malpais Habitat Management Plan (USDI, BLM 1981d).

Because of the interesting combination of ecotypes existing in the El Malpais SMA, it contains a wide variety of plant and animal life. Major wildlife species include deer, antelope, Abert's squirrel, turkey, and band-tail pigeons. The sandstone bluffs to the east contain a good nesting population of raptors including golden eagles, red-tailed hawks, and prairie falcons. It has also been identified as crucial bald eagle habitat. Collapsed lava tubes provide ideal habitat for kestrels and great horned owls. Peregrine falcons migrate through the SMA.

A unique phenomenon of El Malpais is the stunting of ponderosa pine trees in certain places. The species grows normally on sites adjacent to the lava, but harsh growing conditions in certain places within the area cause a picturesque dwarfing of the plants to occur.

Recent surveys have revealed plants in El Malpais which are unique in New Mexico. Two plants, Asplenium septentrionole (grass fern) and Asplenium trichomanes (maidenhair spleenwort) are widespread in the SMA, but quite uncommon throughout the western United States. Another plant, Carex pityophylla, a rare sedge found in southern Colorado, Utah and New Mexico, was recently discovered growing in a vigorous colony.

The El Malpais SMA has been inhabited since PaleoIndian times (at least 10,000 years ago), and possesses numerous archaeological sites. One area of particular significance is the Candelaria Ruin and community. This site, originally known as "Las Ventanas," is a Chacoan outlier. The main site itself is relatively small but contains a tower kiva within its roomblock. An isolated great kiva is located just southeast of the ruin and segments of a related prehistoric road run from the main roomblock in a northeasterly direction. The surrounding area contains evidence of surface recontouring and 2 pueblos of 30 to 60 rooms, in addition to numerous small and single room structures and other undefined features. This site is one of two identified in the Joint Management Plan for the Chaco Archeological Protection Site System (USDI, NPS 1984) as particularly suitable for development as an interpretive site.

The El Malpais SMA is very popular for recreation opportunities ranging from primitive to roaded natural (see Appendix I), and has received attention for these values from such varied publications as Backpacker Magazine, Sunset Magazine, and New Mexico Magazine. Additionally, several freelance writers and photographers have recently submitted material on El Malpais for publication.

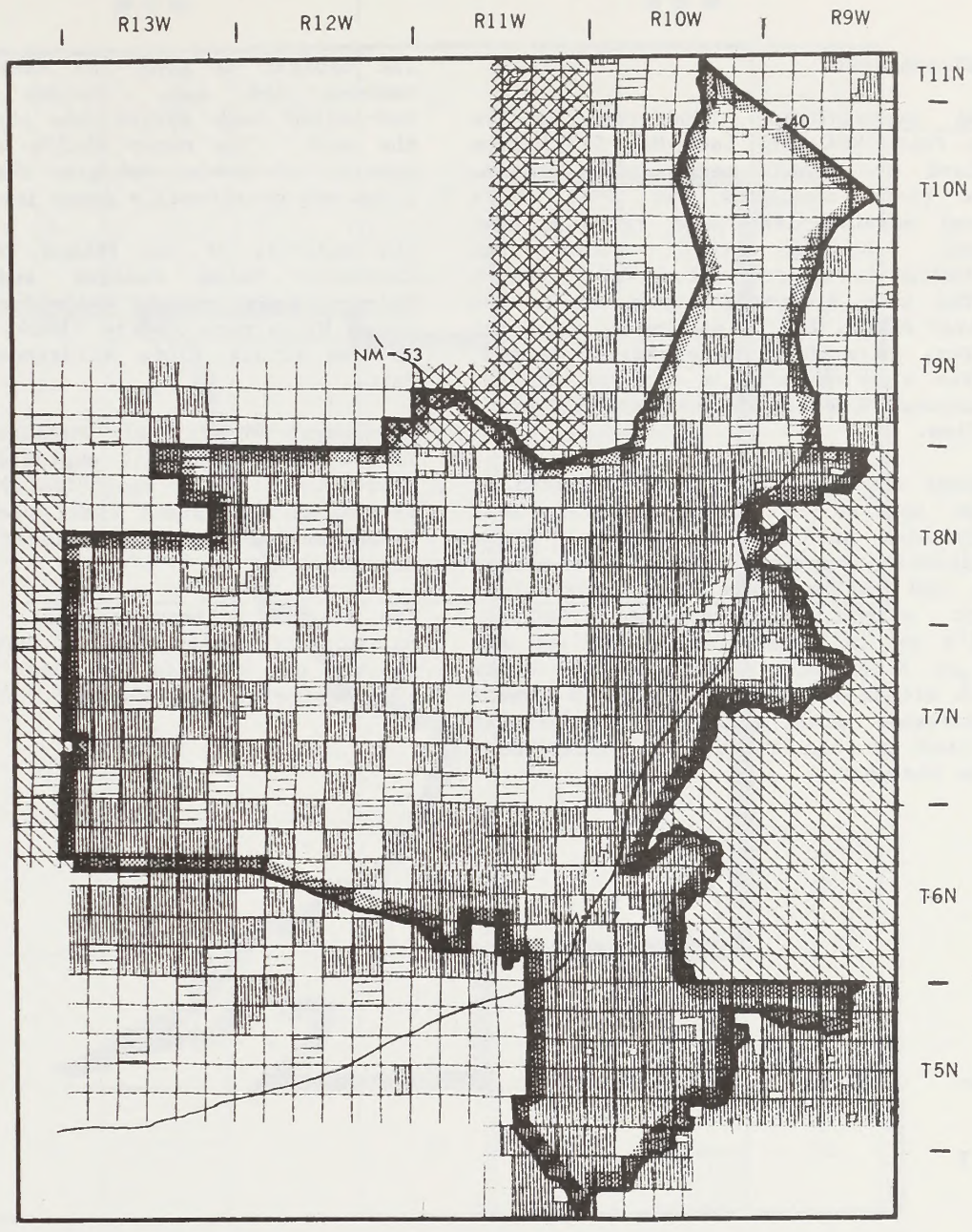
Management Objective: Management of the El Malpais SMA will consolidate the existing planned actions of the El Malpais Habitat Management Plan (USDI, BLM 1981d), El Malpais Recreation Area Management Plan (USDI, BLM 1982a), Draft Management Proposal for Visitor Use of the Malpais Region Scenic Corridor: New Mexico State Road 117 (USDI, BLM 1984b), and the Joint Management Plan for the Chaco Archaeological Protection Site System (USDI, NPS 1984). The objectives of the National Natural Landmark Program and the

BLM Wilderness Management Policy (USDI, BLM 1981g), if Congress designates any portion of the SMA as Wilderness, will also be considered. Fuelwood cutting within the El Malpais SMA as delineated in the Divide Management Framework Plan (USDI, BLM 1983b) will continue subject to the Interim Management Policy and Guidelines for Lands Under Wilderness Review (USDI, BLM 1979b).

Candelaria Ruin and community will be managed under the cultural resource scientific and conservation goal category designations (see Appendix K). This will allow further approved scientific study while maintaining existing conditions until a comprehensive management plan is completed.

In summary, management of the El Malpais SMA will emphasize protection of wildlife habitat, visual values, cultural values, scientific/interpretive values, and intensive recreation use, specifically semi-primitive non-motorized, semi-primitive motorized, and roaded natural recreation opportunity (see Appendix I).

The planned actions include: (1) Develop activity plans; (2) Limit motorized vehicle use to existing roads and trails; (3) Acquire mineral estate.



MAP C-21
EL MALPAIS

SURFACE OWNERSHIP

- STATE
- BLM
- PRIVATE
- INDIAN
- USFS

N

- PAVED OR GRADED ROAD
- SMA BOUNDARY

ALL MOTORIZED USE WITHIN BOUNDARY LIMITED TO EXISTING ROADS & TRAILS (SEE MAP 2-5)

22. PETACA PINTA

General Description: Landforms in the Petaca Pinta SMA vary (see Map C-22) from grassland to rugged mesas and canyons. Petaca Pinta dominates the SMA. This isolated mountain-like mesa rises a near vertical thousand feet above the surrounding landscape. Blue Water Canyon (not the same Bluewater Canyon as in the Bluewater ACEC), in the southwest corner of the area, is a deep, sheer-walled canyon. The area also contains a maze of smaller box canyons, a badlands environment, and a lava flow.

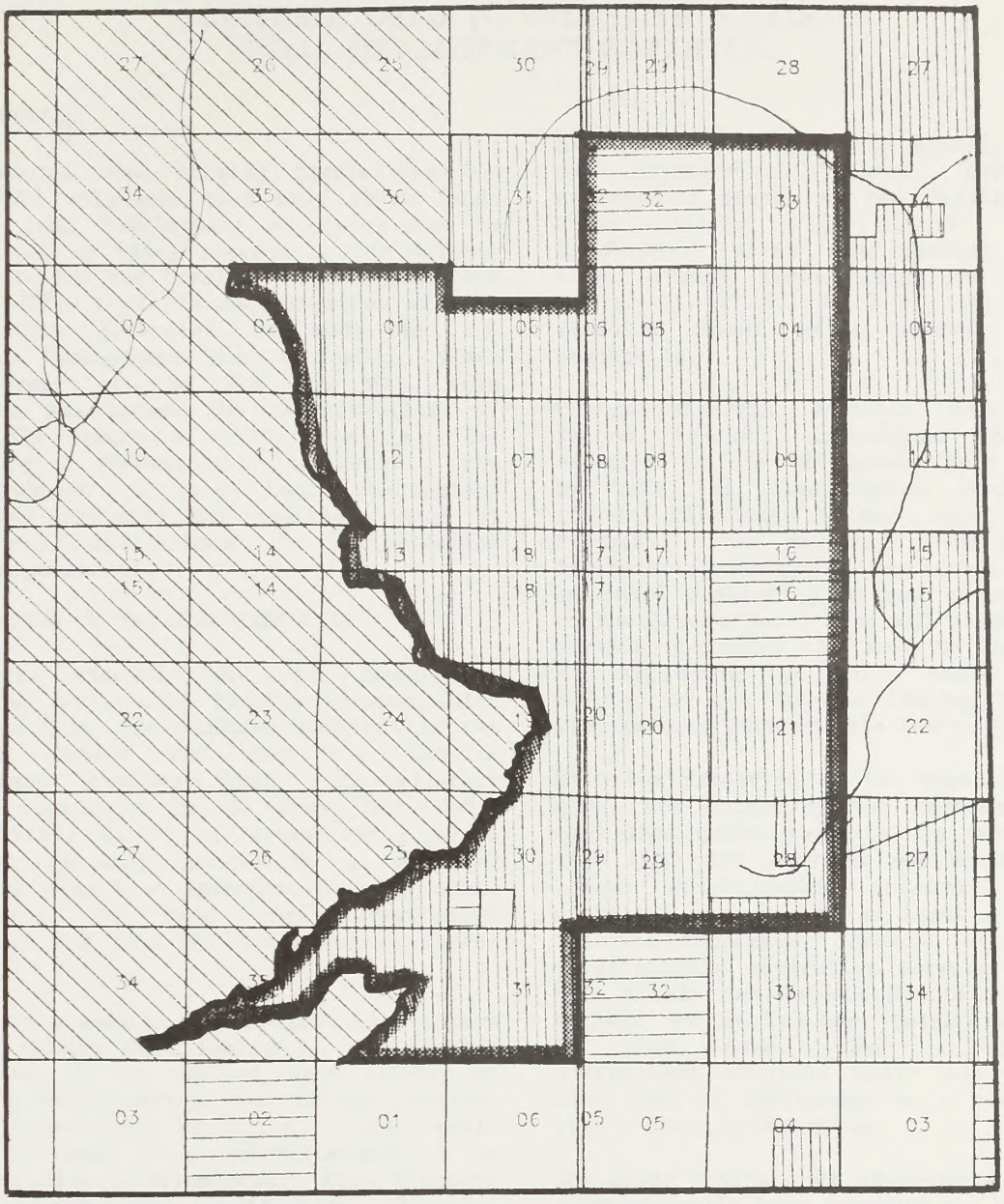
The lower elevation lands are dominated by various species of grama grasses, most notably blue and sideoats gramas. Other low elevation species include bear grass, yucca, and cholla. The higher elevations support pinyon and one-seed juniper. Gambel's oak of considerable size and age occur in Blue Water Canyon and in other canyons within the unit. A limited number of ponderosa pine grow at the highest elevations on the rimrock of Blue Water Mesa on the west.

The habitat is good for deer but their numbers are low. Golden eagle and red-tailed hawk eyries are present within the unit. The rocky bluffs also provide habitat for bobcat and grey fox. Mountain lions may occasionally range into the SMA.

The majority of the Petaca Pinta SMA is currently being managed under Interim Management Policy and Guidelines for Lands Under Wilderness Review (USDI, BLM 1979b) as the Petaca Pinta Wilderness Inventory Unit.

Management Objectives: Management of the Petaca Pinta SMA will emphasize intensive recreation use, specifically primitive recreation experience (see Appendix I) and enhancement of wildlife habitat and visual values.

The planned actions include: (1) Develop an activity plan; (2) Limit motorized vehicle use to existing roads and trails; (3) Acquire mineral estate.



0 1 2 MILES

SCALE

MAP C-22
PETACA PINTA

SURFACE OWNERSHIP

- STATE
- BLM
- PUBLIC
- INDIAN

N

- PRIMITIVE ROAD OR TRAIL
- SMA BOUNDARY

ALL MOTORIZED USE WITHIN BOUNDARY LIMITED TO EXISTING ROADS & TRAILS

APPENDIX D

CRITERIA USED TO ESTABLISH MAXIMUM COAL DEVELOPMENT POTENTIAL

INTRODUCTION

The Federal coal leasing regulations (43 CFR 3400) stipulate that only those lands having coal development potential can be identified as being acceptable for further consideration for leasing. The regulations also require that the determination of coal development potential be made by the Minerals Management Service (MMS). Since the merger of the BLM and MMS, this function has become the responsibility of the BLM's Branch of Solid Minerals. The following discussion documents the establishment of the coal development potential criteria and rationale used by BLM coal specialists in establishing maximum potential.

DESCRIPTION OF THE COAL RESOURCES

The area studied for coal development potential is located roughly between Chico Wash and Cuba, and includes portions of the Ignacio Chavez WSA and the Chamisa Wilderness Inventory Unit. The adjacent lands, considered in the Chaco MFP (USDI, BLM 1981b), were not re-evaluated since they are already covered by an approved land use plan (see Appendix A). The areas determined to have coal development potential for this RMP are shown on Pocket Map D.

Recoverable coal in the subject area occurs in the Cleary Coal Member of the Menefee Formation, in an unnamed upper member of the Menefee Formation, and in the combined Kirtland-Fruitland Formation. These coals generally rank from sub-bituminous A to high volatile C bituminous. Four discrete areas having coal development potential were identified. These include surface mineable Cleary coals, underground mineable coals from the Padilla upper-Menefee zone, surface mineable upper-Menefee Hogback Mountain coals, and surface mineable Fruitland coals. The stratigraphy of these intervals is shown in Figure D-1.

Cleary and Padilla coals were mined by underground methods from this area intermittently from the early part of the twentieth century until the 1960's. Most of the coal was delivered to Albuquerque for home heating and industrial use. Over one hundred Federal prospecting permits were issued for the area over the years.

Federal leases are currently held by Ideal Basic Industries (IBI), Ametex Corporation, and Gilberto Padilla (see Map D-1). IBI also holds several State leases. IBI has an approved five-year permit for underground mining of the Padilla seam on their leases, but their long-range development plans are unclear at this time. A small surface mine, the Arroyo No. 1 Mine (T. 17 N., R. 2 W., Sec. 16), was recently closed after several years of production.

Energy Minerals Activity Recommendation System (EMARS) nominations for areas adjacent to the IBI leases were submitted by both the Consolidated Coal Company (former IBI lease holder) and Salt River Project. The National Generation and Transmission Managers Association submitted an EMARS nomination on the areas adjacent to the Arroyo No. 1 Mine and Arizona Public Service nominated the area to the east of and including the Chico Wash Tract. A portion of the Johnson Trading Post Tract also extends into the Rio Puerco RMP area.

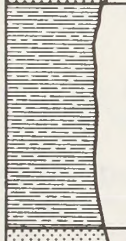
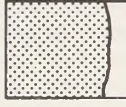
With the exception of the Hogback Mountain zone, the criterion for surface mineable coal development potential is restricted to less than 250 feet of overburden on the lowest stratigraphic interval known to contain a coal bed of at least 2.3 feet of inferred thickness. Because of the large stratigraphic separation between some coal beds within the Hogback Mountain zone, the highest bed of 2.3 feet thickness was used in that case. The criterion for underground mineable coals was less than 1500 feet of overburden on a seam greater than 5 feet in thickness.

The areas having coal development potential have generally been expanded to include the nearest approximate forty acre subdivision. The actual coal removed under these criteria would probably be confined to areas within the designated outcrop and overburden lines. In some areas, coal meeting the above criteria has not been designated as having development potential because of topographic or other mining considerations. The lateral extent of the designated development potential is somewhat arbitrary in such cases.

RATIONALE FOR MAXIMUM POTENTIAL

The area of maximum near-future coal development potential is the Cleary area surrounding and to the northeast of the Arroyo No. 1 Mine. This area is ideally suited to small-scale mining operations with coal sales for free-burning industrial

FIGURE D-1
GENERAL STRATIGRAPHIC SECTION

Lithology	Rock-Strat. Units	Age	Fossils
	Alluvium	Quaternary	None reported
	San Jose Formation	Early Eocene	Diverse vertebrate faunas of primitive mammals, turtles, crocodiles, fish, lizards, snakes, and a bird. Some fresh water gastropods and unionids. Rare fossil leaves and some petrified wood.
	Nacimiento Formation	Early to Middle Paleocene	Diverse vertebrate faunas of mammals, etc. Some fresh water invertebrates, wood and leaves.
	Ojo Alamo Sandstone	Earliest Paleocene	Rare fossil mammals. Much petrified wood.
	Kirtland Shale	Late Cretaceous	Dinosaurs, turtles, crocodiles, and other vertebrates. Leaves and wood locally abundant. Some fresh water invertebrates.
	Fruitland Formation	Late Cretaceous	Similar to Kirtland some brackish water inverts much fossil wood.
	Pictured Cliffs Sandstone	Late Cretaceous	Marine invertebrates and trace fossils.
	Lewis Shale	Late Cretaceous	Bivalves, ammonites, and other marine invertebrates, one mosasaur.
	Cliff House Sandstone	Late Cretaceous	Marine invertebrates and trace fossils, sharks teeth.

(CONTINUED ON NEXT PAGE)

(FIGURE D-1 CONTINUED)

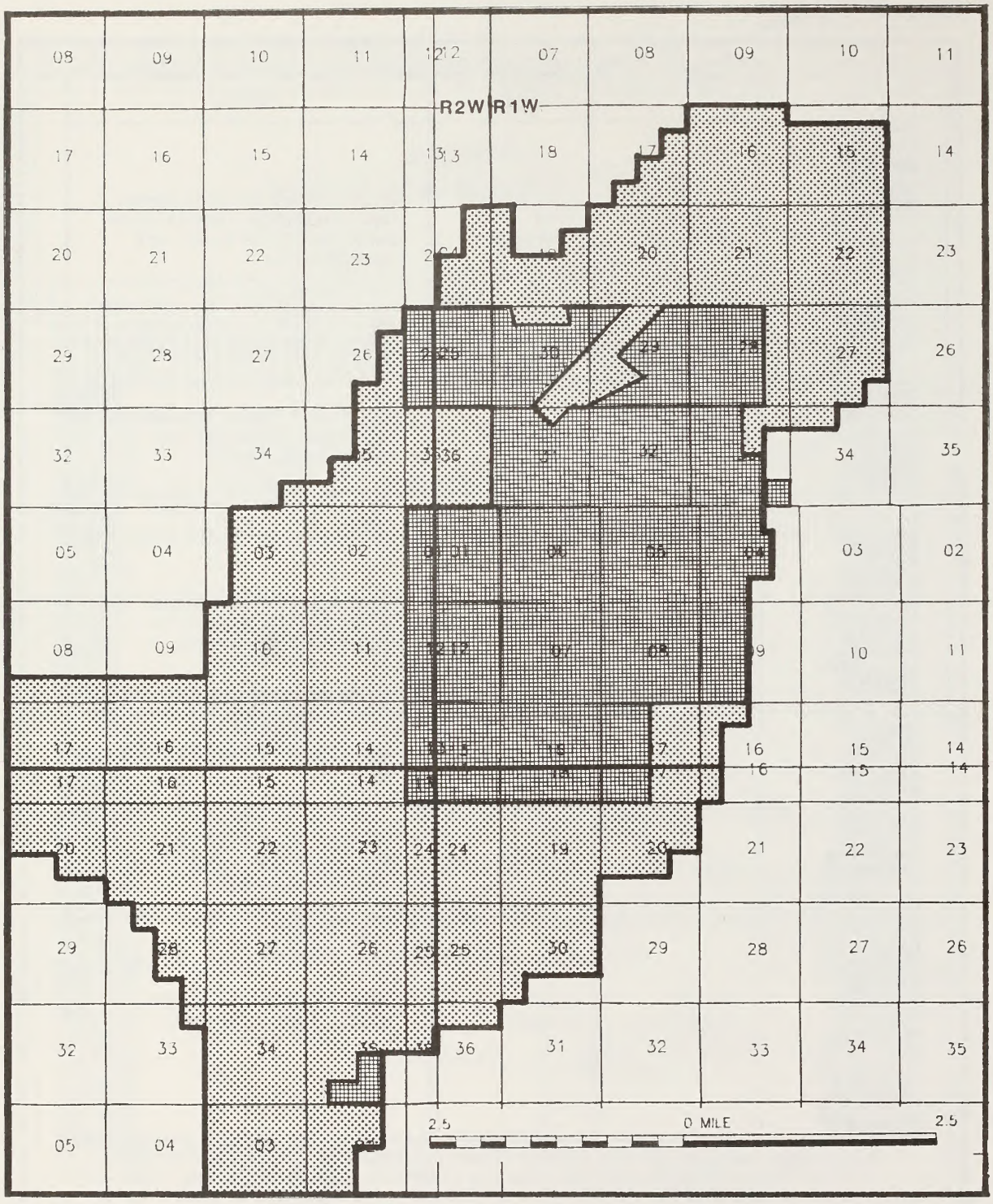
Rock-Strat. Units	Age	Fossils
Menefee Formation	Late Cretaceous	Fossil leaves and wood common. Rare vertebrates (mostly shark teeth and turtle scrap) and invertebrates.
Point Lookout Sandstone	Late Cretaceous	Marine invertebrate and trace fossils.
Crevasse Canyon Formation	Cretaceous	Some fossil leaves and wood. Rare lower vertebrate and invertebrate fossils.
Gallup Sandstone	Cretaceous	Marine inverts some fossil leaves
Mancos Shale	Cretaceous	Great Diversity of marine invertebrates, especially ammonites and bivalves.
Oakota Sandstone	Lwr (?) Cret.	Marine inverts, plants
Morrison Formation	Late Jurassic	Some dinosaurs and petrified wood
San Rafael Group	Jurassic	Brackish water invertebrates. Fish in Todilto Limestone, and rare fossil plants.
Chinle Formation	Late Triassic	Plant and lower vertebrate fossils locally abundant.

Generalized composite section showing formations that crop out in the EIS Region. Fossils listed are those reported from the literature sources pertaining to areas both within and adjacent to the EIS Region. There are regional variations in thickness and facies.

KEY

SANDSTONE
CONGLOMERATE
SHALE
COAL
LIMESTONE
ALLUVIUM & BASALT
UNCONFORMITY

Scale I = 300 Feet



MAP D-1

STATUS OF COAL LEASING WITHIN THE RPRA

UNDERGROUND MINEABLE PADILLA COAL

EXISTING FEDERAL COAL LEASES

N

uses as well as for steam generation. The Cleary coals appear to thin somewhat to the west but are insufficiently drilled to verify this trend. Fairly thick outcrop and drill hole measurements have been made between the Chico Wash Tract and the Arroyo No. 1 Mine. Some potential for underground mining of Cleary Coals exists to the northeast of the surface mineable area as the dip steepens, but in general the overburden is excessive.

The 250 foot overburden line on the Cleary Member Coals is almost coincident with the base of the resistant sandstones of the Allison Member which forms the first prominent bench just above San Luis Mesa. Surface mining would likely occur only to this bench, where present, but auger mining beyond these limits is conceivable if surface mining actually takes place. It is also conceivable that small-scale surface mining of the Padilla seam could occur in conjunction with underground mining. Because of the low probability of this occurring, these smaller areas have not been designated as having development potential.

The Fruitland areas designated are largely unexplored and holes drilled on old prospecting permits may not have penetrated the entire coal section. From a topographic standpoint, the area just west of Mesa Portales would be ideally suited to a small-scale surface mine if commercial coal is present. Fruitland coals probably do not reach sufficient thickness to the east under Mesa Portales for underground mining.

The term Hogback Mountain zone refers to all coals intertonguing with the La Ventana Sandstone. Thick coals of this zone have long been recognized in the subsurface on oil and gas logs (Shoemaker 1973), but as yet are largely unexplored at surface mineable depths. Although much of this coal may have been eroded, available oil and gas logs, some coal drilling, and outcrop measurements in the Torreon-Wolf Stand area indicate that substantial, surface mineable Hogback Mountain coal reserves may exist in the RPRA.

It should be noted that several oil fields exist within or adjacent to areas with coal potential. Some production, notably from the San Luis fields, comes from channel sandstones of the Allison Member of the Menefee formation from depths of just under 1000 feet. In other areas of the San Juan Basin such sands produce from depths as shallow as 340 feet. While it does not appear that coal mining or exploration could disrupt these oil fields, the Known Geologic Structures should be protected and further study may be warranted in the event of any coal exploration or production.

Cleary coals within surface mineable depths occur under small portions of the Ignacio Chavez WSA, although existing data suggest that only a small portion near the north-central and western ends may reach commercial thickness. The entire WSA is probably within the 1500 foot overburden zone on the lowest Cleary coals; on a section measured by Hunt (1936) commercial thicknesses may exist in the southwestern portion of the WSA, with increased rank due to thermal metamorphism a possibility. Overburden increases rapidly in short distances, however, and recovery would be low. Because of this, the area does not favorably compare with nearby areas.

Available data indicate that the coal does not reach commercial thickness in the Chamisa Wilderness Inventory Unit, although little subsurface data is available. Surface mining would be impractical because of excessive overburden and severe topography.

Several other coal fields exist in the Rio Puerco RMP area for which lack of available data and time prevented a detailed analysis of coal development potential. However, none of the other coal fields are felt to meet the threshold criteria established for areas having maximum coal development potential. It is suggested that these areas be noted as "other coal fields" in the planning mineral resource assessment.

COAL RESOURCE QUANTITY

The area having coal development potential is estimated to contain about 775 million tons of coal resources recoverable by surface mining methods and 200 million tons recoverable by underground mining methods. About 90 percent of the coal in each category is Federally owned. The area delineated as "maximum potential" contains about 100 million tons of resources recoverable by surface mining methods, nearly all of which are Federally owned.

It should be noted that there are insufficient drilling data to meet the definition of "reserves" or to delineate tracts according to regulatory standards in any of the categories except for very small areas on the immediate peripheries of existing leases. Exploration programs would therefore be necessary before any tracts could be delineated prior to the initiation of new mining operations.

APPENDIX E

FEDERAL COAL LANDS REVIEW PROCESS

INTRODUCTION

The regulations set forth in Title 43 of the Code of Federal Regulations, Subpart 3400, provide the framework under which the Department of the Interior conducts leasing of the rights to extract Federal coal. The objectives of these regulations are to establish policies and procedures for considering development of coal deposits through a leasing system involving land use planning and environmental impact analysis. Additionally, the regulations are intended to ensure that coal deposits are developed in consultation, cooperation, and coordination with the public, state and local governments, Indian tribes, and involved Federal agencies.

The Secretary of the Interior may not hold a lease sale unless the lands containing the coal deposits have been included in a comprehensive land use plan and unless the sale is compatible with, and subject to, any relevant stipulations, guidelines and standards set out in the plan. By regulation, the comprehensive land use plan must also contain an estimate of the amount of coal recoverable by either surface or underground mining operations.

The major land use planning decision concerning the coal resource in this RMP is the identification of areas acceptable for further consideration for leasing. Essentially, the RMP defines areas that will be carried forward for activity planning. This post-RMP planning will identify, rank, analyze, select, and schedule tracts for lease sale. Simply stated, the RMP identifies coal study areas which will be the focus of activity planning. This identification process was accomplished through the application of a screening procedure which included the following criteria:

1. Only those areas with development potential were identified as acceptable for further consideration for leasing. Coal companies, State and local governments, and the general public were encouraged to submit information for use in determining development potential. Where such information was determined to indicate development potential for an area, that area was included in the land use planning for evaluation for coal leasing. A discussion of the application of development potential criteria is provided in Appendix D.

2. The BLM reviewed the public lands which were determined to have maximum development potential to assess where there are areas unsuitable for all or certain stipulated methods of mining. The application of these unsuitability criteria is documented in this appendix.

3. Multiple land use decisions were applied in all but the Continuation of Current Management Alternative. Under the Resource Conservation Alternative, additional coal deposits were eliminated from further consideration for leasing to protect other resource values of a locally important or unique nature not included in the unsuitability criteria. Documentation of these multiple land use decisions is also included in this appendix.

4. The BLM also consulted with all of the surface owners whose lands overlie coal deposits with maximum development potential to determine their preference for or against mining by other than underground mining techniques. The results of these consultations are presented below.

APPLICATION OF UNSUITABILITY CRITERIA

As required by the Surface Mining Control and Reclamation Act of 1977, the Department of the Interior has developed criteria to determine whether public lands are unsuitable for further consideration for coal leasing. This unsuitability assessment was applied to Federal lands and minerals within the Rio Puerco Resource Area which were not considered in either the Chaco MFP (USDI, BLM 1981b) or the Draft San Augustine Coal Area MFP Amendment (USDI, BLM 1984c).

Each unsuitability criterion was applied to all of the coal lands identified as having maximum coal development potential. In the following discussion, the results of the application of each of the unsuitability criteria, exceptions and exemptions are described. Those areas which could be leased only subject to conditions or stipulations to conform to the application of the criteria or exceptions are identified.

The assessment has been made on the best available data that could be obtained given the time and resources available to prepare the RMP. In general, the data used were adequate to make the application decisions and the reliability of the data is considered to be good. No criterion or exception analysis was deferred because of inadequate or unreliable data.

This application of the coal unsuitability criteria is directed at the Federal mineral estate within an area near San Luis which has been identified as having maximum coal development potential (see Appendix G). Only one coal lease application has been received for coal in this area. The application was ultimately rejected for failure to meet the criteria for the issuance of an emergency lease. However, due to the proximity of the area to the Village of Cuba and metropolitan Albuquerque and the anticipation of a future market for small scale coal sales, the unsuitability criteria are being applied in anticipation of future leasing interest. Coal in the area under consideration can be surface mined; therefore, the criteria are being applied to assess the probable effects associated with leasing and surface mining.

Each unsuitability criterion, as defined in 43 CFR 3461.1, is presented below, followed by an analysis. Exceptions and exemptions to the criteria are discussed where applicable.

The following is a summary of results obtained for each criterion. In general, Criteria 1, 2, 3, and 6 refer to land status; Criteria 4, 5, and 8 refer to recreational and natural values; Criteria 7 refers to cultural resources; Criteria 9 through 15 refer to wildlife; Criteria 16 through 19 refer to watershed; and Criterion 20 refers to issues proposed by the State.

Criterion No. 1

"All Federal lands included in the following land systems or categories shall be considered unsuitable: National Park System, National Wildlife Refuge System, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers System, National Recreation Areas, lands acquired with money derived from the Land and Water Conservation Fund, National Forests, and Federal lands in incorporated cities, towns, and villages. All Federal lands which are recommended for inclusion in any of the above systems or categories by the Administration in legislative proposals submitted to the Congress or which are required by statute to be studied for inclusion in such systems or categories shall be considered unsuitable."

Analysis. There are no lands which have been included or have been recommended for inclusion in the systems or categories mentioned above. Within the area under consideration, there are no National Recreation Areas, no Wilderness Areas, no lands acquired with money derived from the Land and Water Conservation Fund, and no Federal lands within the boundaries of incorporated cities, towns, and villages.

Exceptions. There are no exceptions to the application of this criterion.

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 2

"Federal lands that are within rights-of-way or easements or within surface leases for residential, commercial, industrial, or other public purposes, or for agricultural crop production on Federally-owned surface shall be considered unsuitable."

Analysis. Approximately 14 miles of electrical transmission and pipeline rights-of-way have been identified on Federal lands within the area under consideration. The lands within these rights-of-way, approximately 92.5 acres, are deemed to be unsuitable for further consideration for coal leasing, unless excepted.

Exceptions. A lease may be issued, and mining operations approved, in such areas if the Surface Management Agency determines that:

1. All or certain types of coal development (e.g., underground mining) will not interfere with the purpose of the right-of-way or easement; or

2. The right-of-way or easement was granted for mining purposes; or

3. The right-of-way or easement was issued for a purpose for which it is not being used; or

4. The parties involved in the right-of-way or easement agree, in writing, to leasing; or

5. It is impractical to exclude such areas due to the location of coal and method of mining and such areas or uses can be protected through appropriate stipulations.

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 3

"Federal lands affected by Section 522(e)(4) and (5) of the Surface Mining Control and Reclamation Act of 1977 shall be considered unsuitable. This includes lands within 100 feet of the outside line of the right-of-way of a public road or within 100 feet of a cemetery, or within 300 feet of any public building, school, church, community or industrial building or public park or within 300 feet of an occupied dwelling."

Analysis. There are no known cemeteries, public buildings, schools, churches, community or institutional buildings, or public parks on Federal lands within the area under consideration. There is however, one occupied dwelling located in the NE 1/4 of Section 8, T. 17 N., R. 2 W., New Mexico Principal Meridian. Therefore, all Federal lands within 300 feet of this dwelling shall be considered unsuitable for further consideration for leasing. There are no public roads on Federal lands within the area having maximum coal development potential.

Exceptions. A lease may be issued for lands in Sections 17 and 20, T. 17 N., R. 2 W., which are used as a mine access road and haulage way that joins the right-of-way for State Route 279 and for lands for which owners of occupied dwellings have given written permission to mine within 300 feet of their buildings.

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 4

"Federal lands designated as Wilderness Study Areas shall be considered unsuitable while under review by the Administration and the Congress for possible wilderness designation. For any Federal land which is to be leased or mined prior to completion of the wilderness inventory by the surface management agency, the environmental assessment or impact statement on the lease sale or mine plan shall consider whether the land possesses the characteristics of a Wilderness Study Area. If the finding is affirmative, the land shall be considered unsuitable, unless issuance of noncompetitive coal leases and mining on leases is authorized under the Wilderness Act and the Federal Land Policy and Management Act of 1976."

Analysis. There are no proposed or designated Wilderness Study Areas within the area under consideration.

Exceptions. None are defined under 43 CFR 3561.1(d)(1).

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 5

"Scenic Federal lands designated by visual resource management (VRM) analysis as Class I (an area of outstanding scenic quality or high visual sensitivity) but not currently on the National Register of Natural Landmarks shall be considered unsuitable. A lease may be issued if the surface management agency determines that surface coal mining operations will not significantly diminish or adversely affect the scenic quality of the designated area."

Analysis. There are no areas of Federal lands listed as VRM Class I within the area under consideration.

Exceptions. None are defined under 43 CFR 3461.1 (e)(1).

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 6

"Federal lands under permit by the surface management agency, and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments shall be considered unsuitable for the duration of the study, demonstration or experiment, except where mining could be conducted in such a way as to enhance or not jeopardize the purposes of the study, as determined by the surface management agency, or where the principal scientific user or agency gives written concurrence to all or certain methods of mining."

Analysis. There are no Federal lands within the area under consideration that have been permitted or are being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations.

Exceptions. None are defined under 43 CFR 3461.1 (f)(1).

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 7

"All publicly owned places on Federal lands which are included in the National Register of Historic Places shall be considered unsuitable. This shall include any areas that the surface management agency determines, after consultation with the Advisory Council on Historic Preservation and the State Historic Preservation Officer, are necessary to protect the inherent values of the property that made it eligible for listing in the National Register."

Analysis. No publicly owned places which are included in the National Register are found within the area under consideration. There may be sites or objects of historical, archeological, or cultural significance on Federal lands that are eligible for inclusion; however, only a limited survey has been done to determine what, if any, values are present. It is recommended that those areas that are identified by any proposed mine plan as direct impact areas be completely inventoried to assure adequate consideration.

Exceptions. No exceptions are applicable to this criterion.

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 8

"Federal lands designated as Natural Areas or as National Natural Landmarks shall be considered unsuitable."

Analysis. There are no Federal lands designated as Natural Areas or as National Natural Landmarks within the area under consideration.

Exceptions. No exceptions are applicable to this criterion.

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 9

"Federally-designated critical habitat for threatened or endangered plant and animal species, and habitat for Federal threatened or endangered species which is determined by the Fish and Wildlife Service (USFWS) and the surface management agency to be of essential value and where the presence of threatened or endangered species has been scientifically documented, shall be considered unsuitable."

Analysis. No Federally-designated critical habitat for threatened or endangered plant and animal species exists within the area under consideration. Additionally, there is no habitat which the USFWS considers to be of essential value to scientifically documented threatened or endangered species.

Exceptions. No exceptions are applicable to this criterion.

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 10

"Federal lands containing habitat determined to be critical or essential for plant or animal species listed by a state pursuant to state law as endangered or threatened shall be considered unsuitable."

Analysis. No critical or essential habitat for State-listed threatened or endangered species exists within the area under consideration. This determination was made after consultation with the New Mexico Department of Game and Fish.

Exceptions. No exceptions are applicable to this criterion.

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 11

"A bald or golden eagle nest or site on Federal lands that is determined to be active and an appropriate buffer zone of land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be determined in consultation with the USFWS."

Analysis. There are no active bald or golden eagle nests or nesting sites within the area under consideration. However, the area of maximum coal development potential includes suitable golden eagle nesting habitat and active nest sites may be

established in the future. A lease stipulation should require additional raptor surveys to be done on the lease and in buffer zones adjacent to the lease.

Exceptions. A lease may be issued if one or all of the following conditions are met:

1. The lease can be conditioned in such a way, either in manner or period of operation, that eagles will not be disturbed during breeding season.

2. The BLM, with the concurrence of the USFWS, determines that the golden eagle nest(s) will be moved.

3. Buffer zones may be decreased if the surface management agency determines that the active eagle nests will not be adversely affected.

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 12

"Bald and golden eagle roost and concentration areas on Federal lands used during migration and wintering shall be considered unsuitable."

Analysis. There are no known golden or bald eagle roost and concentration areas in the area under consideration. It is recommended that additional eagle roost site inventories be conducted on all affected tracts prior to leasing.

Exceptions. No exceptions are applicable to this criterion.

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 13

"Federal lands containing a falcon (excluding kestrel) cliff nesting site with an active nest and a buffer zone of Federal land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the Fish and Wildlife Service."

Analysis. No active cliff nesting sites for falcons are found within the area having maximum coal development potential. Therefore, the requirement for buffer zones will not be applied. This determination was made after consultation between the BLM and the USFWS.

Exceptions. No exceptions are applicable to this criterion.

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 14

"Federal lands which are high priority habitat for migratory bird species of high Federal interest on a regional or national basis, as determined jointly by the surface management agency and the Fish and Wildlife Service, shall be considered unsuitable."

Analysis. No high priority habitat for migratory bird species of high Federal interest exists within the area under consideration. This determination was made after joint consultation between the BLM and the USFWS.

Exceptions. No exceptions will be applied to this criterion.

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 15

"Federal lands which the surface management agency and the state jointly agree are fish and wildlife habitat for resident species of high interest to the state and which are essential for maintaining these priority wildlife species shall be considered unsuitable. Examples of such lands which serve a critical function for the species involved include:

1. Active dancing and strutting grounds for sage grouse, sharp-tailed grouse, and prairie chicken;

2. Winter ranges most critical for deer, antelope, and elk; and

3. Migration corridors for elk.

A lease may be issued if, after consultation with the state, the surface management agency determines that all or certain stipulated methods of coal mining will not have a significant long-term impact on the species being protected."

Analysis. There are no Federal lands within the area under consideration which contain habitat essential for maintaining resident species of high interest. This determination was made after consultation between the BLM and the New Mexico Department of Game and Fish.

Exceptions. None are defined under 43 CFR 3461.1(o)(1).

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 16

"Federal lands in riverine, coastal and special floodplains (100-year recurrence interval) on which the surface management agency determines that mining could not be undertaken without substantial threat of loss of life or property shall be considered unsuitable for all or certain stipulated methods of coal mining."

Analysis. No riverine or special floodplains exist within the area under consideration. Therefore, coal mining can be undertaken without substantial threat of loss of life or property.

Exceptions. None are defined under 43 CFR 3461.1(p)(1).

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 17

"Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable."

Analysis. There are no Federal lands in the area under consideration that have been committed to use as municipal watershed.

Exceptions. No exceptions will be applied to this criterion.

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 18

"Federal lands with National Resource Waters as identified by states in their water quality management plans, and a buffer zone of Federal lands 1/4 mile from the outer edge of the far banks of the water, shall be unsuitable."

Analysis. No Federal lands with National Resource Waters exist in the area under consideration.

Exceptions. No exceptions will be applied to this criterion.

Exemptions. No exemptions to this criterion are applicable to the area under consideration.

Criterion No. 19

"Federal lands identified by the surface management agency, in consultation with the state in which they are located, as alluvial valley floors according to the definition in 3400.0-5(a) of this title, the standards in 30 CFR Part 822, the final alluvial valley floor guidelines of the Office of Surface Mining Reclamation and Enforcement when published, and approved state programs under the Surface Mining Control and Reclamation Act of 1977, where mining would interupt, discontinue, or preclude farming, shall be considered unsuitable; additionally, when mining Federal land outside an alluvial valley floor would materially damage the quantity or quality of water in surface or underground water systems that would supply alluvial valley floors, the land shall be considered unsuitable."

Analysis. Under the definition found in 30 CFR 701.5, 785.19, and 822.0 and the alluvial valley floor identification and study guidelines published by the Office of Surface Mining Reclamation and Enforcement, no alluvial valleys occur within the area under consideration.

Exceptions. No exceptions are defined under 43 CFR 3461.1(s)(1).

Exemptions. No exemptions are applicable to the area under consideration.

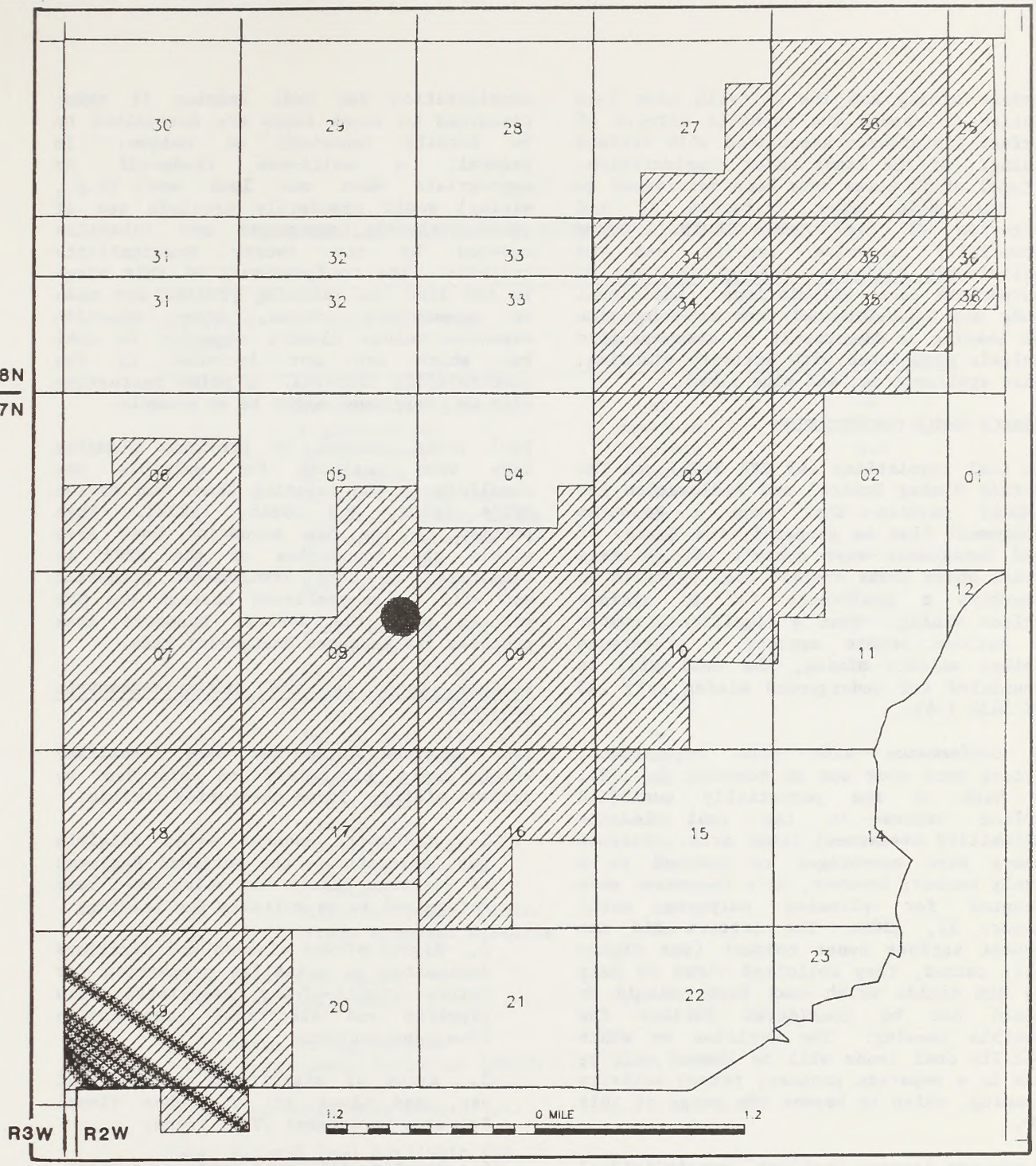
Criterion No. 20

"Federal lands in a state to which is applicable a criterion (1) proposed by that state, and (2) adopted by rulemaking by the Secretary, shall be considered unsuitable."

Analysis. The State of New Mexico has not proposed any other criteria.

Summary

The unsuitability criteria have been applied to all Federal lands within the boundary of the area identified as having maximum coal development potential (see Map E-1). Coal in this area is suitable for



MAP E-1
COAL LEASING UNSUITABILITY CRITERIA APPLICATION RESULTS

N

AREA OF MAXIMUM COAL DEVELOPMENT POTENTIAL

AREA UNSUITABLE UNDER CRITERION #2

AREA UNSUITABLE UNDER CRITERION #3

surface mining and the criteria have been applied to assess the probable effects of surface disturbance associated with surface mining. Of the lands under consideration, a total of 99 acres have been determined to be unsuitable under Criterion #2 and Criterion #3 (see Table E-1). Other potentially negative impacts can be sufficiently mitigated through the use of appropriate lease stipulations. Additional lands may be eliminated from consideration for leasing as the result of site-specific analysis associated with activity planning, lease applications, and mine plans.

SURFACE OWNER CONSULTATION

The coal regulations (43 CFR 3400) and The Surface Mining Control and Reclamation Act (SMCRA) require that when a Resource Management Plan is prepared, the Bureau of Land Management must consult with surface owners whose lands overlie coal deposits to determine a preference for or against surface mining. When a significant number of surface owners express a preference against surface mining, the coal will be considered for underground mining only (43 CFR 3420.1-4).

In conformance with this requirement, letters were sent out on November 8, 1984, to both of the potentially qualified surface owners in the coal leasing suitability assessment issue area. Surface owners were encouraged to respond in a timely manner; however, late responses were accepted for planning purposes until January 27, 1985. The letters did not request surface owner consent (see Figure E-1); rather, they solicited views to help the BLM decide which coal lands should or should not be considered further for possible leasing. The decision on which specific coal lands will be leased will be made in a separate process, termed activity planning, which is beyond the scope of this RMP.

Of the two letters sent out, one individual expressed a preference for mining and the other individual did not respond. As a result of applying this screen, no coal areas having maximum near-future development potential were dropped from further leasing consideration.

Map E-2 shows the pattern of surface and subsurface ownership within the area of maximum near-future development potential.

MULTIPLE USE CONFLICT ANALYSIS

The multiple-resource use screen is intended to eliminate lands from further consideration for coal leasing if other resources on those lands are determined to be locally important or unique. In general, a multi-use trade-off is appropriate when one land use (e.g., mining) would absolutely preclude use of other valuable resources not otherwise covered by the twenty unsuitability criteria. The readjustments at this stage in the land use planning process are made to accommodate unique, site- specific resource values clearly superior to coal but which are not included in the unsuitability criteria. A prime recreation site or campground might be an example.

Coal areas cleared in previous planning have been analyzed for multiple use conflicts in the existing Chaco and Divide MFP's (USDI, BLM 1981b, 1983b). That portion of the San Augustine Coal Area within the boundaries of the RPRA is considered to have development potential and will be re-evaluated through the RMP process when the Socorro Resource Area prepares its Resource Management Plan.

Factors Used in the Multiple-Resource Analysis

Four resource categories were identified which could ultimately be affected by surface mining. These categories include:

1. Cultural resource sites eligible for inclusion on the National Register of Historic Places but which have been determined to be suitable for leasing;

2. Rights-of-way windows and corridors designated to establish protection for future rights-of-way associated with pipeline and electrical transmission line construction;

3. Areas of significant recreational use, and Class II or higher Visual Resource Management (VRM) areas;

4. Existing Allotment Management Plans.

Analysis Results

There are no locally important or unique recreational values or Visual Resource Management areas which are considered to have values clearly superior to coal. Therefore, recreational or VRM resource values would not cause any of the lands having maximum near-future development potential to be classified as unacceptable for further consideration for leasing under any of the alternative management prescriptions.

TABLE E-1

UNSUITABILITY CRITERA FOR SURFACE COAL MINING (SUMMARY)

Criterion Number	Criterion Name	Exception or Exemption	Unsuitable Acres
1	Federal Land Systems	No	--
2	Rights-of-way	Possible	92.5
3	Buffer Zones	Possible	6.5
4	Wilderness	No	--
5	Scenic Federal Lands	No	--
6	Scientific Study Areas	No	--
7	Cultural Resources	No	--
8	Natural Areas	No	--
9	Federally Endangered Species	No	--
10	State Endangered Species	No	--
11	Eagle Nest Sites	No	--
12	Eagle Concentration Areas	No	--
13	Falcon Nest Sites	No	--
14	Migratory Birds	No	--
15	State Resident Fish and Game	No	--
16	Floodplains	No	--
17	Municipal Watersheds	No	--
18	National Resource Waters	No	--
19	Alluvial Valley Floors	No	--
20	State Proposed Criteria	No	--

Total Unsuitable Acres
(with no duplication).....99.0

Total Acres Having Maximum
Coal Development Potential (MCDP).....8884

Percent of Total MCDP Area.....1.1%

Total Federal Coal Available for
Further Consideration for Leasing,
Pending Further Study.....0.0

FIGURE E-1
SURFACE OWNER CONSULTATION LETTER

IN REPLY REFER TO
3420 (017)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
3550 Pan American Freeway, N.E.
P.O. Box 6770
Albuquerque, New Mexico 87107

CERTIFIED - RECEIPT REQUESTED

Dear Surface Owner:

The Bureau of Land Management is currently preparing a Resource Management Plan for the Rio Puerco Resource Area and is initiating the actions necessary to lease coal at some point during the life of the plan. Our review of Federal and County records indicates that you own the surface over the following lands in which the United States has retained ownership of the mineral estate including the coal in and under the land:

You may meet qualifications under section 714 of the Surface Mining Control Reclamation Act of 1977 (30 U.S.C. 1304) to be classed as a "surface owner." We would be happy to meet with you to discuss these qualifications. If you qualify, this classification gives you certain types of protection. Under current law, the Department cannot issue a new competitive lease and authorize a company to surface mine federal coal under your land without your permission. The Department may be proposing to lease the coal under your land in the near future.

The purpose of this letter is to consult with you and to give you a chance to tell us whether you would favor or oppose leasing of coal under your land. To assist you in understanding this process, I would like to tell you what your views will do and what they will not do.

(1) If you are in favor of leasing, you are not bound by that decision and you may still, at a later date, withhold your permission to lease and prevent the Department from issuing a lease for the coal in these lands. However, if you have already given your written consent for surface coal mining on your land you may have lost the right to withhold your consent at a later date. Please include any written consent documents in your response.

(2) If you express a preference against the Department's issuing a lease for coal under your land, the Department may or may not eliminate that land from further consideration for development. If, at a later date, you change your mind and favor leasing, the Department may reconsider whether the coal under your land should be leased.

(3) Even if you are in favor of leasing, the Department is under no obligation to offer the coal under your land for lease. The Department may decide that the lands should not be offered because of environmental problems. It may decide that other lands contain better coal and should be developed before the coal under your land. It may also decide that there is no need to lease that coal because other lands are already available for mining. The general question whether new coal leasing is needed on a national basis is now being studied by the Department.

I, or a member of my staff, would be pleased to talk with you if you have any questions about this letter. Your response to this letter is an important part of the leasing process and I want you to understand it completely. Please feel free to call us at (505) 766-3114.

Sincerely yours,

Herrick E. Hanks
Area Manager

Enclosure

FIGURE E-1 (Concluded)

SURFACE OWNER QUALIFICATIONS

UNDER THE

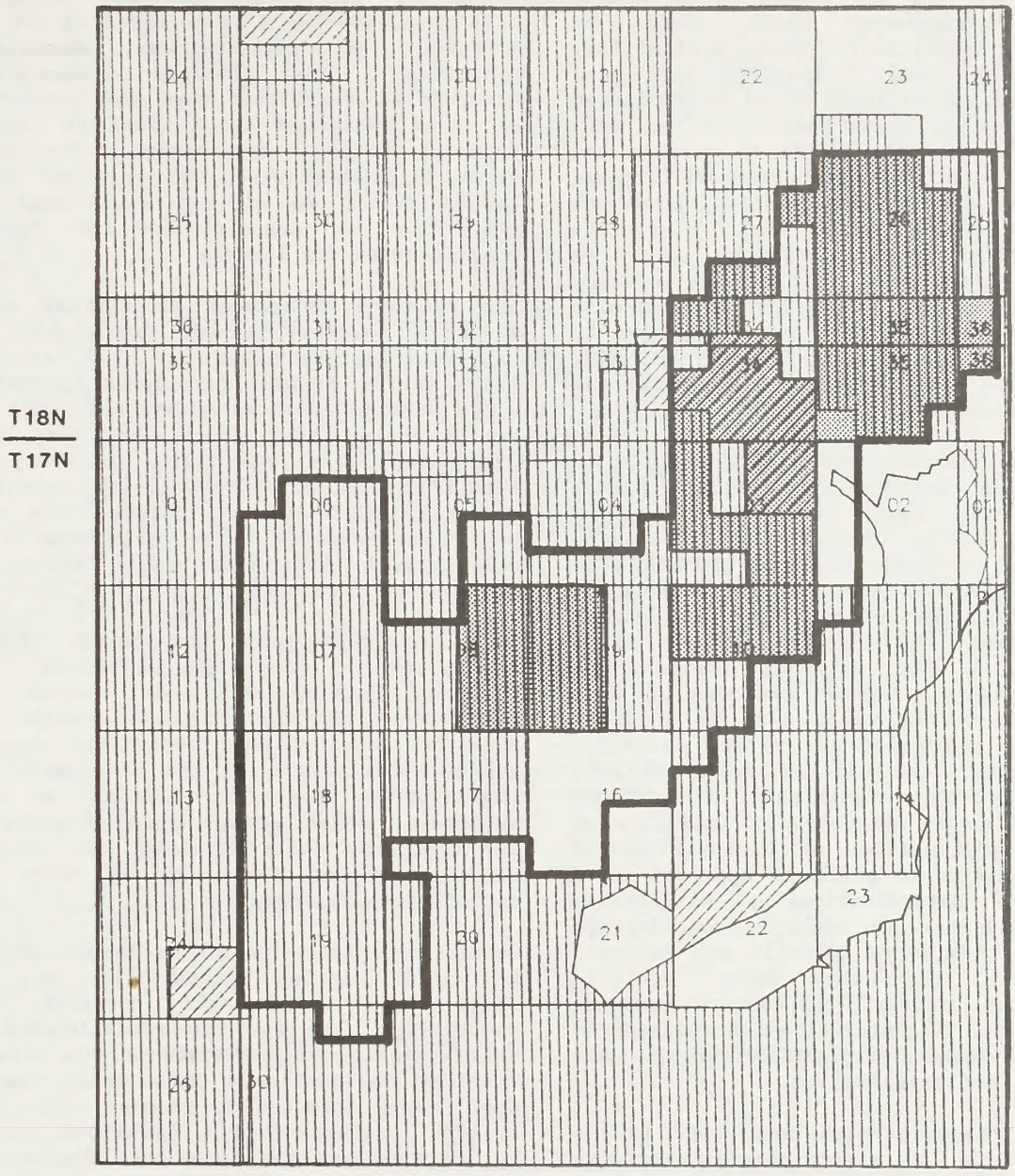
SURFACE MINING CONTROL AND RECLAMATION ACT OF 1977

Subsection (e) of § 714 provides:

> For the purpose of this section the term "surface owner" means the natural person or persons (or corporation, the majority stock of which is held by a person or persons who meet the other requirements of this section) who --
>
> (1) hold legal or equitable title to the land surface;
>
> (2) have their principal place of residence on the land; or personally conduct farming or ranching operations upon a farm or ranch unit to be affected by surface coal mining operations; or receive directly a significant portion of their income, if any, for such farming or ranching operations; and
>
> (3) have met the conditions of paragraphs (1) and (2) for a period of at least three years prior to the granting of the consent.
>
> In computing the three-year period the Secretary may include periods during which title was owned by a relative of such person by blood or marriage during which period such relative would have met the requirements of this subsection.

Definitions

> Principal Place of Residence - The principal place of residence must be located within the lease tract boundary. All contiguous private lands within the tract are considered a part of the principal place of residence provided that the residence was occupied for at least 3 years and the surface owner has legal or equitable title.
>
> Ranching Operations - The surface owner must have been running livestock for at least three (3) years in a manner which is customary for the area and have legal or equitable title to the land.



MAP E-2
COAL SURFACE OWNER CONSULTATION

ALL FEDERAL MINERALS

FEDERAL COAL ONLY

NO FEDERAL MINERALS

PRIVATE SURFACE

AREA OF MAXIMUM COAL DEVELOPMENT POTENTIAL

N

Similarly, existing Allotment Management Plans would not have any impact on proposed coal leasing. If and when coal is mined, Allotment Management Plans would be modified to show the decreased availability of forage. Under existing laws and regulations, mined lands would be reclaimed at the conclusion of mining. The main objective of reclamation is to restore the disturbed lands to be a permanent diverse vegetative cover suitable for livestock grazing and wildlife habitat. Site-specific impact analysis will be conducted both prior to leasing (during activity planning) and prior to mine-plan approval. Suitability for reclamation is beyond the scope of this RMP/EIS and will be analyzed in subsequent environmental analysis documents.

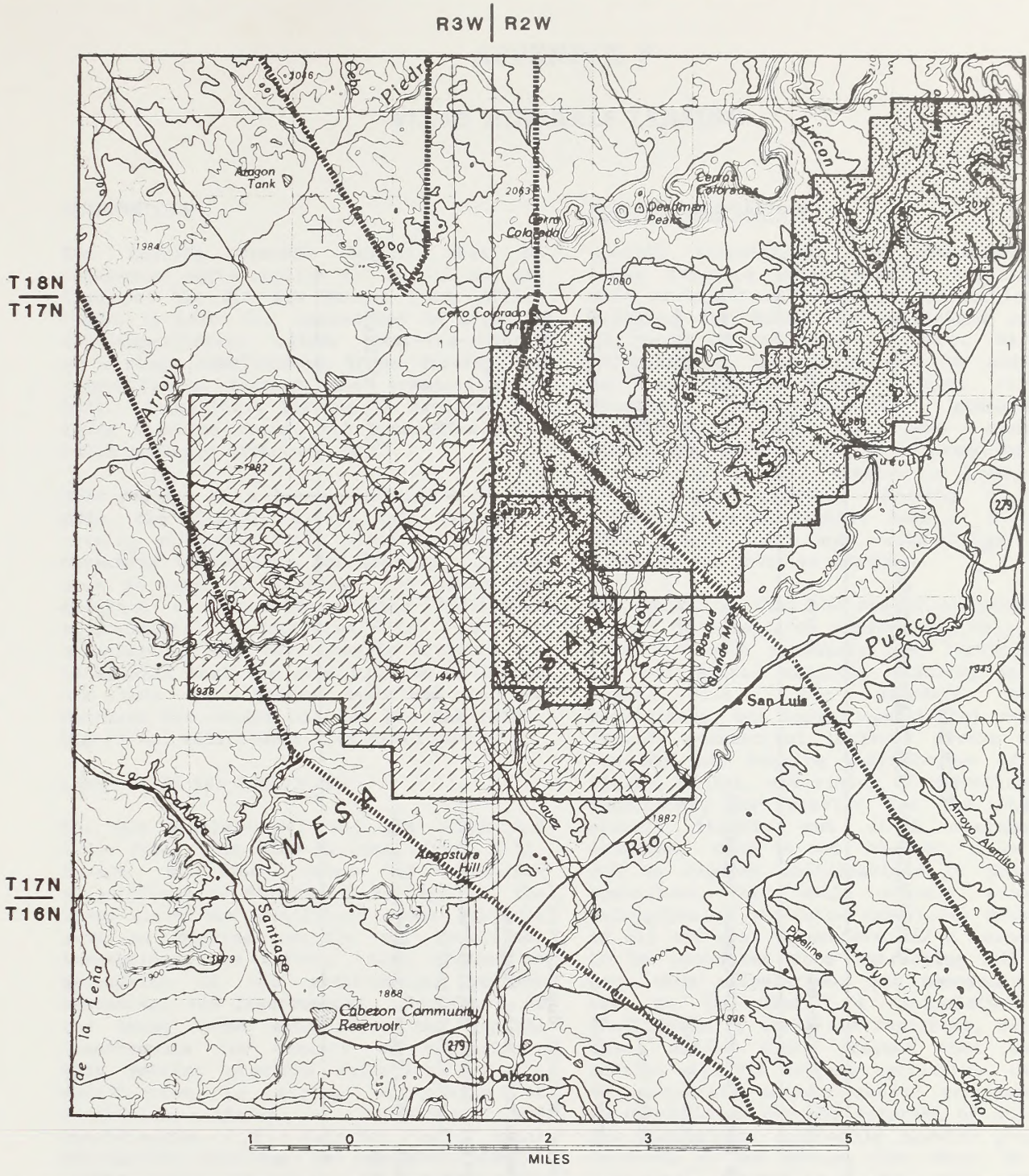
Although no publicly-owned sites listed on the National Register of Historic Places have yet been found within the area of maximum coal development potential, additional cultural resource survey data will be required during activity planning to identify and eliminate from further consideration for leasing those sites eligible for the National Register of Historic Places. Federal laws dealing with cultural resources would also be followed during the course of any mining activity. Under Federal laws (36 CFR 60.6 and 800, and 43 CFR 3461), significant sites, those determined to be eligible for inclusion on the National Register of Historic Places must be considered prior to approval of a mine plan. Determinations of eligibility for the Register are made in consultation with the Advisory Council on Historic Preservation and the State Historic Preservation Officer. Protective measures for National Register-eligible sites can include avoidance, mitigation through data retrieval, and preservation.

The final resource value considered is the identification of rights-of-way corridors and windows. Under the management prescription for the Resource Conservation Alternative, all of the lands having maximum potential within Right-of-Way Corridor I and the San Luis Cliffs Protection Window would be considered to be unacceptable for coal leasing. Because of topography and land ownership patterns, this area (see Map E-3) is critical for the placement of rights-of-way, especially pipelines. The Resource Conservation Alternative would hold that the protection of these corridors and windows is clearly superior to coal development. Therefore, under this alternative, about 2,480 acres (approximately 28 million tons) would be classified as unacceptable for further consideration for leasing.

The Balanced Management Alternative would strike a comprise between future coal and rights-of-way development. All of the lands having maximum development potential would be classified as acceptable, with the exception of those areas that have been determined to be unsuitable. However, the identification of rights-of-way corridors and protection windows through the area would necessitate the attachment of stipulations to future coal leases and rights-of-way permits.

Under the proposed compromise, future rights-of-way construction within the maximum development area would be restricted to the corridor with new construction initially restricted to the southwestern margin of the corridor. New rights-of-way would be "phased" so that subsequent construction would progress to the northeast while remaining as close to existing rights-of-way as is safe and technologically feasible.

Future coal leases would be issued subject to valid existing rights. For any new right-of-way within the corridor, the controlling date for the establishment of valid existing rights would be the date of corridor designation. This means that a coal lessee directed to recover coal from beneath rights-of-way permitted after corridor designation would bear the cost of relocation. The valid existing right lease condition would afford the protection required for future rights-of-way construction.



MAP E-3
MULTIPLE-USE SCREEN APPLICATION RESULTS

RIGHTS-OF-WAY WINDOW

RIGHTS-OF-WAY CORRIDOR

AREA OF MAXIMUM COAL DEVELOPMENT POTENTIAL

TABLE E-2

APPLICATION OF COAL PLANNING SCREENS

Area Considered	Acres	Tons
Maximum near-future development potential	8,884	100.0 million
Federal Coal	8,118	91.4 million
State Coal	720	8.1 million
Private Coal	46	.5 million
Unsuitable (without duplication)	99	1.1 million
Negative surface owner response	0	0
Unacceptable due to multiple-use conflicts under Preferred Alternative	0	0
Acceptable for further consideration for leasing	8,019	90.3 million

APPENDIX F

FLUID MINERALS LEASING

INTRODUCTION

The leasing process begins when an interested party applies for an oil and gas lease at the BLM New Mexico State Office (NMSO) in Santa Fe. Leases may be acquired non-competitively either over-the-counter or through simultaneous lease drawing, or competitively through the submission of bids. Competitive leasing is required for lands situated within the boundaries of a known geologic structure (KGS).

Upon receipt of a lease application in the NMSO, the Mineral Leasing Unit reviews a catalog of master title plats in order to determine suitability for leasing. If the area is open to leasing, the plats are examined to determine whether additional environmental protection is to be stipulated. When the lease is reviewed, it is assumed that the area will be developed and that the impacts described in the Northern New Mexico Oil and Gas EAR (USDI, BLM 1974a) will result from development.

LEASE TERMS AND CONDITIONS

The BLM combined oil and gas offer and lease form, Form 3100-11 (see Figure F-1), covers a wide range of standard stipulations in Sections 2 through 9. The lease terms and conditions cover subjects such as bonding rentals and royalties, inspections, and safety. Also covered is protection of the environment, surface resources, and improvements. Section 6 of the lease terms establishes the general requirements for conduct of operations. This section provides authority for the modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures to minimize adverse environmental impacts. It specifically requires that the lessee contact the lessor prior to disturbing the surface and specifies that the lessee may be required to complete minor inventories or short-term special studies. Section 6 was intended to render many lease attachments unnecessary, such as the Surface Disturbance Notice and the standard Cultural Resources Stipulation. Section 10 refers to the additional stipulations that may be attached as needed.

Special Stipulations

Special Stipulations are conditions of lease issuance which provide additional, more stringent environmental protection by allowing for denial of operations within the terms of the lease contract. Without stipulations, operations can be modified but not denied (except under certain specific, nondiscretionary statutes.) Stipulations will be used whenever mitigating measures to be enforced by the United States will deprive a lessee of lease rights granted. Because of this effect on lease rights, lessees must be made aware of and acknowledge all stipulations prior to leasing.

BLM policy is that the use of stipulations should be considered appropriate only when they are both necessary and justifiable. The contractual controls existing in the lease, i.e., the standard terms, regulations, and formal operational orders, provide substantial latitude within which the BLM may require modification of the siting, design, and timing of operations on leaseholds, and provide for the BLM to specify interim and final reclamation measures. They do not, however, allow the BLM to require modifications to proposed operations that would prevent economic extraction of otherwise commercial deposits of oil and gas. Therefore, if a lessee is to be prevented from extracting oil and gas, then stipulations are necessary and are to be used. A stipulation is justifiable if there are resources, values, uses, and/or users present that cannot coexist with oil and gas operations, cannot be adequately managed and/or accommodated on other lands for the duration of oil and gas operations, and would provide greater benefits to the public than those of oil and gas operations. In such cases, stipulations are justifiable and are to be used.

The content and accurate wording of stipulations is very important since stipulations become part of the lease contract. If the stipulations are ambiguous, potential lessees will be uncertain as to the value of the lease. Also, if poorly written, the BLM may fail to retain, within the terms of the lease,

FIGURE F-1

FORM 3100-11

Form 3100-11*
(March 1984)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0008
Expires January 31, 1986

Serial No.

OFFER TO LEASE AND LEASE FOR OIL AND GAS

The undersigned (reverse) offers to lease all or any of the lands in item 2 that are available for lease pursuant to the Mineral Leasing Act of 1920 (30 U.S.C. 181 et seq.), the Mineral Leasing Act for Acquired Lands (30 U.S.C. 351-359), the Attorney General's Opinion of April 2, 1941 (40 OP. Atty. Gen. 41), or the

Read Instructions Before Completing

1. Name

Street

City, State, Zip Code

2. This offer/lease is for: (Check Only One) ☐ PUBLIC DOMAIN LANDS ☐ ACQUIRED LANDS (percent U.S. interest _____)

Surface managing agency if other than BLM: _____ Unit/Project _____

Legal description of land requested:

T. R. Meridian State County

Total acres applied for _____

Amount remitted: Filing fee $ _____ Rental fee $ _____ Total $ _____

DO NOT WRITE BELOW THIS LINE

3. Land included in lease:

T. R. Meridian State County

Total acres in lease _____

Rental retained $ _____

In accordance with the above offer, or the previously submitted simultaneous oil and gas lease application or competitive bid, this lease is issued granting the exclusive right to drill for, mine, extract, remove and dispose of all the oil and gas (except helium) in the lands described in item 3 together with the right to build and maintain necessary improvements thereupon for the term indicated below, subject to renewal or extension in accordance with the appropriate leasing authority. Rights granted are subject to applicable laws, the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance, and to regulations and formal orders hereafter promulgated when not inconsistent with lease rights granted or specific provisions of this lease.

Type and primary term of lease:

☐ Simultaneous noncompetitive lease (ten years)

☐ Regular noncompetitive lease (ten years)

☐ Competitive lease (five years)

☐ Other _____

THE UNITED STATES OF AMERICA

by _____
(Signing Officer)

_____ (Title) _____ (Date)

EFFECTIVE DATE OF LEASE _____

*(Formerly 3110-1, 2, 3, 3120-1, 7, 3130-4, 5, and 7)

FIGURE F-1 (Concluded)

4. (a) Undersigned certifies that (1) offeror is a citizen of the United States; an association of such citizens; a municipality; or a corporation organized under the laws of the United States or of any State or Territory thereof; (2) all parties holding an interest in the offer are in compliance with 43 CFR 3100 and the leasing authorities; (3) offeror's chargeable interests, direct and indirect, in either public domain or acquired lands do not exceed 200,000 acres in oil and gas options or 246,080 acres in options and leases in the same State, or 300,000 acres in leases and 200,000 acres in options in either leasing District in Alaska; and (4) offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located.

(b) Undersigned agrees that signature to this offer constitutes acceptance of this lease, including all terms, conditions, and stipulations of which offeror has been given notice, and any amendment or separate lease that may include any land described in this offer open to leasing at the time this offer was filed but omitted for any reason from this lease. The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States.

This offer will be rejected and will afford offeror no priority if it is not properly completed and executed in accordance with the regulations, or if it is not accompanied by the required payments. 18 U.S.C. Sec. 1001 makes it a crime for any person knowingly and willfully to make to any Department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Duly executed this _____ day of _____, 19 _____.

_____
(Signature of Lessee or Attorney-in-fact)

LEASE TERMS

Sec. 1. Rentals—Rentals shall be paid to proper office of lessor in advance of each lease year. Annual rental rates per acre or fraction thereof are:

(a) Simultaneous noncompetitive lease, $1.00 for the first 5 years, thereafter, $3.00;
(b) Regular noncompetitive lease, $1.00;
(c) Competitive lease, $2.00; or
(d) Other, see attachment.

If all or part of a noncompetitive leasehold is determined to be within a known geological structure or a favorable petroleum geological province, annual rental shall become $2.00, beginning with the lease year following notice of such determination. However, a lease that would otherwise be subject to rental of more than $2.00 shall continue to be subject to the higher rental.

If this lease or a portion thereof is committed to an approved cooperative or unit plan which includes a well capable of producing leased resources, and the plan contains a provision for allocation of production, royalties shall be paid on the production allocated to this lease. However, annual rentals shall continue to be due at the rate specified in (a), (b), (c), or (d) for those lands not within a participating area.

Failure to pay annual rental, if due, on or before the anniversary date of this lease (or next official working day if office is closed) shall automatically terminate this lease by operation of law. Rentals may be waived, reduced, or suspended by the Secretary upon a sufficient showing by lessee.

Sec. 2. Royalties—Royalties shall be paid to proper office of lessor. Royalties shall be computed in accordance with regulations on production removed or sold. Royalty rates are:

(a) Simultaneous noncompetitive lease, 12½%;
(b) Regular noncompetitive lease, 12½%;
(c) Competitive lease, see attachment; or
(d) Other, see attachment.

Lessor reserves the right to specify whether royalty is to be paid in value or in kind, and the right to establish reasonable minimum values on products after giving lessee notice and an opportunity to be heard. When paid in value, royalties shall be due and payable on the last day of the month following the month in which production occurred. When paid in kind, production shall be delivered, unless otherwise agreed to by lessor, in merchantable condition on the premises where produced without cost to lessor. Lessee shall not be required to hold such production in storage beyond the last day of the month following the month in which production occurred, nor shall lessee be held liable for loss or destruction of royalty oil or other products in storage from causes beyond the reasonable control of lessee.

Minimum royalty shall be due for any lease year after discovery in which royalty payments aggregate less than $1.00 per acre. Lessee shall pay such difference at end of lease year. This minimum royalty may be waived, suspended, or reduced, and the above royalty rates may be reduced, for all or portions of this lease if the Secretary determines that such action is necessary to encourage the greatest ultimate recovery of the leased resources, or is otherwise justified.

An interest charge shall be assessed on late royalty payments or underpayments in accordance with the Federal Oil and Gas Royalty Management Act of 1982 (FOGRMA) (96 Stat. 2447). Lessee shall be liable for royalty payments on oil and gas lost or wasted from a lease site when such loss or waste is due to negligence on the part of the operator, or due to the failure to comply with any rule, regulation, order, or citation issued under FOGRMA or the leasing authority.

Sec. 3. Bonds—Lessee shall file and maintain any bond required under regulations.

Sec. 4. Diligence, rate of development, unitization, and drainage—Lessee shall exercise reasonable diligence in developing and producing, and shall prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves right to specify rates of development and production in the public interest and to require lessee to subscribe to a cooperative or unit plan, within 30 days of notice, if deemed necessary for proper development and operation of area, field, or pool embracing these leased lands. Lessee shall drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in amount determined by lessor.

Sec. 5. Documents, evidence, and inspection—Lessee shall file with proper office of lessor, not later than 30 days after effective date thereof, any contract or evidence of other arrangement for sale or disposal of production. At such times and in such form as lessor may prescribe, lessee shall furnish detailed statements showing amounts and quality of all products removed and sold, proceeds therefrom, and amount used for production purposes or unavoidably lost. Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest, expenditures, and depreciation costs. In the form prescribed by lessor, lessee shall keep a daily drilling record, a log, information on well surveys and tests, and a record of subsurface investigations and furnish copies to lessor when required. Lessee shall keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands. Lessee shall maintain copies of all contracts, sales agreements, accounting records, and documentation such as billings, invoices, or similar documentation that supports costs claimed as manufacturing, preparation, and/or transportation costs. All such records shall be maintained in lessee's accounting offices for future audit by lessor. Lessee shall maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor.

During existence of this lease, information obtained under this section shall be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 6. Conduct of operations—Lessee shall conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users. Lessee shall take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent consistent with lease rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-ways. Such uses shall be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee.

Prior to disturbing the surface of the leased lands, lessee shall contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary. Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessee may be required to complete minor inventories or short term special studies under guidelines provided by lessor. If in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee shall immediately contact lessor. Lessee shall cease any operations that would result in the destruction of such species or objects.

Sec. 7. Mining operations—To the extent that impacts from mining operations would be substantially different or greater than those associated with normal drilling operations, lessor reserves the right to deny approval of such operations.

Sec. 8. Extraction of helium—Lessor reserves the option of extracting or having extracted helium from gas production in a manner specified and by means provided by lessor at no expense or loss to lessee or owner of the gas. Lessee shall include in any contract or sale of gas the provisions of this section.

Sec. 9. Damages to property—Lessee shall pay lessor for damage to lessor's improvements, and shall save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations.

Sec. 10. Protection of diverse interests and equal opportunity—Lessee shall: pay when due all taxes legally assessed and levied under laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at least twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; and take measures necessary to protect the health and safety of the public.

Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly. If lessee operates a pipeline, or owns controlling interest in a pipeline or a company operating a pipeline, which may be operated accessible to oil derived from these leased lands, lessee shall comply with section 28 of the Mineral Leasing Act of 1920.

Lessee shall comply with Executive Order No. 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto. Neither lessee nor lessee's subcontractors shall maintain segregated facilities.

Sec. 11. Transfer of lease interests and relinquishment of lease—As required by regulations, lessee shall file with lessor any assignment or other transfer of an interest in this lease. Lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which shall be effective as of the date of filing, subject to the continued obligation of the lessee and surety to pay all accrued rentals and royalties.

Sec. 12. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee shall place affected wells in condition for suspension or abandonment, reclaim the land as specified by lessor and, within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells.

Sec. 13. Proceedings in case of default—If lessee fails to comply with any provisions of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease shall be subject to cancellation. Lessee shall also be subject to applicable provisions and penalties of FOGRMA (96 Stat. 2447). However, if this lease includes land known to contain valuable deposits of leased resources, it may be cancelled only by judicial proceedings. This provision shall not be construed to prevent the exercise by lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver shall not prevent later cancellation for the same default occurring at any other time.

Sec. 14. Heirs and successors-in-interest—Each obligation of this lease shall extend to and be binding upon, and every benefit hereof shall inure to the heirs, executors, administrators, successors, beneficiaries, or assignees of the respective parties hereto.

the right to deny operations. Therefore, to the extent feasible, stipulations are to specify the reason for the stipulation, the lands involved, and the probable effect of the stipulations on lease activities. Stipulations should also include a provision for waiver in the event that circumstances or relative resource values change, or in the event that the lessee demonstrates that operations can be conducted without causing unacceptable impacts.

The stipulations on Figure F-2 are examples of stipulations that are used by both the NMSO of the BLM and the Forest Service region within New Mexico. The first ten stipulations have been used by the BLM for several years. Stipulations 11 through 13 are alternatives to one, or more of the first ten stipulations described in the "Note" for Stipulations 11 to 13. Stipulation 14 is an alternative for use when there is a need to alert the lessee/operator to special values or uses within the leasehold which require unique operating procedures which may result in higher than normal operating costs and/or which may require very stringent performance standards to protect or control adverse impacts and to reclaim disturbed lands. This stipulation is not exclusionary, but allows surface use and occupancy if the operator can meet the restrictions and/or performance standards.

Figures F-2 and F-3 represent both generic stipulation examples and the actual stipulations approved for use in the Rio Puerco Resource Area. The current list of approved stipulations, their content and wording, the area involved, and the stipulation's impact on oil and gas development will be modified and defined during activity planning. This RMP attempts only to identify areas where surface resources, values, and users will require special management. Specific stipulations not identified in this plan can be justified efficiently during activity planning, largely by reference to this plan. Reference can be made either in an environmental assessment or in a separate worksheet accompanying the categorical exclusion review that leads to lease issuance.

Table F-1 represents a summary of acreage that is affected by one or more stipulations under existing management practices. The figures in Table 4-3 are a summary of proposed withdrawals and stipulations brought forward under the Balanced Management Alternative. Additional stipulations may be brought forward during activity planning.

TABLE F-1

SUMMARY OF ACREAGE AFFECTED BY
SPECIAL STIPULATIONS
UNDER THE CONTINUATION OF CURRENT MANAGEMENT ALTERNATIVE

Stipulation Number	Reason for Protection	Affected Acreage
New Mexico 7	Wilderness	328,251
Rio Puerco 1	Seasonal Wildlife	55,189
Rio Puerco 2	Watershed	15,147
Rio Puerco 3	T&E Species	5,274
Rio Puerco 4	Critical Wildlife Habitat	0
Rio Puerco 5	Las Milpas Gas Storage Area	9,532
Rio Puerco 6	City Airport	1,480
Socorro 1	Critical Erosion	27,200
Socorro 2	T&E Plant Species	1,280
Socorro 3	Timber	17,120
Socorro 4	T&E Animal Species	0
Socorro 5	Visual Resources	7,520
Socorro 6	Cultural Resources	3,200
Socorro 7	Recreation & Public Purposes	160

FIGURE F-2

EXAMPLE STIPULATIONS

1. All of the land in this lease is included in (recreation or special area, etc.). Therefore, no occupancy or disturbance of the surface of the land described in this lease is authorized. The lessee, however, may exploit the oil and gas resources in this lease by directional drilling from sites outside this lease. If a proposed drilling site lies on land administered by the Bureau of Land Management, or by the Forest Service, a permit for use of the site must be obtained from the BLM District Manager, or the Forest Service District Ranger, before drilling or other development begins.

2. No access or work trail or road, earth cut or fill, structure or other improvement, other than an active drilling rig, will be permitted if it can be viewed from the (road, lake, river, etc.).

3. No occupancy or other activity on the surface of (legal subdivision) is allowed under this lease.

4. No occupancy or other surface disturbance will be allowed within _____ feet of the _____ (Road, Trail, River, Creek, Canal, etc.). This distance may be modified when specifically approved in writing by the BLM District Manager, with the concurrence of the authorized officer of the Federal surface management agency.

5. No drilling or storage facilities will be allowed within _____ feet of (live water, the reservoir, the archeological site, the historical site, the paleontological site, etc.) located in (legal sbudivision). This distance may be modified when specifically approved in writing by the BLM District Manager , with the concurrence of the authorized officer of the Federal surface management agency.

6. No occupancy or other surface disturbance will be allowed on slopes in excess of ___ percent, without written permission from the BLM District Manager, with the concurrence of the authorized officer of the Federal surface management agency.

7. In order to (minimize watershed damage, protect important seasonal wildlife habitat, etc.) exploration, drilling, and other development activity will be allowed only (during the period from _____ to _____, during dry soil period, over a snow cover, frozen ground). This limitation does not apply to maintenance and operation of producing wells. Exceptions to this limitation in any year may be specifically authorized in writing by the BLM District Manager, with the concurrence of the authorized officer of the Federal surface management agency.

8. In order to minimize watershed damage, during muddy and/or wet periods the authorized officer of the Federal surface management agency, through the BLM District Manager, may prohibit exploration, drilling, or other development. This limitation does not apply to maintenance and operation of producing wells.

9. The _____ (Trail/Road) will not be used as an access road for activities on this lease, except as follows: (No exceptions, weekdays during recreation season, etc.).

10. To maintain esthetic values, all semi-permanent and permanent facilities may require painting or camouflage to blend with the natural surroundings. The paint selection or method of camouflage will be subject to approval by the BLM District Manager, with the concurrence of the authorized officer of the Federal surface management agency.

11. No occupancy or other activity on the surface of the following described lands is allowed under this lease:

Reasons for this restriction are:

Examples of appropriate reasons for this restriction are:

a. Steep slope
b. Specific ecosystem, ecological land unit, landtype or geologic formation which present hazards such as mass failure
c. Roadless or essentially roadless area (includes chevron and Rainbow stipulations)
d. Special management units such as: Recreation Type I, water supply, administrative site, etc.

Approximately ____ % of lease

Note: This stipulation could be used in place of Nos. 1, 3, and 6.

12. No _____ will be allowed within _____ feet of the _____. This area contains _____ acres and is described as follows:

Reasons:

First blank to be filled in with one or more of the following: drilling, storage facilities, surface disturbance or occupancy. Second and third blanks to be filled in with one or more of the following:

a. ____ feet wildlife habitat essential to specific species
b. ____ feet peripheral or unique vegetative type
c. 200 feet either side of centerline of roads or highways
d. 500 feet of normal high water line on all streams, rivers, ponds, reservoirs, lakes
e. 600 feet of all springs
f. 400 feet of any improvements

Note: Stipulation No. 12 could be used in place of Stipulation Nos. 4 and 5.

13. In order to (minimize) (protect) _____, _____ will be allowed only during _____. This does not apply to maintenance and operation of producing wells and facilities. Lands within leased area to which this stipulation applies are described as follows:

Reasons:

First blank to be filled in with one or more of the following:

a. Watershed damage
b. Soil erosion
c. Seasonal wildlife habitat (winter range, calving/lambing area, etc.)
d. Conflict with recreation

Second blank to be filled in with one or more of the following:

a. Surface disturbing activities
b. Exploration
c. Drilling
d. Development

FIGURE F-2 (concluded)

Third blank to be filled in with one or more of the following:

a. Period from _____ to _____
b. Dry soil periods
c. Over the snow
d. Frozen ground

Note: Stipulation No. 13 could be used in place of Stipulation No. 7, giving greater definition as to restriction.

14. The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes, or require special attention to prevent damage to surface resources. Any surface use or occupancy within such areas will be strictly controlled. Use or occupancy will be authorized only when the lessee/operator demonstrates that the area is essential for operations and when the lessee/operator submits a surface use and operations plan, which is satisfactory to the BLM and the Federal surface management agency, for the protection of these special values and existing or planned uses. Appropriate modifications to the imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

    After the Federal surface management agency has been advised of the proposed surface use or occupancy on these lands, and on request of the lessee/operator, the Federal surface management agency will furnish further data on such areas, which now include but are not limited to:

    (Legal land description to lot and/or quarter, quarter section.)

    Reason for Restriction:

    Duration of Restriction: (year-round, month(s))

    Prior to acceptance of this stipulation the prospective lessee is encouraged to contact the Federal surface management agency for further information regarding the restrictive nature of this stipulation.

Note: Stipulation No. 14 is not exclusionary but it notifies the lessee/operator that the described lands contain special values and that these values must be considered in the proposed operating plan. This stipulation is an alternative to many of the above stipulations.

FIGURE F-3

FLUID MINERAL LEASING STIPULATIONS APPLIED TO
LEASES IN THE RIO PUERCO RESOURCE AREA

Rio Puerco 1

In order to protect important seasonal wildlife habitat, exploration, drilling, and other development activity will be allowed only during the period from April 15 to November 15. This limitation does not apply to maintenance and operation of producing wells. Exceptions to this limitation in any year may be specifically authorized in writing by the authorized officer of the Bureau of Land Management, with the concurrence of the authorized officer of the Federal surface management agency.

Rio Puerco 2

No occupancy or other activity on the surface of the following described lands is allowed in order to protect watershed and range study sites: (description would be attached to lease)

Rio Puerco 3

The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes, or require special attention to prevent damage to surface resources. Any surface use or occupancy within such areas will be strictly controlled. Use or occupancy will be authorized only when the lessee/operator demonstrates that the area is essential for operations and when the lessee/operator submits a surface use and operations plan which is satisfactory to the Bureau of Land Management and the Federal surface management agency, for the protection of these special values and existing or planned uses. Appropriate modifications to the imposed restrictions will be made for the maintenance and operations of producing wells.

After the Federal surface management agency has been advised of the proposed surface use or occupancy on these lands, and on request of the lessee/operator, the Federal surface management agency will furnish further data on such areas.

Reason for Restriction: Presence of threatened and endangered plant populations

Duration of Restriction: Year-round

Prior to acceptance of this stipulation the prospective lessee is encouraged to contact the Federal surface management agency for further information regarding the restrictive nature of this stipulation.

Rio Puerco 4

The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes, or require special attention to prevent damage to surface resources. Any surface use or occupancy within such areas will be strictly controlled. Use or occupancy will be authorized only when the lessee/operator demonstrates that the area is essential for operations and when the lessee/operator submits a surface use and operations plan which is satisfactory to the Bureau of Land Management and the Federal surface management agency, for the protection of these special values and existing or planned uses. Appropriate modifications to the imposed restrictions will be made for the maintenance and operations of producing wells.

After the Federal surface management agency has been advised of the proposed surface use or occupancy on these lands, and on request of the lessee/operator, the Federal surface management agency will furnish further data on such areas.

Reason for Restriction: Critical wildlife habitat area

Duration of Restriction: Year-round

Prior to acceptance of this stipulation the prospective lessee is encouraged to contact the Federal surface management agency for further information regarding the restrictive nature of this stipulation.

Rio Puerco 5

The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes, or require special attention to prevent damage to surface resources. Any surface use or occupancy within such areas will be strictly controlled. Use or occupancy will be authorized only when the lessee/operator demonstrates that the area is essential for operations and when the lessee/operator submits a surface use and operations plan which is satisfactory to the Bureau of Land Management and the Federal surface management agency, for the protection of these special values and existing or planned uses. Appropriate modifications to the imposed restrictions will be made for the maintenance and operations of producing wells.

After the Federal surface management agency has been advised of the proposed surface use or occupancy on these lands, and on request of the lessee/operator, the Federal surface management agency will furnish further data on such areas.

Reason for Restriction: Presence of Southern Union Gas' Las Milpas gas storage facility

Duration of Restriction: Year-round

Prior to acceptance of this stipulation the prospective lessee is encouraged to contact the Federal surface management agency for further information regarding the restrictive nature of this stipulation.

Rio Puerco 6

No occupancy or other activity on the surface of the following described lands is allowed in order to protect land owned by the City of Albuquerque which will be used as an airport: (description would be attached to lease)

Fluid Mineral Stipulations Originally Developed by the Socorro District Office for Cibola and Valencia Counties:

Socorro 1

In order to minimize damage in watersheds classified as having critical erosion potential, off-road use and any surface disturbance will be allowed only after close coordination and explicit written concurrence of the authorized officer of the Federal surface management agency.

Socorro 2

The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes, or require special attention to prevent damage to surface resources. All surface use or occupancy within such areas will be strictly controlled. Use or occupancy will be authorized only when the lessee/operator demonstrates that the area is essential for operations and when the lessee/operator submits a surface use and

operations plan, which is satisfactory to the Bureau of Land Management and the surface management agency, for the protection of these special values and existing or planned uses. Appropriate modifications to the imposed restrictions will be made for the maintenance and operation of production oil and gas wells.

After the surface management agency has been advised of the proposed surface use or occupancy on these lands, and on request of the lessee/operator, the surface management agency will furnish further data on such areas, which now include but are not limited to: (description would be attached to lease)

Reason for Restriction: Known threatened, endangered, or state listed sensitive plant habitat

Duration of Restriction: Year-round

Prior to acceptance of this stipulation the prospective lessee is encouraged to contact the surface management agency for further information regarding the restrictive nature of this stipulation.

Socorro 3

In order to minimize disruption of commercial-quality ponderosa pine stands and to facilitate future management of the timber resource, exploration, drilling, and other development activity will be allowed only after coordination with and written approval of the surface management agency. Exceptions to this limitation may be specifically authorized in writing by the District Manager of the Bureau of Land Management, with the written concurrence of the surface management agency.

Socorro 4

The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes, or require special attention to prevent damage to surface resources. Any surface use or occupancy within such areas will be strictly controlled. Use or occupancy will be authorized only when the lessee/operator demonstrates that the area is essential for operations and when the lessee/operator submits a surface use and operations plan which is satisfactory to the Bureau of Land Management and the surface management agency, for the protection of those special values and existing or planned uses. Appropriate modifications to the imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

After the surface management agency has been advised of the proposed surface use or occupancy on these lands, and on request of the lessee/operator, the authorized officer of the surface management agency will furnish data on such areas, which now include but are not limited to: (description would be attached to lease)

Reason for Restriction: Known threatened or endangered wildlife species habitat

Duration of Restriction: To be determined in consultation with the surface management agency and U.S. Fish and Wildlife Service Endangered Species Office

Prior to acceptance of this stipulation the prospective lessee is encouraged to contact the authorized officer of the surface management agency for further information regarding the restrictive nature of this stipulation.

Socorro 5

All or part of the lands in this lease are included in a potential Area of Critical Environmental Concern for visual resources. No surface disturbing activities will be allowed which strongly impact scenic values (form, line, color, texture) without prior l&myyis u%%&ehua ep yqi uoyqorized officer of the surface management agency.

FIGURE F-3 (Continued)

Socorro 6

The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes, or require special attention to prevent damage to surface resources. Any surface use or occupancy within such areas will be strictly controlled. Use or occupancy will be authorized only when the lessee/operator demonstrates that the area is essential for operations and when the lessee/operator submits a surface use and operations plan which is satisfactory to the Bureau of Land Management and the surface management agency for the protection of these special values and existing or planned uses. Appropriate modifications to the imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

After the surface management agency has been advised of the proposed surface use or occupancy on these lands, and on request of the lessee/operator, the authorized officer of the surface management agency will furnish further data on such areas, which now include but are not limited to: (description would be attached to lease)

Reason for Restriction: Potential or existing site, National Register of Historic Places

Duration of Restriction: Year-round

Prior to acceptance of this stipulation the prospective lessee is encouraged to contact the authorized officer of the surface management agency for further information regarding the restrictive nature of this stipulation.

Socorro 7

The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes, or require special attention to prevent damage to surface resources. Any surface use or occupancy within such areas will be strictly controlled. Use or occupancy will be authorized only when the lessee/operator demonstrates that the area is essential for operations and when the lessee/operator submits a surface use and operations plan which is satisfactory to the Bureau of Land Management and the surface management agency, for the protection of these special values and existing or planned uses. Appropriate modifications to the imposed restrictions will be made for the maintenance and operations of producing wells.

After the surface management agency has been advised of the proposed surface use or occupancy of these lands, and on request of the lessee/operator the authorized officer of the surface management agency will furnish further data on such areas, which now include but are not limited to: (description would be attached to lease)

Reason for Restriction: C&MU Act or R&PP Act: Land Classification

Duration of Restriction: Year-round

Prior to acceptance of this stipulation the prospective lessee is encouraged to contact the authorized officer of the surface management agency for further information regarding the restrictive nature of this stipulation.

New Mexico 7

By accepting this lease, the lessee acknowledges that the lands contained in this lease are being inventoried or evaluated for their wilderness potential by the Bureau of Land Management (BLM) under Section 603 of the Federal Land Policy and Management Act of 1976 90 Stat. 2743 (43 USC Sec. 1782), and that exploration or production activities which are not in conformity with Section 603 may never be permitted. Expenditures in leases on which exploration drilling or production are not allowed will create no additional rights in the lease, and such leases will expire in accordance with law.

Activities will be permitted under the lease so long as BLM determines they will not impair wilderness suitability. This will be the case either until the BLM wilderness inventory process has resulted in a final wilderness inventory decision that an area lacks wilderness characteristics, or in the case of a Wilderness Study Area, until Congress has decided not to designate the lands included within this lease Wilderness. Activities will be considered nonimpairing if the BLM determines that they meet each of the following three criteria:

(a) It is temporary. This means that the use or activity may continue until the time when it must be terminated in ordeer to meet the reclamation requirement of paragraphs (b) and (c) below. A temporary use that creates no new surface disturbance may continue unless Congress designates the area as Wilderness, so long as it can easily and immediately be terminated at that time, if necessary to management of the area as Wilderness.

(b) Any temporary impacts caused by the activity must, at a minimum, be capable of being reclaimed to a condition of being substantially unnoticeable in the Wilderness Study Area (or Inventory Unit) as a whole by the time the Secretary of the Interior is scheduled to send his recommendations on that area to the President, and the operator will be required to reclaim the impacts to that standard by that date. If the wilderness study is postponed, the reclamation deadline will be changed. A full schedule of wilderness studies will be developed by the Department upon completion of the intensive wilderness inventory. In the meantime, in areas not yet scheduled for wilderness study, the reclamation will be scheduled for completion within 4 years after approval of the activity. (Obviously, if and when the Interim Management Policy ceases to apply to an Inventory Unit dropped from wilderness review following a final wilderness inventory decision of the BLM State Director, the reclamation deadline previously specified will cease to apply.) The Secretary's schedule for transmitting his recommendations to the President will not be changed as a result of any unexpected inability to complete the reclamation by the specified date, and such inability will not constrain the Secretary's recommendations with respect to the area's suitability or nonsuitability for preservation as wilderness.

The reclamation will, to the extent praticable, be done while the activity is in progress. Reclamation will include the complete recontouring of all cuts and fills to blend with the natural topography, the replacement of topsoil, and the restoration of plant cover at least to the point where natural succession is occurring. Plant cover will be restored by means of reseeding or replating, using species previously occurring in the area. If necessary, irrigation will be required. The reclamation schedules will be based on conservation assumptions with regard to growing conditions, so as to ensure that the reclamation will be complete, and the impacts will be substantially unnoticeable in the area as a whole, by the time the Secretary is scheduled to send his recommendations to the President. ("Substantially unnoticeable" is defined in Appendix F of the Interim Management Policy and Guidelines for Lands under Wilderness Review.

FIGURE F-3 (Concluded)

(c) When the activity is terminated, and after any needed reclamation is complete, the area's wilderness values must not have been degraded so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as Wilderness. The wilderness values to be considered are those mentioned in Section 2(c) of the Wilderness Act, including natuiralness, outstanding opportunities for solitude or for primitive and unconfined recreation and ecological, geological or other features of scientific, educational, scenic, or historical value. If all or any part of the area included within the leasehold estate is formally designated by Congress as Wilderness, exploration and development operations taking place or to take place on the part of the lease will remain subject to the requirements of this stipulation, except as modified by the Act of Congress designating the land as Wilderness. If Congress does not specify in such act how existing leases like this one will be managed, then the provisions of The Wilderness Act of 1964 will apply, as implemented by rules and regulations promulgated by the Department of the Interior.

APPENDIX G

POLICY ON DISPOSAL OF LANDS AND MINERALS

Generally, a mining claim of record under Section 314 of FLPMA prevents an exchange or sale. Experience has revealed that, under certain circumstances, it may be appropriate to dispose of land and minerals under Sections 203, 206, and 209 of FLPMA, subject to existing mining claims.

It is the policy of the BLM to avoid splitting ownership of surface and mineral estates. If there are "known mineral values," as defined in 43 CFR 2720.0-5, and the land is under mining claim, the surface should be retained in Federal ownership, or the mining claim(s) examined for validity, and contested if appropriate, if there is compelling public interest to do so.

In most cases, the BLM will conduct a validity examination and, if appropriate, initiate contest action against the mining claim(s) prior to disposal whenever feasible. However, when it is not feasible to administratively determine the validity of mining claims encumbering the land, the BLM may proceed with the sale or exchange of both the surface and mineral estate, subject to the existing mining claim(s), if:

1. The land meets the criteria for disposal as determined through land use planning, and

2. The land has no "known mineral value" as determined by a BLM geologist or mining engineer, and

3. The prospective patentee is willing to accept defeasible title, preserving whatever rights the mining claimant may have. Conveyance of the surface and mineral estate would be subject to "existing mining claim(s)," allowing the mining claimant to apply for and receive full fee patent if a valid discovery were made prior to the date of transfer under Sections 203, 206, or 209, or alternatively, receive patent to the mineral estate only if discovery were made after the original conveyance.

Although a mineral examination to determine the validity of the claim is not required, a "mineral value" determination must be made following a field reconnaissance by a BLM mineral examiner. If professional judgement concludes that the land does not contain "known mineral values," the surface and subsurface estate may be conveyed, subject to the existing mining claim(s).

The BLM will proceed with a sale or exchange only after reasonable efforts have been made to secure relinquishment of the mining claim(s). If the mining claimant opposes the action, the Notice of Realty Action (NORA) protest procedures would apply.

For a direct sale or an exchange, the proponent must be informed early and fully of the potential title conflicts and rights of the mining claimant under the law. The BLM should then proceed only if these conditions are acceptable to the proponent. For a proposed competitive sale, the field office must carefully consider the effect on sale price, likelihood of success, and interests to be served if the sale is made subject to the rights of the mining claimant. If it is clearly in the public interest to proceed, the BLM must secure purchaser waiver of any liability against the United States in the event of subsequent title litigation.

The FLPMA patentee is believed to have standing to bring private contest (43 CFR 4.450) against the mining claim(s). Should he or she do so, the burden is upon that person to prove lack of discovery. If successful or if the claims are abandoned or relinquished, the land would not be open to further location, in that the mineral estate would not have been reserved by the Federal government.

Mining claim locations and mineral leases for lands in which the surface title has passed under FLPMA disposal authority may only be made after regulations providing for such locations or leasing have been promulgated. Because these regulations have not as yet been issued, lands disposed of under FLPMA will be subject to de facto withdrawal.

All minerals must be reserved if the Federal lands are conveyed out of Federal ownership pursuant to FLPMA disposal authority, except in the limited instances that follow:

1. Sales
   a. If the public lands proposed for sale are determined to have "known mineral values" for locatable, leasable, or saleable minerals, one of the following courses of action may be taken:

(1) Reject the offer to purchase or cancel the offer of sale.

(2) Dispose of the surface estate and reserve all of the mineral interests to the United States.

(3) Dispose of the surface estate and convey all or less than all of the mineral interests under the terms set forth in Section 209(b) of FLPMA.

b. If the lands have no "known mineral values," the mineral interests will be disposed of simultaneously with the disposal of the surface estate under authority of Section 209(b) of FLPMA.

2. Exchanges

a. Public lands which do not have "known mineral values" may be offered in exchange without any mineral reservation. This will apply whether or not the non-Federal party in an exchange controls the minerals under his or her land.

b. If the public lands have some potential for mineral development, reserving the mineral interests is not mandatory as long as the values can be equalized by the payment of money and so long as the payment does not exceed 25 percent of the total value of the land.

In any case, normally it is desirable to keep surface and mineral ownership together in an exchange, whenever possible, to eliminate future problems associated with split estate ownership.

c. If the public lands in an exchange are determined to have "known mineral values" for locatable, leasable, or saleable minerals, it may be in the public interest to cancel the offer, depending upon the significance of the deposits. The leasable minerals alone can be reserved if significant.

APPENDIX H

LANDSAT WOODLANDS CLASSIFICATION

As addressed in the MSA, no specific woodland inventories or surveys have been conducted in the fuelwood supply issue area (see Map 1-6). To derive a data base from which the issue question could be addressed, a remote sensing survey was produced by BLM's Denver Service Center (DSC) and is contained in the MSA. Criteria were established using woodland inventory guidelines, as outlined in Instruction Memorandum NM-83-103 (USDI, BLM 1983d), adapting them to knowledge of the pinyon-juniper stands in the issue area.

DSC utilized Landsat satellite data to produce a vegetative image of the RPRA in the form of a digital computer image. This image defined vegetation by spectral classes. Each spectral class was reviewed by the RPRA's Forestry Resource Specialist for adequacy. Depending on the size of the spectral class, a sample of photo interpretation plots was established to further verify and refine the vegetative spectral classification.

Two major classification criteria of pinyon-juniper were established by the RPRA based on percent composition/density. Stands were to be identified in areas where pinyon-juniper density is greater than or equal to 21 percent, as well as in areas where pinyon-juniper stand density is greater than 16 percent but less than 21 percent. These two major classifications were further broken down by slope and elevation criteria. Table H-1 shows the eight classifications of the Landsat data:

The established pinyon-juniper classification criteria were applied to the Landsat spectral class data. A computer run produced a digital pinyon-juniper atlas map based on the established pinyon-juniper criteria. Landsat mapping was to the nearest ten acres. The resulting pinyon-juniper map produced by DSC is reliable within the accuracy of the Landsat vegetative spectral classification. More specific detail about the Landsat survey can be obtained from the RPRA or DSC.

Based on recommended silvicultural spacing guidelines for pinyon-juniper stands, the 21 percent or greater density stands (Classes I-IV) would be considered dense enough to be further evaluated for potential fuelwood management through activity planning. The greater than 16 percent but less than 21 percent density stands are considered capable of yielding a limited quantity of fuelwood or other forest products (Classes V-VIII). Pinyon-juniper stands of less than 16 percent composition/density were considered under-stocked and not capable of producing fuelwood. All pinyon-juniper stands need to be evaluated for site potential. Those of low site quality should be dropped from woodland management consideration.

A slope criterion was applied to the pinyon-juniper classification to further define areas where woodlands could be managed. A breaking point of 20 percent was used to avoid possible erosion problems and estimate areas where vehicle access would be possible. Twenty percent or less slope (Classes I, III, V, and VII) is thought to define areas where access would be possible and erosion minimal. The greater than twenty percent slope areas (Classes II, IV, VI, and VIII) are considered too steep for home-use wood cutting but may have potential for commercial harvest operations.

The last criterion established in formulating pinyon-juniper cutting areas is elevation. Pinyon-juniper stands at or above 7000' elevation (Classes I, II, V, and VI) were assumed to be the more productive woodland sites due to increased moisture. Stands below 7000' (Classes III, IV, VII, and VIII) may have potential for fuelwood but would have to be evaluated on a case-by-case basis.

Due to the limited stand data on pinyon-juniper in the RPRA the "area regulation method" of forest management has been used to estimate possible sustained yield acres. Actual yields will vary each year depending on the site to be harvested.

TABLE H-1

PINYON-JUNIPER CLASSIFICATION CRITERIA

Class	Percent Pinyon-Juniper	Percent Slope	Elevation
I	≥21	≤20	≥7000'
II	≥21	>20	≥7000'
III	≥21	≤20	<7000'
IV	≥21	>20	<7000'
V	>16<21	≤20	≥7000'
VI	>16<21	>20	≥7000'
VII	>16<21	≤20	<7000'
VIII	>16<21	>20	<7000'

APPENDIX I

RECREATION OPPORTUNITY SPECTRUM

INTRODUCTION

The Recreation Opportunity Spectrum (ROS) (BLM Manual 8320) provides a framework for stratifying and defining classes of outdoor recreation opportunity environments. As conceived, the ROS has application to all lands, regardless of ownership or jurisdiction.

Recreation opportunities can be expressed in terms of three principal components: the activity, the setting, and the experience. Possible mixes of activities, settings, and recreation experience have been arranged along a spectrum or continuum, ranging from primitive to urban (see Table I-1). Rural and Urban recreation opportunities are not relevant to the public land in the RPRA and are not discussed in this appendix.

RECREATION OPPORTUNITY SPECTRUM MANAGEMENT OBJECTIVES

ROS management objectives are defined below.

Primitive Zone

The primitive zone is managed to be essentially free from evidence of man, man-induced restrictions, and controls. Motorized vehicle use within the area is not permitted. The area is managed to maintain an extremely high probability of experiencing isolation from the sights and sounds of others (not more than 3-6 group encounters per day), independence, closeness to nature, self-reliance through the application of backcountry skills, and an environment that offers a high degree of challenge and risk.

Backcountry use levels and management of renewable resources are dependent on maintaining natural ecosystems and primitive experience levels. The consumption of renewable resources is subject to the protection of backcountry recreational values. Grazing is allowed, subject to restrictions placed on the use of motorized vehicles. Recreational activities occurring in this zone include backpacking, hiking, camping, swimming, horseback riding, and nature study.

Frequency of managerial contact with users is very low.

Semi-Primitive Non-Motorized

Semi-primitive non-motorized areas are managed to be largely free from the evidence of man, man-induced restrictions, and controls. Motorized vehicle use is prohibited. Limited facilities for the administration of livestock and visitor use are allowed, but off-site administration is encouraged. Project designs should stress protection of natural values. Areas are managed to maintain a good probability of experiencing minimum contact with others, self-reliance through the application of backcountry skills, and an environment that offers a degree of risk and challenge.

Backcountry use levels and management of renewable resources are dependent on maintaining ecosystems comparable to naturally-occurring ecosystems. The consumption of renewable resources is subject to the protection of backcountry recreational values. Grazing is allowed, subject to restrictions placed on use of motorized vehicles. Facilities associated with grazing are limited to those necessary for maintaining existing numbers, adequate distribution, and seasons of use, consistent with the allotment management plans. Recreational activities occurring in this zone include climbing, backpacking, hiking, picnicking, viewing scenery, camping, horseback riding, and nature study.

Frequency of managerial contact with users is low.

Semi-Primitive Motorized

Semi-primitive motorized areas are managed to provide a predominantly natural or naturally-appearing environment. Evidence of man, restrictions, and controls are present but subtle. Motorized vehicle use is permitted. Concentration of users is low, but there is often evidence of other users. On-site interpretive facilities, low standard roads and trails, trailheads, and signing should stress the natural environment in their design and be the minimum necessary to achieve objectives.

The consumption of natural resources is allowed. In the review of plans of operations, utility corridors, rights-of-way, and other surface disturbing projects, effort is taken to reduce their

TABLE I-1

SETTING OPPORTUNITY

	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
Remoteness Criteria	At least 3 miles from all roads or railroads.	At least 1/2 mile from all roads or railroads.	Within 1/2 mile of primitive roads and at least 1/2 mile from better than primitive roads.	Within 1/2 mile of better than primitive roads or railroads.	No distance criteria	No distance criteria
Size Criteria	5000 acres*	2500 acres*	2500 acres**	No size criteria.	No size criteria.	No size criteria.
Evidence of Human Use	Unmodified natural environment; surface disturbance rare and small; trails OK--no roads; structures small and rare.	Setting may have subtle modifications; surface disturbance limited and small; little or no evidence of primitive roads or motorized use; small isolated structures may be present.	Setting may have subtle modifications; surface disturbance limited and small; primitive roads and motorized use is present; small isolated structures may be present.	Moderate evidence of human modification harmonious with landscape; surface modification common; roads and highways present; structures scattered and visually subordinate; recreation facilities small and rustic.	Setting substantially modified; surface modifications typical; roads and highways present; cultivated lands common; structures readily apparent, small dominant clusters, developed recreation facilities.	Natural setting. subordinate to cultural modified landscape; surface modification extensive; roads, highways, parking areas for intensive use; structures and complexes dominant--towns, industry, resorts, etc.
Social Setting	Less than 6 parties encountered on trail per day; less than 3 parties visible at campsite; little evidence of previous recreation use.	6-10 parties encountered on trail per day; less than 6 parties visible at campsite; limited evidence of previous recreation use.	Low to moderate frequency of contact.	Frequency of contact is moderate in developed sites and on roads; low to moderate elsewhere.	Frequency of contact is moderate to high in developed sites and on roads and trails; moderate elsewhere.	Large numbers of users on-site and in nearby areas.
Managerial Setting	No on-site controls--only off-site; on site facilities resource protection only; no facilities for user convenience or safety.	Off-site controls preferred--on-site controls subtle; facilities are avoided but may be provided for resource protection or user safety.	On-site controls present but subtle; facilities for resource protection and user safety; law enforcement occasionally visible.	On-site controls noticeable but harmonious with natural environment; rustic facilities for user convenience and resource protection; law enforcement occasionally visible.	On-site controls obvious and numerous; facilities widely available for user convenience, safety, special activities, and resource protection. Law enforcement moderately visible.	On-site controls numerous; facilities for intensive use and special activities provided; law enforcement highly visible.

* May be smaller if adjacent to semi-primitive non-motorized class.
** May be smaller if adjacent to primitive class.

impacts on the natural environment. Recreational activities occurring in this zone include car camping, ORV touring, backpacking, hiking, horseback riding, nature study, and viewing scenery.

Frequency of managerial contact with visitors is low to moderate on trails and primitive roads.

Roaded Natural

Roaded natural areas are managed to provide a naturally-appearing environment with moderate evidences of the sights and sounds of man. Motorized use is permitted. Concentration of users is moderate with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Development of facilities for motorized use is provided for in any proposed construction standards and design of facilities.

Placement of rights-of-way, utility corridors, management facilities, and other surface disturbing activities would be favored in this zone over placement in primitive or semi-primitive non-motorized zones when applicable. The consumption of natural resources is allowed except at any proposed or developed trailheads, developed recreation areas, and geological features interpreted as major themes. Recreational activities occurring in this zone include organized camping (developed recreational facilities), ORV touring, picnicking, trailer camping, rockhounding, nature study, and viewing of historical and prehistoric resources. Staging areas for backcountry use and for interpretation of geological features occur in this zone.

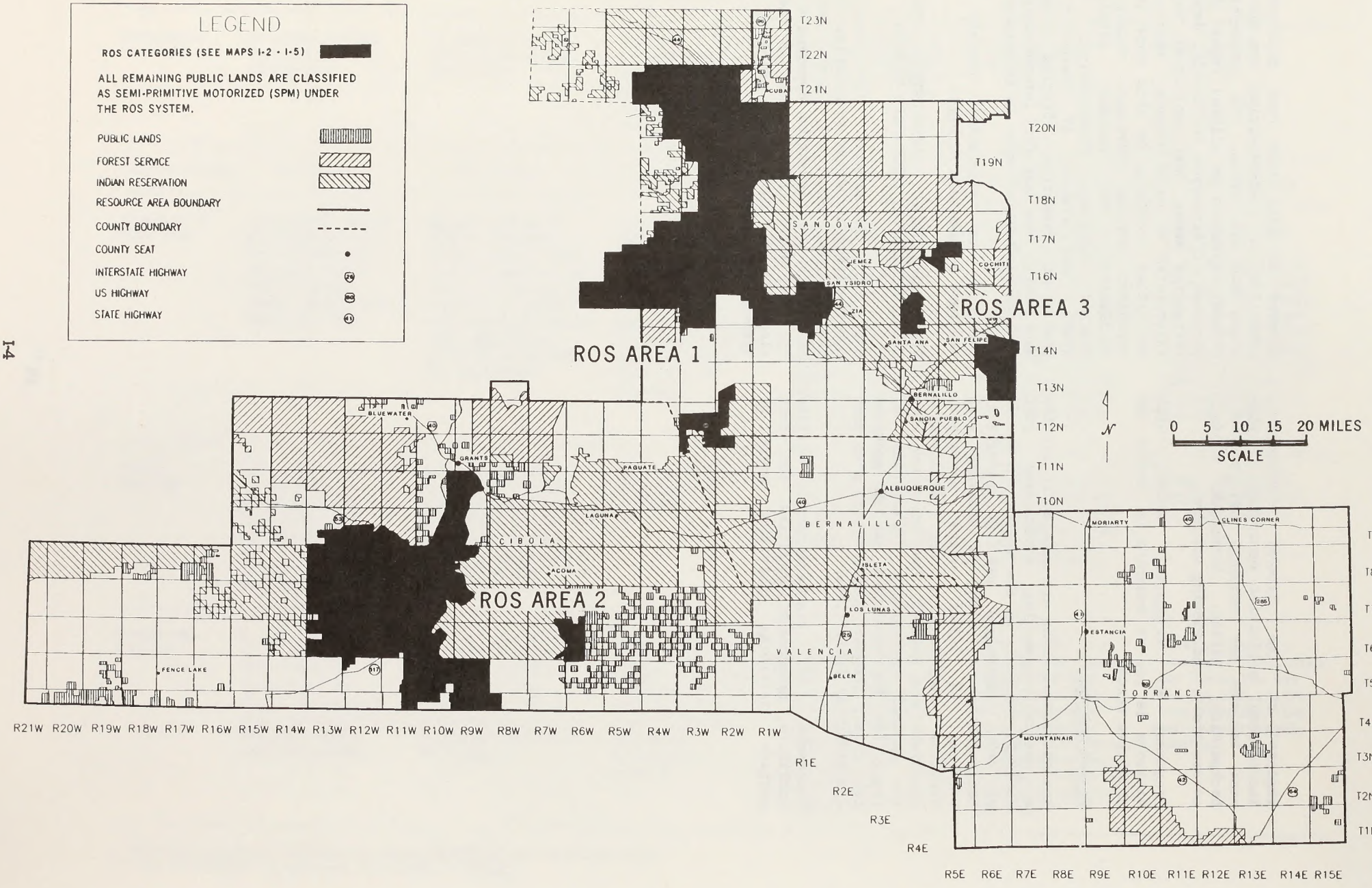
Frequency of managerial contact with visitors is moderate to high.

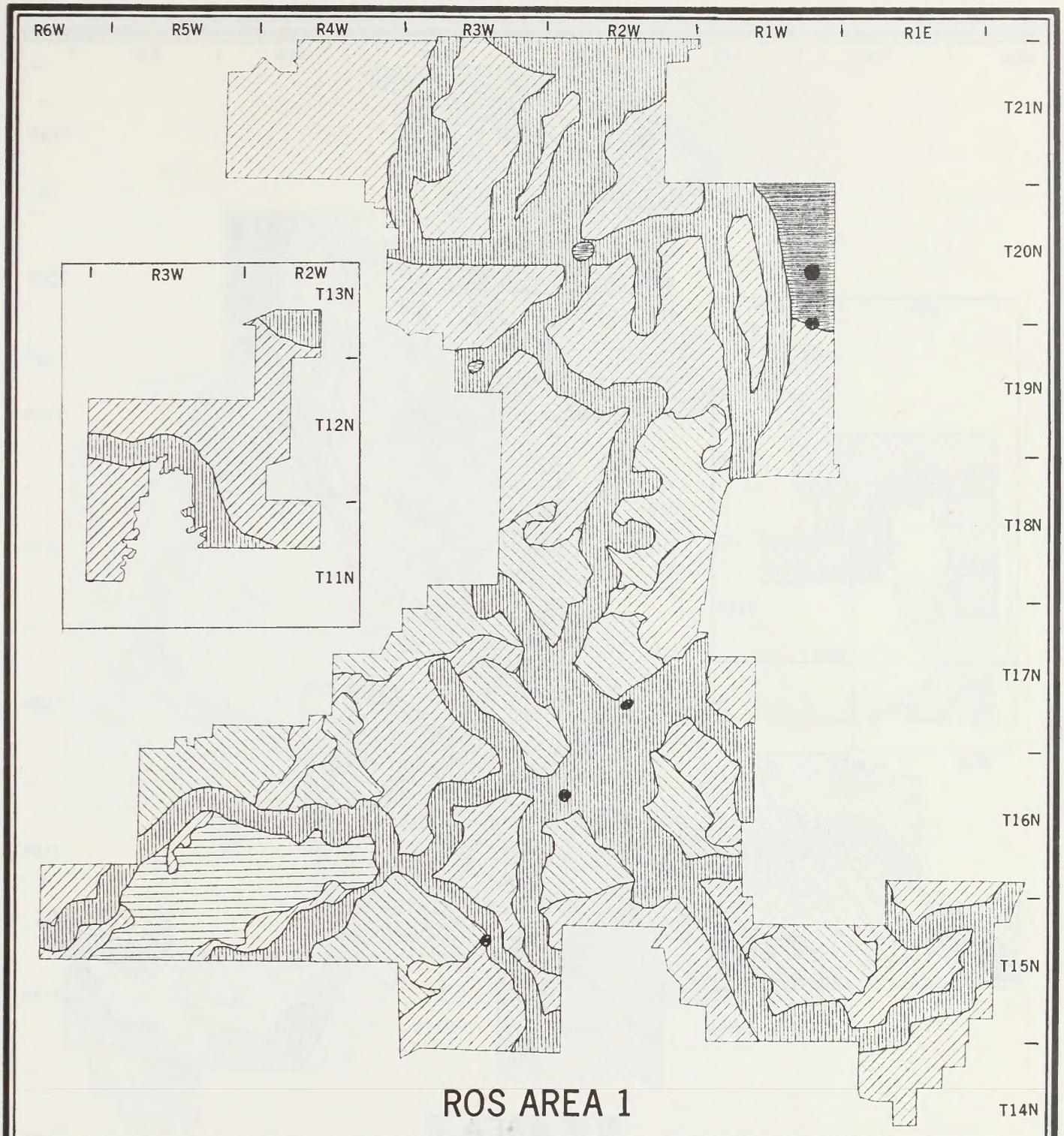
RPRA RECREATION OPPORTUNITY SPECTRUM: CURRENT INVENTORY & PROPOSED CHANGES

Map I-1 illustrates the recreation opportunities currently inventoried for the RPRA. Maps I-2, I-3, I-4, and I-5 illustrate how recreation opportunities in the RPRA would shift because of the road closures and limitations proposed under Alternatives B and D.

MAP I-1

RECREATION OPPORTUNITY SPECTRUM (ROS) GENERAL LOCATION MAP





MAP I-2
RECREATION OPPORTUNITY SPECTRUM AS PROPOSED IN ALTERNATIVES B & D

URBAN

RURAL

ROADED NATURAL

SEMI-PRIMITIVE MOTORIZED

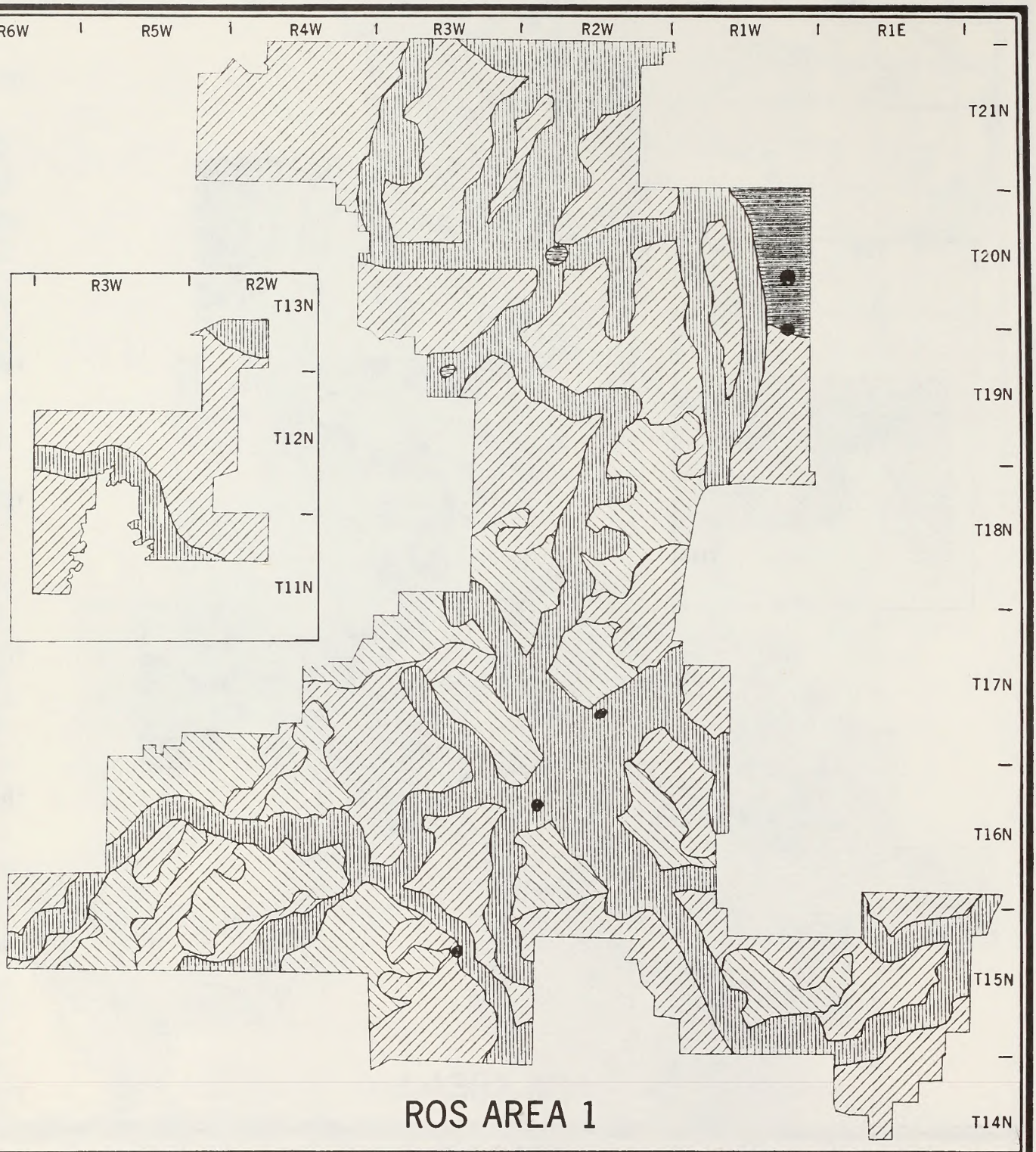
SEMI-PRIMITIVE NON-MOTORIZED

PRIMITIVE

N

0 5 10 MILES

SCALE



MAP I-3
RECREATION OPPORTUNITY SPECTRUM CURRENT INVENTORY

URBAN

RURAL

ROADED NATURAL

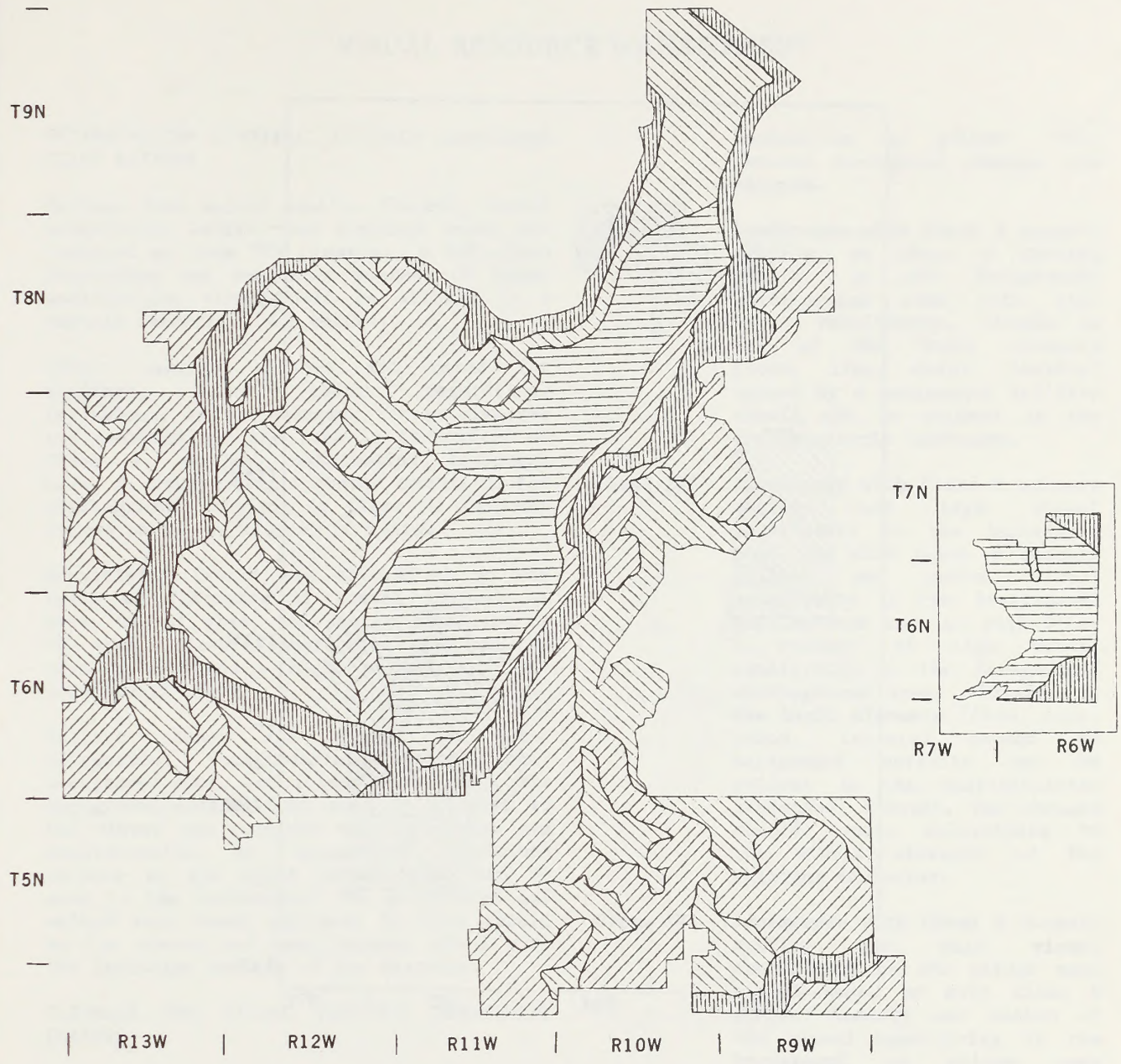
SEMI-PRIMITIVE MOTORIZED

SEMI-PRIMITIVE NON-MOTORIZED

N

0 5 10 MILES

SCALE



ROS AREA 2

MAP I-4
RECREATION OPPORTUNITY SPECTRUM INVENTORY CURRENT AND PROPOSED

ROADED MATURAL

SEMI-PRIMITIVE NON-MOTORIZED

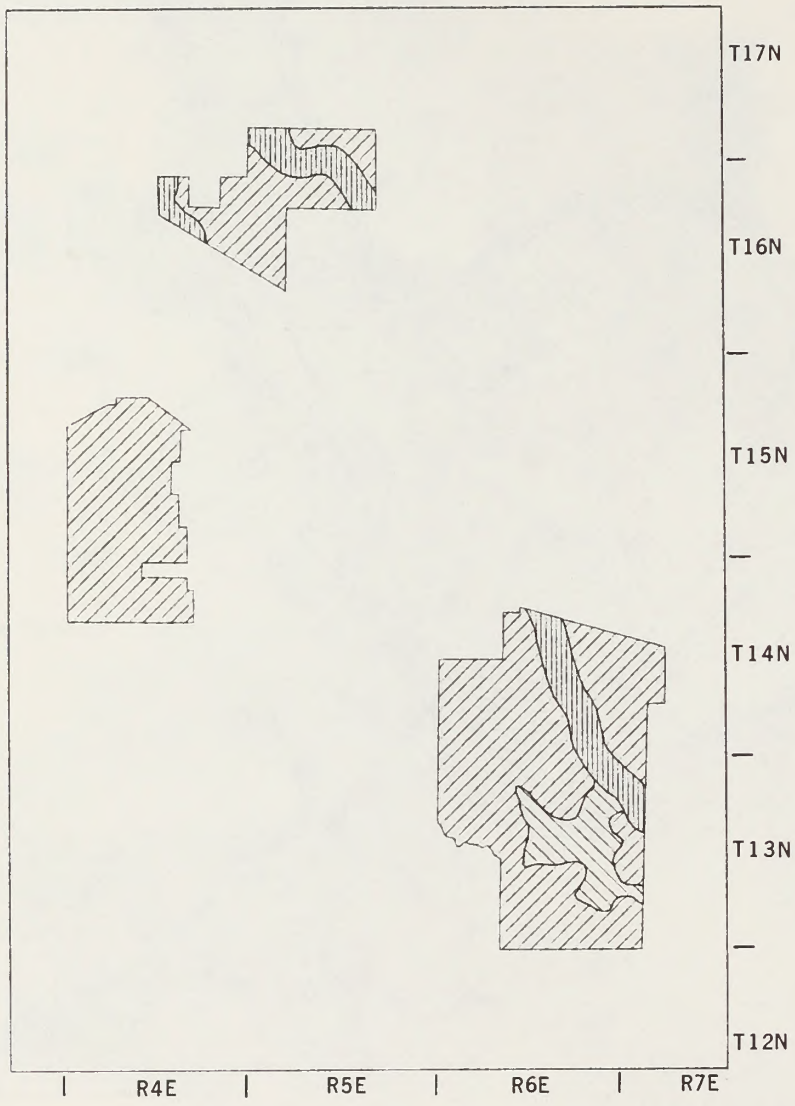
SEMI-PRIMITIVE MOTORIZED

PRIMITIVE

N

0 5 10 MILES

SCALE



ROS AREA 3

MAP I-5
RECREATION OPPORTUNITY SPECTRUM INVENTORY
CURRENT AND PROPOSED

ROADED NATURAL

SEMI-PRIMITIVE MOTORIZED

SEMI-PRIMITIVE NON-MOTORIZED

N

0 5 10 MILES

SCALE

APPENDIX J

VISUAL RESOURCE MANAGEMENT

DETERMINATION OF VISUAL RESOURCE MANAGEMENT CLASS RATINGS

Ratings from scenic quality classes, visual sensitivity levels, and distance zones are combined to form VRM classes. A VRM class identifies the suggested degrees of human modification that should be allowed in a certain landscape (see below).

Scenic quality classes are rated for landform, water, color, vegetation, intrusions, and uniqueness. These elements are combined and the area is classified as Class A, unique, outstanding features; Class B, outstanding features common to the physiographic region; or Class C, features common to the physiographic region.

Sensitivity levels are determined on the basis of frequency of travel through an area, use of area, and public knowledge of the area. These elements are rated and the area is assigned a high, medium, or low sensitivity level.

Distance zones are placed in three categories: foreground/middleground zone, background zone, and seldom seen zone. The foreground/middleground zone is closest to the viewer and requires more attention and consideration in management decisions because of the great detail that can be seen in the landscape. The background and seldom seen zones are seen in less detail by the viewer and most impacts blend with the landscape because of the distance.

CRITERIA FOR VISUAL RESOURCE MANAGEMENT CLASSES

This portion of the appendix defines the Visual Resource Management classes (see Map J-1) and how visual class ratings are developed.

Class I — Applies only to classified special areas, e.g., Roadless, Wilderness, Primitive, and Natural Areas. This quality standard is established through legislation or policy. Only natural ecological changes are allowed.

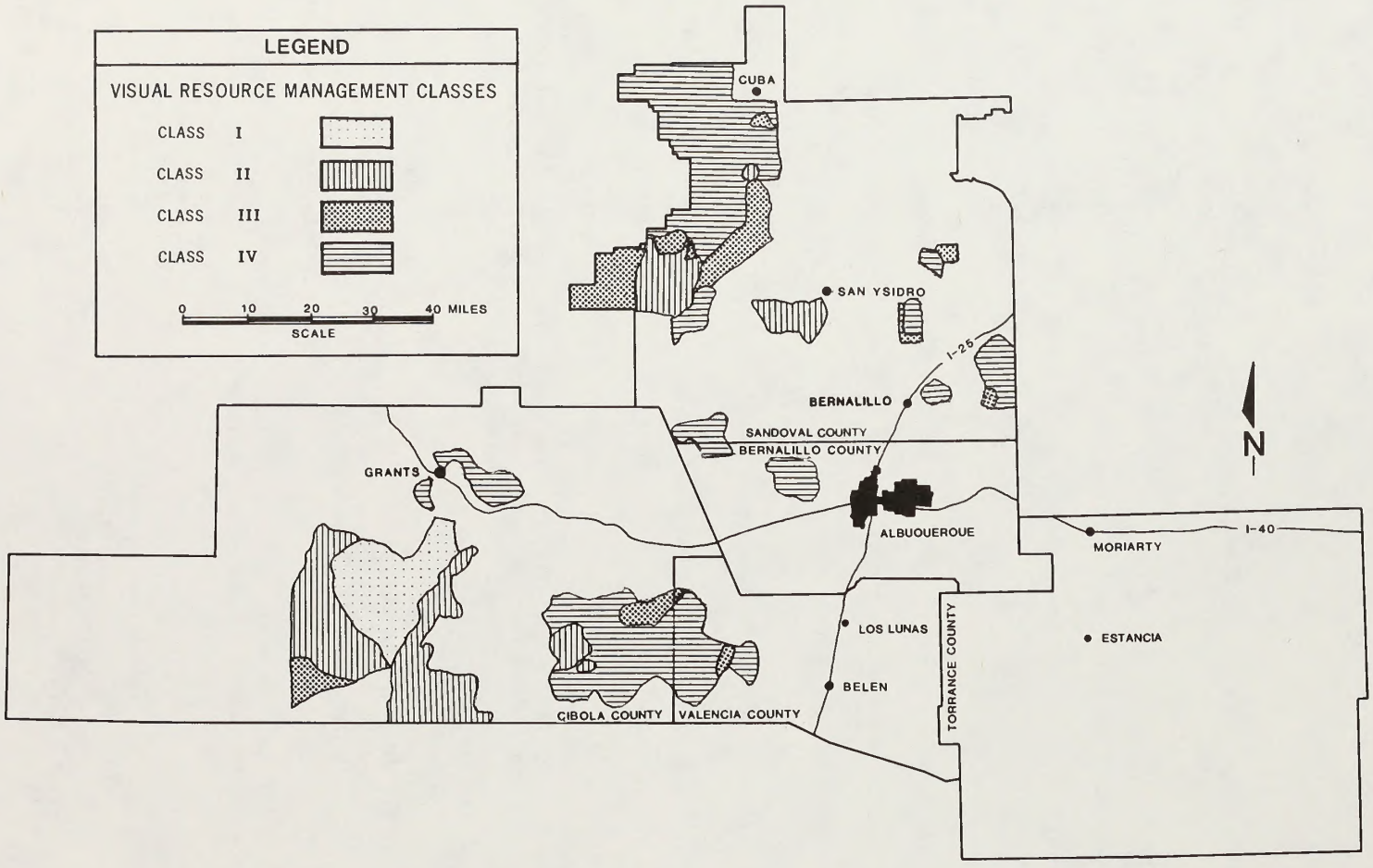
Class II — Landscapes with Class A scenery quality, or Class B scenery quality in the foreground/middleground zone with high visual sensitivity. Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape.

Class III — Landscapes with Class B scenery quality and high visual sensitivity in the background zone, or with Class B scenery quality and medium visual sensitivity in the foreground/middleground zone or with Class C scenery of high visual sensitivity in the foreground/middleground zone. Changes in the basic elements (form, line, color, texture) caused by management activity may be evident in the characteristic landscape; however, the changes should remain subordinate to the visual strength of the existing character.

Class IV — Landscapes with Class B scenery quality and high visual sensitivity in the seldom seen visual zone, or with Class B scenery quality and medium or low visual sensitivity in the background or seldom seen zones, or with Class C scenery quality (except with high sensitivity in the foreground/middleground zone). Changes may subordinate the original composition and character but must reflect what could be a natural occurrence within the characteristic landscape.

MAP J-1

VISUAL RESOURCE MANAGEMENT



APPENDIX K

CULTURAL RESOURCES CLASSES, GOAL SYSTEM, AND USE CATEGORIES

CULTURAL RESOURCE SITE CLASSES

These are arbitrary management classifications of all known (and projected) archeological sites in the RPRA, both prehistoric and historic, into four roughly chronological classes that parallel traditional Southwestern cultural distinctions, together with an unknown category class. (1) PaleoIndian (approximately 9500 B.C. to 5500 B.C.) primarily characterized by big game hunting (mastodon, mammoth, and a now extinct form of bison). This hunting subsistence pattern is reflected in a complex series of distinct stone projectile points and related stone tool assemblages; (2) Archaic (5500 B.C. to A.D. 400)--primarily characterized by the hunting of small game and gathering of vegetable foods with a shift late in this period to beginnings of farming; (3) Pueblo (A.D. 400 to 1539, the year Spanish explorers first arrived)--characterized by the appearance of basketmaking early in the period, then pottery making, and later an increased emphasis on farming; (4) Historic (A.D. 1540 to present) characterized by Spanish colonization, Mexican influence, and Hispanic and Anglo development; and (5) an Unknown class which contains sites from all of the other classes which have no associated diagnostic materials which would allow assignment to one of the other classes (see Table K-1).

CULTURAL RESOURCE MANAGEMENT GOAL SYSTEM

The major cultural resource program input into the RMP process defines and formulates use allocation recommendations for specific cultural resource Special Management Areas, specifying long-term management goals for the use and maintenance of the resource base, and identifying, where appropriate, specific types of actions required for implementation. Management goals appropriate to the land use planning level are general in nature and normally do not call for specific on-the-ground actions (see Figure K-1). Goal categories are consistent with program directives calling for management for scientific and socio-cultural values. Three goal categories have been incorporated into this planning effort: (1) Management for Socio-Cultural Considerations, (2) Management for Conservation, and (3) Management for Scientific Value (See Table K-1).

Management for Socio-Cultural Considerations

The goal of this category is the management of sites, locations, features, and objects identified as having attributes which contribute to maintaining the heritage, belief systems, folkways, and existence of a social and/or cultural group. Considerations for management in this category also include access to and maintenance of locations, sites, features, and objects of traditional religious or spiritual value; use and possession of sacred objects; and the freedom to worship through ceremonials and other traditional rites.

Management for Conservation

The goal of this category is the management of areas, sites, locations, districts, or features by removing them from consideration for scientific or historic study which would result in their physical alteration. Properties managed under this goal could also possess one or more of these attributes: uniqueness or relative scarcity of type, class, condition, affiliation; research potential that surpasses current state of the art; or singular historic importance or architectural interest. Such cultural resource properties would remain in this category until specified provisions are met in the future.

Management for Scientific Value

The goal of this category is the management of cultural properties so that they would remain suitable for consideration as the subject of scientific or historical study utilizing research techniques currently available. Such study could, if warranted by an approved research design, result in the controlled physical alteration of that property. A cultural property in this category need not necessarily be conserved in consideration of an approved research or data recovery (mitigation) proposal.

Management under this category could allow controlled experimental study which could also result in physical alteration to the

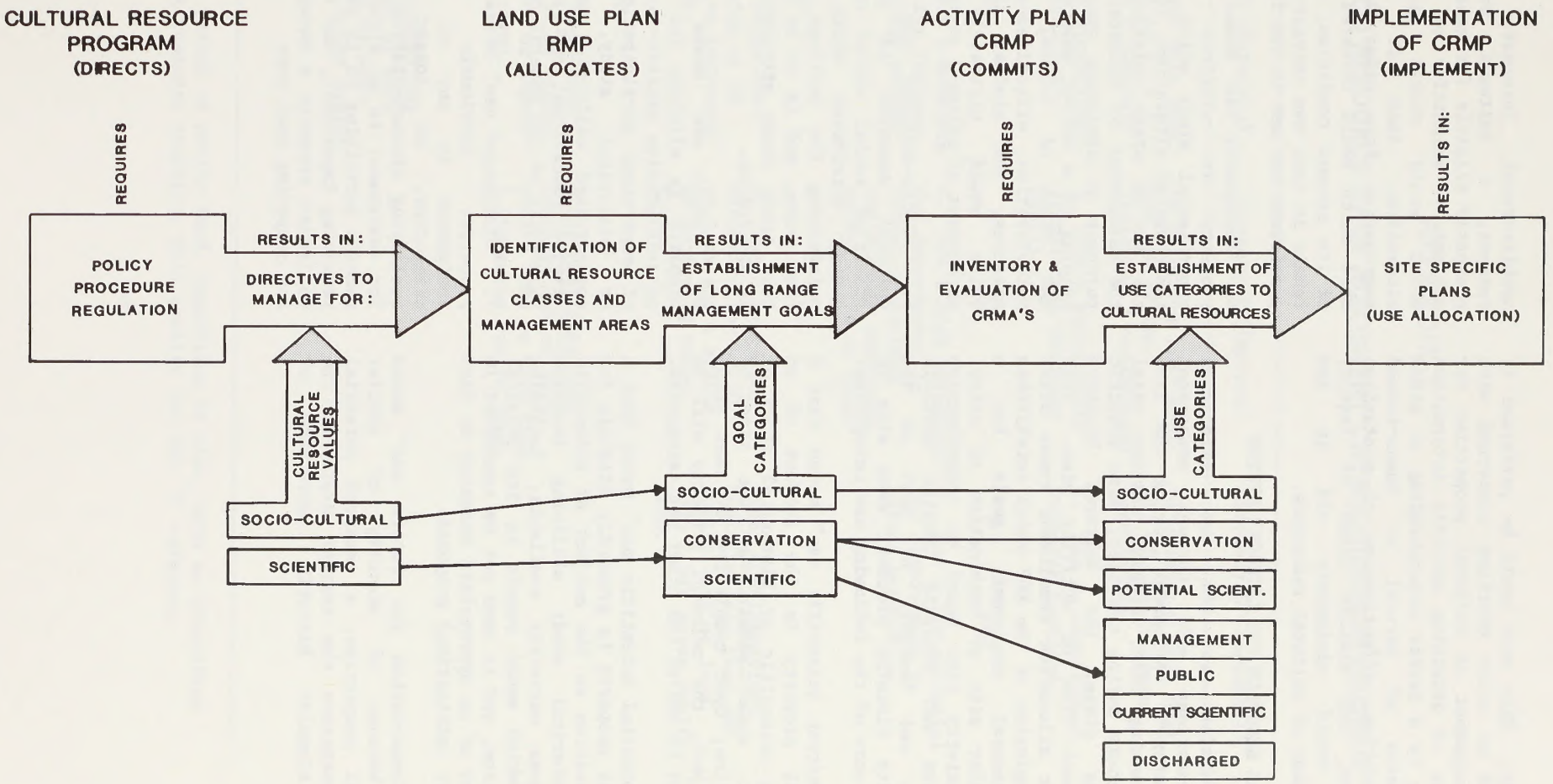
TABLE K-1

SITE CLASSIFICATION MANAGEMENT GOAL SUMMARY

Site Classification Type	Summary	Management for Socio-Cultural Considerations	Management for Conservation	Management for Scientific Value	Rationale
PaleoIndian	Little known Little understood Poorly represented in inventory	*	So little is known about Paleo sites in New Mexico that a conservation goal orientation is most appropriate	In order to evaluate such sites, this goal category is necessary	So little is known that any site in this class should receive special attention. This class not well represented by known sites.
Archaic (26%)	Poorly known Well represented in inventory	*	A substantial percentage of this class of site must be "conserved" until more sophisticated analysis/techniques are available.	In order to evaluate such sites, this goal category is necessary.	This class is well represented but poorly understood. Traditionally a class "lumped" together because of a lack of diagnostic materials, but undoubtedly comprised of a full time range of materials.
Pueblo (57%)	Poorly known Well represented in inventory	*	A substantial percentage of this class of site must be "conserved" un-until more sophisticated analysis/techniques are available.	In order to evaluate such sites, this goal category is necessary.	This class is well represented with some "traditional" understanding. This class will contain sites falling into all three major goal categories.
Historic (7%)	Well known Well represented in inventory	*	Very few sites of this class are likely to fit into this goal category.	Some Scientific and/or historic value contained in these sites.	The scientific goal category will allow sites in this class to remain suitable for both scientific and public uses.
Unknown (8%)	Should diminish as more information and new identification techniques are developed.	*	Very few sites of this class are likely to fit into this goal category.	This class of site has a full range potential suggesting this goal category is appropriate since range of uses is possible.	As information becomes available every reasonable effort should be made to assign such a site to one of the other classes. In the interim, treatment in the scientific goal category will allow maximum flexibility yet provide for adequate protection.

* Any site identified as having socio-cultural value regardless of class will fall within this goal category. Many such "sites" will contain multiple components, that is sites from other time periods that in addition to such value also contain socio-cultural values. Such sites/locations will be managed for both values.

FIGURE K-1
PLANNING FOR CULTURAL RESOURCES



property. This work could be performed by the BLM or other entities concerned with the management of cultural properties for purposes of obtaining specific information leading to a better understanding of kinds and rates of natural or human-caused deterioration, effectiveness of protection measures, and similar lines of inquiry which would ultimately aid in the management of cultural resources.

CULTURAL RESOURCE USE CATEGORY SYSTEM

In addition to the use allocation recommendations made through management goal category assignment during the land use planning (RMP) stages, another vital step occurs during the next, more specific planning stage, the Cultural Resource Management Plan or activity plan. This step or allocation commitment comes after the completion of the RMP which establishes the general management goals for a particular site or combination of sites. The activity plan based on comprehensive inventory and analysis commits specific actions and assigns, as part of the acitivity planning process, each site to one or more of the following use categories.

1. "Current scientific use" means that a cultural property is the subject of an ongoing scientific or historical study or project, under permit, at the time of evaluation; upon completion of that study or project, the cultural property will be assigned to one of the other use categories.

2. "Potential scientific use" means that a cultural property is presently eligible for consideration as the subject of scientific or historical study utilizing research techniques currently available, including study which would result in its physical alteration, and it need not be conserved in the face of an appropriate research or data recovery (mitigation) proposal.

3. "Conservation for future use" means that because of scarcity of similar cultural properties, a research potential that surpasses the current state of the art, singular historic importance or architectural interest, or comparable reasons, a cultural property is not presently eligible for consideration as the subject of scientific or historical study which would result in its physical alteration, that it is worthy of segregation from other land or resource uses which would threaten the maintenance of its present condition, and that it will remain in this use category until specified provisions are met in the future.

4. "Management use" means that a cultural property is eligible for controlled experimental study which would result in its physical alteration, to be conducted by the BLM or other entities concerned with the management of cultural properties, for purposes of obtaining specific information leading to a better understanding of kinds and rates of natural or human-caused deterioration, effectiveness of protection measures, and similar lines of inquiry which would ultimately aid in the management of cultural properties.

5. "Socio-cultural use" means that a cultural resource is perceived by a specified social and/or cultural group as having attributes which contribute to maintaining the heritage or existence of that group, and is to be managed in a way that takes those attributes into account, as applicable.

6. "Public use" means that a cultural property is eligible for consideration as an interpretive exhibit-in-place, a subject of supervised participation in scientific or historical study, a subject of unsupervised collecting under permit, or related educational and recreational uses by members of the general public.

7. "Discharged use" means that a cultural property, previously qualified for assignment to any of the first six categories, no longer possesses the qualifying characteristics for that use or for assignment to an alternative use, that records pertaining to it represent its only remaining importance, and that its location no longer presents a management constraint for competing land uses.

APPENDIX L

RIO PUERCO RESOURCE AREA ALLOTMENT CATEGORIZATION CRITERIA

Category M (Maintain)	Category I (Improve)	Category C (Custodial)
An allotment must meet conditions 1, 2, & 3 or 1, 2, & 4 (below):	An allotment must meet any one of the following 3 conditions:	An allotment must meet all of the following conditions:
1. Has no significant resource conflicts.	1. Has a potentially significant resource conflict.	1. Has no significant resource conflict.
AND	OR	AND
2. Has only a moderate potential for improvement in forage production.	2. Has a high potential for improvement in forage production and a range condition rating of 50 or less.	2. Has a low potential for improvement in forage production
AND	OR	
3. Has a range condition rating of 38 to 51 and an improving range trend.	3. Has a range condition rating of 50 or less and a static or declining range trend.	OTHER CONSIDERATIONS Contains less than 30% public land or less than 1,540 acres public land.
AND		
4. Has a range condition of 51 or higher and a static or improving range trend.	OTHER CONSIDERATIONS Contains 30% or more public land or more than 1,540 acres public land.	
OTHER CONSIDERATIONS Contains 30% or more public land or more than 1,540 acres public land.		

NOTE: Any parcel of public land, regardless of size, with an identified significant resource conflict, will qualify for the "I" category.

APPENDIX M

RESOURCE CONFLICTS FOR "I" ALLOTMENTS

Allotment Number	Name	Conflicts*
0110	Agua Salado	1, 3
0111	Canada Alamos	1, 3, 4
0112	Pino Spring	1, 3, 4
0113	Cocina	1, 3, 4
0116	Canada del Ojo	1, 3, 4
0122	Tent Rocks	1, 4
0123	Peralta	1, 4
0124	Santa Ana Mesa	1, 4
0066	La Jara	1, 2, 4

* Identified Resource Conflicts:
1. Noncritical big game, small game and non-game habitat
2. Critical big game habitat (elk winter range)
3. Critical Watershed Area (high surface runoff and sediment yields)
4. Unacceptable ecological condition (present levels of livestock grazing use may exceed allowable vegetative production)

APPENDIX N

RANGELAND IMPROVEMENTS

INTRODUCTION

The following is a discussion of typical design features and construction practices for the rangeland improvements and treatments which would be considered when implementing Alternatives B, C, or D of this RMP. There are many special design features not specifically discussed in this appendix that can be made part of a project's design. One example of a special design feature would be the use of a specific color of fence post to blend with the surrounding environment and thereby mitigate some of the visual impact of the fence. These mitigating design features would be developed, if needed, for individual projects at the time an environmental assessment is written.

STRUCTURAL IMPROVEMENTS

Fences

Fences would be constructed to divide allotments into pastures and to control livestock. Most fences would be of three or four wires with steel posts spaced sixteen and one-half feet apart with intermediate wire stays. Where fences may impair the movement of wildlife, they would be no more than 42 inches in height and the top two strands would be at least 12 inches apart, with the bottom wire smooth and at least 16 inches above the ground. Where appropriate on key big game areas, the top wire would also be smooth. Existing fences which create wildlife movement problems would be modified. Proposed fence lines would not be bladed or scraped. Gates or cattleguards would be installed where fences cross existing roads.

Spring Development

Springs would be developed or redeveloped using a backhoe to install a buried collection system, usually consisting of a perforated pipe and a collection box. Collection boxes are normally made of fiberglass with a cover and a fitting to which a delivery pipe is connected. A short pipeline would be installed to deliver water to a trough for use by livestock and wildlife. Normally the spring area would be fenced to exclude livestock following development.

Pipelines

Wherever possible, water pipelines would be buried. The trench would be excavated with a backhoe, ditchwitch, ripper tooth, or with similar equipment. The pipe would be placed in the trench and the excavated material used as backfill. Flexible or rigid plastic would be used depending on the system design. Pipelines would have water tanks spaced as needed to meet management objectives.

Wells

Well locations would be selected based on well site investigations which would predict the depth to reliable aquifers. All applicable State laws and regulations that apply to the development of ground water would be observed, including water rights acquisition.

NONSTRUCTURAL IMPROVEMENTS

Burning

Burning is normally proposed to reduce the amount of big sagebrush. Burning would normally be done during April-May or September-October, depending on the specific prescription written for each area, desired results, weather, and moisture conditions. Burn plans would be developed for each burn.

Plowing and Seeding

Most of the sites to be treated are in poor or fair vegetative condition and have a low potential to improve under other management practices. Most of the existing vegetation would be eliminated during seedbed preparation, and the site would be seeded with species adapted to the site. The final selection of species to be seeded would depend on the planned use of the site and the management objectives for the allotment. Seed would be drilled wherever possible.

Interseeding

This treatment differs from plowing and seeding in that existing vegetation is not eliminated during seedbed preparation.

Desirable plant species would be interseeded with existing vegetation. A range drill would be used to interseed strips. Broadcast seedings might be used as well. Species to be seeded would be selected to meet management objectives developed for the allotment.

Plant Pest Control

Poisonous or noxious plants are controlled where spot infestations occur. In addition, the BLM cooperates with other affected landowners in controlling infestations on relatively large areas. Chemical control would conform to all applicable State and Federal regulations. Biological controls would also be considered where practical. Mechanical controls (chaining, cabling, and pushing) could be used for areas where juniper is considered to be a noxious plant, but this method is not a preferred means of control.

STANDARD OPERATING PROCEDURES

The following procedures would be followed in the construction of all management facilities and for vegetation manipulations.

1. Specific projects would be assessed individually through environmental assessments to determine whether they would have adverse environmental impacts.

2. Roads or trails would not normally be constructed to new construction or project sites. Use of existing roads and trails would be encouraged.

3. To comply with the National Historic Preservation Act of 1966, 36 CFR 800, and Executive Order 11593, all areas where ground is to be disturbed by range developments would be inventoried for prehistoric and historic features. Where feasible, all cultural resources located by this inventory would be avoided. The results of the inventory and determinations of eligibility for the National Register of Historic Places would be forwarded to the New Mexico State Historic Preservation Officer for comment.

If cultural resources are found to be eligible for the National Register and cannot be avoided, a determination of the effect of the project on the resource(s), including appropriate mitigating measures if necessary, would be done in consultation with the New Mexico Historic Preservation Officer and the Advisory Council on Historic Preservation. No action affecting the resource would be taken until the Advisory Council has had the opportunity to make comments.

If buried cultural remains are encountered during construction, the operator would temporarily discontinue construction until the BLM evaluated the discovery and determined the appropriate action.

4. No action would be taken by the BLM that could jeopardize the continued existence of any Federally-listed threatened or endangered plant or animal species. An endangered species clearance with the U.S. Fish and Wildlife Service (FWS) would be required before any part of the proposal or alternatives would be implemented that could affect an endangered species or its habitat.

In situations where data are insufficient to make an assessment of proposed actions, surveys of potential habitats would be made before a decision is made to take any action that could affect threatened or endangered species. Should the BLM determine that there could be an effect on a Federally-listed species, formal consultation with the FWS would be initiated. In the interim period before formal consultation, the BLM would not take any action that would make an irreversible or irretrievable commitment of resources that would foreclose the consideration of modifications or alternatives to the proposed action. When the FWS opinion is received, if it should indicate the action would be likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat, the action would be abandoned or altered as necessary. All procedures thus described are in compliance with BLM Manual, Section 6840.

The BLM also would comply with any State laws applying to animal or plant species identified by the State of New Mexico as being threatened or endangered (in addition to the Federally-listed species).

5. All wilderness values would be protected on lands under wilderness review or study. Guidelines in the Interim Management Policy (USDI, BLM 1979b) would be followed for all Wilderness Interim Management Areas. No impairing projects would be allowed in these areas.

6. All actions would consider the BLM's Visual Resource Management criteria.

7. Wildlife escape devices would be installed and maintained in water troughs.

8. In crucial wildlife habitat (e.g., winter ranges, fawning/calving areas), construction work on projects would be scheduled during seasons when the animals are not concentrated to avoid or minimize disturbances.

9. After construction, any disturbed areas would be revegetated with a mixture of grasses, forbs, and shrubs as appropriate for the specific site.

10. Analysis of cost effectiveness would be done on an Allotment Management Plan (AMP) basis prior to the installation of any management facility or land treatment.

11. All areas where vegetative manipulations occur would be totally rested from grazing for at least two growing seasons following treatment.

12. Vegetative manipulation projects would be done in irregular patterns, creating more edge than strip and block manipulation, with islands of vegetation left for cover.

13. Consultation with the New Mexico Game and Fish Department would be required prior to job survey, design, and accomplishment in accordance with the existing Memorandum of Understanding between the New Mexico Game and Fish Department, and BLM.

14. Chemical treatment would consist of applying approved chemicals to control noxious or poisonous plants. Before chemicals are applied, the BLM would comply with Department of the Interior regulations. All chemical applications would be preceded by an approved Pesticide Use Proposal. All applications of pesticides would be under the supervision of a certified pesticide specialist. All applications would be carried out in compliance with the New Mexico pesticide laws.

APPENDIX O

GRAZING SYSTEMS

REST-ROTATION GRAZING

Under a rest-rotation grazing system, grazing is deferred on various parts of an allotment during succeeding years, and the deferred parts are allowed complete rest for one or more years (Society for Range Management 1974). The allotment is divided into pastures, usually with comparable grazing capacities. Each pasture is systematically grazed and rested so that livestock production and other resource values are provided for, while the vegetation cover is simultaneously maintained or improved. This practice provides greater protection of the soil resource against wind and water erosion (Johnson 1965; Hormay 1970; Ratliff, Reppert, and McConnen 1972; Ratliff and Reppert 1974).

Any of several rest-rotation grazing systems may be used, depending upon the objectives for the allotment and the number of pastures.

DEFERRED ROTATION GRAZING

Deferred rotation is the discontinuance of grazing on different parts of an allotment in succeeding years. This allows each pasture to rest successively during the growing season to permit seed production, establishment of seedlings, and restoration of plant vigor (Society for Range Management 1974). One or more pastures are grazed during the spring, while the remaining one or more pastures are rested until after seed ripening of key species, and then grazed. Deferred rotation grazing differs from rest-rotation grazing in that no yearlong rest is provided.

DEFERRED GRAZING

Deferred grazing is the discontinuance of grazing by livestock on an area for a specified period of time during the growing season. Under this system, grazing would begin after key plants have reached an advanced stage of development in their annual growth cycle. The growing season rest provided by this system promotes plant reproduction, establishment of new plants, or restoration of the vigor of old plants (American Society of Range Management 1964).

ALTERNATE GRAZING

Alternate grazing is grazing by livestock every other season, with the area being rested in the alternate year. Stoddard, Smith, and Box (1975) describe the system:

> Rotation grazing, or alternate grazing, involves subdividing the range into units and regrazing one range unit, then another, in regular succession. The rotation system of grazing is based upon the assumption that animals in large numbers make more uniform use of the forage, and that a rest from grazing is beneficial to the plant, even though it must support a greater number of animals in the shorter time during which it is grazed. Certainly, proper rotation grazing results in more uniform utilization. Large numbers of animals in small units are forced to spread over the entire area and to use the available forage more uniformly. Trampling is reduced because animals are held on small areas where feed is more abundant, and hence less travel is necessary.

SHORT-DURATION, HIGH-INTENSITY GRAZING

High-intensity grazing permits short-duration grazing with a higher rate than would be considered normal. The purpose of this type of system is to obtain uniform use of all plants, desirable and undesirable alike, and to prevent regrazing on regrowth of the most desirable plants. This system allows desirable plants to compete for nutrients on an equal basis with less desirable plants.

APPENDIX P

ESTIMATED SHORT- AND LONG-TERM AUM'S FOR THE "M" & "I" ALLOTMENTS BY ALTERNATIVE

Allotment Number	Management Category	Alternative A		Alternative B		Alternative C		Alternative D	
		Short-Term	Long-Term	Short-Term	Long-Term	Short-Term	Long-Term	Short-Term	Long-Term
0110	I	416	416	268	268	416	498	416	416
0111	I	660	660	256	256	660	807	660	660
0112	I	423	423	294	294	423	528	423	423
0113	I	792	792	572	572	673	979	594	792
0116	I	738	738	380	380	627	910	554	738
0118	M**	2,257	2,257	2,257	2,257	2,257	2,806	2,257	2,257
0120	M**	634	634	634	634	634	814	634	634
0122	I	156	156	95	95	133	172	133	156
0123	I	156	156	109	109	133	203	133	156
0124	I	2,400	2,400	1,992	1,992	2.040	2,848	2,040	2,400
0066	I	411	411	288	288	349	452	349	411
0552	M **	325	324	324	324	324	356	324	324
TOTALS		9,367	9,367	7,469	7,469	8,669	11,373	8,517	9,367

* No change in AUM's will occur for the 'C' allotments.
** No management changes are proposed for these allotments under Alternatives 'B' and 'D'.

APPENDIX Q

NO-GRAZING ALTERNATIVE

INTRODUCTION

No Grazing was originally considered as an alternative. However, "No Grazing" on the public land was determined not to be feasible, practical or implementable, and it was dropped from consideration. Nevertheless, the impacts of this alternative are analyzed below. This alternative would provide for improved ecological condition, enhanced wildlife habitat, and improved protection of watershed resources through elimination of livestock grazing use on approximately 124,300 acres of public land in the vegetative uses issue area (see Map 1-4).

To implement this alternative, all public lands in the issue area would need to be fenced to exclude the livestock which would continue to graze on the adjoining private and State lands formerly contained within the allotments. These would require the construction of approximately 560 miles of fence and at estimated cost of approximately $2,000,000. The cost of fencing these lands would make the implementation of this alternative unrealistic and unfeasible.

ENVIRONMENTAL CONSEQUENCES

There would be no impacts to the following resources as a result of implementation of the No Grazing Alternative: energy and minerals, geological and paleontological resources, air quality, woodland resources, cultural resources, and lands.

Range Resources

Under this alternative, a reduction of 18,639 AUM's would be proposed for 92 allotments. These reductions would be implemented in accordance with 43 CFR 4110.4-2(b) which states that "the permittees and lessees shall be given two years prior notification except in cases of emergency before their grazing permit or grazing lease and grazing preference may be cancelled."

In the short term, vigor of preferred livestock forage would improve on all allotments. In the long term, improved ecological condition would occur on all allotments. The most significant increases in ecological condition would occur on the "I" and "M" allotments (see Appendix L). The improvement on "C" allotments would be less significant than for the "I" and "M" allotments. Table Q-1 summarizes these estimated improvements in ecological condition. This table does not include estimates for the Section 15 allotments because current ecological condition has not been determined and the base data for projecting long-term changes in ecological condition are not available.

Soils and Water

Under this alternative watershed conditions would improve commensurate with vegetative conditions except where gully systems are active. Fencing and no grazing will not improve public lands situated downslope from lands in poor vegetative condition. In these situations, public lands would continue to deteriorate from the impacts of off-site erosion processes and products. Overall the benefits of this alternative would be minimal in relation to watershed problems and priorities in the RPRA.

Wildlife Habitat

It is assumed that habitat for wildlife would generally be improved if grazing were eliminated on the 124,300 acre vegetative uses issue area. Competition for forage between big game and livestock would be eliminated on the Tent Rocks Allotment. Cover for small animals would increase throughout the vegetative uses issue area and ground nest trampling would be eliminated.

Domestic livestock grazing may have beneficial impacts to wildlife habitat by increasing habitat diversity, increasing production of certain forage, or opening areas for easier access by wildlife (Nowakowski and Ffolliott 1980). Therefore, it is likely that habitat changes would be detrimental to some species. None of these consequences would be long term or irreversible since grazing could be reinstated.

Threatened, Endangered, and Rare Species

If livestock were removed from the public lands in the issue area, the State-listed

McCown's longspur (see Table 3-3) would benefit by increased seed production on short-grasslands east of the Rio Grande. Mortality to rare plants by livestock would be eliminated. The improved ecological condition would be beneficial, but probably of little consequence to the Federally-listed species (Table 3-3). These would be neither long-term nor irreversible consequences since livestock grazing could be reinstated.

Recreation

Those recreation opportunities which are strongly linked with visual resources would be enhanced through implementation of the No Grazing Alternative. Those opportunities clustered around the more primitive end of the spectrum (see Appendix I) would particularly benefit since less evidence of man's impact is desirable in such recreation settings.

Visual Resources

In general, the visual resources of the vegetative uses issue area would be enhanced by implementation of the No Grazing Alternative. Greater amounts of vegetative cover as well as increases in specific species would be beneficial in the long run. Shifts in color and texture could be dramatic, with some change in form and line also occurring.

Economic and Social Impacts

The elimination of livestock grazing in the vegetative uses issue area would have the following social and economic impacts: (1) lifestyle would be influenced, (2) cultural values would be more difficult to foster, (3) incomes would be changed, (4) employment would be changed.

The following discussion indicates how the impacts are likely to occur and, where they can be quantified, gives some measure by which their magnitude may be considered.

Lifestyle generally is a reflection of social values. Most of the livestock operators in the issue area are from local families. In fact, in most cases the family has been in the area for generations and has made much of its living from the land. However, with the change from an agricultural-based economy to one based on employment in industry, many of the local people have had to seek employment away from the ranch. To try to maintain some of the social values they associated with the ranch some of them have tried to, at least nominally, stay in the ranching business. Having the ranch also provides some security in that, if the job is lost, the ranch can usually provide subsistence.

If grazing were eliminated, the eight individual operators in the issue area (three others are Indian tribes and one is an operator with many other, including corporate, interests) would have to make adjustments. While it is anticipated that most would make adjustments that would allow them to continue to have some livestock, elimination of grazing on public land would cause serious social disruption. While unquantifiable, as many as twenty families and perhaps as many as seventy-five people could be affected.

Associated with, but somewhat separate from, lifestyle are the cultural values of closeness to family, helping family members, and working together for common goals that seem to be more easily taught in a rural subsistence setting than in the urban industrial setting. The loss of the ability to communicate these values would create a social impact if affected families were not able to continue ranching.

Ranch budgets developed for the livestock grazing operations in the issue area show receipts to the twelve operations totaling $202,950. Since BLM-administered grazing accounted for approximately 50 percent of their grazed AUM's, $101,475 is assumed to be attributable to BLM grazing; this amount would be lost if grazing were eliminated. The Bureau of Economic Analysis reported farm proprietors' income for the RPRA at $31,581,000 in 1982 (USDC, BEA 1982). The $101,475 is less than one-half of 1 percent of this farm proprietor's income. Figures are not available to indicate what portion of the twelve operators' income is represented in the $101,475 receipts. The $101,475 in livestock receipts would be multiplied as it circulated through the economy; however, even with indirect income it would not be expected to exceed 1 percent of the RPRA's total income.

Employment on the twelve ranch operations is estimated to be six full-time direct jobs and perhaps six additional full-time indirect jobs. If BLM grazing accounts for 50 percent of these jobs, it can be calculated that the six jobs that would be lost through the elimination of BLM grazing would be less than one-half of 1 percent of the 1,704 farm proprietor jobs in the vegetative uses issue area (USDC, BEA 1982).

In summary, if grazing on public land were eliminated, there would be local social and economic impacts. The magnitude of these impacts would only be significant to the individuals directly impacted.

TABLE Q-1

CHANGES IN ECOLOGICAL CONDITION FOR THE NO-GRAZING ALTERNATIVE (ACRES)

	Excellent	Good	Fair	Poor	Total
Current Situation	0	13,502	39,431	13,787	66,720
Long Term	39,792	23,942	2,986	0	66,120

APPENDIX R

DESCRIPTION OF THE MAJOR LAND RESOURCE AREAS

NEW MEXICO AND ARIZONA PLATEAUS AND MESAS (WP)

Elevation and Topography

Elevation ranges from 1,500 to 2,300 m, but in a few isolated mountains is more than 2,600 m. The plateaus and mesas have gentle slopes, but precipitous slopes are found along valley walls and edges of the mesas.

Climate

Average annual precipitation ranges from 250 to 325 mm in most of the area but may be 375 mm at higher elevations. About two thirds of the precipitation falls from midsummer to early autumn. Average annual temperature is 9 to 12°C. The average freeze-free period is from 120 to 180 days.

Potential Natural Vegetation

Most of this area supports grassland vegetation. Indian ricegrass, blue grama, dropseed, and galleta are the major species. Alkali sacaton, fourwing saltbush, winterfat, and rabbitbrush grow in the valleys between mesas. Pinyon-juniper woodland is found at the higher elevations and also on shallow soils and escarpments. The understory is western wheatgrass, galleta, sideoats grama, and in some places, big sagebrush.

SAN JUAN RIVER VALLEY MESAS, AND PLATEAUS (ND)

Elevation and Topography

Elevation ranges from 1,500 to 2,000 m. Gently sloping broad valleys and plains are bordered by deeply dissected bands of steep slopes and sharp local relief. Margins of mesas and a few isolated low mountain ranges also slope steeply.

Climate

Average annual precipitation ranges from 175 to 250 mm. About one-half of the precipitation falls from midsummer to early autumn. Average annual temperature is 10 to 12°C. The average freeze-free period is 140 to 165 days.

Potential Natural Vegetation

This area supports desert shrub vegetation. Indian ricegrass, big sagebrush, fourwing saltbush, and galleta are major species. Shadscale, greasewood, alkali sacaton, and fourwing saltbush are on the bottom lands. Pinyon-juniper woodland, along with mountain mahogany, western wheatgrass, and galleta are at higher elevations. Most of the western part of the area is grassland on which Indian ricegrass, alkali sacaton, and sand dropseed are dominant.

ARIZONA AND NEW MEXICO MOUNTAINS (AN)

Elevation and Topography

In most places, elevation ranges from 1,400 to 2,400 m, but Baldy Mountain is 3,500 m and Humphreys Peak is 3,800 m. This area is mostly very hilly and mountainous, but an upland plateau is dissected by many deep canyons.

Climate

The average annual precipitation ranges from 275 to 900 mm, increasing with elevation. The average annual temperature is 5 to 15°C. In timbered areas at higher elevations the average is 7°C, and at lower elevations it is 10°C. The average freeze-free period is less than 70 days at higher elevations and 170 days at lower elevations, averaging about 115 days.

Potential Natural Vegetation

This area supports alpine vegetation, conifer forests, chaparral, and grasses because of the broad elevation range. Such cushion plants as moss campion, kobresia, alpine timothy, and many low-growing forbs grow above timberline. Spruce-fir woodland characterizes the area below timberline. Aspen grows on sites that have not been disturbed by past fires. The understory includes Thurber fescue, brome, bluegrasses, mountain muhly, Arizona fescue, lupine, aspen, peavine, penstemons, and daisies. The major part of the area is a vast ponderosa pine forest. Common understory plants include bromes, junegrass, pine dropseed, wheatgrasses,

mountain muhly, blue grama, sedges, and snowberry. Pinyon-juniper woodland is found at elevations below 2,100 m. The understory is blue grama, tobosa, sideoats grama, and western wheatgrass. Below an elevation of about 1,800 m, turbinella oak, mountain mahogany, hollyleaf buckthorn, ceanothus, and manzanita grow along with sideoats grama, blue grama, junegrass, longtongue muttongrass, squirreltail, and bluegrasses.

SOUTHERN DESERTIC BASINS, PLATEAUS, AND MOUNTAINS (SD)

Elevation and Topography

Elevation ranges from 800 to 1,500 m in basins and valleys, but is higher than 2,600 m in the mountains. Broad desert basins and valleys are bordered by gently sloping to steeply sloping fans and terraces. Steep north-south-trending mountain ranges and many small mesas are in the western part.

Climate

Average annual precipitation ranges from 200 to 325 mm. Maximum precipitation is from mid-spring to mid-autumn. Average annual temperature is 13 to 18°C. The average freeze-free period is 200 to 240 days in most of the area but may be 180 days in the northern ends of the Pecos and Rio Grande valleys.

Potential Natural Vegetation

This area supports desert grass-shrub vegetation. Giant dropseed and mesa dropseed, along with scattered shrubs such as sand sagebrush and yuccas, grow on the sandier soils. Creosotebush, tarbush, catclaw, and javalinabush are on gravelly, calcareous foot slopes. Giant sacaton, vine-mesquite, desert willow, brickellbush, and mesquite grow in drainages and depressions. Juniper, pinyon, scattered ponderosa pine, and Douglas fir are on upper mountain slopes.

SOUTHERN ROCKY MOUNTAINS (RM)

Elevation and Topography

Elevation ranges from 2,300 to 4,300 m. These strongly sloping to precipitous mountains are dissected by many narrow stream valleys having steep gradients. In places the upper mountain slopes and crests are covered by snowfields and glaciers. High plateaus and steep-walled canyons are fairly common, expecially in the west.

Climate

Average annual precipitation is generally 375 to 750 mm but as much as 1,025 mm or more may fall on some of the higher mountains. Most of the precipitation falls in winter as snow. Average annual temperature is 0 to 7°C. The average freeze-free period is generally less than 70 days.

Potential Natural Vegetation

This area supports forests on upper slopes, alpine tundra above timberline, and shrub-grass vegetation at lower elevations. Grasses, sagebrush, and other shrubs grow on the lower slopes and in valleys. Lodgepole pine, aspen, Douglas fir, and ponderosa pine are major trees of the lower forest. Engelmann spruce, subalpine fir, white fir, and limber pine intermingled with stands of aspen are typical on the mountain slopes. Willow, alder, and birch trees grow along streams. The timberline zone is characterized by stunted and wind-twisted limber pine, bristlecone pine, Engelmann spruce, and subalpine fir. Alpine grasses, herbaceous plants, and shrubs constitute the treeless alpine tundra.

PECOS-CANADIAN PLAINS AND VALLEYS (CP)

Elevation and Topography

Elevation ranges from 1,200 to 2,100 m, increasing gradually from southeast to northwest, but it is 2,400 m on a few mesas and mountains. Most of these dissected high plains are gently sloping to rolling, but bands of steep slopes and rough broken land border the stream valleys. A few isolated mountains, mesas, and canyon walls have steep to very steep slopes. Valley floors are mostly narrow and cut by stream channels. Local relief is usually a few meters but may be as much as 100 m in some of the rough broken areas.

Climate

Average annual precipitation is 300 to 400 mm, but fluctuates widely from year to year. Maximum precipitation is from late in spring to early autumn. Average annual temperature is 10 to 16°C. The average freeze-free period is 135 to 200 days, decreasing from southeast to northwest.

Potential Natural Vegetation

This area supports plains grassland vegetation that is dominantly short grasses

and mid-grasses. Blue grama is the dominant species. Western wheatgrass is the associated species in the northern part of the area. Lesser amounts of blue grama in association with black grama, galleta, New Mexico feathergrass, and a variety of shrubs, half shrubs, and forbs characterize the southern part. Scattered juniper and pinyon with an understory of sideoats grama, bottlebrush squirreltail, and western wheatgrass grow on shallow soils and in escarpments. Ponderosa pine grows on north and east slopes of the high mesas.

Source: Major Land Sub-resource Areas of New Mexico (USDA, SCS 1982)

APPENDIX S

SUMMARY OF ALLOTMENT CONDITION AND AUTHORIZED USE

Allotment Number	Public Acres	Ecological Condition Class Acres				Apparent Trend	Allowable Livestock Grazing Use (AUM's)	5 Year Aver. Livestock Grazing Use (AUM's)	Season of Use		Kind of Livestock	Selective Management Category
		Excellent	Good	Fair	Poor				From	To		
0110	3,135		534	2,117	484	+	416	416	3/1	2/28	cattle	I
0111	4,603			2,548	2,055	+	660	561	3/1	2/28	cattle	I
0112	2,262		1,334	336	592	+	423	232	3/1	2/28	cattle	I
0113	4,589		539	3,985	92	+	792	645	3/1	2/28	cattle	I
0114	846			709	139	+	132	133	3/1 11/7	6/30 2/28	cattle	C
0115	910			310	600	+	151	122	3/1 11/1	6/30 2/28	cattle	C
0116	6,095		486	3,787	1,822	+	738	738	3/1	2/28	cattle	I
0118	14,997		1,390	13,607		+	2,257	1,936	3/1	2/28	cattle	M
0119	1,463		905	174	384	+	228	218	3/1	2/28	cattle	C
0120	3,798		658	3,140		+	634	637	3/1 11/1	5/30 2/28	cattle horses	M
0121	720		32	688		+	120	45	5/1	10/31	cattle	C
0122	2,104			1,826	278	-	156	116	3/1	2/28	cattle	I
0123	2,008			2,008		static	156	157	3/1 11/15	9/30 2/28	cattle	I
0124	12,946			5,605	7,341	unknown	2,400	1,920	3/1	2/28	cattle	I

Allotment Number	Public Acres	Ecological Condition Class Acres				Apparent Trend	Allowable Livestock Grazing Use (AUM's)	5 Year Aver. Livestock Grazing Use (AUM's)	Season of Use		Kind of Livestock	Selective Management Category
		Excellent	Good	Fair	Poor				From	To		
0552	1,753			1,753		+	324	37	9/15	2/28	cattle	M
0066	4,491			4,491		+	411	77	3/1	2/28	cattle	I
0785	160			unknown		unknown	30	30	3/1	2/28	cattle	C
0336	89			unknown		unknown	24	24	3/1	2/28	cattle	C
0883	40			unknown		unknown	8	8	5/1	12/31	cattle	C
0371	480			unknown		unknown	72	72	3/1	2/28	cattle	C
0927	80			unknown		unknown	15	15	3/1	2/28	cattle	C
0757	80			unknown		unknown	20	20	3/1	2/28	cattle	C
0833	159			unknown		unknown	27	27	3/1	2/28	cattle	C
0334	150			unknown		unknown	24	24	3/1	2/28	cattle	C
0948	30			unknown		unknown	6	6	3/1	2/28	cattle	C
0796	1,088			unknown		unknown	183	183	3/1	2/28	cattle	C
0795	1,678			unknown		unknown	481	481	3/1	2/28	cattle	C
0343	54			unknown		unknown	13	13	3/1	2/28	cattle	C
0740	360			unknown		unknown	103	103	3/1	2/28	cattle	C
0824	2,120			unknown		unknown	386	386	3/1	2/28	cattle	C
0781	240			unknown		unknown	44	44	3/1	2/28	cattle	C
0405	600			unknown		unknown	84	47	3/1	2/28	cattle	C
0342	80			unknown		unknown	29	12	3/1	2/28	cattle	C
0373	320			unknown		unknown	36	36	3/1 11/1	4/30 2/28	cattle	C

Allotment Number	Public Acres	Ecological Condition Class Acres				Apparent Trend	Allowable Livestock Grazing Use (AUM's)	5 Year Aver. Livestock Grazing Use (AUM's)	Season of Use		Kind of Livestock	Selective Management Category
		Excellent	Good	Fair	Poor				From	To		
0739	80			unknown		unknown	80	80	3/1	2/28	cattle	C
0960	360			unknown		unknown	66	66	3/1	2/28	cattle	C
0924	58			unknown		unknown	11	10	9/1	1/31	horses	C
0345	160			unknown		unknown	36	36	3/1	2/28	cattle	C
0754	320			unknown		unknown	60	60	3/1	2/28	cattle	C
0793	160			unknown		unknown	46	46	3/1	2/28	cattle	C
0832	40			unknown		unknown	8	8	3/1	2/28	cattle	C
0868	320			unknown		unknown	36	36	3/1	2/28	cattle	C
0935	40			unknown		unknown	12	12	3/1	2/28	cattle	C
0947	112			unknown		unknown	21	21	3/1	2/28	cattle	C
0961	40			unknown		unknown	8	8	3/1	2/28	cattle	C
0349	40			unknown		unknown	12	12	3/1	2/28	cattle	C
0344	60			unknown		unknown	24	15	3/1	2/28	cattle	C
0844	80			unknown		unknown	16	16	3/1	2/28	cattle	C
0727	240			unknown		unknown	69	69	3/1	2/28	cattle	C
0337	40			unknown		unknown	12	12	3/1	5/31	cattle	C
0825	2,317			unknown		unknown	580	580	3/1	2/28	cattle	C
0737	7,410			unknown		unknown	1,384	1 384	3/1	2/28	cattle	C
0820	2,714			unknown		unknown	494	494	3/1	2/28	cattle	C
0821	40			unknown		unknown	12	12	3/1	2/28	cattle	C
0749	800			unknown		unknown	144	144	3/1	2/28	cattle	C
0753	720			unknown		unknown	131	131	3/1	2/28	cattle	C

Allotment Number	Public Acres	Ecological Condition Class Acres				Apparent Trend	Allowable Livestock Grazing Use (AUM's)	5 Year Aver. Livestock Grazing Use (AUM's)	Season of Use		Kind of Livestock	Selective Management Category
		Excellent	Good	Fair	Poor				From	To		
0972	3,323			unknown		unknown	387	22	6/1	2/28	cattle	C
0971	906			unknown		unknown	123	14	3/1	2/28	cattle	C
0738	44			unknown		unknown	13	13	3/1	2/28	cattle	C
0341	60			unknown		unknown	24	9	3/1	2/28	cattle	C
0849	800			unknown		unknown	146	146	3/1	2/28	cattle	C
0871	360			unknown		unknown	33	33	3/1	2/28	cattle	C
0856	200			unknown		unknown	50	50	3/1	2/28	cattle	C
0330	898			unknown		unknown	72	72	3/1	2/28	cattle	C
0357	40			unknown		unknown	12	12	3/1	2/28	cattle	C
0347	40			unknown		unknown	9	9	3/1	2/28	cattle	C
0351	56			unknown		unknown	12	10	3/1	2/28	cattle	C
0887	2,006			unknown		unknown	301	301	3/1	2/28	cattle	C
0808	560			unknown		unknown	102	102	3/1	2/28	cattle	C
0332	271			unknown		unknown	52	21	5/1	10/31	cattle	C
0333	556			unknown		unknown	54	33	6/1	10/27	cattle	C
0340	80			unknown		unknown	24	24	3/1	2/28	cattle	C
0811	320			unknown		unknown	92	55	3/1	2/28	cattle	C
0945	3320			unknown		unknown	588	250	3/1	2/28	cattle	C
0925	238			unknown		unknown	60	60	3/1 11/1	3/31 2/28	cattle	C
0852	39			unknown		unknown	12	12	3/1	2/28	cattle	C

Allotment Number	Public Acres	Ecological Condition Class Acres				Apparent Trend	Allowable Livestock Grazing Use (AUM's)	5 Year Aver. Livestock Grazing Use (AUM's)	Season of Use		Kind of Livestock	Selective Management Category
		Excellent	Good	Fair	Poor				From	To		
0755	80			unknown		unknown	15	15	3/1	2/28	cattle	C
0760	80			unknown		unknown	23	23	7/1	2/28	cattle	C
0762	320			unknown		unknown	86	86	3/1	2/28	cattle	C
0885	140			unknown		unknown	26	26	3/1	2/28	cattle	C
0878	80			unknown		unknown	23	23	3/1	2/28	cattle	C
0370	1,160			unknown		unknown	228	183	3/1	2/28	cattle	C
0348	40			unknown		unknown	12	10	3/1	2/28	cattle	C
0772	1,896			unknown		unknown	379	379	3/1	2/28	cattle	C
0777	840			unknown		unknown	153	153	3/1	2/28	cattle	C
0779	1,867			unknown		unknown	340	340	3/1	2/28	cattle	C
0839	283			unknown		unknown	81	81	3/1	2/28	cattle	C
0401	720			unknown		unknown	131	131	3/1	2/28	cattle	C
0331	355			unknown		unknown	60	60	3/1	2/28	cattle	C
0734	240			unknown		unknown	44	44	3/1	2/28	cattle	C
0335	120			unknown		unknown	12	3	5/1	10/31	cattle	C

Glossary

GLOSSARY

Activity plan - A site-specific plan for the management of one or more resources (e.g., an Allotment Management Plan). Activity plans implement decisions made in the Resource Management Plan.

Actual use - Means a report of the actual livestock grazing use certified to be accurate by the permittee or lessee.

Adverse visual impact - Any modification in land forms, water bodies, or vegetation, or any introduction of structures which negatively interrupts the visual character of the landscape and disrupts the harmony of the basic elements (i.e., form, line, color, and texture).

Allotment - An area of land where one or more permittees graze their livestock. Generally consists of public land but may include parcels of private or State lands. The number of livestock and season of use are stipulated for each allotment. An allotment may consist of several pastures or be any one pasture.

Allotment Management Plan (AMP) - Means an activity plan which applies to livestock grazing on the public lands, prepared in consultation, cooperation, and coordination with the permittee(s), lessee(s), or other involved affected interest.

Allowable cut - The amount of wood allowed to be cut each year on a sustained yield basis.

Allowable livestock grazing use - This term is synonymous with "Grazing preference" which means the total number of animal unit months of livestock grazing on public lands apportioned and attached to base property owned or controlled by a permittee or lessee.

Animal Unit Month (AUM) - Means the amount of forage necessary for the sustenance of one cow or its equivalent for a period of one month; also a unit of measure of "grazing preference."

Area of Critical Environmental Concern (ACEC) - An area within the public lands where special management attention is required: (1) to protect and prevent irreparable damage to important historic, cultural or scenic values, to fish and wildlife resources, or to other natural systems or processes; or (2) to protect life and safety from natural hazards.

Area regulation - The planning and management of a stand for sustained yield. It prescribes the exact number of acres to be harvested each year. Since stand densities can vary by acre, annual harvest may vary each year.

Authorized livestock grazing use - That portion of the grazing preference or allowable livestock grazing use, authorized to be used during a grazing year.

Biome - An ecosystem of continental proportions described primarily by biotic components, particularly its characteristic vegetation.

Browse - Trees and shrubs whose twigs, leaves, and fruit are eaten by wildlife or livestock.

Bypass coal - An isolated coal deposit that cannot be mined in an economical or environmentally sound manner in the foreseeable future.

Candidate species - Species identified by the U.S. Fish and Wildlife Service as appropriate for listing as threatened or endangered.

Chaco Culture Archeological Protection Sites - Prehistoric archeological sites located generally within the San Juan Basin and related to the Chacoan cultural system recognized by Congress through the Chaco Culture Preservation Act of 1980. This Act enlarged the boundaries of Chaco Canyon National Monument by almost 13,000 acres, renamed the monument as Chaco Culture National Historic Park, and recognized an additional 33 sites (9,000 acres) outside the park boundary.

Chaining - A method of creating openings in pinyon-juniper woodlands by pulling an anchor chain between two tractors, knocking over or uprooting the trees.

Closed to motorized vehicle use - See ORV Closed.

Coal unsuitability criteria - Regulations developed by BLM which use the ability of an area's surface resources to accept or absorb the impact of coal mining activities as a means to determine the suitability or unsuitability of the area for coal mining.

Color-of-Title Act of 1928 - Class 1 of the Act specifies that an occupant on Federal land can acquire title to the land if it can be shown that the claimant or the claimant's predecessors in interest had a chain of title acquired in good faith going back at least twenty years and had cultivated or otherwise made valuable improvements to the land. Class 2 of the Act allows the Federal government to transfer title to lands held in good faith prior to January 1, 1901, on which taxes had been paid since that time.

Common variety mineral materials - Widespread deposits of common clay, sand, gravel, or stone which are not subject to disposal under the 1872 Mining Law (as amended).

Competitive bidding - Bidding at an open public auction to qualified purchasers.

Continental Divide National Scenic Trail treadway - The actual trail established and marked as the route of the Continental Divide National Scenic Trail. It can exist as part of the Continental Divide National Scenic Trail system only after formal designation by the appropriate agency head and the publishing of notice in the Federal Register.

Contrast - Opposition or dissimilarity of different forms, lines, colors, or textures in a landscape.

Cover type - A habitat type for wildlife generally based on vegetation, e.g., pinyon-juniper, grassland, sagebrush.

Critical habitat for threatened or endangered plant or animal species - Areas officially designated by the U.S. Fish and Wildlife Service. There are none in this planning area.

Critical wildlife habitat - Areas on which an animal population depends for survival.

Cultural resource inventory:

Class I - An existing data survey. This is an inventory of a study area: (1) to provide a narrative overview of cultural resources by using existing information; and (2) to compile existing cultural resources site record data on which to base the development of the BLM's site record system.

Class II - A sampling field inventory. This is designed to locate from surface and exposed profile indications all cultural resource sites within a portion of an area so that an estimate can be made of the cultural resources for the entire area. The Class II inventory is to be used where an intensive field inventory (Class III) is not practical or necessary.

Class III - An intensive field inventory. This is designed to locate from surface and exposed profile indications all cultural resource sites in an area. Upon its completion, normally no further cultural resource inventory work is needed. A Class III inventory is appropriate for small project areas, all areas to be disturbed, and primary cultural resource areas.

Cultural Resource Management Plan (CRMP) - A written and officially approved plan for an area or a group of resources. It identifies cultural resources protection and use objectives, establishes the specific nature and sequence of actions to achieve objectives, and outlines procedures for evaluating accomplishments.

Cultural resources - Fragile and nonrenewable remains of human activity, occupation, or endeavor. They are reflected in districts, sites, structures, buildings, objects, artifacts, ruins, works of art, architecture and natural resources that were of importance in human events. These resources consist of: (1) physical remains; (2) areas where significant human events occurred, even though evidence no longer remains; and (3) the environment immediately surrounding the resource.

Direct sale - See Non-competitive sale.

Diversity - The relative abundance of wildlife species, plant species, communities, habitats, or habitat features per unit of area.

Ecological condition - The present state of vegetation of a range site in relation to the climax (natural potential) plant community for that site. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble that of the climax plant community for the site.

Ecological condition class - Four classes are used to express the departure of the present plant community from the climax plant community; expressed as a percentage.

Class	Percent Departure
Excellent	76-100
Good	51-75
Fair	26-50
Poor	0-25

Ecological condition rating - The percent departure from the climax plant community from the present plant community.

Ecological succession - The change in vegetation and in animal life that takes place as the plant community evolves from bare ground to climax.

Edge effect - The increased richness of flora and fauna where two communities join and blend.

Emergency leasing - Emergency coal leases may be issued in response to an application as outlined under 43 CFR 3425.1-4. Briefly, an emergency lease may be issued if the coal reserves are part of a mining operation that is producing coal and either: (1) the Federal coal is needed within three years to maintain an existing mining operation, or (2) if the coal deposits are not leased, then they would be bypassed and if leased, some of the coal on the tract would be used within three years.

Endemic - Peculiar to or found only in a particular locality; e.g., endemic plants are common in a locality, but not elsewhere.

Energy Minerals Activity Recommendation System (EMARS) - Established by the 1975 Coal Management Program, it has three phases: (1) nomination and programming, (2) scheduling, and (3) leasing.

Existing roads and trails - Roads and trails identified through a road inventory process. A detailed map is available at the Rio Puerco Resource Area office.

Featured species - Wildlife species selected for analysis because they represent overall wildlife conditions.

Federal Land Policy and Management Act of 1976 (FLPMA) - Establishes public land policy for management of lands administered by BLM. FLPMA specifies several key directions for the Bureau, notably that: management be on the basis of multiple use and sustained yield; land use plans be prepared to guide management actions; public lands be managed for the protection, development, and enhancement of resources; public lands generally be retained in Federal ownership; and public participation be included in reaching management decisions.

Fee simple title - An estate in which the owner is entitled to the entire property with unconditional power of disposition.

Fuelwood - Firewood; wood for fuel.

Habitat - The sum total of environmental conditions of a specific place occupied by a wildlife species.

Habitat site - A local ecosystem defined specifically by existing homogenous vegetation and local landform and influenced by regional physiography and intraregional association. The habitat site is the lowest classification level of BLM's habitat inventory system.

Hardrock mining - Underground or open-pit mining, generally associated with locatable minerals.

Harvestable base - The quantity of wood allocated to be managed under sustained yield.

High priority habitat for migratory species - Areas that: (1) are used regularly by one or more of the listed species; (2) are either limited in availability for feeding, reproduction, wintering, or other uses, or supportive of concentrations of one or more species; and (3) contain a combination of natural or man-made factors that provide essential habitat requirements. The only high interest migratory species possibly affected in the coal issue area is the mountain plover.

Grazing system - A systematic sequence of grazing use and non-use of an allotment to reach identified multiple use goals or objectives by improving the quality and quantity of the vegetation.

Instant Study Areas - All public land areas which had been formally designated as Natural or Primitive areas prior to

November 1, 1975 were automatically designated as Wilderness Study Areas.

Intensive Recreation Management Area - A portion of the public land which should receive more intensive recreation management in response to public issues or management concerns. Management objectives for these areas must be related to reduced resource damage, solving visitor safety and health problems, mitigating conflicts, or providing the public with recreation opportunities not otherwise available.

Known Geologic Structure (KGS) - A trap in which an accumulation of oil and gas has been discovered by drilling and which is determined to be productive. Its limits include all acreage that is presumptively productive [43 CFR 3100.0-5(a)]. Lands underlain by a KGS may be leased only through a competitive system.

Known mineral values for locatable and saleable minerals - Mineral values in lands with underlying geologic formations which are valuable for prospecting for, developing, or producing natural mineral deposits. The presence of such mineral deposits in the lands may be known or geologic conditions may be such as to make the lands prospectively valuable for mineral occurrence.

Leasable minerals - Those minerals or fluids that can be acquired under lease from the Federal government. They incude oil, gas, geothermals, coal, phosphate, sodium, potash, oil shale, sulfur, and all minerals on acquired lands.

Limited motorized vehicle use - See ORV limited.

Locatable minerals - Minerals or mineral materials subject to disposal under the Mining Law of 1872 (as amended). These generally include metallic minerals of high intrinsic value, such as gold and silver, and other uncommon varieties not subject to lease or sale, such as sodium bentonite, high-calcium limestone, and perlite.

Location - Perfecting the right to a mining claim by discovery of a valuable mineral, monumenting the corners, completing discovery work, posting a notice of location, and recording the claim.

Logical Mining Unit - An area of land in which the recoverable coal reserves can be developed in an efficient, economical, and orderly manner as a unit, with due regard for the conservation of recoverable coal reserves and other resources.

Management Framework Plan (MFP) - A planning decision document that established land use allocations, coordination guidelines for multiple use, and management objectives for each class of land use or protection for a given planning area. It was the BLM's land use plan. An MFP was prepared in three steps: (1) resource recommendations, (2) impact analysis and alternative development, and (3) decision making. Since 1982, BLM land use plans have been developed under an altered planning system and called Resource Management Plans (RMP's).

Management Situation Analysis (MSA) - An unpublished companion document to this RMP that provides the background documentation for the development of alternatives. The MSA consists of the Resource Area Profile, Existing Management Situation, Existing Resource Situation, and Opportunity Analysis.

Mine plan - A plan of operation which details how the coal will be mined and the area reclaimed. It is prepared in order to obtain a mine permit.

Mineral entry - The availability of Federal lands for location of mines.

Mineral estate (mineral rights) - The ownership of all minerals including all rights necessary for access, exploration, development, mining, ore dressing, and transportation operations.

Multiple use - The management of all resources of the public lands so that they are used in the combination that will best meet the needs of the people of the U.S.

National Historic Landmark - A designation established by The Historic Sites Act of 1935. That Act gave the Secretary of the Interior responsibility for systematically identifying resources which by historic association, architectural or design excellence, or extraordinary information content are nationally significant. Landmarks include districts, sites, buildings, structures, and objects pivotal in national history, architecture, archeology, or culture. Criteria for landmark status parallel to some degree those of the National Register of Historic Places, but the associative, architectural, aesthetic, or informational quality required is significantly greater and must

pertain to the nation rather than to a single place or group of people.

National Natural Landmark - A specific area designated by the Secretary of the Interior which contains a representative example(s) of the nation's natural history. It can include terrestrial communities, aquatic communities, landforms, geological features, or habitats of native plant and animal species. A Landmark must possess national significance in illustrating or interpreting the nation's natural heritage.

National Register of Historic Places - The official list, established by the Historic Preservation Act of 1966, of the nation's cultural resources worthy of preservation. The Register lists archeological, historic, and architectural properties (i.e., districts, sites, buildings, structures, and objects) nominated for their local, state, or national significance by state or Federal agencies and approved by the National Register staff.

National Scenic Trail - A trail designated under the National Trail System Act. It must be an extensive trail, located for its outdoor recreational potential, and for the conservation and enjoyment of nationally significant scenic, historic, natural, or cultural qualities in its vicinity.

New Mexico State Register of Cultural Properties - The State register of architectural sites, historic structures, objects, artifacts, works of art and documents of significance to the history of New Mexico.

No known mineral values for leasable minerals - Lands have no known mineral values for leasable minerals if they are not under a mineral lease, prospecting permit, or preference right lease application or if they have not been classified as being in a "known leasing area" (including KGS's, KGRA's, etc.), or as being "prospectively valuable."

No surface disturbance - Defined on a case-by-case basis when the activity plan for an area is developed. In general, an activity would be allowed as long as it does not interfere with the management objectives of the area.

No surface occupancy - A fluid mineral leasing stipulation that prohibits occupancy or disturbance of all or part of the lease surface in order to protect special values or uses. Lessees may exploit the oil and gas or geothermal resource in this lease by directional drilling from sites outside the no surface occupancy area.

Non-competitive sale - Land sales made at fair market value without competitive bidding.

Non use - Allowable livestock grazing use (in AUM's) that is authorized but not to be used during a given time period. Non use is applied for and authorized on an annual basis.

Off-road vehicle (ORV) - Any motorized vehicle capable of or designed for travel on or immediately over natural terrain. Excluded are: (1) any non-amphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle while used for an emergency; (3) any vehicle with express official approval; (4) vehicles in official use; and (5) combat or combat support vehicle during a national defense emergency.

Open to motorized vehicle use - See ORV open.

ORV closed - "Closed areas and trails" are designated areas and trails where the use of motorized vehicles (except by authorized users) is permanently or temporarily prohibited.

ORV limited - "Limited areas and trails" are designated areas and trails where the use of motorized vehicles is subject to restrictions deemed appropriate by an authorized officer. Restrictions may limit the number or types of vehicles allowed, dates and times of use, and similar matters. Limited areas and trails may be designated for special or intensive use such as organized events and may be subject to, but not limited to, rules set forth in 43 CFR 8341.2. ORV use related to mining claim operations will not be restricted, except by regulations and requirements found in 43 CFR 3809, as amended on March 2, 1983. ORV use performed in conformance with existing leases, permits, rights-of-way stipulations, or other land-use authorizations will not be impinged upon.

ORV open - "Open areas and trails" are designated areas and trails where motorized vehicles may be operated subject to the operating regulations and vehicle standards set forth at 43 CFR 8341 and 8343.

Outstanding Natural Area - An area established to preserve scenic values and areas of natural wonder. The preservation of these resources in their natural condition is the primary management objective. Access roads, parking areas, and public use facilities are normally located on the periphery of the area.

Patent - A grant made to an individual or group conveying fee simple title to the public lands.

Patented claim - A claim on which title has passed from the Federal government to the mining claimant under the Mining Law of 1872.

Payments in Lieu of Taxes (PILT) - Payments to local or state governments which have public lands within their boundaries, authorized by Public Law 94-565 of 1979.

Physiographic province - A extensive region of similar geological structures and climates that shares a common geomorphic history. It normally encompasses many hundreds of square miles and portrays similar qualities of soil, rock, slope, and vegetation.

Plan of operation - A plan required when mining activities will disturb five or more acres or will disturb special areas. It should describe the equipment to be used, locations of access, support facilities, drill sites, and measures which will be taken to prevent unnecessary or undue degradation.

Preferred livestock forage - Those plant species most palatable to livestock.

Proper use - The proper level of forage utilization that allows for the maintentance or improvement of ecological condition.

Public land - Lands whose surface is administered by the Bureau of Land Management.

Range site - A distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community, is the product of all environmental factors responsible for its development, and is capable of supporting a native plant community typified by an association of species that differs from that of other range sites in the kind or proportion of species or in total production.

Range trend - The change in vegetative and soil characteristics as a direct result of environmental factors, primarily climate and grazing. Range trend studies are used in combination with other studies to evaluate the success of grazing management.

Rare plants - See Rare species.

Rare species - Plant species identified as rare by the New Mexico Heritage Program.

Recreation and Public Purposes Act (R&PP Act) - An Act which authorizes the Secretary of the Interior, under specific conditions, to sell or lease public domain lands to state and local governments for recreation and other public purposes, or to qualified non-profit organizations for public or quasi-public purposes, such as recreation, education, and health.

Recreation Opportunity Spectrum (ROS) - A framework for stratifying and defining classes of outdoor recreation opportunity environments (see Appendix I).

Research Natural Area - An area that is established and maintained for the primary purpose of research and education because the land has one or more of the following characteristics: (1) a typical representation of a common plant or animal association; (2) an unusual plant or animal association; (3) a threatened or endangered plant or animal species; (4) a typical representation of common geologic, soil, or water features; or (5) outstanding or unusual geologic, soil, or water features.

Resident species of high interest - Generally, game, furbearers, gamefish, and threatened or endangered species officially designated by the New Mexico State Legislature.

Rights-of-way (ROW) corridors - Corridors designated for the placement of transmission lines.

Rights-of-way (ROW) windows - Areas critical for transmission line placement due to topographic or land ownership constraints.

Saleable minerals - Common variety mineral materials (sand, gravel, etc.) which are

disposed of by sale by the Federal government under The Material Sales Act of 1947.

Scenic quality - The relative worth of a landscape from a visual perception point-of-view.

Scenic quality rating - The relative scenic quality (A, B, or C) assigned to a landscape by applying the scenic quality evaluation key factors. A is the highest rating, B is intermediate, and C is the lowest (see Appendix J).

Selective cut (individual tree) - An uneven-age silvicultural system in which trees are removed singly and periodically throughout the stand, leaving a mixture of tree ages and sizes.

Silviculture - The cultivation of forest trees; the art of producing and tending a forest; the application of the knowledge of silvics in the treatment of a forest; the theory and practice of controlling forest establishment, composition, and growth.

Site - The position or location of trees in relation to their environment.

Site index - A measure of site quality based on the height of the dominant tree at an arbitrarily chosen age.

Special Management Area (SMA) - An area requiring special management by BLM to protect one or more resource values. An SMA may include non-public lands that BLM wishes to acquire or to bring under a Cooperative Management Agreement to better manage the valued resource. At a minimum, an activity plan will be prepared for an SMA. SMA's may be given designations under various existing labels such as Area of Critical Environmental Concern or Research Natural Area. SMA's are not necessarily "locked up" from development if the development activity does not conflict with the goals for the area.

Split estate - Lands where surface and mineral estates have been severed and are under different ownership (in this case, public surface with non-public minerals).

Stand - A group of growing trees of a particular species in a given area.

Standard stipulations - A series of requirements that are always attached to a given lease; e.g., on 3:1 slopes--plug the holes, conserve topsoil.

State concern - Plant species identified by the New Mexico Heritage Program.

State-listed species - Animals listed by the State of New Mexico as threatened or endangered.

Surface mining - Mining in surface excavations, including placer mining, mining in open glory-hole or milling pits, mining and removing ore from open cuts by hand or with mechanical excavating and transportation equipment, and the removal of capping or overburden to uncover the ores. Mining at or near the surface is generally done where the overburden can be removed without great expense.

Sustained yield - The achievement and maintenance in perpetuity of a high level of annual or periodic output of the various renewable resources of the public lands consistent with multiple use. The amount of resource harvested normally equals the amount grown since the previous harvest.

Threatened and endangered species - Plants and animals listed by the U.S. Fish and Wildlife Service or the State of New Mexico as threatened or endangered.

Tract - A defined area of land which will logically be proposed as a single lease offering. At the preliminary tract stage, the exact boundaries of tracts would still be subject to adjustment based on subsequent analysis.

Transmission line - Any electrical transmission line of 69 kV capacity or greater or any gas line of 6-inch diameter or greater.

Type locality - The place at which a stratigraphic unit (such as a formation or a series) is typically displayed and from which it derives its name. It contains the type section and is contained within the type area.

Unacceptable ecological conditions - Range site, pasture and/or allotment with an ecological condition rating of less than 38, and downward or static range trend.

Unpatented mining claim - A claim made under the authority of the Mining Law of 1872 on vacant, unappropriated public land, where valuable locatable minerals have been discovered.

Valid existing rights - Legal interests that attach to a land or mineral estate

that cannot be divested from the estate until that interest expires or is relinquished.

Valuable wildlife habitat - Areas heavily used by wildlife.

Visual Resource Management (VRM) - The system by which BLM classifies and manages the visual resource of public lands. Based on their scenic qualities, sensitivities, and the distances from which they are viewed, the lands are classified into management units. The system includes actions taken to identify visual values, to establish objectives for managing these values, and to achieve the visual management objectives.

Wilderness Inventory Unit - Lands released from Wilderness review by the Secretary of Interior's policy announcement of December 30, 1982 which deleted split-estate lands (Federal surface and non-Federal subsurface) from further wilderness consideration. These lands remain under interim management pending resolution of the Sierra Club, et al. v. Watt.

Wilderness Study Area (WSA) - A roadless area or island that has been inventoried and found to have characteristics described in Section 603 of FLPMA and Section 2(c) of the Wilderness Act of 1964.

Wildlife cover - Vegetation used by wildlife for protection from predators, to ameliorate weather conditions, or in which to reproduce.

Withdrawal - Actions which restrict the use of public land and segregate the land from the operation of some or all of the public land and mineral laws. Withdrawals are also used to transfer jurisdiction of management to other Federal agencies.

Woodland - Forest land not capable of producing twenty cubic feet of timber per acre per year; e.g., pinyon-juniper stands.

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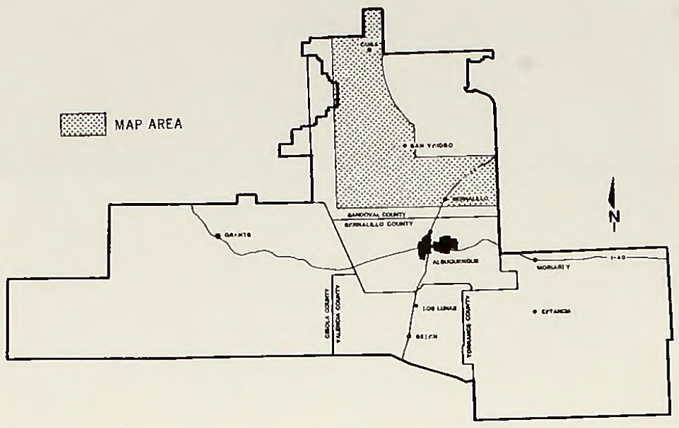
*U.S. GOVERNMENT PRINTING OFFICE: 1985-0-576-070/10043

MAP B
RIGHTS-OF-WAY ALTERNATIVES B & D

LEGEND

- PROPOSED NMGS RIGHTS -OF-WAY CORRIDOR
- RIGHT-OF-WAY CORRIDOR #1
- RIGHT-OF-WAY CORRIDOR #2
- WINDOW



RIO PUERCO RESOURCE AREA

0 10 20 MILES
SCALE

107°15′ 107°00′ 36°00′ 35°45′ 35°30′ 106°45′ 106°30′ 106°15′ 35°15′

NM 44 CUBA

T21N T20N T19N T18N T17N T16N T15N T14N T13N T12N

R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E

SAN LUIS CLIFFS

SANTO DOMINGO GRANT

DEL OJO

ESPIRITU

ZIA INDIAN RESERVATION

SAN YSIDRO GRANT

SAN YSIDRO

OJITO EAST

OJITO WEST

IGNACIO CHAVEZ GRANT

NUESTRA SENORA DE LA LUZ

DE LAS LAGUNITAS GRANT

LAGUNA INDIAN RESERVATION

ALAMEDA GRANT

BERNALILLO GRANT

BERNALILLO

PLACITAS

TEJON GRANT

ORTIZ MINE GRANT

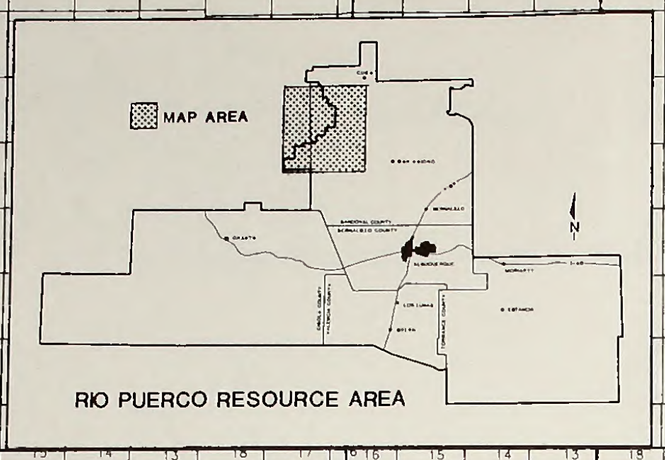
SANDOVAL COUNTY

SANTA FE COUNTY

NM 44

I-25

N



MAP D
COAL DEVELOPMENT POTENTIAL AREAS

LEGEND

- STRIPPABLE HOGBACK MOUNTAIN ZONE COALS
- AREA OF MAXIMUM NEAR FUTURE COAL DEVELOPMENT POTENTIAL-STRIPPABLE CLEARY COALS
- STRIPPABLE CLEARY COALS
- UNDERGROUND MINEABLE PADILLA ZONE COALS
- STRIPPABLE FRUITLAND COALS
- RESOURCE AREA BOUNDARY

JOHNSON TRADING POST TRACT

CHICO WASH SOUTH TRACT

McKINLEY COUNTY

SANDOVAL COUNTY

IGNACIO

CHAVEZ

GRANT

SANTO

DEL

ESPIRITU

OJO

107°22'30"

107°15'00"

107°07'30"

107°00'00"

35°52'30"

35°45'00"

35°37'30"

R6W

R5W

R4W

R3W

R2W

R1W

T20N

T19N

T18N

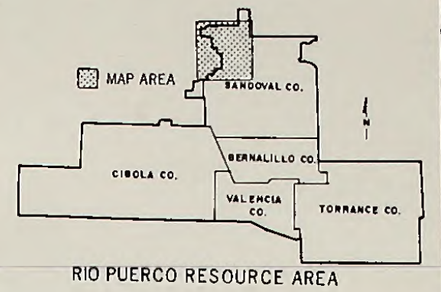
T17N

T16N

T15N

0 1 2 3 4 5 6

SCALE OF MILES



RIO PUERCO RESOURCE AREA

MAP E
OFF-ROAD VEHICLE ROAD SYSTEM

LEGEND

- PAVED ROAD
- GRADED ROAD
- TRAIL
- OFF-ROAD VEHICLE TRAIL, PAVED/GRADED
- OFF-ROAD VEHICLE TRAIL, PRIMITIVE ROAD/ TRAIL

N

0 1 2 3 4 5 MILES
SCALE

MAP C

GRAZING ALLOTMENTS

0 5 10 15 20

SCALE OF MILES

LEGEND

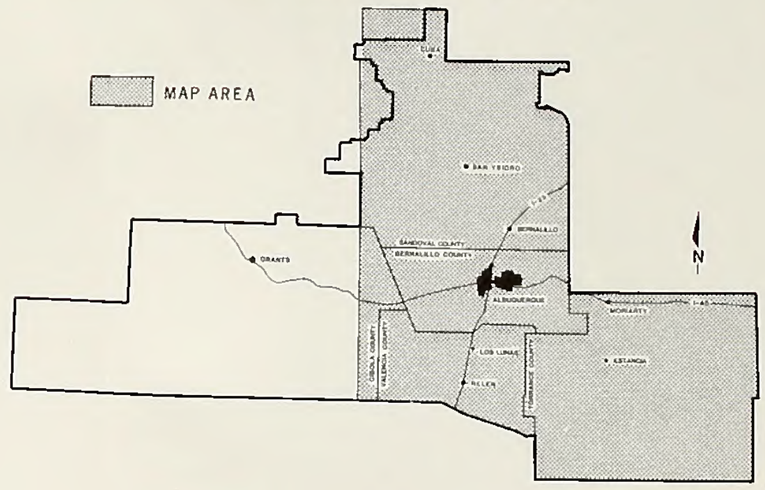
0727 GRAZING ALLOTMENTS

U UNLEASED LANDS

N

RIO PUERCO RESOURCE AREA

MAP AREA



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R.4W. R.3W. R.2W. R.1W. R.1E. R.2E. R.3E. R.4E. R.5E. R.6E. R.7E. R.8E. R.9E. R.10E. R.11E. R.12E. R.13E. R.14E. R.15E.

NM 44 NM 197 NM 279 INT 25 INT 40 NM 41 US 285 US 60 NM 42 US 54

SANDOVAL BERNALILLO VALENCIA TORRANCE

JEMEZ SAN YSIDRO ZIA SANTO DOMINGO SANTA ANA SAN FELIPE BERNALILLO SANDIA PUEBLO ALBUQUERQUE ISLETA LOS LUNAS BELEN MOUNTAINAIR ESTANCIA MORIARTY CLINES CORNERS COCHITI

FS ADMIN. SITE CU8A BLM ADMIN. SITE

RIO PUERCO RESOURCE AREA

LAND STATUS 1984

US DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ALBUQUERQUE DISTRICT OFFICE
RIO PUERCO RESOURCE AREA

MAP A

RESOURCE AREA BOUNDRY
ADMINISTRATIVE RESPONSIBILITY BOUNDRY
CITIES, TOWNS OR VILLAGES
COUNTY SEAT
BUILT-UP AREAS: TOWNS OVER 5,000
COUNTY BOUNDRIES
SCHEDULED SERVICE AIRPORT
INTERSTATE HIGHWAY
U.S. HIGHWAY
STATE HIGHWAY
OTHER PRINCIPAL ROADS

PUBLIC LANDS
STATE LANDS
INDIAN RESERVATION
NATIONAL PARKS AND MONUMENTS
MILITARY LANDS
PRIVATE LANDS - BLANK
NATIONAL FORESTS
GRANTS
INDIAN LEGISLATION
DOUBLE STATUS

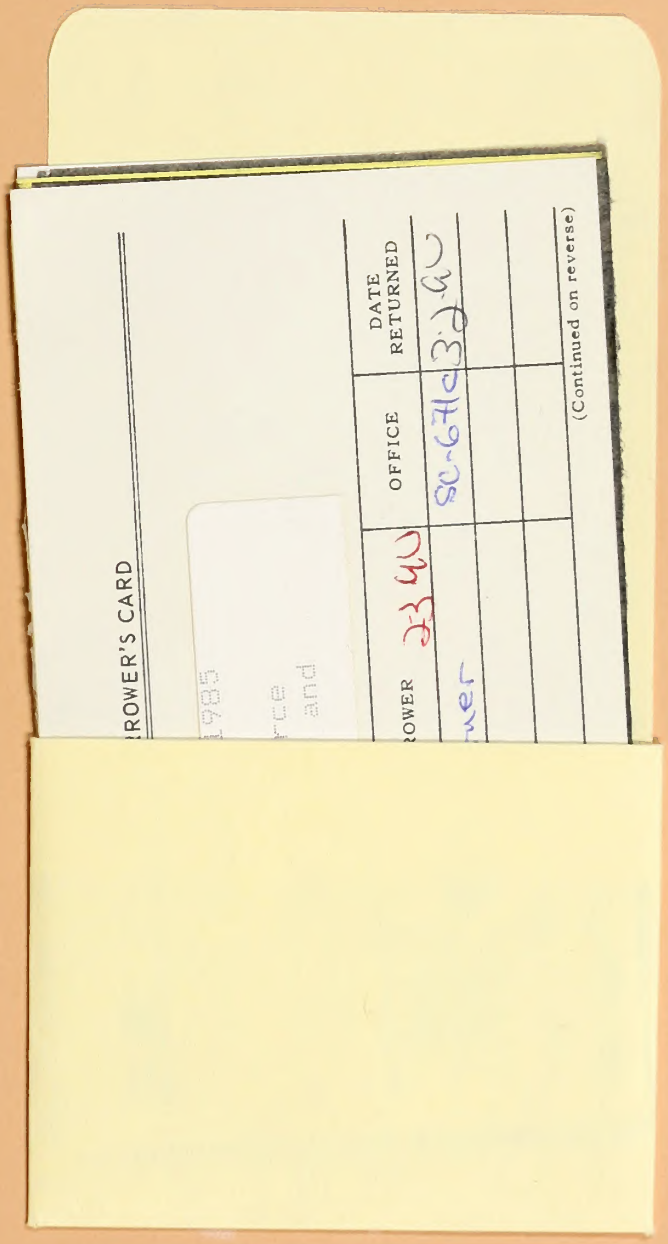
Wide band of color indicates current land status
Narrow band of color indicates original land status

SCALE 1:500,000
1 inch equals approximately 8 miles

10 0 10 20 30 40 Miles
10 0 10 20 30 40 50 Kilometers

Contour interval 500 feet

☆ GPO: 1985-577-436



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