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U.S. Department of the Interior
Bureau of Land Management

Salem District Office
1717 Fabry Road S.E.
Salem, Oregon 97306

July 1992



Quartzville Creek Environmental Assessment



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BUREAU OF LAND MANAGEMENT
Salem District Office
1717 Fabry Road S.E.
Salem, Oregon 97306

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Dear Concerned Citizen:

Enclosed for your review and comment is the Environmental Assessment (EA) for the Quartzville Creek Wild and Scenic River Management Plan. Bureau policy requires that a management plan and EA be prepared for all designated wild and scenic rivers on public lands. The purpose of this EA is to provide a comparative analysis of management alternatives for Quartzville Creek.

Chapter I of this document offers background information on wild and scenic rivers management, the planning process for Quartzville Creek. Chapter II describes the management alternatives that were developed with input from the public and the Quartzville Creek planning team. Chapter III describes the physical, biological, social and economic resources of Quartzville Creek and vicinity. Chapter IV assesses the impacts of each alternative on the resources described in Chapter III.

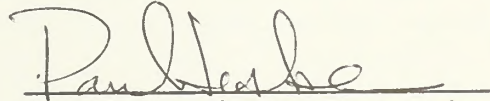
We welcome your written comments on which alternative you prefer along with any suggested modifications. Your comments will help us in preparing a final management plan. The plan will establish management direction and objectives, as well as a sequence for implementing the identified management actions.

There will be a public comment period, beginning when you receive this document. The comment period will close on September 1, 1992. Please send you comments on the document to:

Bureau of Land Management
Salem District Office
c/o Paul Jeske
1717 Fabry Road, SE
Salem, OR 97306

If you have any questions please contact Paul Jeske at (503) 375-5644. Thank you for your interest and participation in this planning process.

Sincerely,


Area Manager, Santiam Resource Area

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United States Department of the Interior

Division of Reclamation
Washington, D. C. 20250



Dear Mr. [Name]:

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Very truly yours,
[Signature]
[Title]

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Environmental Assessment Quartzville Creek

Bureau of Land Management

Salem District

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Responsible Officials: Paul Jeske, Santiam Area Manager	1
River Planning Team Leaders: Terry Eccles, Outdoor Recreation Planner Laura Graves, Outdoor Recreation Planner	1
Prepared By: Terry Eccles, Outdoor Recreation Planner Laura Graves, Outdoor Recreation Planner	1
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Environmental Assessment Quartzville Creek

Bureau of Land Management

Salem District

Lead Agency: USDI, Bureau of Land Management

Responsible Official: Paul Jaska, Senior Area Manager

Interagency Team Leader: Terry Eccles, Outdoor Recreation Planner
Laurie Graves, Outdoor Recreation Planner

Prepared By: Terry Eccles, Outdoor Recreation Planner
Laurie Graves, Outdoor Recreation Planner

Environmental Assessment

Quartzville Creek

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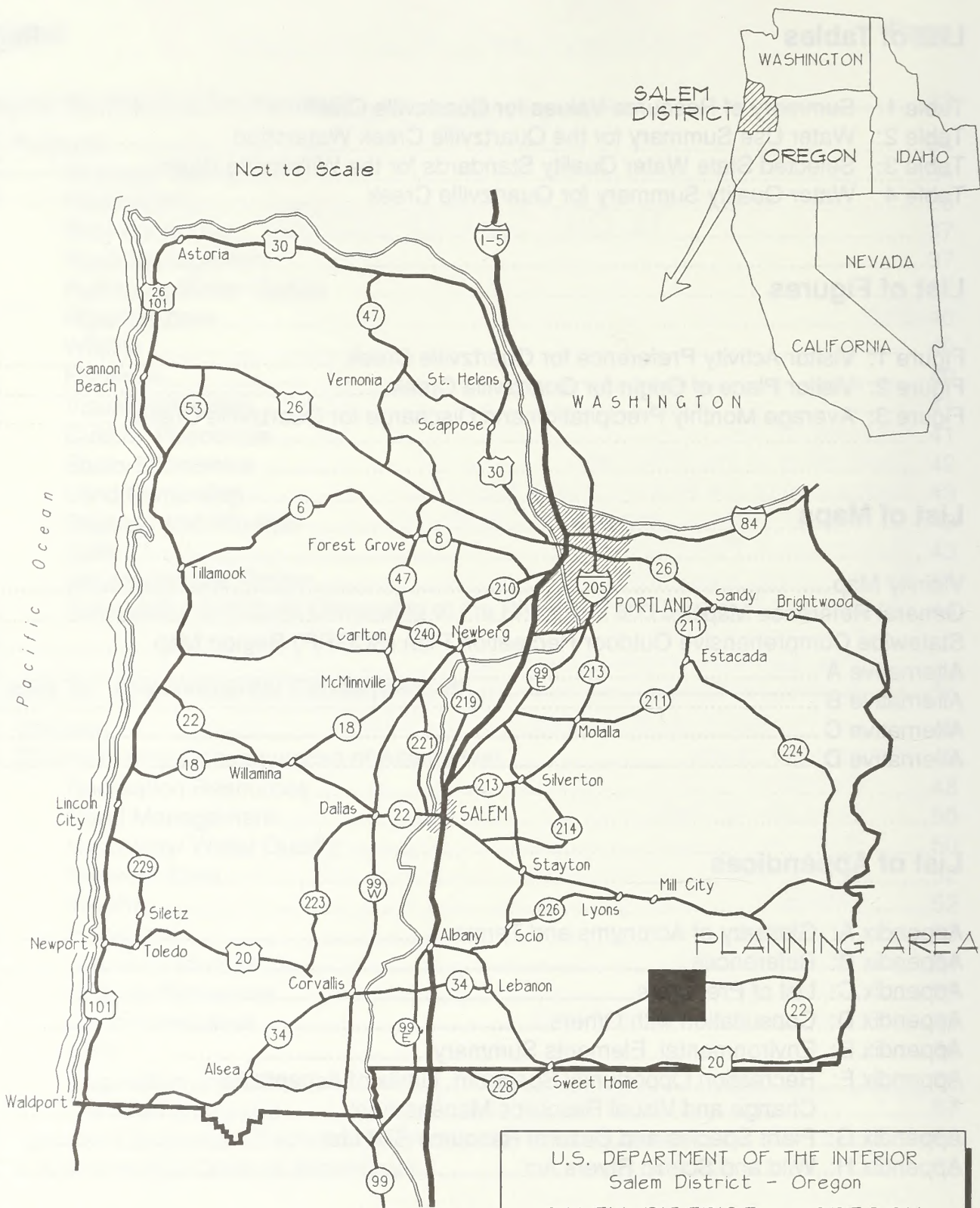
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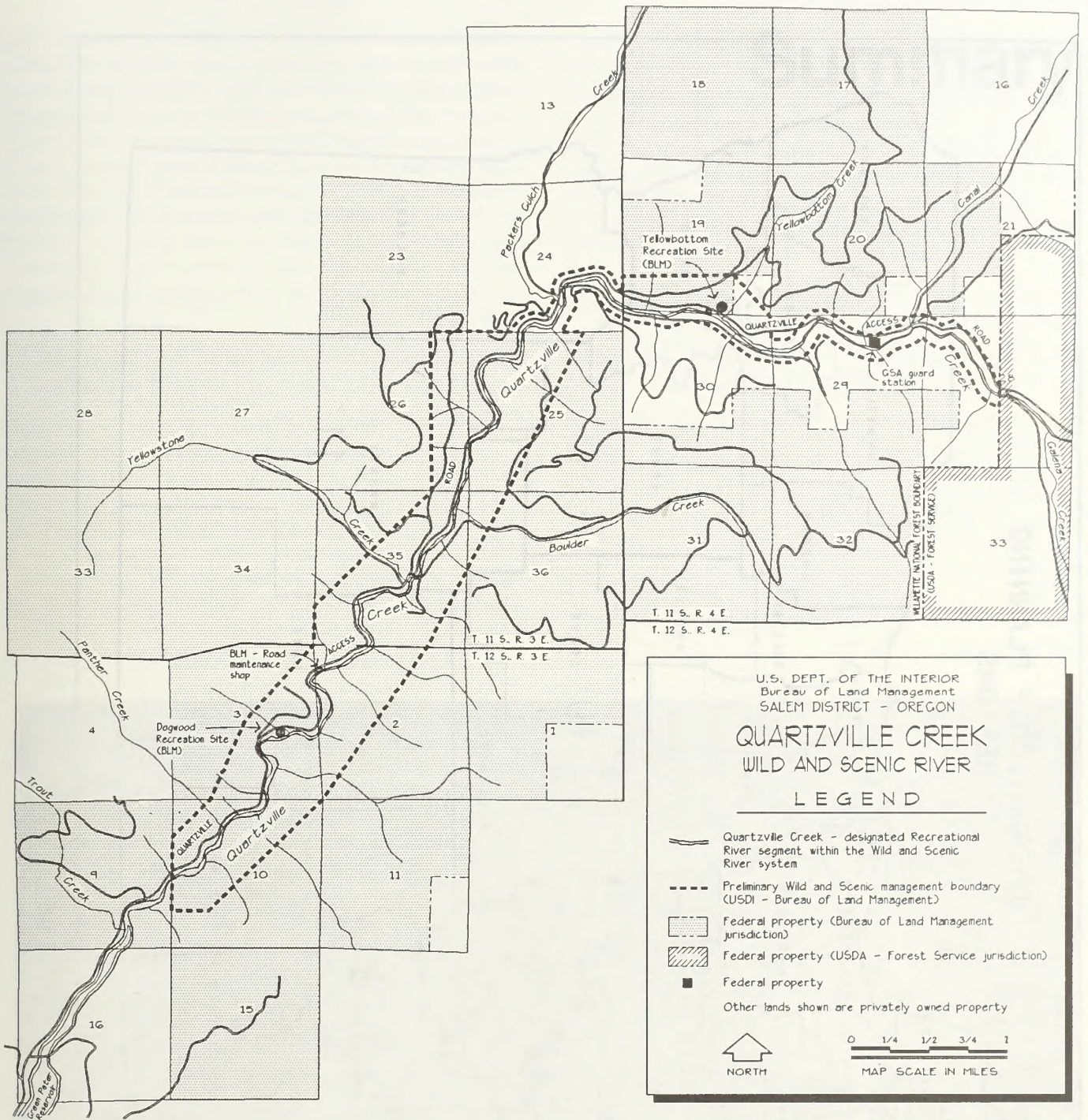
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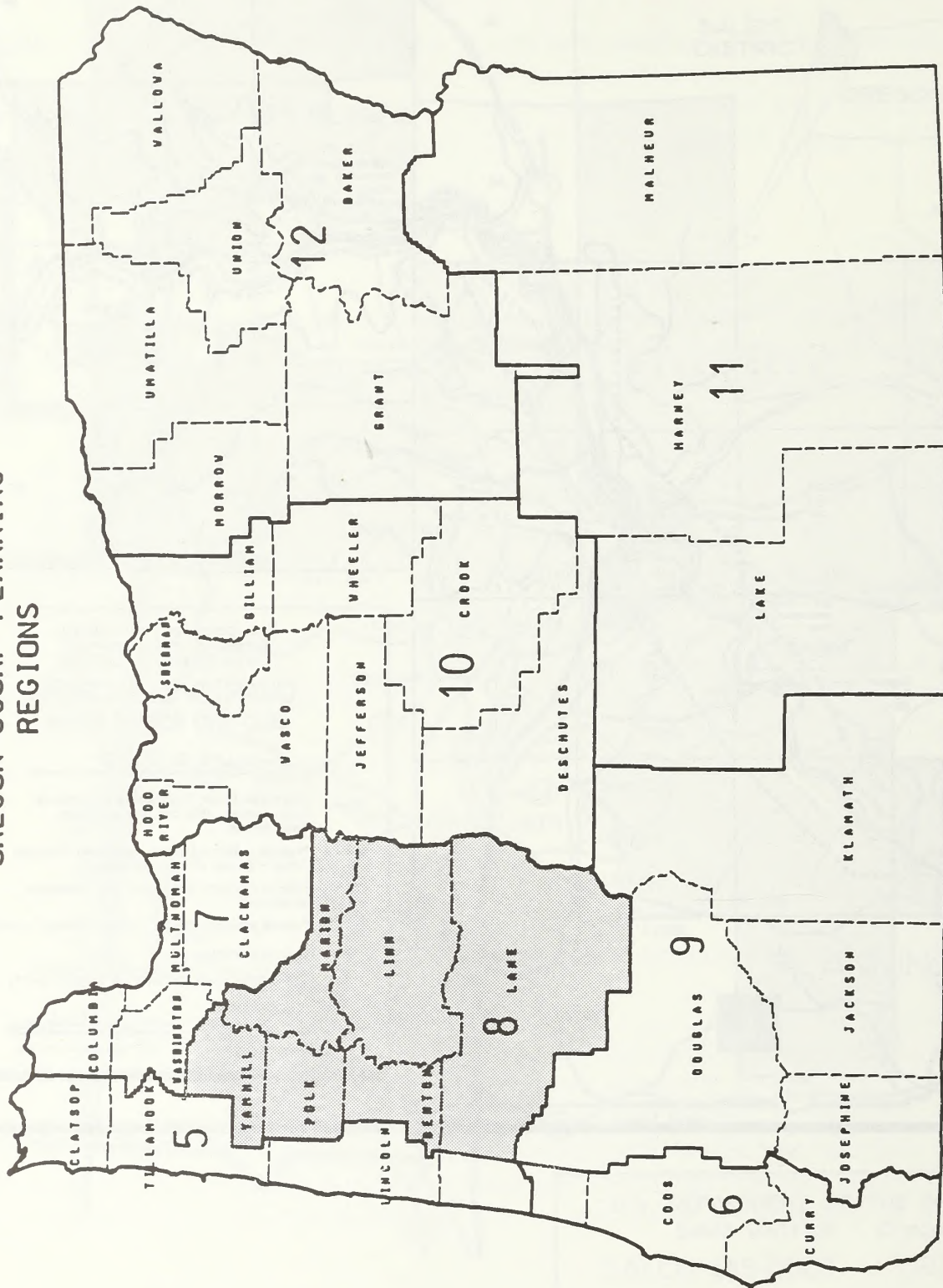
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 Salem District - Oregon
 SALEM DISTRICT - OREGON
 QUARTZVILLE CREEK
 WILD AND SCENIC RIVER
 LOCATION MAP



OREGON SCORP PLANNING REGIONS



Summary

The study of the Quaternary geology of the Quetzal Creek drainage basin is a complex task. The Quaternary is a period of time that includes the last 2.6 million years of Earth's history. It is a period of time that is characterized by a series of glacial and interglacial cycles. The Quaternary geology of the Quetzal Creek drainage basin is a complex task because of the many different types of rocks and sediments that are present in the area. The Quaternary geology of the Quetzal Creek drainage basin is a complex task because of the many different types of rocks and sediments that are present in the area.

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Figure 1



Purpose and Need

The purpose of this document is to provide a basis for comparing alternative management options for a 9.66-mile segment of Quartzville Creek. This segment was added to the National Wild and Scenic Rivers System in 1988 through the passage of the United States Congress Omnibus Oregon Wild and Scenic Rivers Act.

The designated segment was classified as a recreational river area based on the development along its shorelines and the fact that the entire segment is readily accessible by Quartzville Access Road.

In designating the lower portion of Quartzville Creek a National Wild and Scenic River, Congress directed the Department of the Interior, through the Bureau of Land Management (BLM), to develop a river management plan for the 9.66-mile segment by October of 1992. The Quartzville Creek Management Plan will provide general direction and guidance for the protection and enhancement of river-related resource values and accommodate public uses consistent with the National Wild and Scenic Rivers Act.

Environmental Assessment

An environmental assessment (EA) is required by the National Environmental Policy Act (NEPA) because the Quartzville Creek Management Plan may have effects on the quality of the human environment. Its development follows regulations pursuant to NEPA (40 CFR 1500-1508). The EA describes the planning process, presents and analyzes alternative strategies (plans) for managing the river area and documents the environmental effects of each alternative. The EA analyzes the short-term, long-term, direct, indirect and cumulative effects for each alternative.

An EA's primary function is to provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). Another important purpose of an environmental assessment is to insure that all pertinent environmental information and analysis is available to citizens, public officials and cooperating agencies before decisions are made and actions taken. The analysis, along with public input provides the basis for the selection of one of the management alternatives.

Public Involvement

The public involvement program for this project included public meetings, group-requested meetings and

mailings to interested parties. Public input was also gained in a visitor-use survey conducted on Quartzville Creek during the summer of 1991. Written comments were solicited at the end of each public meeting, group requested meetings and mailing. Comments received were compiled, analyzed and where appropriate, incorporated into this document. Some of the comments included: concerns about maintaining the natural character of Quartzville Creek, providing adequate sanitation facilities, maintaining recreational mining opportunities, maintaining dispersed camping opportunities and traffic safety.

The public involvement process will continue with the public review of this document and in the preparation of the final management plan.

Issues

Several key issues guided the development and evaluation of the Quartzville Creek management alternatives. These issues were identified during public meetings and interdisciplinary team meetings, meetings with interested parties, public comments from the visitor-use survey and written comments received through the mail.

Recreation

Issue: What types and levels of recreation facilities and access will be provided? How can recreational use be managed to reduce visitor impacts, visitor conflicts and crowding?

Facility Development

Concerns: Public comments expressed concern that existing facilities do not currently meet demand and would not meet future demand.

River Access and Trails

Concerns: Public comments expressed the need for improved river access along Quartzville Creek to meet the diverse physical capabilities of the public. Suggestions included the construction of river access points where streambanks are steep and rocky and providing barrier-free river access in key spots where adequate parking is available. Interest in developing a trail system within and extending out of the river corridor boundaries was also expressed.

Land Acquisition Opportunities

Concerns: Due to the steepness of Quartzville Creek

canyon, there are limited opportunities for facility development. One of the more well-suited areas for development is under private ownership. These lands have several large flat areas along the north and south sides of Quartzville Access Road. These areas are already receiving the highest concentration of undeveloped overnight use in the river corridor. The desirability acquiring these lands was expressed by several parties.

Level of Administrative Control

Concerns: Public comments expressed opinions about the level of administration appropriate for Quartzville Creek. An increase in administrative control may be necessary to provide for visitor safety and minimize user conflicts. However, a concern expressed by some users that they enjoy the unregulated setting of Quartzville Creek and that instituting a highly restrictive level of administrative control could interfere with their experience.

User Impacts

Concerns: Public comments expressed concern about the potential impacts of current and increasing recreational use on the physical and biological resources within the river corridor. During the visitor survey and at public meetings, participants commented on the negative effects of unregulated undeveloped camping, litter, vandalism, and other user impacts on their recreation experience.

User Conflicts and Crowding

Concerns: Current use of Quartzville Creek is low to moderate with peak use periods being weekends during the summer season. The current regional trend indicates that water-based outdoor recreation is one of the fastest growing recreation activities. If recreation outside developed recreation sites remains unregulated, problems with overcrowding may occur. Concern has also been expressed about conflicts between current and future uses. During the visitor survey, visitors commented on the potential incompatibility of recreational mining with such activities as fishing and swimming. Currently such conflicts are limited, but as use increases existing conflicts may be intensified and new conflicts may occur.

Road Management

Issue: What can be done to promote traffic safety in the use of Quartzville Access Road?

Concerns: Public comments expressed concern about the safety of Quartzville Access Road and the conflicts existing between recreational, administrative and commercial traffic. The United States Forest Service (USFS) Sweet Home Ranger District expressed concern that any road improvements on the BLM segment of Quartzville Access Road could increase recreation use of the USFS road segment, thereby shifting road safety problems onto their segment.

Water Quality

Issue: How will water quality be maintained or enhanced over the long-term?

Concerns: There is concern about how facility development, recreational use and other management activities could affect water quality. In addition, what are the existing mechanisms for identifying and responding to any water quality problems. Some of the activities causing the greatest concern are unregulated dispersed use, lack of sanitation facilities, recreational mining, timber harvest, surface run off from road traffic and road improvement and construction.

Riparian Zone

Issue: How will riparian zone habitat and stream functions be maintained and enhanced over the long-term?

Concerns: The riparian zone along Quartzville Creek is already limited by the presence of Quartzville Access Road. There is concern that current use has already impacted the riparian zone and that increasing unregulated recreational use may deteriorate the riparian zone to unacceptable levels.

Wildlife

Issue: What will be done to protect wildlife habitat and populations over the long-term?

Concerns: There is concern about the potential effects of unregulated recreation use, road construction, and facility development, on wildlife habitat and populations.

Fisheries

Issue: How will fish habitat and fish populations be managed?

Concerns: Quartzville Creek is currently managed as a put-and-take fishery. There is concern that proposed actions such as facility development, unregulated use

and road construction could impact fish habitat. Quartzville Creek also has potential habitat for anadromous fisheries.

Visual Resources

Issue: How will the scenic values and landscape characteristics within the river corridor be maintained or enhanced?

Concerns: Public comments were expressed about retaining the natural character of Quartzville Creek, was strongly expressed, during public meetings, in written comments and by visitors surveyed in the river corridor. Many said they would like to "keep the river as it is;" "keep it natural." Concern was voiced about the potential impacts of facility development and timber harvest activities on scenic values in the river corridor.

Cultural Resources

Issue: What will be done to identify and protect cultural resources within the river corridor?

Concerns: A comprehensive inventory along Quartzville Creek has not yet been completed. There is a concern that facility development and increasing recreation use could negatively impact sites not yet discovered. Little information about prehistoric activity in this area exists. Public interest has focused primarily on the historical mining activities of the area, about which much more is known.

Development of Alternatives

The alternatives analyzed in this document were developed with input from the public, the Quartzville Creek interdisciplinary team and other agencies. Creating a range of feasible solutions for resolving the identified issues was explicitly sought. Alternative C attempts to balance resource protection with recreational use. Of all the alternatives, it best represents projected tradeoffs which could be included in management decisions. For this reason Alternative C has been identified as the proposed action.

Overview of the Alternatives

This overview provides a general description of how Quartzville Creek could be managed under each alternative. More detailed management actions are presented in tabular form at the end of Chapter II.

Alternative A: No Action

INTENT: This is the "no action" alternative required by NEPA. Alternative A would provide for the continuation of the existing management situation. Under this alternative, county, state and federal agencies, and private land owners would continue to exercise their existing authorities within the corridor. No new visitor facilities or programs would be developed. Recreation would be regulated and monitored at a very low level outside the two existing developed recreation sites. Resources would be managed under existing management policies and no additional resource enhancement projects would be initiated. No new efforts for inter-agency cooperation, either within or outside the river corridor boundaries, would be made.

Alternative B: Recreation Development Emphasis

INTENT: Alternative B would provide for increased recreation use and facility development. Scenic values and recreational opportunities would be emphasized. A more developed recreation experience would be provided focusing on visitor comfort, safety, security, and social opportunities. Evidence of human development and management presence would be readily observable. Interagency cooperation would play a key role in developing recreation facilities, visitor services and enforcing regulations within and outside the river corridor boundaries. Land acquisition efforts would focus on providing additional recreational opportunities and public access.

Alternative C: Recreation and Resource Mix (Proposed Action)

INTENT: Alternative C would attempt to balance resource protection with recreational use. Maintaining the natural character, resource values and recreational opportunities Quartzville Creek provides would be emphasized. Limited recreational development would accommodate current and future public needs. Undeveloped camping would continue and minimal improvements to help reduce user impacts would be made. Evidence of human development and management presence would be less than in Alternative B but higher than Alternative A or D. Resource monitoring programs and enhancement projects would be developed to improve resource protection. Coordinating with neighboring agencies and private landowners on providing recreation services, opportunities, and resource protection would be a key component of this alternative. As in Alternative B, land acquisition efforts would focus on providing additional recreation opportunities and public access.

Alternative D: Resource Protection Emphasis

INTENT: Alternative D emphasizes resource protection and enhancement of natural ecosystems within the river corridor. Recreation and other management activities would receive secondary consideration. No new facilities would be developed and overnight use in the river corridor would be limited to existing developed recreation sites. Resource monitoring and enhancement projects would be of primary importance. Coordinating with neighboring agencies and private landowners would focus on resource protection and enhancement on lands within and outside the river corridor boundaries. Land acquisition efforts would focus on improving resource protection and the BLM's ability to manage resources more consistently within the river corridor.

Affected Environment

The environment of Quartzville Creek is described in detail in Chapter III of the Environmental Assessment. The environment was described in terms of these resources: Recreation; Road Management; Water Quality; Riparian Zone; Wildlife; Fisheries; Visual Resources; Cultural Resources; Socio-economics; Land Ownership; Geology and Minerals; Soils; Vegetation and Timber; and Navigability.

Environmental Consequences

The river planning team analyzed the environmental and socio-economic effects that each alternative would have, if implemented. Short-term, long-term, direct, indirect, and cumulative effects were analyzed. The resources analyzed were the same as those described under the Affected Environment. The analysis of the effects is described in detail in Chapter IV of the Environmental Assessment.

* Note: Impacts associated with site-specific projects such as facility development or timber harvest are not addressed in detail in this EA. Separate EA's will be prepared, on a project by project basis, to identify and assess site-specific impacts, cumulative impacts and mitigation.

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Alternative A

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Alternative B

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Alternative C

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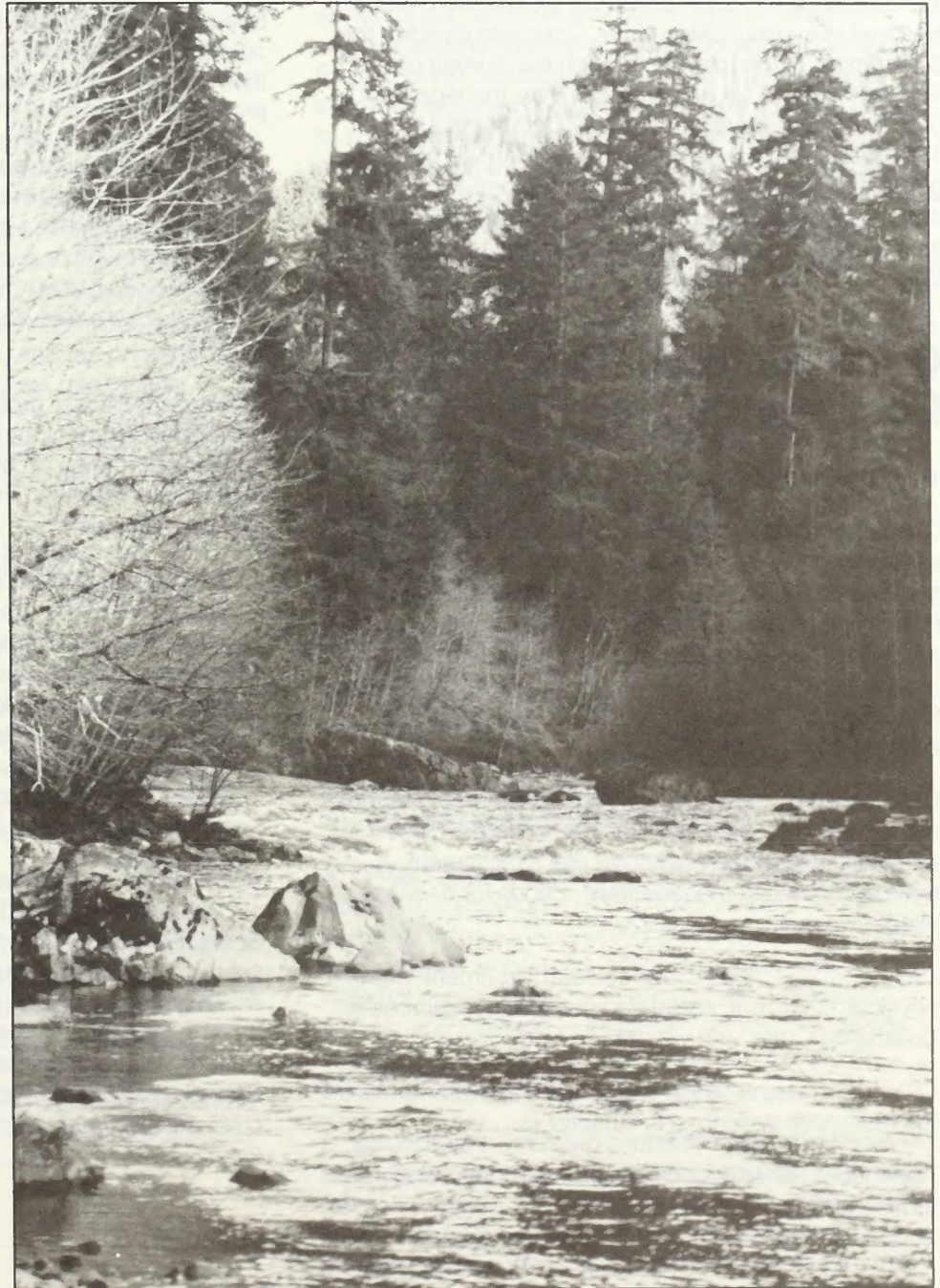
Alternative D

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Environmental Consequences

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Chapter I Purpose and Need for Action



Purpose and Need

The purpose of this document is to provide a basis for comparing alternative management options for a 9.66-mile segment of Quartzville Creek. This segment was added to the National Wild and Scenic Rivers System in 1988 through the passage of the United States Congress Omnibus Oregon Wild and Scenic Rivers Act.

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In designating the lower portion of Quartzville Creek a National Wild and Scenic River, Congress directed the Department of the Interior, through the Bureau of Land Management (BLM), to develop a river management plan for the 9.66-mile segment by October of 1992. The Quartzville Creek Management Plan will provide general direction and guidance for the protection and enhancement of river-related resource values and accommodate public uses consistent with the National Wild and Scenic Rivers Act.

Organization of this Document

This document is presented in four chapters:

Chapter I provides background on the environmental assessment (EA), management planning process, Wild and Scenic Rivers Act, relationship of the plan to other BLM planning, the public involvement process, boundary delineation process and a summary of the resource assessment findings. The issues that were identified for Quartzville Creek along with the goals and objectives are also described.

Chapter II provides an overview description of the four management plan alternatives that were developed and evaluated in the environmental assessment. A table with detailed management actions for each alternative is also provided.

Chapter III describes the affected environment; the physical, biological, social and economic resources of Quartzville Creek and vicinity.

Chapter IV assesses the impacts of each alternative on the resources described in Chapter III.

Appendix A contains a glossary of acronyms and terms. Appendix B contains a list of references. Appendix C contains a list of preparers. Appendix D

contains a list of those consulted with. Appendix E contains a summary of environmental elements. Appendix F contains a summary of the Recreation Opportunity Spectrum, Limits of Acceptable Change System and Visual Resource Management classification system. Appendix G contains a list of the plant species found within the river corridor and a list of the historical sites found within the river corridor. Appendix H contains a copy of the Wild and Scenic Rivers Act.

Background on the Wild and Scenic Rivers Act

In 1968, Congress passed the National Wild and Scenic Rivers Act, establishing a nationwide system of outstanding free-flowing rivers. The primary purpose of the Act is to balance river development with river protection.

The Congress declares that the established national policy of dam and other construction...needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

The Act specifically protects rivers from future hydro-power development and impoundments. The Act also provides for the protection of river values for each river in the system through the development of a river management plan.

It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.

By the end of 1991, nearly 10,000 miles of rivers on 127 river segments had been added to the Wild and Scenic Rivers System. Designation as a wild and scenic river does not mean that the river corridor, which generally includes the land within about 1/4 mile on either side of the river, is managed like a National Park or Wilderness area. Rather the management goal is to maintain the character of the river in its current state and to protect and/or enhance specific resource values.

Federal Wild and Scenic River Classification

Segments of rivers designated as components of the National Wild and Scenic Rivers System are classified by Congress into one of three categories depending on the extent of development and access along each segment. The classification terms *wild*, *scenic*, or *recreational* refer to the degree of access or development that exists along a river area at the time of designation. The classifications are used as general guidelines for use in river management and allow for a wide range of rivers, from primitive to highly developed, to be included as components of the system.

Rivers or river segments classified as *wild river areas* are generally inaccessible except by trail, and are essentially primitive in character. *Scenic river areas* are largely primitive and undeveloped, but accessible in places by roads and may have some residential development and resource activities such as agriculture or timber harvest occurring within the corridor. *Recreational river areas* are readily accessible by road or railroad and have a greater degree of development along their shorelines. These terms can be misleading. A Recreational river area may have been designated for reasons other than recreation, and the primary values of a Scenic river area may not necessarily include scenery. Based on these criteria Quartzville Creek was designated a Recreational river area under the Omnibus Oregon Wild and Scenic Rivers Act.

Relationship to BLM Planning

The Wild and Scenic Rivers Act requires that a comprehensive river management plan be prepared to provide for the protection of designated river values. The Wild and Scenic Rivers Act requires that the plan address resource protection, development of land and facilities, user capacities and other management practices as needed.

The Quartzville Creek Management Plan will be considered a modification to the BLM Salem District Management Framework Plan (MFP). The MFP provides direction for all resource management programs, practices, uses and protection measures for the Eastside Salem District. The Wild and Scenic Rivers Act directs that the river management plan shall be coordinated with and incorporated into land use plans for affected adjacent federal lands.

Environmental Assessment

An environmental assessment (EA) is required by the National Environmental Policy Act (NEPA) because the Quartzville Creek Management Plan may have effects on the quality of the human environment. Its development follows regulations pursuant to NEPA (40 CFR 1500-1508). The EA describes the planning process, presents and analyzes alternative strategies (plans) for managing the river area and documents the environmental effects of each alternative. The EA analyzes the short-term, long-term, direct, indirect and cumulative effects for each alternative.

An EA's primary function is to provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). Another important purpose of an environmental assessment is to insure that all pertinent environmental information and analysis is available to citizens, public officials, and cooperating agencies before decisions are made and actions taken. The analysis, along with public input provides the basis for the selection of one of the management alternatives.

The alternative selected, along with any adjustments, will provide the framework for the final management plan and will be fully described in an attachment with the publication of the Decision Record.

Management Planning Process

In accordance with NEPA and the Wild and Scenic Rivers Act, this document was prepared using an interdisciplinary team approach (see Appendix C for a list of team members). The planning process provides opportunities for the involvement of Federal and State agencies, local governments and interested citizens. The planning process involves six steps.

A. Project Scoping: Identify management plan issues and develop a public involvement program. This step involves developing a strategy for involving the public throughout the entire planning process. This includes public meetings, meetings with interested parties, and mailings to interested parties. Public and interdisciplinary team meetings are used to identify project goals, objectives and issues.

B. Boundaries: Develop proposed administrative boundaries and form a river management planning team. Proposed administrative boundaries (the area influenced by the management plan) are identified through a public notification and involvement process.

C. Resource Assessment: Identify outstandingly remarkable resources. This step involves identifying and evaluating river resources and determining which resources qualify as outstandingly remarkable. Information compiled in the resource assessment provides the data base for preparing the environmental assessment and management plan.

D. Management Alternatives: Develop alternatives for river management. This step involves clarifying issues, evaluating existing management practices and identifying potential management alternatives.

E. Prepare an Environmental Assessment. The first four steps are part of the EA preparation, but they must be compiled into an evaluative document along with several other key items. These include a discussion of the affected environment, a thorough analysis of the impacts of each management alternative on the affected environment and other information necessary so that agencies, landowners, recreationists, and other interested parties can make informed comments concerning the EA and management plan document.

F. Prepare a Decision Record or an Environmental Impact Statement and select a final management plan. Based on public comment and the environmental analysis, an alternative or some combination of alternatives will be selected and a management plan will be prepared for public review. The management plan will be issued with the Decision Record and will provide additional detail on costs and implementation schedules. The Quartzville Creek Management Plan will be implemented after the Decision Record is published, pending the receipt of any administrative appeals.

Public Involvement

The public involvement program for this project included public meetings, group-requested meetings and mailings to interested parties. Public input was also gained in a visitor-use survey conducted on Quartzville Creek during the summer of 1991. The public involvement process will continue with the public review of this document and in the preparation of the final management plan.

Written comments were solicited at the end of each public meeting, group requested meeting and mailing. The comments received were compiled, analyzed and where appropriate, incorporated into this document. Some of the comments included: concerns about maintaining the natural character of Quartzville Creek, providing adequate sanitation facilities, maintaining recreational mining opportunities, maintaining dispersed camping opportunities and traffic safety.

Public Meetings

Four public meetings have been held since the planning process began. The first meeting occurred on May 25, 1989, in Sweet Home, Oregon. During this meeting, potential goals, objectives and issues were identified and proposed administrative boundaries were reviewed. On April 23, 1991, another public meeting was held in Sweet Home to reintroduce the planning process to the public and to discuss potential management actions, alternatives, and to review issues and concerns. An additional meeting was held in Salem on April 24, 1991, for the same purpose as the one held on April 23. The last public meeting was held on July 31, 1991, in Sweet Home. At this meeting, a description of the four draft alternatives were presented and discussed.

Interested Parties

Several groups and individuals expressed interest in the planning process. Meetings were held upon request with the following groups: Linn County Commissioners, Sweet Home City Council, Linn County Tourism Coalition, U.S. Forest Service (USFS) Sweet Home Ranger District, Oregon Equestrian Trails Club and the Lebanon, Oregon and Vancouver, Washington chapters of the Western Mining Council.

Planning Updates

A list of over 100 individuals, agencies and organizations has been compiled to help insure that those individuals who were unable to participate in meetings were mailed planning updates. In this way, interested parties, are being kept informed of the river planning status and are able to provide input. Planning updates were sent to those on the mailing list. Other mailings included a summary of the proposed outstandingly remarkable values with a solicitation for comments. This document was mailed to all those on the mailing list and the final management plan will also be mailed out using the same list.

Visitor-Use Survey

A visitor-use survey was conducted along Quartzville Creek from June through August of 1991. In addition to general use information, visitors were asked to comment on any concerns they had on the future management of Quartzville Creek as a component of the National Wild and Scenic Rivers System.

Proposed Administrative Boundaries

The Wild and Scenic Rivers Act (Section 3(b)) specifies that after a river is designated, the agency charged with its administration must establish proposed administrative boundaries delineating the land area within the river corridor that will be managed under the Act. The Act specifies that the area within the corridor should not average more than 320 acres per river mile.

Proposed administrative boundaries must be submitted to Congress within one year of the river's designation. The proposed administrative boundaries were subject to change during the boundary comment period. Changes are also possible during the EA and management planning process.

The delineation of the proposed administrative boundaries was based on topography, location of outstanding river-related resources, land ownership, use patterns and public comment. The intent of the boundaries is to encompass identified outstandingly remarkable values. The methodology used to derive the preliminary boundaries for Quartzville Creek consisted of an on-the-ground visual determination from bridges and other accessible points along the river. Since recreational mining is an activity that occurs primarily within and along the river, the proposed administrative boundaries were predominately based on outstandingly remarkable scenic values.

The BLM held a public meeting on May 25, 1989, to review the proposed administrative boundaries. Background information on the National Wild and Scenic Rivers System, along with a description and map of the proposed administrative boundaries for Quartzville Creek, was mailed to any individual or organization expressing interest. Both the meeting and the mailing solicited comments, questions and concerns from the public.

The final proposed administrative boundaries included 1,792 acres of BLM land and 365 acres of private land for a total of 2,147 acres. The proposed administrative boundaries were published as a Notice of Availability in the Federal Register and were not disputed during the 45-day comment period. The boundaries were then submitted to Congress and approved, pending completion of the final river management plan.

The proposed administrative boundaries are still subject to review during the management planning process and may be changed based on new information or analysis.

Summary of Resource Assessment Findings

Preparing a resource assessment provides an objective determination of the important river-related values and supplies technical data for use as baseline information for the development of a comprehensive river management plan.

In October of 1990, the BLM organized an interdisciplinary team to conduct a resource assessment to evaluate the "outstandingly remarkable" values for which the river was designated and to identify any additional values which meet the outstandingly remarkable criteria.

To qualify as outstandingly remarkable, a river-related value must be a unique, rare, or exemplary feature which is significant at a regional or national level. Those values which failed to meet the outstandingly remarkable criteria, but still contribute substantially to the functioning of the river ecosystem and its value for public use, were found to be, "regionally significant."

An analysis was conducted as part of the resource assessment to compare river-related values on Quartzville Creek to similar values on other rivers within the same geographic region. As a basis for comparison, geographic regions defined in Oregon's Statewide Comprehensive Outdoor Recreation Plan (SCORP) were used. Quartzville Creek is located in SCORP Region 8. Region 8 consists of Yamhill, Polk, Benton, Marion, Linn and most of Lane County (See SCORP Regions Map).

The team completed a draft resource assessment and made it available for review, by resource experts, agencies and interested groups and individuals. The final resource assessment findings concur with Congress' determination that the scenic drive, recreational mining, and whitewater boating (primarily kayaking when flows are high) qualify as outstandingly remarkable values. During the preparation of the resource assessment, water quality was found to be an outstandingly remarkable value, however, with further evaluation it was found to be significant, rather than outstandingly remarkable. This change is discussed in more detail in the summary of resource assessment findings for water quality.

Scenic

Results of the resource assessment concur with the Congressional Record that the scenic drive along Quartzville Creek is an outstandingly remarkable value. The scenic qualities of Quartzville Creek consist of a unique combination of cascading whitewater, water

clarity, rocky outcrops, and diverse vegetation of conifers and hardwoods providing color variation and height diversity.

Recreation

Results of the resource assessment concur with the Congressional Record that the recreational mining and whitewater boating opportunities provided by Quartzville Creek qualifies as an outstandingly remarkable value. Recreational mining on Quartzville Creek attracts people living within as well as outside of SCORP Region 8. People are able to experience a part of Oregon's mining history as they pan for gold. Another outstandingly remarkable value Quartzville Creek offers is Class IV whitewater boating (primarily kayaking) when flows are high.

Geology

The geological features of Quartzville Creek were found regionally significant. These are exemplified by the mineral deposits and hydrothermal alteration of volcanic rocks in Quartzville Creek. These characteristics are of scientific interest as well as having potential for both interpretation and education.

Fisheries

Fish populations and habitat of Quartzville Creek were found regionally significant. If anadromous fisheries were reestablished, a finding of outstandingly remarkable may be considered. Although Quartzville Creek has been identified by the Northwest Power Planning Council (NWPPC) as having potential for providing habitat for native anadromous fish species, there are several limitations including two existing dams below the designated river segment.

Hydrology

The hydrology of Quartzville Creek was found regionally significant due to its spring-fed nature. The stream structure of the river is not considered significant because it's character has been significantly altered by adjacent road construction and logging activities.

Water Quality

The water quality of Quartzville Creek was found outstandingly remarkable during the resource assessment process due to its cold, clear, spring-fed nature. Data gathered by the Oregon Department of Environmental Quality (ODEQ) between 1969 and 1973 indicated that Quartzville Creek exceeded most state

standards for levels of suspended sediment, chemicals, and bacteria. The 1988 ODEQ publication entitled "Oregon Statewide Assessment of Nonpoint Sources of Water Pollution" has Quartzville Creek listed as moderately impacted for nutrients, sediment, and stream structure. After evaluating this new data, water quality for Quartzville Creek, was reclassified as significant rather than outstandingly remarkable.

Wildlife

The wildlife populations and habitat found in and along Quartzville Creek were found to be regionally significant. The variety of forest age classes and plant associations, including a large old growth component, provide valuable habitat to a number of wildlife species, but is not considered unique or exemplary. The wildlife populations and habitat found within the river corridor do not meet established criteria for an outstandingly remarkable value. The proximity of threatened northern spotted owl and the wildlife habitat the river corridor provides does qualify this resource as regionally significant. Additional inventory and evaluation is needed to more fully assess this resource (See Data Collection since Resource Assessment).

Biological/Botanical/Ecological

The vegetation and ecology of Quartzville Creek were found regionally significant. The vegetation and ecology in the river corridor are similar to many drainages found in the region and is not considered unique or exemplary. The characteristic that contributes to the significance of this resource is the large old-growth component (55 percent) within the river corridor boundaries. This component potentially enhances the stream, water and scenic qualities of the corridor. At the time of the assessment, no survey for special status plant species had been conducted. A botanical survey was completed in the river corridor in 1991 after the release of the Resource Assessment and no special status species were identified.

Prehistory

Current information on the prehistoric cultural resources within the river corridor does not support a finding of outstandingly remarkable or regionally significant. Although prehistoric use of this area is indicated by the presence of sites upstream and downstream of the designated segment and in the surrounding uplands, no specific prehistoric sites have been identified within the river corridor. Very little cultural inventory has been conducted in the corridor to date. Additional inventory and evaluation is needed to

more fully assess this resource (See Data Collection since the Resource Assessment).

Historic

The identified historic sites within the river corridor are not associated with rare, unusual or historic one-of-a-kind events or cultural activities in the region. None of these historic sites are currently listed in or determined eligible for inclusion in the National Register of Historic Places, however, present information is incomplete and additional inventory and evaluation are needed to more accurately assess historic resources (See Data Collection since the Resource Assessment).

Traditional Cultural Uses

No traditional use cultural sites have been identified within in the river corridor. The Confederated Tribes of Siletz Indians have expressed their interest in the conservation of any cultural resource sites. Current information on traditional use cultural resources within the river corridor does not support a finding of outstandingly remarkable or regionally significant.

Data Collection Since the Resource Assessment

During the resource assessment process, the BLM compiled all existing resource data and identified additional data needs. In an attempt to begin filling in the gaps, the BLM conducted a visitor use and a botanical survey of the river corridor during the spring and summer of 1991. A water quality monitoring program was initiated in the fall of 1991. Additional inventory and evaluation for wildlife, prehistoric and historic cultural resources and other resources, will be completed in conjunction with the implementation of the river management plan.

Management Issues

The National Environmental Policy Act (NEPA) defines an issue as "...unresolved conflicts regarding alternative uses of available resources." In this planning process, issues are also defined as subjects of public interest relating to the management of the river.

Table 1: Summary of Resource Values for Quartzville Creek

Summary of Resource Values for Quartzville Creek				
Resource Value	Outstandingly Remarkable	Significant	Not Significant	Further Study Needed
Scenic*	X			
Recreation*	X			
Geology		X		
Fisheries		X		
Water Quality**		X		
Hydrology		X		
Wildlife		X		X
Bio/Bot/Eco		X		X
Pre-History			X	X
History			X	X
Traditional Uses			X	X

*The values of Scenic and Recreation were recognized in the original Omnibus Oregon Wild and Scenic Rivers Act.

**After further study water quality was found to be significant rather than outstandingly remarkable.

Several key issues guided the development and evaluation of the Quartzville Creek management alternatives. These issues were identified during public and interdisciplinary team meetings, meetings with interested parties, public comments from the visitor-use survey and written comments received through the mail.

Recreation

Issue: What types and levels of recreation facilities and access will be provided? How can recreational use be managed to reduce visitor impacts, visitor conflicts and crowding?

Facility Development

Concerns: Public comments expressed concern that existing facilities do not currently meet demand and would not meet future demand.

River Access and Trails

Concerns: Public comments expressed the need for improved river access along Quartzville Creek to meet the diverse physical capabilities of the public. Suggestions included the construction of river access points where streambanks are steep and rocky and providing barrier-free river access in key spots where adequate parking is available. Interest in developing a trail system within and extending out of the river corridor boundaries was also expressed.

Land Acquisition Opportunities

Concerns: Due to the steepness of Quartzville Creek canyon, there are limited opportunities for facility development. One of the more well-suited areas for development is under private ownership. These lands have several large flat areas along the north and south sides of Quartzville Access Road. These areas are already receiving the highest concentration of undeveloped overnight use in the river corridor. The desirability acquiring these lands was expressed by several parties.

Level of Administrative Control

Concerns: Public comments expressed opinions about the level of administration appropriate for Quartzville Creek. An increase in administrative control may be necessary to provide for visitor safety and minimize user conflicts. However, a concern expressed by some users that they enjoy the unregulated setting of Quartzville Creek and that instituting a highly

restrictive level of administrative control could interfere with their experience.

User Impacts

Concerns: Public comments expressed concern about the potential impacts of current and increasing recreational use on the physical and biological resources within the river corridor. During the visitor survey and at public meetings, participants commented on the negative effects of unregulated undeveloped camping, litter, vandalism, and other user impacts on their recreation experience.

User Conflicts and Crowding

Concerns: Current use of Quartzville Creek is low to moderate with peak use periods being weekends during the summer season. The current regional trend indicates that water-based outdoor recreation is one of the fastest growing recreation activities. If recreation outside developed recreation sites remains unregulated, problems with overcrowding may occur. Concern has also been expressed about conflicts between current and future uses. During the visitor survey, visitors commented on the potential incompatibility of recreational mining with such activities as fishing and swimming. Currently such conflicts are limited, but as use increases existing conflicts may be intensified and new conflicts may occur.

Road Management

Issue: What can be done to promote traffic safety in the use of Quartzville Access Road?

Concerns: Public comments expressed concern about the safety of Quartzville Access Road and the conflicts existing between recreational, administrative and commercial traffic. The USFS Sweet Home Ranger District expressed concern that any road improvements on the BLM segment of Quartzville Access Road could increase recreation use of the USFS road segment, thereby shifting road safety problems onto their segment.

Water Quality

Issue: How will water quality be maintained or enhanced over the long-term?

Concerns: There is concern about how facility development, recreational use and other management activities could affect water quality. In addition, what are the existing mechanisms for identifying and

responding to any water quality problems. Some of the activities causing the greatest concern are unregulated dispersed use, lack of sanitation facilities, recreational mining, timber harvest, surface run off from road traffic and road improvement and construction.

Riparian Zone

Issue: How will riparian zone habitat and stream functions be maintained and enhanced over the long-term?

Concerns: The riparian zone along Quartzville Creek is already limited by the presence of Quartzville Access Road. There is concern that current use has already impacted the riparian zone and that increasing unregulated recreational use may deteriorate the riparian zone to unacceptable levels.

Wildlife

Issue: What will be done to protect wildlife habitat and populations over the long-term?

Concerns: There is concern about the potential effects of unregulated recreation use, road construction, and facility development, on wildlife habitat and populations.

Fisheries

Issue: How will fish habitat and fish populations be managed?

Concerns: Quartzville Creek is currently managed as a put-and-take fishery. There is concern that proposed actions such as facility development, unregulated use and road construction could impact fish habitat. Quartzville Creek also has potential habitat for anadromous fisheries.

Visual Resources

Issue: How will the scenic values and landscape characteristics within the river corridor be maintained or enhanced?

Concerns: Public comments were expressed about retaining the natural character of Quartzville Creek, was strongly expressed, during public meetings, in written comments and by visitors surveyed in the river corridor. Many said they would like to "keep the river as it is;" "keep it natural." Concern was voiced about the potential impacts of facility development and timber harvest activities on scenic values in the river corridor.

Cultural Resources

Issue: What will be done to identify and protect cultural resources within the river corridor?

Concerns: A comprehensive inventory along Quartzville Creek has not yet been completed. There is a concern that facility development and increasing recreation use could negatively impact sites not yet discovered. Little information about prehistoric activity in this area exists. Public interest has focused primarily on the historical mining activities of the area, about which much more is known.

Management Goals and Objectives

Several sources were used to develop the management goals and objectives for Quartzville Creek. Some management guidance originated from the National Wild and Scenic Rivers Act itself. Other guidance was developed by the interdisciplinary study team to address the issues and concerns identified in the planning process.

Management Goal

Protect and enhance Quartzville Creek's natural character and the outstandingly remarkable values for which it was designated. Quartzville Creek will be managed for the use and enjoyment of visitors in a manner that will leave the area unimpaired for future use and enjoyment by visitors.

Management Objectives

- To protect the river's free-flowing character, and protect and enhance identified outstandingly remarkable values.
- To provide for a wide range of recreation opportunities managed in a fashion that prevents the degradation of the outstandingly remarkable values.
- To emphasize opportunities for providing users with education, information and interpretation designed to minimize user impacts and conflicts and to encourage stewardship.
- To coordinate management actions, with other federal agencies, private landowners and county and state government, for Quartzville Creek and adjacent areas.

- To provide facilities, river access and administrative control, for resource protection, visitor safety, health and enjoyment.
- To maintain or enhance the components essential to the natural ecological functions of Quartzville Creek.
- To maintain or enhance plant and animal community diversity within the river corridor.
- To maintain water quality at acceptable levels of temperature, suspended sediment, chemicals and bacteria.

Management Guidelines

In addition to the objectives just stated, BLM guidelines common to all designated rivers in Oregon and Washington were developed.

Fire Protection and Suppression

The management and suppression of fires within a designated river area will be carried out in a manner compatible with contiguous Federal lands. On wildfires, suppression methods will be utilized that minimize long-term impacts on the river and river area. Pre-suppression and prevention activities will be conducted in a manner consistent with management objectives for the specific river segment. Prescribed fire may be utilized to maintain or restore natural ecological conditions to meet objectives of the river plan.

Insects, Diseases and Noxious Weeds

The control of forest and pests, diseases and noxious weed infestations will be carried out in a manner compatible with the intent of the Act and management objectives of contiguous federal lands.

Cultural Resources

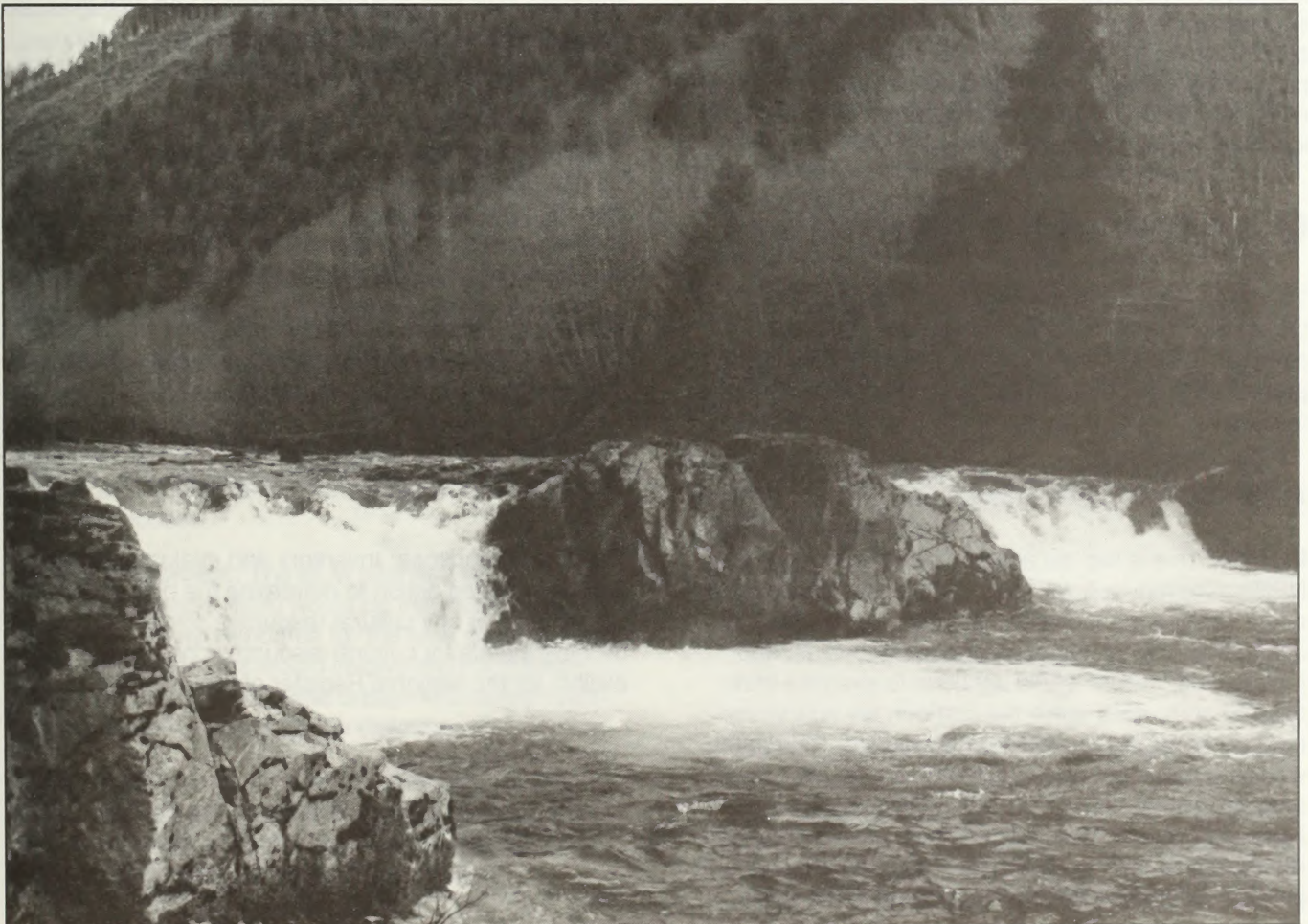
Historic and prehistoric resource sites will be identified, evaluated and protected in a manner consistent with applicable laws, regulations and policies. Where appropriate, historic or prehistoric sites will be stabilized.

Fish and Wildlife Habitat Improvement

The construction and maintenance of minor structures for the protection, conservation, rehabilitation, or enhancement of fish and wildlife habitat are acceptable provided they do not affect the free flowing characteristics of the river and are compatible with the classification. The area should remain natural in appearance and the practices or structures should harmonize with the surrounding environment.

Chapter II

Description of Alternatives



Purpose

Chapter II describes and compares the four management alternatives designed to respond to the issues which were identified. The range of alternatives represents four different strategies for resolving the issues. Each alternative presents a different view of how Quartzville Creek could be managed in the future.

Chapter II contains the following sections:

- A brief description of how the alternatives were developed
- A general overview and description of each alternative
- A detailed description of each alternative in tabular form

Development of Alternatives

The alternatives analyzed in this document were developed with input from the public, the Quartzville Creek interdisciplinary team and other agencies. Creating a range of feasible solutions for resolving the identified issues was explicitly sought. Alternative C attempts to balance resource protection with recreational use. Of all the alternatives, it best represents projected tradeoffs which could be included in management decisions. For this reason Alternative C has been identified as the proposed action.

Overview of the Alternatives

This overview provides a general description of how Quartzville Creek could be managed under each alternative. More detailed management actions are presented in tabular form in the section following this overview.

Alternative A: No Action

INTENT: This is the “no action” alternative required by NEPA. Alternative A would provide for the continuation of the existing management situation. Under this alternative, county, state and federal agencies, and private land owners would continue to exercise their existing authorities within the corridor. No new visitor facilities or programs would be developed. Recreation would be regulated and monitored at a very low level outside the two existing developed recreation sites. Resources would be managed under existing management policies and no additional resource enhancement projects would be initiated. No new efforts for inter-

agency cooperation, either within or outside the river corridor boundaries, would be made.

Boundaries: Adopt proposed administrative boundaries that were approved by Congress. The average acres per river mile are 222 with a total acreage of 2,147 (See Alternative A map). The BLM administers 1,782 acres and private ownership totals 365 acres within the river corridor boundaries.

Recreation Opportunities and Public Access: No new facilities, trails, or river access improvements would be constructed. Dispersed use would be unregulated and unmonitored. No interpretive or educational programs would be developed. Current levels of administrative presence would continue. No attempts at land acquisition would be made.

Road Management: No road improvement or reconstruction would take place.

Water Quality: BLM policy, federal and state water quality, laws and regulations, would be enforced. The BLM would cooperate with the United States Geological Survey (USGS) in maintaining the operation of the Quartzville Creek Stream Gage.

Riparian Zone: Follow current BLM policies, federal and state laws and regulations, associated with the management of riparian zones. No timber harvest would be allowed within 80 feet of Quartzville Creek on BLM-administered lands.

Wildlife: In addition to current BLM policy, all current federal and state laws and regulations, governing the management of wildlife or special status animal species, would be enforced. No additional wildlife monitoring or enhancement would occur.

Fisheries: Fisheries would continue to be managed as a put and take. No additional monitoring or enhancement programs would be developed.

Visual Resources: Monitor compliance with Visual Resource Management (VRM) guidelines (see Appendix F).

Cultural Resources: Inventory and evaluate, locations of any proposed action to determine the presence and significance of any cultural resources. Protect or mitigate effects for cultural resources considered eligible for the National Register of Historic Places.

Alternative B: Recreation Development Emphasis

INTENT: Alternative B would provide for increased recreation use and facility development. Scenic values and recreational opportunities would be emphasized. A more developed recreation experience would be provided focusing on visitor comfort, safety, security, and social opportunities. Evidence of human development and management presence would be readily observable. Interagency cooperation would play a key role in developing recreation facilities, visitor services and enforcing regulations within and outside the river corridor boundaries. Land acquisition efforts would focus on providing additional recreational opportunities and public access.

Boundaries: Same as Alternative A.

Recreation Opportunities and Public Access: Recreational development, public access and interpretation would be emphasized. Two to three overnight recreation sites would be developed. New trails and barrier-free access to Quartzville Creek would be constructed. Coordination with other agencies on providing recreation opportunities and services would be high. Dispersed recreation would continue, but would gradually be phased out in favor of more developed recreation. Additional restrictions, monitoring and management of recreation use would take place.

Work cooperatively with the USFS Sweet Home Ranger District, US Army Corps of Engineers and Linn County in developing a Memorandum of Understanding (MOU) for managing recreational use along the entire length of Quartzville Creek and Green Peter Reservoir. The level of administrative presence under Alternative B, would be the highest of all alternatives.

Open negotiations to acquire through purchase or exchange (on a willing-seller basis), 365 acres of private land within the river corridor boundaries (see Alternative B map), to promote consistent management policies and to provide additional recreational opportunities and access.

Road Management: The BLM segment of the Quartzville Access Road would be improved to meet acceptable safety standards for the type and volume of traffic it receives. This would involve widening and paving the road to a two lane design with center and fog striping, and improving site distance.

Water Quality: In addition to coordinating with the USGS on maintaining the stream gage, a water quality monitoring program and procedures for dealing with water quality problems would be developed.

Riparian Zone: In addition to the actions proposed in Alternative A, the riparian habitat along Quartzville Creek would be inventoried and mapped. A monitoring program would be initiated in conjunction with a process to track resource condition such as that provided through the Limits of Acceptable Change (LAC) System (see Appendix F). The BLM would work with private landowners to provide adequate riparian buffers on private lands along Quartzville Creek.

Wildlife: In addition to the actions proposed in Alternative A, a wildlife habitat and species inventory would be conducted and a habitat monitoring program would be established.

Fisheries: Given the existing habitat constraints, Quartzville Creek would be managed as a put-and-take fishery in coordination with ODFW. A habitat and species inventory would be completed for Quartzville Creek and one of its main tributaries. A monitoring program would be developed for these streams. Trees falling in or along the stream would be left to provide downed and dead woody debris, to help improve stream structure.

Because cutthroat trout populations in the tributaries appear high, the possibility exists for native fish management in the future. Further, ODFW has not ruled out the possibility of reintroduction of spring chinook salmon and summer steelhead trout at some time in the future. With these factors in mind, natural riparian conditions should be reestablished where possible by maintaining existing mature conifer zones, rehabilitating past disturbed areas, and minimizing future recreational impacts.

Visual Resources: The viewshed along the corridor would be mapped and a visual resource monitoring program would be developed. A higher level modification of the natural character of Quartzville Creek would be permitted to allow for increased recreational use and facility development.

Cultural Resources: Cultural Resource management would focus on enhancing interpretation and public education opportunities.

Alternative C: Recreation and Resource Mix (Proposed Action)

INTENT: Alternative C would attempt to balance resource protection with recreational use. Maintaining the natural character, resource values and recreational opportunities Quartzville Creek provides would be emphasized. Limited recreational development would accommodate current and future public needs. Undeveloped camping would continue and minimal improvements to help reduce user impacts would be made. Evidence of human development and management presence would be less than in Alternative B but higher than Alternative A or D. Resource monitoring programs and enhancement projects would be developed to improve resource protection. Coordinating with neighboring agencies and private landowners on providing recreation services, opportunities, and resource protection would be a key component of this alternative. As in Alternative B, land acquisition efforts would focus on providing additional recreation opportunities and public access.

Boundaries: Same as Alternative A.

Recreation Opportunities and Public Access:

Developed recreation would be balanced with dispersed recreation. Recreation development, public access improvements and interpretation would still occur, but at a lower level than provided by Alternative B. The construction of barrier-free access and trails would also occur. Restrictions, monitoring, and management of recreation use would take place at a lower level than in Alternative B.

The level of administrative presence would be lower than that provided by Alternative B, and regulations would be at the minimum required for visitor safety and resource protection. Land acquisition proposals would be the same as Alternative B (see Alternative C map).

Road Management: Same as Alternative B.

Water Quality: In addition to the actions in Alternative B, watershed enhancement opportunities would be identified on lands administered by the BLM. A 100-foot buffer where camping is prohibited would be established on each side of Quartzville Creek.

Riparian Zone: In addition to the actions in Alternative B, areas within the riparian zone, where unacceptable user impacts are occurring, would be temporarily closed. The 100-foot buffer for water quality protection would also be an important component of riparian protection.

Wildlife: In addition to the management actions proposed in Alternative B, opportunities for habitat

enhancement and expanded partnerships with groups for wildlife-related improvements and public education would be sought.

Fisheries: Same as Alternative B.

Visual Resources: Same as Alternative B, except less visual modification would be allowed than in Alternative B.

Cultural Resources: Cultural resource management would focus not only on public use, but on scientific use and conservation for future use as well.

Alternative D: Resource Protection Emphasis

INTENT: Alternative D emphasizes resource protection and enhancement of natural ecosystems within the river corridor. Recreation and other management activities would receive secondary consideration. No new facilities would be developed and overnight use in the river corridor would be limited to existing developed recreation sites. Resource monitoring and enhancement projects would be of primary importance. Coordinating with neighboring agencies and private landowners would focus on resource protection and enhancement on lands within and outside the river corridor boundaries. Land acquisition efforts would focus on improving resource protection and the BLM's ability to manage resources more consistently within the river corridor.

Boundaries: The administrative boundaries of the northeastern portion of the river corridor would be expanded by an additional 935 acres to enhance resource protection opportunities. The average acreage per river mile would be 320 with a total acreage of 3,082 (see Alternative D map). The BLM administers 1,890 acres and private ownership totals 1,192 acres within the river corridor boundaries.

Recreation: Recreation would receive the lowest emphasis of all the potential uses. No new facilities, trails would be developed, however, limited improvements on river access would be made. Dispersed day use would still occur. No undeveloped camping would be allowed.

Administrative presence in the river corridor would be higher than Alternative C, but lower than Alternative B. Resource protection and regulation compliance would be emphasized.

Road Management: No improvements to Quartzville Access Road would occur.

Water Quality: In addition to the actions described in

Alternative C, opportunities for coordination with other neighboring agencies and private landowners on watershed enhancement projects, within and outside lands administered by the BLM, would be identified. River access would be limited to designated trails.

Riparian Zone: In addition to the actions described in Alternative C, river access would be limited to designated routes only. No timber harvest within 200 feet of Quartzville Creek would be allowed on BLM-administered lands. The BLM would work with private landowners to provide adequate riparian zone buffers on private lands along Quartzville Creek.

Wildlife: In addition the actions described in Alternative C, opening negotiations (on a willing seller basis) for the acquisition of 1,192 acres would be pursued to improve the BLM's ability to manage for wildlife habitat consistently in the river corridor (see Alternative D map).

Fisheries: Same as Alternative B.

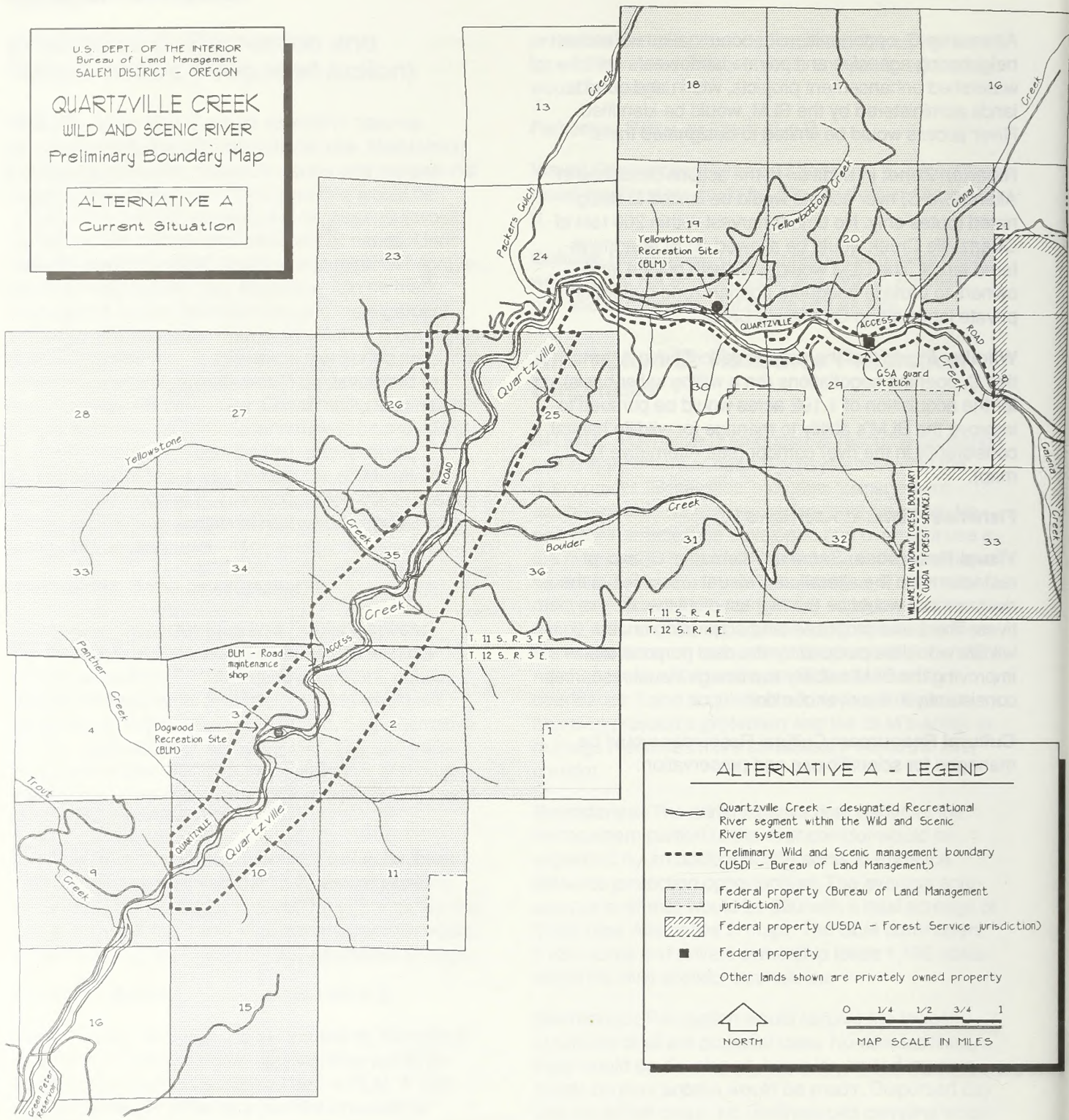
Visual Resources: Same as Alternative C, except restrictions on the alteration of visual resources in the river corridor would be the highest of all the alternatives. The same proposed land acquisition under wildlife would be pursued for the dual purpose of improving the BLM's ability to manage visual resources consistently in the river corridor.

Cultural Resources: Cultural Resources would be managed for scientific use and preservation.







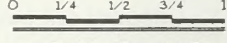
U.S. DEPT. OF THE INTERIOR
 Bureau of Land Management
 SALEM DISTRICT - OREGON

**QUARTZVILLE CREEK
 WILD AND SCENIC RIVER
 Preliminary Boundary Map**

**ALTERNATIVE A
 Current Situation**



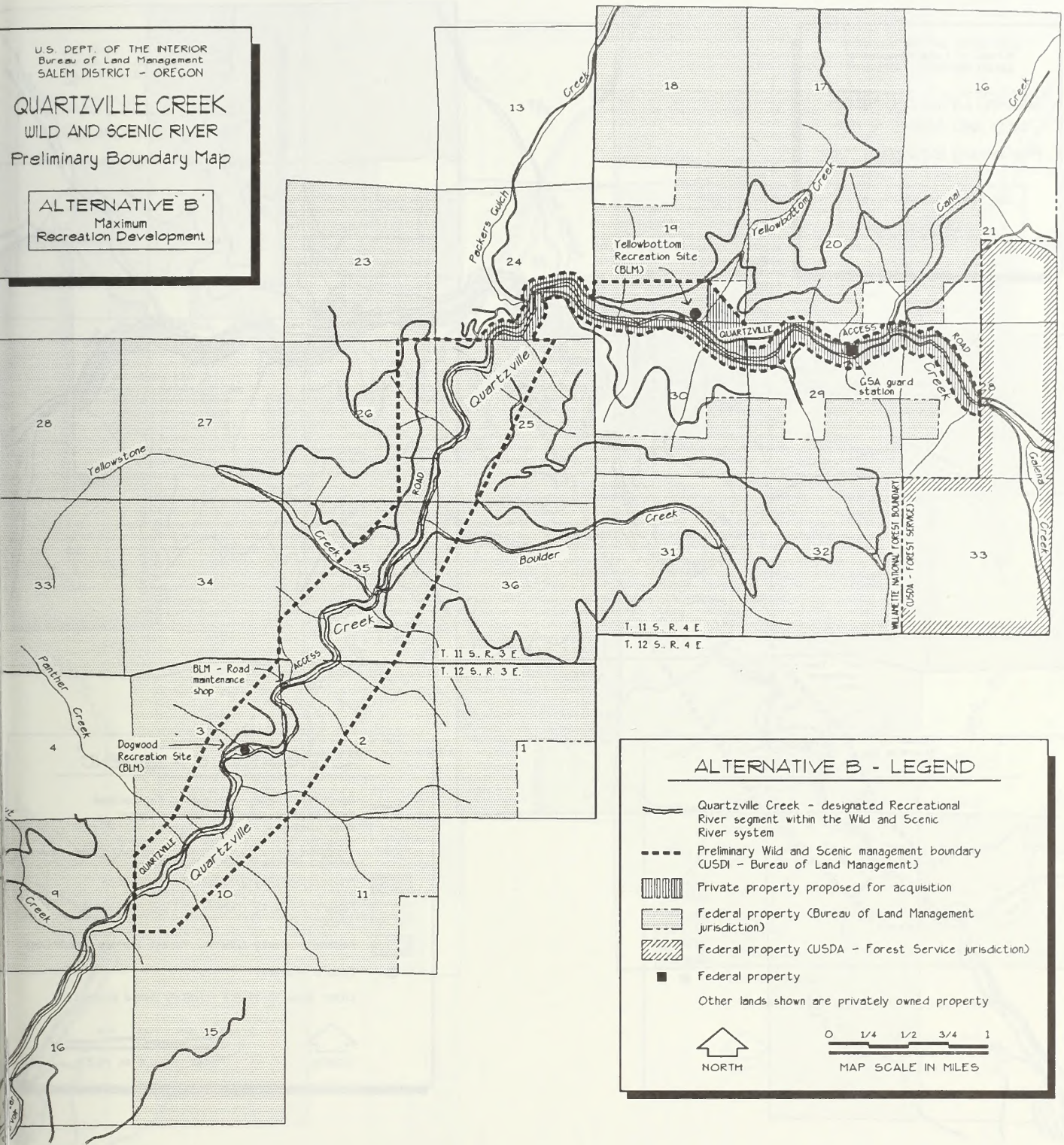
ALTERNATIVE A - LEGEND

-  Quartzville Creek - designated Recreational River segment within the Wild and Scenic River system
 -  Preliminary Wild and Scenic management boundary (USDI - Bureau of Land Management.)
 -  Federal property (Bureau of Land Management jurisdiction)
 -  Federal property (USDA - Forest Service jurisdiction)
 -  Federal property
 - Other lands shown are privately owned property
-  NORTH
-  0 1/4 1/2 3/4 1
 MAP SCALE IN MILES

U.S. DEPT. OF THE INTERIOR
Bureau of Land Management
SALEM DISTRICT - OREGON

**QUARTZVILLE CREEK
WILD AND SCENIC RIVER**
Preliminary Boundary Map

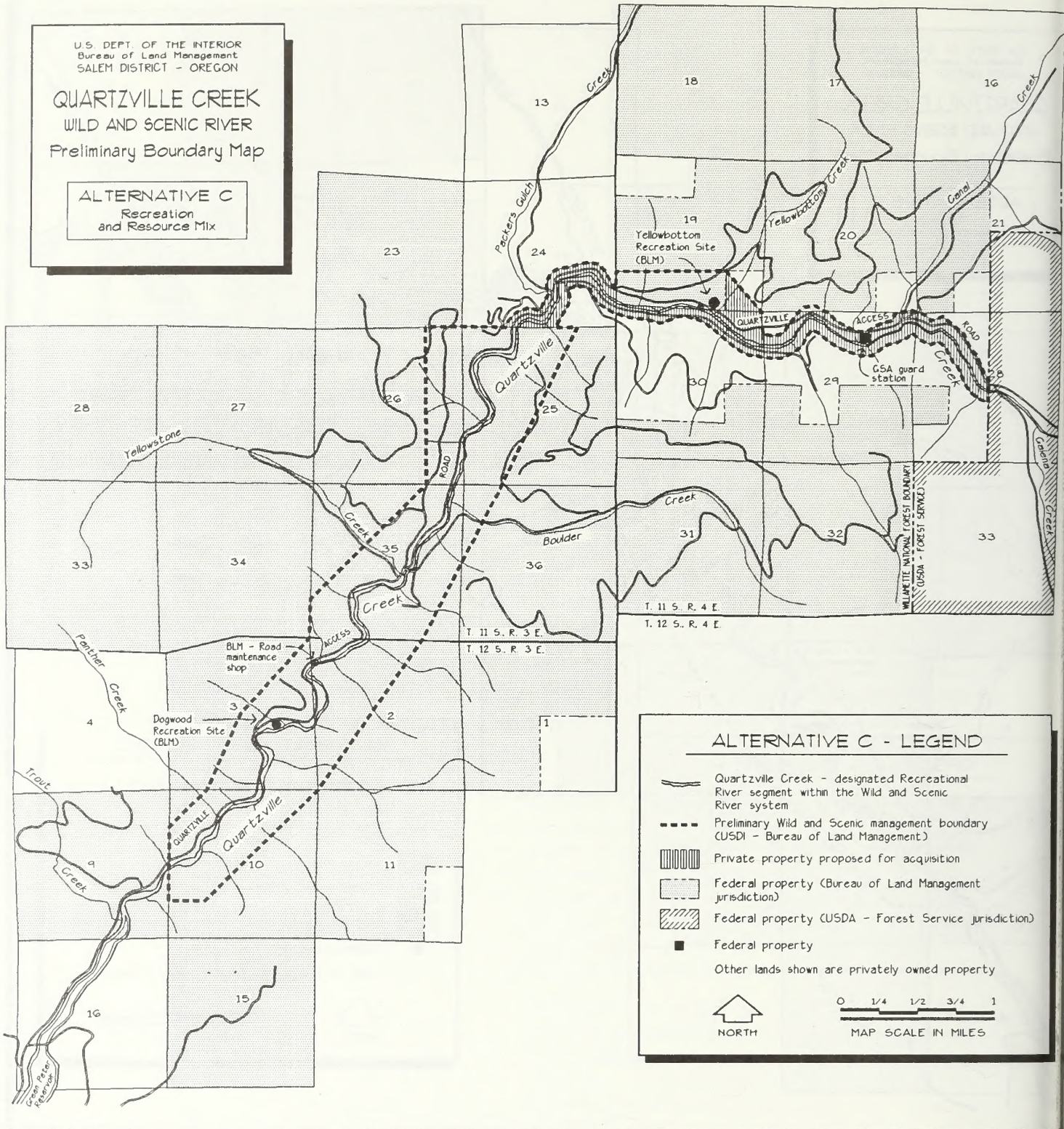
ALTERNATIVE B
Maximum
Recreation Development



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Bureau of Land Management
SALEM DISTRICT - OREGON

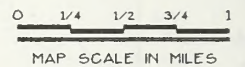
QUARTZVILLE CREEK WILD AND SCENIC RIVER Preliminary Boundary Map

ALTERNATIVE C
Recreation
and Resource Mix



ALTERNATIVE C - LEGEND

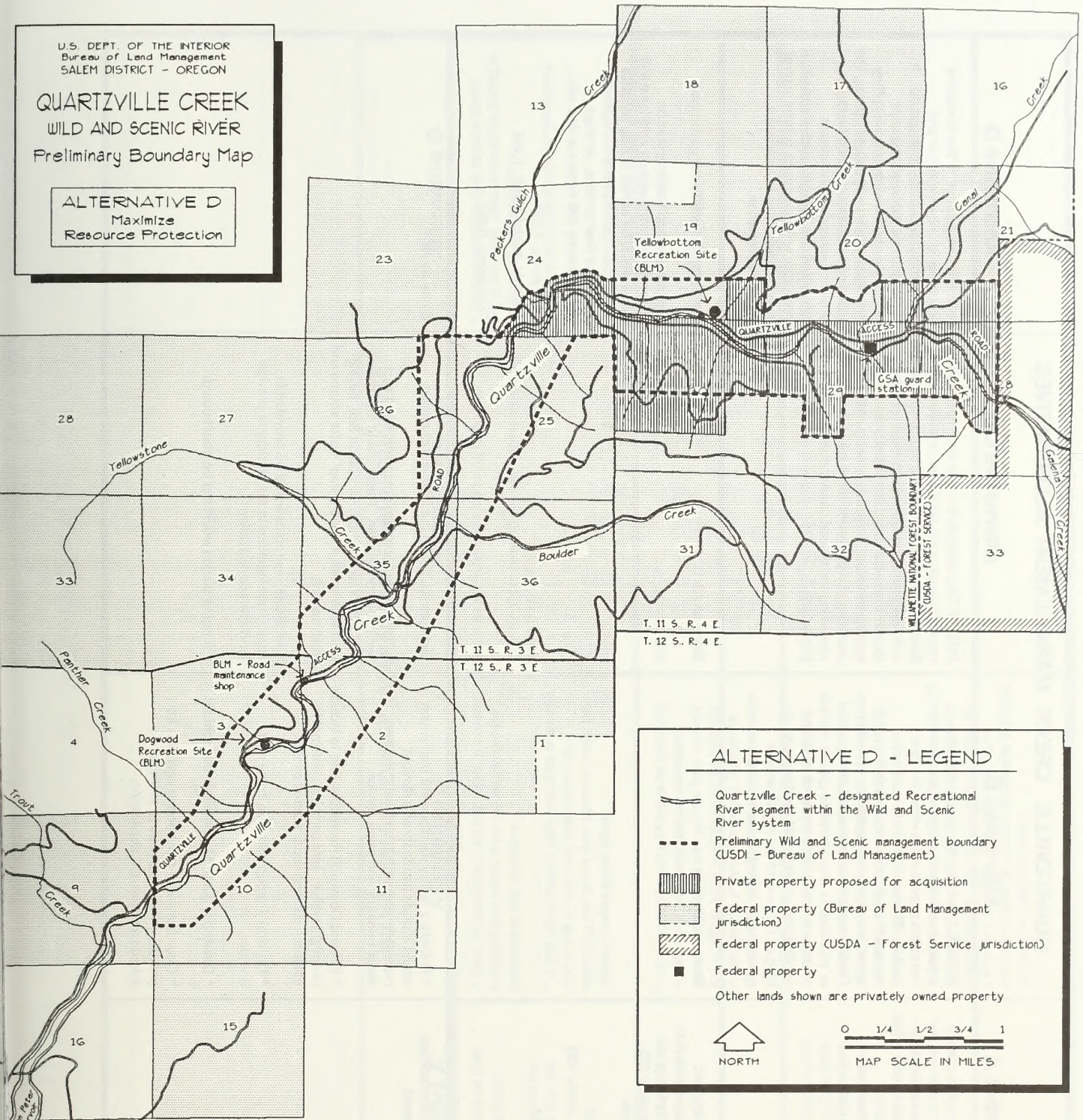
- Quartzville Creek - designated Recreational River segment within the Wild and Scenic River system
 - Preliminary Wild and Scenic management boundary (USDI - Bureau of Land Management)
 - Private property proposed for acquisition
 - Federal property (Bureau of Land Management jurisdiction)
 - Federal property (USDA - Forest Service jurisdiction)
 - Federal property
- Other lands shown are privately owned property



U.S. DEPT. OF THE INTERIOR
Bureau of Land Management
SALEM DISTRICT - OREGON

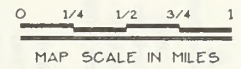
**QUARTZVILLE CREEK
WILD AND SCENIC RIVER**
Preliminary Boundary Map

ALTERNATIVE D
Maximize
Resource Protection



ALTERNATIVE D - LEGEND

- Quartzville Creek - designated Recreational River segment within the Wild and Scenic River system
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QUARTZVILLE CREEK MANAGEMENT ALTERNATIVES

	Alternative A	Alternative B	Alternative C	Alternative D
KEY PLANNING ISSUES:	<p>INTENT: No change to current management or operations. No additional federal funding or management would occur within the corridor. Existing jurisdictions and authorities would remain in place.</p>	<p>INTENT: This alternative would seek to enhance and develop existing and potential recreation opportunities within the river corridor. This would include maximizing recreation sites, trails and access to the full extent possible under each river classification. Existing recreation sites would be expanded or improved to accommodate greater number of visitors. New trails, recreation sites, and public access sites would be developed as long as they would not significantly or permanently degrade other natural resources.</p>	<p>INTENT: This alternative would seek balance to recreational use with other river resource values. Existing recreation sites would be improved and a limited level of development would be allowed to help channel existing recreation use to appropriate areas to reduce impacts and crowding. Emphasis would also be given to preserving the natural character of Quartzville Creek.</p>	<p>INTENT: The purpose of this alternative would be to enhance scenic and ecological values of the river corridor. It would provide public access and recreation opportunities only when they are not in conflict with natural values. The focus of management would be to enhance watershed and stream characteristics, fisheries, wildlife and visual resources while exercising greater control over recreation use to emphasize resource protection.</p>
BOUNDARIES	<p>Continue with proposed administrative boundaries that were approved by Congress. Average approximately 222 acres per river mile BLM acres: 1,782 Privately owned acres: 365 Total acres: 2,147</p>	<p>Same as Alt. A</p>	<p>Same as Alt. B</p>	<p>Same as Alt. C with: The corridor boundaries would be widened to incorporate an additional 935 acres would be added to help promote more consistent resource management within the river corridor. Average approximately 320 acres per river mile. BLM acres: 1,890 Privately owned acres: 1,192 Total acres: 3,082</p>
RECREATION Facilities	<p>* No new recreation facilities, would be developed.</p>	<p>* Prepare a facility development plan which would include two to three overnight recreation sites with flush toilets, showers, water hook-up and trash service. * Expand Dogwood Recreation Site to include overnight walk-in tent camping. Attempt to establish drinking water source on site. * Develop a group use area in the river corridor. * Develop a dump station within the corridor. * Coordinate with neighboring agencies for providing visitor services to promote linkage and prevent duplication.</p>	<p>Same as Alt. B with the following changes: * Only one to two overnight recreation sites would be constructed. These would be similar in design to Yellowbottom Recreation Site, having vault restrooms, a hand pump water source and trash service. * Additional restrooms would be provided in appropriate locations in the corridor to provide for dispersed recreation. * A dump station would not be constructed.</p>	<p>Same as Alt. A</p>

QUARTZVILLE CREEK MANAGEMENT ALTERNATIVES			
	Alternative A	Alternative B	Alternative C
		Alternative B	Alternative D
RECREATION Public Access and Trail Development	<ul style="list-style-type: none"> * No improvements on river access would be made. * No new trails would be developed within the river corridor. 	<ul style="list-style-type: none"> * River access would be improved in several locations and barrier-free access would be provided in key locations. * A trail development plan would be prepared and a trail system with trails within and extending out of the river corridor would be constructed as funds allow. 	<ul style="list-style-type: none"> Same as Alt. B with the following changes: <ul style="list-style-type: none"> * Fewer improvements in river access would be made than in Alt. B.
RECREATION Land Acquisition	<ul style="list-style-type: none"> * No attempts for land acquisition would be made. 	<ul style="list-style-type: none"> * Land acquisition would focus on providing additional recreational opportunities and access. Negotiate with private land owners (on a willing-seller basis) would be initiated for 365 acres of land bordering Quartzville Creek and Quartzville Access Road. 	<ul style="list-style-type: none"> Same as Alt. B
RECREATION Administration	<ul style="list-style-type: none"> * Current jurisdictions would continue (County, State and Federal), with no formalized coordinated management. * The current level of administrative presence would continue. 	<ul style="list-style-type: none"> Same as Alt. A with the following changes: <ul style="list-style-type: none"> * Level of administrative presence would be the highest of all alternatives with frequent patrolling, visitor contact, signing and a high level of regulation. * Work cooperatively under a Memorandum of Understanding (MOU) with the USFS Sweet Home Ranger District, U.S. Army Corps of Engineers and Linn County in managing recreation along the entire Quartzville drainage and Green Peter Reservoir. 	<ul style="list-style-type: none"> Same as Alt. B with the following changes: <ul style="list-style-type: none"> * Level of administrative presence would be lower than alternative B, with limited patrolling, visitor contact and signing. Regulations would be at the minimum required for visitor safety and resource protection.
		<ul style="list-style-type: none"> * Improvements to river access would occur and river access would be limited to designated access points. * A trail system would not be developed. 	<ul style="list-style-type: none"> * Same as Alt. B * (See Wildlife and Visual Resources)
		<ul style="list-style-type: none"> Same as Alt. B with the following changes: <ul style="list-style-type: none"> * Level of administrative presence would be higher than Alt. C but lower than Alt. B. Regulations would emphasize resource protection and patrolling would be relatively high to ensure compliance. 	

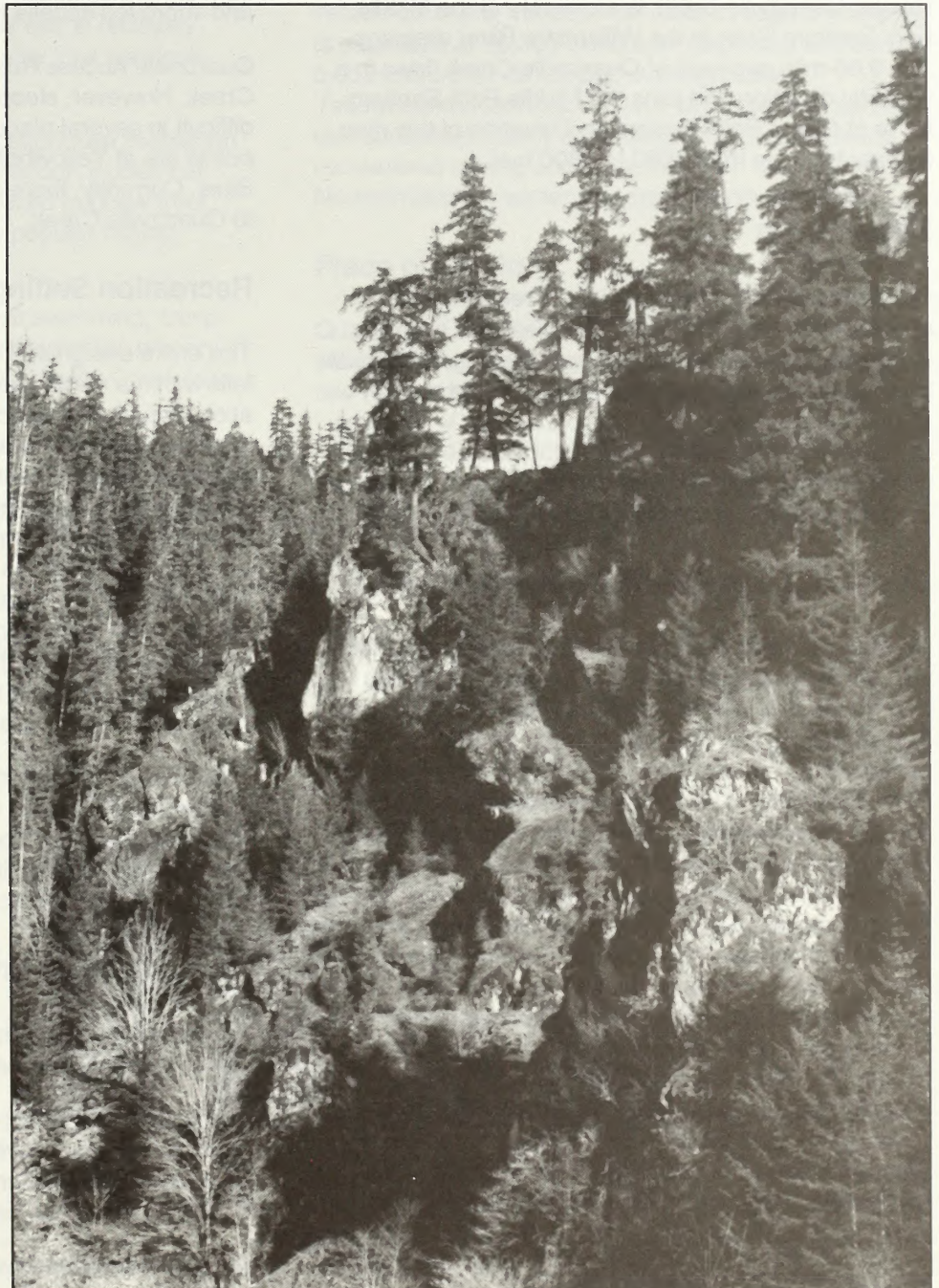
QUARTZVILLE CREEK MANAGEMENT ALTERNATIVES				
	Alternative A	Alternative B	Alternative C	Alternative D
<p>RECREATION User impacts, visitor conflicts and crowding.</p> <p>Monitoring</p>	<p>* No monitoring of use levels or restrictions on use levels would be made.</p>	<p>* Develop a program for monitoring use levels, user conflicts and visitor preferences.</p> <p>* Use the Limits of Acceptable Change System (LAC) for monitoring recreation use and impacts and for determining use level capacities.</p>	<p>* Same as Alt. B</p>	<p>* A less comprehensive recreation monitoring program would be developed.</p>
<p>Recreational Mining</p>	<p>* Recreational mining would be limited to a five-inch dredge size.</p> <p>* No more than 50 cubic yards of material per year can be removed without a permit from ODEQ.</p>	<p>Same as alternative A with the following changes:</p> <p>* Prohibit recreational mining in the Yellowbottom swimming hole from Memorial Day through Labor Day.</p> <p>* Develop guidelines for managing recreational mining.</p>	<p>Same as Alt. B with the following changes:</p>	<p>Same as Alt. B with the following changes:</p> <p>* Recreational mining would be limited to a four-inch dredge size.</p>
<p>Undeveloped Camping</p>	<p>* No restrictions on dispersed camping would be made. Popular campsites that showed signs of use, such as fire rings and loss of vegetation, would be allowed to develop and remain.</p>	<p>* Existing undeveloped campsites would be inventoried and suitable campsites would be identified. All other undeveloped campsites would be permanently closed and rehabilitated.</p> <p>* Designated sites exceeding acceptable levels of user impacts would be identified and temporarily closed and rehabilitated.</p>	<p>Same as Alt. B with the following changes:</p> <p>* Attempt to minimize restrictions on dispersed recreation use, while still providing adequate resource protection. Dispersed camping would not be limited to designated sites as long as acceptable user impacts are not exceeded.</p>	<p>* Camping would be restricted to developed recreation sites.</p> <p>* Close undeveloped campsites and rehabilitate.</p>

QUARTZVILLE CREEK MANAGEMENT ALTERNATIVES			
Alternative A	Alternative B	Alternative C	Alternative D
<p>RECREATION Interpretive Facilities, Services and Public Information</p>	<ul style="list-style-type: none"> * No new informational materials or signing would be created. * No educational or interpretive facilities or materials would be constructed beyond that which is currently in place or will be implemented at existing BLM recreation sites. 	<ul style="list-style-type: none"> * Develop a comprehensive interpretation and public information and education plan for the entire river corridor to aid visitors and support resource protection. Develop an MOU with neighboring private, state and federal parties in an effort to coordinate efforts that promote linkage and prevent duplication. * Develop a small visitor center that would provide the public with information and interpretive opportunities. * Develop an old growth interpretive trail near Yellowbottom Recreation Site. * Develop a river recreation brochure and map. * Develop interpretive materials and exhibits focusing on the river related values of Quartzville Creek. * Use limited signing to direct visitors to public access, recreation sites and to inform visitors about private lands and resource protection. 	<ul style="list-style-type: none"> * Same as Alt. B with the following changes: <ul style="list-style-type: none"> * A visitor center would not be constructed and kiosks or some other form of interpretive medium would be used instead to provide visitors with information and interpretive opportunities.
<p>ROAD MANAGEMENT</p>	<ul style="list-style-type: none"> * No changes in road management policies would be made and no road improvement or reconstruction would be recommended. 	<ul style="list-style-type: none"> * Maximize scenic driving opportunities and promote traffic safety. * Reconstruct the BLM segment of Quartzville Access Road to meet acceptable safety standards. * Construct additional parking along Quartzville Access Road. * Recommend that the BLM segment of the Quartzville Access Road be designated a National Back Country Byway. * Coordinate with Linn County and the USFS Sweet Home Ranger District on road improvements and road management. * Install signing encouraging traffic safety and warning drivers of oncoming commercial traffic. 	<ul style="list-style-type: none"> * Interpretation and educational materials and exhibits would focus on resource protection. * All interpretive and information signs would be at existing recreation sites and printed information would have limited distribution and not be intended to promote or advertise the area. * Limited signing would be used to direct visitors to public access and recreation sites and inform visitors about private lands and resource protection.
		<ul style="list-style-type: none"> * No major road improvements would occur. * Install limited signing encouraging traffic safety and warning drivers of oncoming commercial traffic. * Evaluate road pullouts and close or reduce and revegetate those that are not necessary to road safety. 	

QUARTZVILLE CREEK MANAGEMENT ALTERNATIVES			
Alternative A	Alternative B	Alternative C	Alternative D
<p>WATER QUALITY</p> <ul style="list-style-type: none"> * Recommend to the United States Geological Survey (USGS) to maintain operation of the stream gage on Quartzville Creek at Panther Creek. * Consider cooperative funding with USGS if necessary. * Enforce federal and state point and non-point source, water quality laws and regulations, non-degradation policies and protect beneficial uses. 	<ul style="list-style-type: none"> * Same as Alt A with: * Develop water quality standards for Quartzville Creek using State of Oregon water quality regulations and baseline data currently being collected on Quartzville Creek. * Develop a long-term water monitoring program for water quality and quantity. * Establish an action plan outlining notification procedures and mitigation measures in the event of a water quality problem. * Notify State of ODEQ of any water quality problems originating outside BLM jurisdiction. 	<p>Same as Alt. B with:</p> <ul style="list-style-type: none"> * Establish a 100-foot buffer with camping prohibited on each side of the river. * Develop a coordinated water quality and quantity monitoring program with the USFS Sweet Home Ranger District for the entire length of Quartzville Creek. * If necessary identify watershed enhancement opportunities on BLM lands which would meaningfully reduce non-point source pollution on Quartzville Creek. 	<p>Same as Alt. C with:</p> <ul style="list-style-type: none"> * Identify and attempt to initiate cooperative watershed enhancement opportunities on neighboring private and public lands that would reduce non-point source pollution in Quartzville Creek. * Limit river access to designated trails to help prevent accelerated erosion.
<p>RIPARIAN ZONE</p> <ul style="list-style-type: none"> * BLM policy, federal and state laws and regulations would be complied with. * No timber harvest would be allowed within 80 feet of Quartzville Creek on BLM-administered lands. 	<p>Same as Alt. A with:</p> <ul style="list-style-type: none"> * Use the LAC System to develop a monitoring program to establish baseline inventory information (maps) of wetlands and riparian areas and review net change in acreage every five years. * Seek watershed and riparian enhancement opportunities and provide technical assistance and funding for enhancement projects. * The BLM would work with private landowners to provide adequate riparian buffers on private lands along Quartzville Creek. 	<p>Same as Alt. B with:</p> <ul style="list-style-type: none"> * Pursue cooperative and voluntary opportunities for rehabilitation projects. * Close sensitive or excessive river access routes and trail networks within riparian zone. * Establish a 100 foot buffer where camping is prohibited on each side of the river. 	<p>Same as Alt. C with:</p> <ul style="list-style-type: none"> * Limit river access to designated trails to help prevent accelerated erosion. * No timber harvest would be allowed within 200 feet of Quartzville Creek on BLM-administered lands. * The BLM would work with private landowners to provide adequate riparian buffers on private lands along Quartzville Creek.
<p>WILDLIFE</p> <ul style="list-style-type: none"> * Existing BLM policy, federal and state laws and regulations governing the management of wildlife and special status species would be enforced. * Coordinate with neighboring agencies in management of wildlife habitat. * No additional wildlife monitoring or enhancement programs would be developed. 	<p>Same as Alt. A with the following changes:</p> <ul style="list-style-type: none"> * A wildlife habitat and species inventory would be conducted within the river corridor and in areas outside the boundaries that are contributory to wildlife management inside the corridor. * A wildlife habitat monitoring program would be developed. 	<p>Same as Alt. B with:</p> <ul style="list-style-type: none"> * Opportunities for wildlife habitat enhancement and expanding partnerships with groups for wildlife-related improvements and education would be sought. 	<p>Same as Alt. C with:</p> <ul style="list-style-type: none"> * Open negotiations (on a willing seller basis) for the acquisition of 1192 acres of private land within the proposed expanded boundaries.

QUARTZVILLE CREEK MANAGEMENT ALTERNATIVES				
	Alternative A	Alternative B	Alternative C	Alternative D
FISHERIES	<ul style="list-style-type: none"> * Fisheries would continue to be managed as a put and take. No additional monitoring or enhancement programs would be developed. 	<ul style="list-style-type: none"> * Same as Alt. A with: * Conduct a habitat and species inventory for Quartzville Creek and one of its main tributaries. * Develop a habitat monitoring program for Quartzville Creek and that same tributary. * Leave fallen trees along and in Quartzville Creek to provide downed and dead woody debris. * Enhance riparian conditions where possible. 	Same as Alt. B	Same as Alt. B
VISUAL RESOURCES	<ul style="list-style-type: none"> * Monitor compliance with VRM guidelines. 	<p>Same as Alt. A. with:</p> <ul style="list-style-type: none"> * Map the watershed of along the river corridor and identify key viewpoints to be protected or enhanced. * Modification of the natural character of Quartzville Creek would be permitted to allow for increased recreational use and development. 	<p>Same as Alt. B with the following changes:</p> <ul style="list-style-type: none"> * Less modification to the natural character would be allowed compared to Alt. B. * Work with private land owners in considering visual resource management on private lands. 	<p>Same as Alt. C.</p> <ul style="list-style-type: none"> * No vegetation manipulation to enhance visual opportunities within the corridor would be made. * Open negotiations (on a willing seller basis) for the acquisition of 1192 acres of private land within the proposed expanded boundaries.
CULTURAL RESOURCES	<ul style="list-style-type: none"> * Complete cultural resource inventories as result of any proposed action or project that may potentially affect cultural resources. * Evaluate cultural resources that may be affected by project activities and determine their eligibility to the National Register. * Protect cultural resources considered eligible for the National Register of Historic Places or conserve values. Monitor eligible or unevaluated properties. 	<p>Same as Alt. A with:</p> <ul style="list-style-type: none"> * Inventory and evaluation of sites would focus on those locations that would enhance interpretation and public education opportunities. * Develop interpretive materials that focus on relevant western Cascade prehistoric and historic themes. * Coordinate with neighboring land managing agencies, in preparing a comprehensive file of prehistoric and historic information including oral histories about the Quartzville Creek drainage within and outside of the river boundaries. 	<p>Same as Alt. A with the following changes:</p> <ul style="list-style-type: none"> * Conduct a resource inventory within the river boundaries and evaluate identified sites. * Management of cultural resources would focus on scientific use, conservation for future use, management use, sociocultural use, public use and discharged use as defined in the BLM Manual 8111.21. * Interpretive information would consist of minimal on-site construction, with the primary focus on publications which would emphasize the prehistoric and historic resources and the importance of resource protection. 	<p>Same as Alt. A with the following changes:</p> <ul style="list-style-type: none"> * Cultural resources would be managed for scientific use and conserved for future use. * Interpretive information would be limited to publications and would focus on the fragility of cultural resources and would discourage disturbance, vandalism and artifact collection.

Chapter III Affected Environment



Purpose

This chapter describes the character and resources within the corridor along Quartzville Creek. Current conditions, as well as existing trends, are described to acquaint the reader with the area and to provide a basis from which to assess the consequences of various management alternatives evaluated in Chapter IV.

Regional Setting

The headwaters of Quartzville Creek originate in the midwestern slopes of Oregon's western Cascade Range. Quartzville Creek is a tributary of the Middle Fork Santiam River in the Willamette River drainage. The 9.66-mile segment of Quartzville Creek flows in a westerly direction and joins the Middle Fork Santiam River at Green Peter Reservoir. Elevation of this river segment ranges from 1080 to 4800 feet.

Recreation

Quartzville Creek offers a variety of recreational opportunities including driving for pleasure, camping, swimming, fishing, recreational gold mining, whitewater boating, picnicking, wildlife observation and nature study. A visitor-use survey was conducted in the river corridor in the summer of 1991. Much of the recreation visitation information provided in this section is based on data gathered in the visitor survey.

Quartzville Recreation Corridor

On May 14, 1984, the Quartzville Recreation Corridor was officially opened. The corridor begins at Rocky Top Bridge and extends past the Willamette National Forest boundary to Freezeout Creek Road. The BLM portion of the corridor ends at the Willamette National Forest boundary. The BLM-administered lands in the corridor were leased to Linn County through a Recreation and Public Purposes (R&PP) lease. Although the BLM still retains authority over the leased lands, this action segregated the minerals on these lands from the federal mining laws. As a result, no mining claims (except the two claims existing at the time of the lease) can be located within the BLM portion of the corridor, keeping the it open to the public for recreational mining. The BLM, USFS, Oregon Department of Forestry, City of Sweet Home, Champion International Corporation, Linn County Parks Department, and the Western Mining Council entered into a cooperative relationship in managing the corridor that still exists today.

Recreation Facilities and Access

There are two developed recreation sites within the river corridor boundaries. Yellowbottom Recreation Site, the only developed overnight site, is available on a first-come-first-serve basis and a fee is charged. It has 22 campsites, three vault restrooms and a hand pump that provides drinking water. Yellowbottom Recreation Site also has a day-use area that provides parking, picnicking and improved access to Quartzville Creek. It is open from the middle of May through the end of September, with a volunteer host on site. During the peak-use period it is often filled to the point of overflowing. Dogwood Recreation Site is a developed day-use area providing picnic tables, a vault restroom and improved access to Quartzville Creek.

Quartzville Access Road closely parallels Quartzville Creek. However, steep rocky banks make access difficult in several places. The only improved access points are at Yellowbottom and Dogwood Recreation Sites. Currently, there are no barrier-free access points to Quartzville Creek.

Recreation Settings and Experiences

The entire designated segment of Quartzville Creek falls within a roaded natural classification in the Recreation Opportunity Spectrum (ROS) (See Appendix F). Under a roaded natural classification, the river corridor should be predominantly a natural-appearing setting with moderate evidence of resource modification and human activities. Such modification and activities should harmonize with the natural environment. Opportunities for challenge and risk may be available, but are not primary. Opportunities for a high degree of interaction with the natural environment are provided. Opportunities for both motorized and non-motorized forms of recreation are possible.

The existing situation on Quartzville Creek meets the roaded natural criteria fairly closely, however, unregulated dispersed use has resulted in some undesirable user impacts such as litter, vandalism and excessive loss of vegetation in some areas.

Recreation Opportunities and Activities

The natural and scenic values of Quartzville Creek offer a variety of recreation opportunities.

Recreational Mining: Recreational mining is one of the most popular activities in Quartzville Creek, allowing visitors a chance to experience a part of Quartzville's mining history first hand.

Whitewater Boating: Quartzville Creek's clarity,

whitewater and the surrounding naturalness of the corridor make the segment a popular run for boaters. The designated segment of Quartzville Creek qualifies in the Whitewater Rating System as a Class 4 run. The run is described in *Soggy Sneakers: Guide to Oregon Rivers* as having several drops, difficult rapids and dangerous rocks. Scouting is mandatory in several places and this is definitely not a run for beginners.

Whitewater boating on Quartzville Creek consists primarily of kayaking and peak use occurs between November and April when flows are high enough.

Dispersed Camping: With only one developed overnight recreation site within the river corridor, undeveloped dispersed camping makes up the majority of the overnight use. Currently this use is relatively unregulated. However, a 14-day stay limit was instituted on BLM lands in 1991.

Fishing: Fishing is one of the most popular recreation activities on Quartzville Creek. Although it does not have an anadromous fishery, stocked rainbow trout and native cutthroat trout provide popular fishing opportunities.

Visitors in the survey indicated that swimming, camping, fishing and recreational mining were the primary activities that attracted them to Quartzville Creek (see

Figure 2). Many of the visitors participated in several activities during one visit. Other activities mentioned included picnicking, boating, sightseeing, nature observation, hiking, exploration, photography, rockhounding and off-road vehicle use.

Recreation Use

Visitation Levels and Peak-Use Periods

The primary use period for Quartzville Creek occurs between the months of June and September with the peak-use period being in July and August. Based on observed vehicle counts and data from automatic vehicle counters, visitation for June through September is estimated at 20,000 visitors for dispersed use and 5,000 visitors for developed overnight use of Yellowbottom Recreation Site. Fall, winter and spring use consists primarily of hunting, whitewater boating, recreational mining and camping when weather allows. No estimates for winter use are currently available.

Place of Origin

Quartzville Creek is a relatively undiscovered recreational resource with a major portion of the dispersed use (41 percent) coming from a local origin. Local was

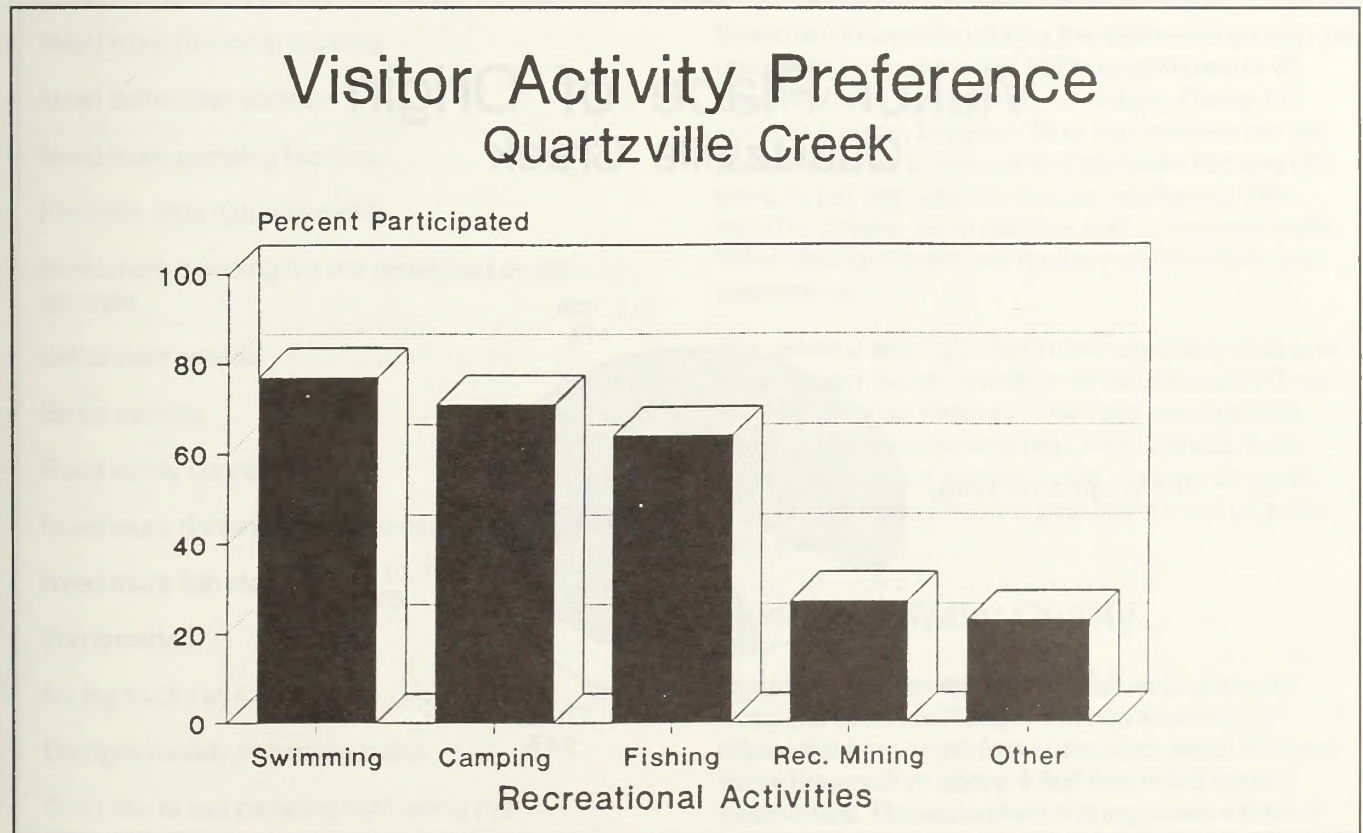


Figure 1: Visitor Activity Preference for Quartzville Creek.

defined in the survey as any location within the south santiam area, such as Sweet Home, Lebanon, Albany, Scio or Brownsville. Other significant origins included the north willamette valley area (17 percent), including Salem and Portland and the south willamette valley area (12 percent) including Eugene and Corvallis. Out of state origins accounted for only 6 percent of total visitation and it was observed that many of these visitors accompanied a party from an in-state origin. Origins occurring only one time (24 percent) were compiled into an, "other" category. (see Figure 3)

Length of Stay

Based on survey date, the average length of stay for the entire river segment is 3.5 days. This figure includes day-use levels (Note: Day use may be underestimated due to the difficulty of locating this user group during the surveying process. As a result the average length of stay may be shorter than the data indicates).

Party Size and Characteristics

During survey sampling days, an average of two people per vehicle were observed entering the designated segment. Based on survey data, actual party size for dispersed visitation was slightly over five

people per party. A few large groups from 20 to 30 people were also surveyed.

Parties were divided into four main categories consisting of "family," "family/friends," "friends" and "alone". Those users visiting with family made up 50 percent of the visitation and the "family/friends" category accounted for 37 percent. The "friends" category accounted for only 9 percent of visitation. An organization category was also considered. Three percent fell into the, "alone" or "organization " category. Active organization types of groups including clubs, churches, family reunions, and volunteer work parties, however, only one organization was surveyed.

Trip Purpose and Visitor Expectations

Trip Purpose

During the survey, visitors were asked to select among a list of trip purposes and expectations. Spending time with family, resting, and releasing tension were the primary trip purposes selected by visitors to Quartzville Creek. Many commented on the importance of the naturalness and scenic values of the area. Being with family and friends, learning about nature, and talking to new people were also selected by a majority of the users. Learning more about nature and developing

Visitor Place of Origin Quartzville Creek

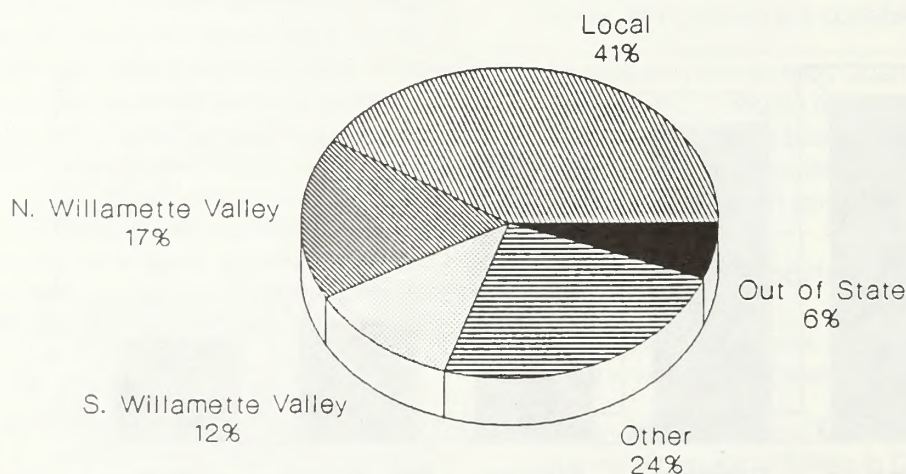


Figure 2: Visitor Place of Origin for Quartzville Creek.

skills were often selected by families with children.

Visitor Expectations

A small percentage of visitors expected to feel isolated. However, it was observed during questioning that many of the visitors defined isolation in comparison to living in a more urban area rather than the expectation of total seclusion. Only a third of the visitors expected to experience new and different things. This may be linked to the fact that of those surveyed, only 20 percent were first-time visitors, and over 60 percent had visited the area more than four times in the last five years.

Visitors were also asked to rate how well their expectations were fulfilled ranging from met, mostly met, neutral, mostly not met, to not met at all. The results showed that the majority of the visitors (95 percent), felt that their expectations were met, or mostly met. Although most were satisfied, many of the visitors offered suggestions for improving Quartzville Creek and enhancing their experience.

General Visitor Concerns and Comments

During the surveying process many visitors had specific concerns and comments regarding the management of Quartzville Creek. Below is a listing of those comments:

- Need more restroom facilities
- Need better litter control
- Need more camping facilities
- Keep the area natural looking
- Need more camping but not developed campgrounds
- Better river access
- Better parking
- Road safety concerns
- Need more drinking water sources
- Need more fish stocking
- Too crowded
- No log trucks at 4:30 a.m.
- Dredges muddy swimming holes
- Don't like to see camping right along river
- Don't like hearing firearms discharged in corridor

- Need more trails and signs

- Need more picnic tables

Future Trends

Trends indicate that the demand for outdoor recreation is increasing. The Statewide Outdoor Recreation Plan (SCORP), estimates an average annual increase in demand of 6.8 percent per year through the year 2000. The BLM's "Recreation 2000" program reports that demand for water-based outdoor recreation is currently one of the fastest growing recreation activities.

Though Quartzville Creek is relatively undiscovered from a regional or national perspective, high scenic, recreational and the history of the area, along with its national designation, make the area a prime candidate for high-growth activities such as sightseeing, exploring, scenic driving, nature study and photography.

Road Management

Quartzville Access Road parallels the entire length of the designated river segment. It serves as the main access route for hauling harvested timber from several drainages. A diverse pattern of traffic associated with mining, logging, and recreation activities also uses the road.

Based on observation during the visitor-use survey, the percentage of commercial traffic is estimated at 32 percent of total traffic during weekdays. During the summer season, between 75 to 150 vehicles per day, use the road on weekdays and between 150 and 250 vehicles per day, use the road on weekends. This includes private, administrative and commercial traffic. Winter levels of traffic are mainly administrative and commercial.

The greatest limiting factor in the use of this road is its substandard design in relation to the volume and mix of traffic the road receives. The road was originally designed as a single-lane road with turnouts. With widening in certain locations over the past 30 years, Quartzville Access Road is now being used as a two-lane road.

Hydrology/Water Quality

Quartzville Creek originates on the west slopes of Oregon's Cascade Range, and has an elevation differential from 1,080 feet at the slack water of Green Peter Reservoir to above 4,800 feet in the upper headwaters. The watershed encompasses a total of approximately 99.2 square miles or 63,488 acres.

National Oceanic and Atmospheric Administration (NOAA) precipitation charts indicate annual precipitation within the watershed varies between approximately 80 inches at lower elevations to near 110 inches at higher elevations. A NOAA climate station in the community of Cascadia is located five miles south of Green Peter Reservoir at an elevation of approximately 850 feet, providing the nearest available precipitation data for the Quartzville Creek watershed. Data gathered at the station indicates the area receives the greatest amount of precipitation November through January, and the least in July and August. Stream discharge measured at a USGS gage near the lower end of the designated section indicates average flows range between 60 to 100 cubic feet per second (cfs) in August and September, to 1,100 to 1,350 cfs in December through February. Peak flows of up to 36,500 cfs have been measured on Quartzville Creek during extreme events. Figure 3 illustrates the relationship between the timing of precipitation, and stream discharge.

Quartzville Creek and many of its tributaries derive flow mainly from perennial springs, which provide clear, cold water. The creek is known for its clarity, even during snowmelt and periods of high precipitation (USFS, 1990). Quartzville Creek is unlike many neighboring Cascade streams which have high eleva-

tion snowpack for supplemental flows (USFS, 1990). Figure 3 indicates that Quartzville Creek is not snowmelt dependent, as changes in Quartzville Creek average precipitation are mirrored by changes in average discharge approximately one month later. Stream systems dependent on snowmelt for flow will normally exhibit a series of elevated discharge peaks in the spring and early summer, when snowmelt is significant.

The creek is variable in character flowing through narrow steep canyons where resistant bedrock restricted river cutting, forming rapids, plunge pools, and eddies, and through less resistant bedrock where the canyon widens and stream gradients lessen. Major tributaries to Quartzville Creek downstream from the Forest Service boundary include, Canal Creek, Packers Gulch Creek, Boulder Creek, and Yellowstone Creek.

Quartzville Access Road has changed the character of the creek in some sections by constricting the channel, concentrating high flows, and increasing stream velocities which allowed the creek to downcut. The road has also reduced the riparian area (area of water dependent vegetation) adjacent to the stream through encroachment and by changing the character of the creek. Timber harvest has occurred adjacent to the

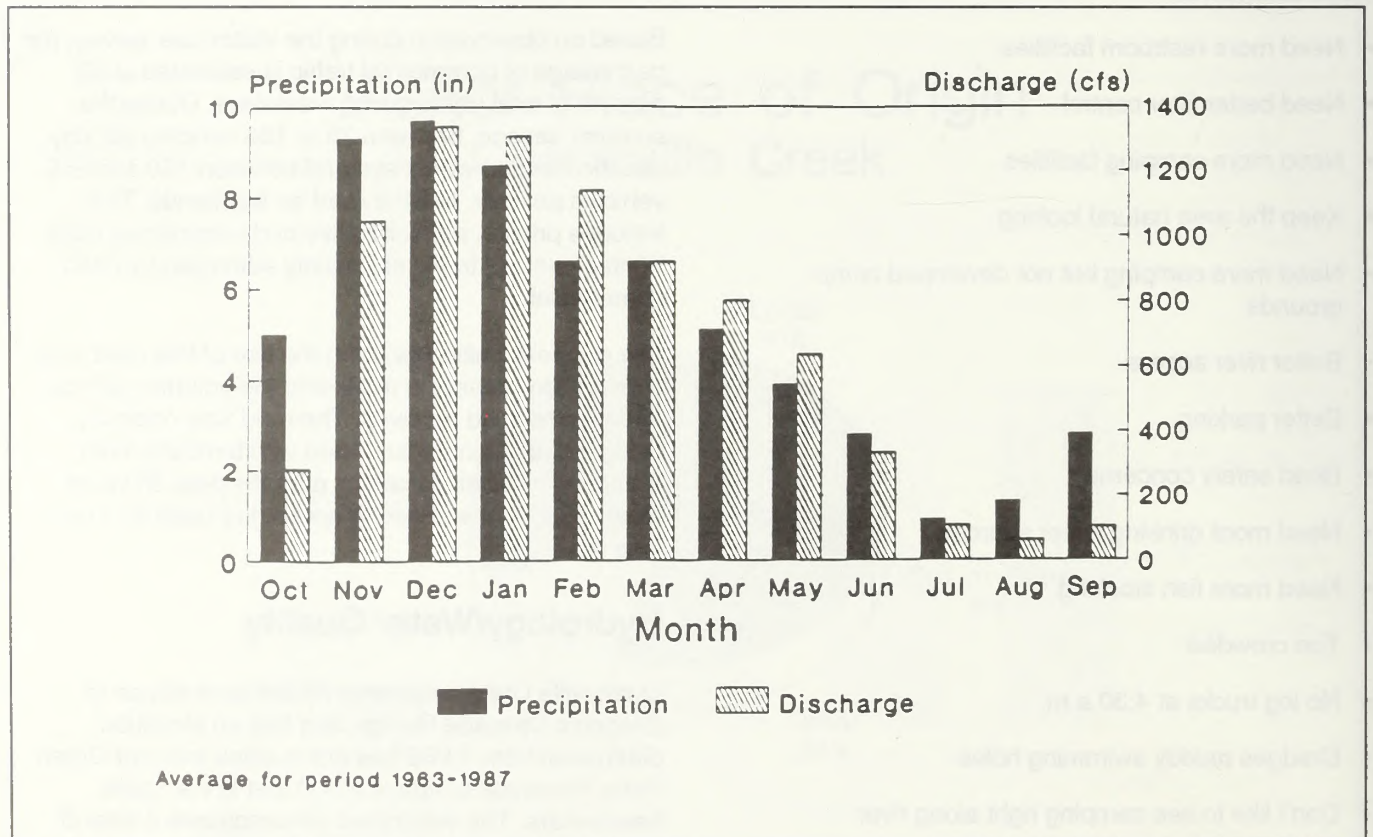


Figure 3: Average Monthly Precipitation and Discharge for Quartzville Creek.

stream by private and federal agencies and has affected the streambank stability in areas where the creek is not contained by rock banks.

Consumptive water use in the Quartzville watershed is slight. A summary of permitted water withdrawals, or diversions as of February 1991, are listed in Table 2. The only impoundments on Quartzville Creek are U.S. Army Corps of Engineer's Foster and Green Peter Dams, which occur downstream of the river segment considered in this plan. The remainder of Quartzville Creek is free flowing with no impoundments.

Table 2: Water Use Summary for the Quartzville Creek Watershed.

	Domestic	Agric.	Recr.	Indust.	Munic.	Misc.
CFS	0.01	0.11	0.00	3.00	0.00	0.00

CFS = Cubic Feet per Second

The State of Oregon, Department of Environmental Quality (ODEQ), has divided the state's surface waters into 19 drainage basins and developed water quality standards for each. Quartzville Creek Watershed is located within the Willamette River Basin. Water quality standards for the Willamette River Basin encompass physical and chemical characteristics including: pH, water temperature, dissolved oxygen, fecal coliforms, turbidity, and other parameters. Several parameters which apply to the Quartzville Creek are listed in Table 3.

Table 3: Selected State Water Quality Standards for the Willamette Basin

ph	6.5 to 8.5
Temperature	No measurable increase in temp. if temp. is 58 deg. or greater, 2 deg. total increase if temp. is 56 deg. or less.
Dissolved Oxygen	>90% saturation at low flow.
Turbidity	<10% total increase over base levels.
Coliforms	<200 per 100ml.

Existing water quality data on Quartzville Creek were collected by ODEQ from 1969 to 1973, and the USGS from 1983 to 1987. The ODEQ data include physical and chemical parameters which were collected five times over the period of record, while the USGS data consist of daily water temperatures. Data from both agencies were collected at the USGS stream gaging station on Quartzville Creek near Panther Creek. Several water quality parameters from existing data have been summarized in Table 4.

Table 4: Water Quality Summary for Quartzville Creek

winter average temperature	41 degrees F.
spring average temperature	44 degrees F.
summer average temperature	61 degrees F.
fall average temperature	49 degrees F.
turbidity maximum	6.0 JTU
turbidity minimum	0.0 JTU
turbidity average	1.8 JTU
maximum pH	7.4
minimum pH	6.9
average pH	7.1
dissolved oxygen maximum	108% saturation
dissolved oxygen minimum	94% saturation
dissolved oxygen average	97% saturation
total coliforms maximum	2,000 per 100ml
total coliforms minimum	60 per 100ml
total coliforms average	520 per 100ml

The data indicate that Quartzville Creek is clear (low turbidities) and cold throughout most of the year. Dissolved oxygen is well above the ODEQ requirements, and pH is within required limits. Total coliforms are high, and the source of the bacteria unknown. The ODEQ 1988 publication entitled, "Oregon Statewide Assessment of Nonpoint Sources of Water Pollution" has Quartzville Creek listed as moderately impacted for nutrients, sediment, and stream structure. The rating was based on the limited available data and observation. Currently, the limited quantity of data prevent looking at trends in water quality over time. However, the existing data can be used as baseline

information to assess trends as additional water quality data are collected.

Riparian Zone

Quartzville Creek's riparian zone is naturally narrow due to adjacent steep slopes and rock outcroppings. The riparian zone has been further reduced and disturbed through the stream course due to the construction and use of Quartzville Access Road and the flood of 1964. Other activities potentially affecting the riparian zone include timber harvest and unregulated dispersed recreational use. Recreational activity such as unregulated dispersed camping has already resulted in the loss of streambank vegetation. Most of this disturbance has occurred on the road side of Quartzville Creek where access is easiest.

The 1980 Salem BLM Unit Resource Analysis lists the Quartzville Creek riparian, bank, and channel conditions as fair and the trend as stable. This rating is based on field reviews and a method of rating streams as excellent, good, fair, or poor based on physical and biological criteria. Recent observation by wildlife specialists indicate that the riparian zone may be in poor habitat condition for wildlife.

Wildlife

Habitat

Quartzville Creek and its associated corridor offers a diversity of riparian and upland habitats for a number of wildlife species typical of the forested environments in western Oregon. About 55 percent of the corridor is in old-growth forest stands over 200 years in age. The old-growth habitat within the corridor has also been found suitable for the threatened northern spotted owl. Most of the private ownership (almost 17 percent) within the corridor boundaries, has been harvested in the last 40 years.

Unregulated recreation activity and disturbance due to vehicular traffic along Quartzville Access Road are the greatest limiting factors to wildlife in the river corridor.

Species

BLM-administered lands within the river corridor provide suitable habitat for the northern spotted owl. There are no known nesting pairs of spotted owls within the corridor, however, spotted owl activity has been observed within one-half mile of the river corridor boundaries.

Bald eagle and osprey are also found in the Quartzville Creek corridor. Bald eagles are occasionally found in the area during the winter months. Most of the wintering bald eagles are found downstream from the river corridor below Green Peter and Foster dams. Osprey are found within the river corridor boundaries during the spring and summer months. There are an average of three to five nesting osprey pairs in any given year and, during 1991, there were five active nests observed within the river corridor.

Some of the other birds known to use the area include common merganser, ruffed grouse, great blue heron, great horned owl, belted kingfisher, and a fairly typical variety of passerine birds. Mammals include black bear, river otter, coyote, bobcat, raccoon, Douglas' squirrel, porcupine, black-tailed deer and elk.

The wildlife in and along Quartzville Creek are similar to those typically found in the western Cascade Range. Like other nearby river corridors, most of the Quartzville Creek corridor offers valuable habitat for a number of wildlife species.

Special Status Species

Species listed on the Oregon State sensitive species list that are highly likely to be present in the corridor include Olympic salamander, Oregon slender salamander, red-legged frog, harlequin duck, pygmy owl, pileated woodpecker and western bluebird. Little is known about the species of herpetofauna (amphibians and reptiles) that are present in the corridor.

Fisheries

Habitat

Little data is available concerning habitat conditions in Quartzville Creek. A detailed habitat inventory is planned for the near future. However, as long as the stream is managed as a put-and-take trout fishery, inventory is not a high priority.

Anadromous fish

Anadromous fish runs up Quartzville Creek have been blocked since the completion of Green Peter and Foster Dams in 1968. Quartzville Creek has been identified by the Northwest Power Planning Council (NWPPC) as having potential for the reintroduction of wild populations of anadromous fish. However, the restoration of these runs is not currently a high priority.

Resident native fish

The resident native fish species found in Quartzville Creek are cutthroat trout, mountain whitefish, dace, sculpins and squawfish. The Willamette Basin cutthroat trout is currently listed by Oregon Department of Fish and Wildlife (ODFW) as a stock of concern due to insufficient information regarding its status. Native fish populations may be limited by competition with introduced species as well as by heavy angling pressure. Tributary cutthroat trout populations appear relatively high and stable, however, more detailed data on native fish populations in Quartzville Creek and its tributaries is needed.

Resident introduced fish

ODFW presently conducts an annual stocking program of 15,000 hatchery rainbow trout, providing a quality put-and-take fishery in Quartzville Creek. ODFW stocks an additional 15,000 hatchery rainbow trout in Green Peter Reservoir, some of which probably migrate upstream and contribute to the Quartzville Creek fishery. Sockeye salmon brood stocks were released into Green Peter Reservoir in 1967 and 1968, resulting in a stable population of kokanee (landlocked sockeye salmon) that spawn in Quartzville Creek.

Visual Resources

Currently the corridor appears to be in a predominantly natural state. With a unique combination of cascading whitewater, water clarity, rock outcrops and diverse vegetation featuring conifers and hardwoods creating color variation and height diversity, Quartzville Creek's scenic values have brought many visitors to the area.

In an attempt to manage visual resources, all BLM-administered lands are assigned a Visual Resource Management Classification (VRM) (see Appendix F). There are four main categories ranging from VRM Class 1 that have the highest scenic values and the most management restrictions, to VRM Class 4 which have the lowest scenic values and least management restrictions.

In rating the BLM administered-lands within the river corridor boundaries, the lands immediately bordering Quartzville Access Road are classified as VRM Class 2. This classification requires that changes in any basic element caused by a management activity should not be evident in the characteristic landscape. Approximately 62 percent or of BLM-administered land within the river corridor is classified as VRM Class 2.

Areas upslope and away from immediate view from

Quartzville Creek are classified as VRM Class 3. This classification requires that while contrasts to the basic elements caused by management activity may be evident and may attract attention in the characteristic landscape, changes should remain subordinate to the existing characteristic landscape. Approximately 38 percent of BLM-administered land within river corridor is classified as VRM Class 3.

Cultural Resources

Prehistoric

Currently there are no recorded prehistoric archeological sites in this segment of Quartzville Creek (Gilsen, 1990; U.S.D.I., n.d.). However, with the exception of the slopes east of the creek in Sec. 25, T. 11S., R. 3E., and a small part of Sec 29., T. 11S., R.4E., no systematic cultural resource inventory has been conducted within the river corridor. In addition, a number of factors may prevent easy site identification. These include dense vegetation, watercourse changes, terrace build-up and erosion, flooding with resultant washout and silt deposition, and historic human activities including placer mining, construction, and artifact collection.

It is very likely that aboriginal archeological sites are present in the corridor and will be found in future inventories. Sites have been found above and below the designated river segment and in the uplands of the immediate watershed. These sites consist of lithic scatters and isolated artifacts probably evidencing camps, travel routes, and resource procurement and processing sites, primarily related to hunting and fishing activities and tool-making and tool-maintenance.

Indian people have occupied the Santiam River drainages for thousands of years. Excavated sites near Sweet Home and Oakridge have been dated to 6000 B.C. (Minor, et.al., 1980). In general, Cascade upland sites appear to have been used by people who focused their settlement and subsistence pattern on the lowlands of the Willamette Valley, but utilized the uplands in the mid to late summer for numerous short term hunting and berry picking expeditions (Baxter, 1986). The uplands also provided sources of jasper and chert for tools (Winkler, 1990).

In the ethnographic period, the Native American people occupying and/or using this area were the Santiam division of the Kalapuya people. The Santiam peoples' major village sites were identified in the Willamette Valley near Salem and Albany (Swanton, 1952). Late summer and early fall hunting in upland environments is recorded for Kalapuyan people (Zenk, 1976), though

the majority of their subsistence activities focused on the Willamette Valley, its immediate foothills and the lower reaches of its major tributaries. Early historic accounts describe a very high Native American population density in the Willamette Valley, but this population suffered severe losses during the epidemics of the early nineteenth century (Minor, et.al., 1980). The remaining members of the Santiam Kalapuya were removed to the Grand Ronde Reservation after signing a treaty in 1855.

Molala Indians also lived on the western slopes of the Cascades, apparently year round. The Chimbuiha band occupied the headwaters of the Santiam and the Mukanti band occupied the western slopes of the Cascades (Swanton, 1952). Little is known about the Molala culture, but they are believed to have wintered in multi-family camps located along streams in lower elevations usually on the westside of the Cascades, exploiting the higher country for game, fish, berries and roots. (Rigsby, n.d.) Relations between the Kalapuya and Molala were cordial and intermarriage did occur (Minor, et. al. 1980). The pure Molala lifeway abruptly ended in 1855 when the survivors of the 1848 Molala war (Baxter, 1986) were moved to the Grand Ronde Reservation.

Indians from the Warm Springs Reservation came over the mountains by way of Mt. Jefferson and crossed the Middle Fork of the Santiam along a route called Buck Trail until at least 1914. "The Indians would go up the Quartzville branch and catch and dry fish, pick huckleberries and then return to Sweet Home and work in the hop yards in the fall" (Surdam and Anderson, 1939). Whether these people were Kalapuya, Molala, or other groups, perhaps based primarily on the east side of the Cascades, is not clear, but it is

apparent that some Indians using and/or inhabiting the western Cascade slopes were placed on the Warm Springs Reservation, as well as the Grand Ronde Reservation.

Historic

The first discovery of placer gold in the Quartzville area was reported in about 1848 in the sands of Dry Gulch, a tributary to Quartzville Creek (Stumpf, 1979). The first claim in the Quartzville Mining District is reported to have been filed by Jeremiah Driggs in 1863. In 1864, two major lode claims, the White Bull and the Red Bull, were made (Callaghan & Buddington, 1938). That same year, the town of Quartzville was laid out and a stamp-mill was set up (McArthur, 1965). By the end of 1865, 500 mining claims had been staked and Quartzville had a population of 1,000. Ultimately, the profits from the mines were small and by 1866, the

area's mining activities were already in decline. The town of Quartzville was abandoned by 1871.

A second boom began in the 1880's and lasted into the early 1900's. Mining operations by large investors and companies peaked in the 1890's while individuals worked claims up past the turn of the century. After 1910, mining activity in this area slowed, as the most accessible deposits were exhausted. Interest again increased during the 1930's Depression, but continued on a small scale only and ceased as a serious economic activity during World War II. Between 1863 and 1951, production for the Quartzville Mining District was totalled at \$181,255, with 8557 ounces of gold and 2920 ounces of silver removed (Brooks and Ramp, 1968). Currently the majority of mining activity within the river corridor is recreational.

Nearly all the BLM managed lands along Quartzville Creek are originally those unhomesteaded lands granted by Congress to the Oregon and California Railroad Company (O&C company) between 1866 and 1869 for the purpose of raising money to pay for construction of a railroad which would start in Portland and go through the Willamette Valley, south to California. The O&C Company was required to sell these lands to settlers, but in many cases, as with this area, the land was heavily timbered and had steeply dissected slopes with forest type soils, and was therefore unsuitable for farming. In 1916, due to numerous violations of the terms set by Congress for the land grant, the unsold O&C lands were revested to the General Land Office and ultimately, its successor, the Bureau of Land Management. The first timber sales on these lands occurred in the early 1950's (For a listing of historic sites see Appendix G).

Socio-Economics

Linn County has nine incorporated cities. In 1990, Linn County was the eighth most populous county in the state of Oregon, with 91,000 people. Linn County's population rapidly increased during the 1970's, peaked in 1981 and then experienced a slight decline in the 1980's. The year 1990 showed the highest level of population since 1981. It is expected that Linn County will continue to attract new residents in the coming years, however, the growth of the 1970's is not likely to return during this decade.

Linn County's median family income of \$18,553 ranks 18th out of the 36 counties in Oregon. Linn County's per capita personal income (the total personal income of all people in the area, divided by the area's population), ranks 34th in the state at \$13,059 for 1989. The discrepancy between the median and the per capita income may result from the fact that although Linn

County has relatively good paying jobs, a lower percentage of the total population of the county is working. Linn County also tends to have fewer women in the workforce than many of the other counties in Oregon.

The three largest industries in Linn County, in terms of nonfarm employment, are trade, services and government. Linn County's economic base is also tied closely with the lumber and wood products industry. In 1990, the lumber and woods products industry accounted for 40 percent of the County's manufacturing jobs and 12.8 percent of total nonfarm employment. Linn County's unemployment rate is currently higher than the state average, but is expected to decrease slightly in the coming years. A factor that may impact this forecast is the reduction of timber supply due to the northern spotted owl issue. Until this issue is resolved, it is difficult to estimate its long-term effects on employment in the County.

On the positive side of Linn County's future is Linn-Benton Community College near Albany and the easy access provided by I-5 to Salem, Eugene and Corvallis. Another positive note is the completion of the Heritage Mall. This mixture of large and small retail shops helps to keep more income circulating within the area. Linn County has also begun to actively pursue the tourism opportunities it has to offer.

Land Ownership

The BLM manages an estimated 1,782 acres (83 percent) of the total 2,147 acres within the river corridor. Hancock Insurance owns 325 acres and the remaining 40 acres is owned by Mr. Jim Houf.

Geology and Minerals

Quartzville Creek flows in a steep-walled canyon incised into the volcanic rocks. Where the creek crosses more resistant rock types (porphyritic basalt, basaltic andesite flows and mafic intrusion rocks such as dacite porphyrydike), the walls of the canyon are narrow and steep with large rock outcroppings restricting the creek's flow.

Quartzville Creek lies in the prominent Quartzville Mining District. Elevations in the surrounding area range from 1,500 feet at Quartzville Creek to about 3,500 feet on the ridges. A series of terraces and alluvial fills extending from the mouth of Canal Creek to the western part (Sec. 22, T.11S., R. 4E., W.M.) of Dry Gulch constitutes a noteworthy geologic feature.

Gold is the primary mineral of interest in Quartzville Creek. The minerals within the Quartzville Recreation

Corridor were segregated from federal mining laws when the lands in the corridor were leased to Linn County in 1984 under a R&PP lease. The R&PP lease keeps Quartzville Creek open to the public for recreational mining, excluding the two unpatented claims within the corridor boundaries. Recreational mining along the banks and beds of Quartzville Creek is a major attraction to the public and was identified as an outstandingly remarkable value by Congress. This was verified in the resource assessment.

Soils

Soil Types

Quartzville Creek corridor has three major soil types. Approximately 10 percent of the soils are silt loams and silty clay loams occurring near Quartzville Creek on gentle to moderate slopes. Soil depth and available water-holding capacity are high. Soil productivity for timber is moderate to high. Cobble gravelly loams occurring on moderate to steep slopes make up 85 percent of the soils. Soil depth and water-holding capacity vary from low to high. These soils are low to high in timber productivity. Rock outcrops of exposed basalt comprise five percent of the soils and occur on the side slopes and ridge tops. This soil type does not have commercial timber value.

Timber Productivity Capability Classification (TPCC)

The BLM Timber Productivity Capability Classification (TPCC) system classifies lands on the basis of their productivity and reforestation limitations. The majority of TPCC lands within the river corridor (approximately 75 percent) indicate fragile soil conditions. Of those fragile soil conditions, those that occur over the largest areas are FS (soils which have a low available water-holding capacity), FM (soils on steep slopes where the soil surface is highly susceptible to erosion and ravel), and FG (fragile sites due to steep slopes, predominantly stream adjacent slopes). About half of these fragile soil areas are further classified as nonsuitable woodland and are withdrawn from the timber base.

Another 10 percent of BLM-administered land within the river corridor is in other nonforest classifications. The remaining 15 percent of BLM administered land within the river corridor is in a reforestation problem classification.

Vegetation and Timber

Vegetation

There are two predominant forest types along Quartzville Creek. The first consists of those stands with an overstory of large Douglas-fir, 36 to 72 inches in diameter at breast height (dbh) and western hemlock 24 to 36 inches dbh. The second type consists of stands with an overstory of smaller Douglas-fir, 6 to 28 inches dbh and western hemlock, 2 to 10 inches dbh.

The forest stands with larger trees exist primarily on north, east, and western aspects and are sometimes found on ridges. The five plant associations represented in this forest type within the river corridor include western hemlock/swordfern, western hemlock/oxalis, western hemlock/Oregon grape, western hemlock/rhododendron/bear grass and western hemlock/salal.

The other dominant forest type in the river corridor is composed of smaller Douglas-fir, 6 to 28 inches at dbh, and western hemlock, 2 to 10 inches at dbh in the overstory. This forest type exists mainly on south slopes and on some ridges. Three different plant associations are represented in this forest type within the river corridor include western hemlock/Oregon grape-salal, western hemlock/rhododendron/bear grass and Pacific madrone/beargrass-grass.

Riparian vegetation is also present along Quartzville Creek and its tributaries. Rock outcrops with Pacific madrone, Oregon white oak, kinnikinnik, selaginella, and other herbs can be found throughout the corridor. The often dense canopy is dominated by Douglas-fir, western hemlock and western redcedar.

Special Status Species

A vegetation survey for Quartzville Creek was conducted in 1991 and no sensitive plant species were found within the river corridor boundaries (see Appendix G).

Timber

The BLM currently manages approximately 1,782 acres of forest land within the Quartzville Creek corridor. Approximately 56 percent of these lands are classified as having potential for commercial timber management. The remaining area has been withdrawn from commercial timber management because of low site productivity or severe reforestation limitations.

Harvest levels on much of the BLM administered

commercial forest lands within the Quartzville Creek corridor have been constrained by land use allocations made under the 1983 Management Framework Plan (MFP). Older forest connectivity reserves (OFR's) designated on approximately 20 percent of suitable commercial forest land within the corridor, have been reserved from harvest under the MFP. Lands classified as VRM Class 2 have been restricted to extended rotations (100 years) designed to reduce impacts to visual resources. Approximately 45 percent of the commercial lands not otherwise restricted with OFR designations within the corridor have been classified as VRM Class 2.

The most prominent issue potentially affecting timber management within the corridor is habitat management for the northern spotted owl. One of the primary management objectives of the area is to provide suitable spotted owl habitat in conformance with current proposals being considered by the U.S. Fish and Wildlife Service for the Spotted Owl Recovery Plan. Under proposed management guidance, the river corridor would be managed to sustain an extended harvest rotation age (300 years), thereby retaining a large percentage of the area in mature and old-growth forest stands. Management would emphasize providing biological diversity and habitat for threatened and endangered species dependent upon or associated with old-growth forest ecosystems. In order to reestablish old-growth forest stands within the river corridor, timber harvest activities could be severely restricted or deferred for 80 years. During this time, timber production activities would be commercial thinning of stands less than 80 years old for the purpose of enhancing wildlife habitat. Roadside salvage of blowdown, disease/bug kill, or hazard trees would also occur, after dead and downed woody debris requirements were met.

Navigability and State Ownership of the River Bed and Banks

State ownership of the beds of navigable waterbodies was granted to Oregon in 1859 as an incidence of statehood and is an inherent attribute of state sovereignty protected by the United State's Constitution. The beds of non-navigable waterbodies remain in the ownership of the United States or its grantees. Quartzville Creek is not currently listed as navigable by either the State of Oregon or the U.S. Army Corps of Engineers.

The Division of State Lands (DSL) also administers the State's Removal and Fill Law which protects all of Oregon's waterways, regardless of navigability, from uncontrolled alteration. The law requires a permit for fill

or removal of more than 50 cubic yards of material per year within the State's waterways. The permit review process involves coordination with the natural resource and land-use agencies from the local through federal levels.

Chapter IV Environmental Consequences



Navigation and the National System of Public Lands

Introduction

Public lands management has long been a complex task. The Department of the Interior, which oversees the management of public lands, has a long history of working with the Department of Defense to manage public lands and the Department of Justice to manage public lands.

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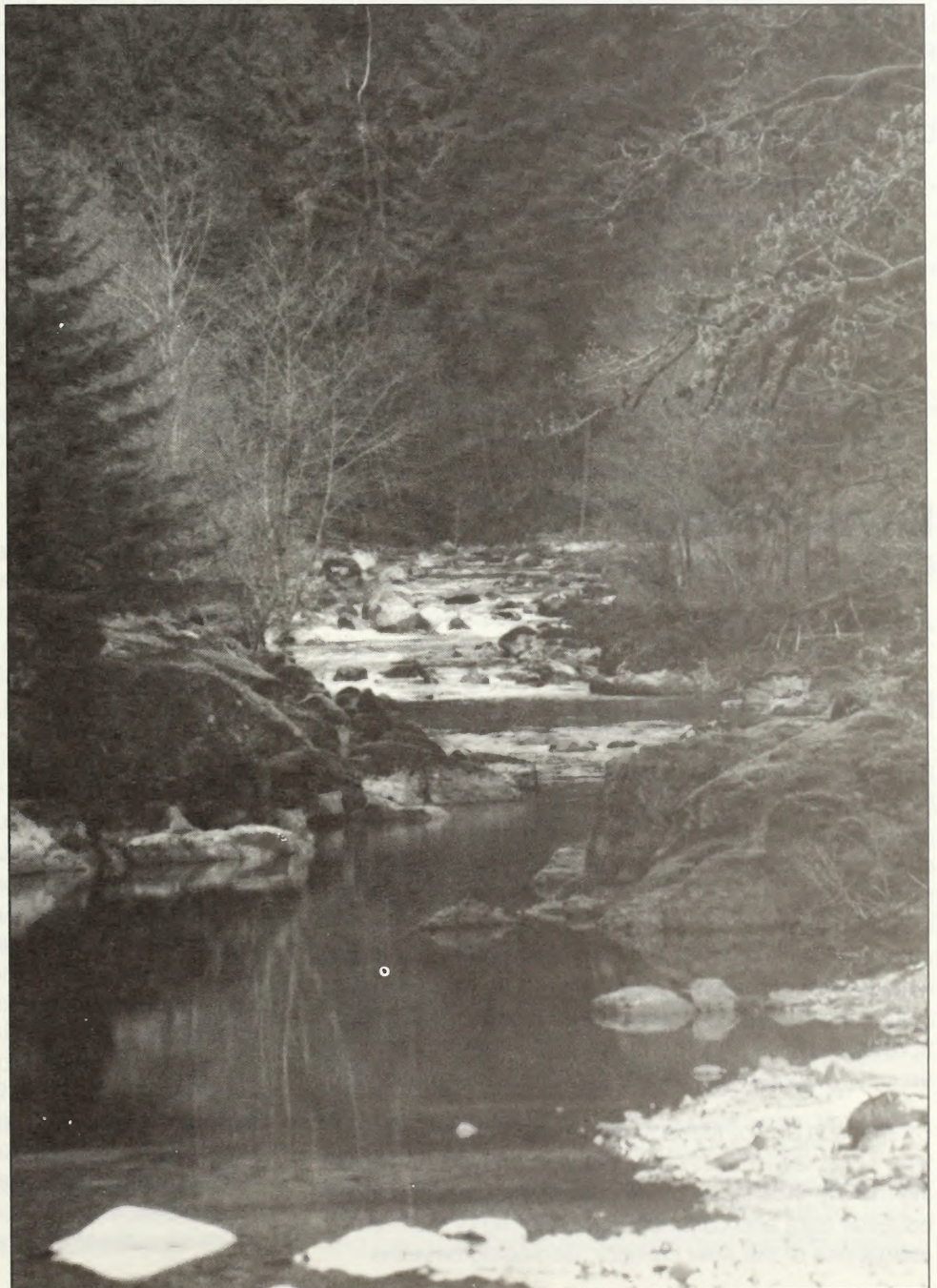
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Chapter IV Environmental Consequences



Purpose

Chapter IV describes the potential effects of management alternatives on resources described in Chapter III. In Alternative A, the anticipated effects to the resources are based on the assumption that existing laws and regulations will continue to control the management of Quartzville Creek. Alternatives B, C and D, describe effects likely to occur should the management direction described in each alternative be taken.

* **Note:** Impacts associated with site-specific projects such as facility development or timber harvest are not addressed in detail in this EA. Separate EA's will be prepared, on a project by project basis, to identify and assess site-specific impacts, cumulative impacts and mitigation.

Chapter IV contains the following sections:

- A description of the environmental consequences of each alternative by resource
- A discussion of cumulative impacts
- A summary of the alternatives in a comparative table
- A table estimating the costs of implementation for each alternative

Environmental Consequences of Alternatives

Recreation Resources

Recreation opportunities consist of the physical, biological, social and managerial setting. The physical and biological setting includes such things as the character of the landscape, level and type of development present, and fish and wildlife. The social setting include the amount and type of people who use the recreation setting, what activities they participate in and what type of experiences they have. The managerial setting includes the level, type and location of public access, facilities and improvements, interpretation and education efforts and on-site and off-site regulations.

Changes in any of these settings could change the type of recreation that takes place in an area. Interpreting the significance of these changes requires sound baseline data and continuous monitoring of the recreational use of the river corridor. Beginning baseline

data was compiled during the visitor-use survey completed in 1991. However, little other data for comparing changes over time is available. This lack of data makes it difficult to be specific about the effects of each alternative on recreation opportunities. The process of gathering such data would result from the implementation of some of the alternatives.

People visit Quartzville Creek for several different reasons previously described in the Chapter III.

Recreation use on Quartzville Creek is low to moderate. Trends indicate that water-based recreation is one of the fastest growing activities in the nation, which could result in significant growth in the use of Quartzville Creek. "Spill over" use from nearby Green Peter and Foster Reservoirs may intensify this recreation growth trend. Any development that occurs outside the river corridor boundaries may also attract additional use.

Visitor requirements and expectations vary so much that the degree to which the alternatives would either beneficially or adversely affect them depends on the management actions involved. An action which tends to benefit visitors seeking one form of recreation may adversely affect visitors seeking other opportunities. This analysis incorporates both the potential positive and negative impacts that would result from implementing each alternative.

Alternative A

Under the no action alternative, there would be no provisions for monitoring use levels, use patterns, conflicts, and facility or access needs. Public information would be limited to existing access signs and no visitor information or education plan would be developed.

Although current use of Quartzville Creek is low to moderate, existing camping and sanitation facilities are not sufficient to meet current demand during peak-use periods. Indications of use such as fire rings, vandalism, human waste, litter, bank erosion, and loss of vegetation are already evident. In addition to resource damage and administrative problems, these impacts can negatively affect the recreationist's experience. Without changes in management, these problems will intensify over time.

As previously described in Chapter III, the number of people camping, fishing, recreational mining and participating in other activities along the river is expected to increase. The lack of coordinated management would mean that any increases in use would be relatively uncontrolled and impacts unmonitored.

Competition and conflict among recreationists for river access, fishing holes, campsites and use areas is also moderate. However, during peak-use periods, evidence of crowding is beginning to occur. Without improvements to Quartzville Access Road, safety hazards among recreational, administrative and commercial traffic will continue to grow.

If Alternative A were to be selected and implemented, overall recreation use levels would continue to increase. In the long term the quality of the recreation experience may deteriorate due to the impacts of increasing unregulated recreation use.

Alternative B

Under Alternative B, recreation use would also be expected to increase. Construction of new facilities and improvements to Quartzville Access Road could attract new users to the Quartzville area at a faster rate than the other alternatives. This alternative would more fully accommodate increasing use, by concentrating use in developed facilities, increasing management control and increasing interagency cooperation.

Monitoring use patterns and activity preferences would help managers identify and prevent potential conflicts before they become serious. Monitoring would also help managers recognize changes in use patterns and preferences. Coordinating with other agencies would allow managers the chance to offer visitors more services than would be possible separately.

This alternative would favor those users seeking a more developed experience. Land acquisition would provide more suitable locations for the construction of additional campground facilities designed to provide high levels of comfort and convenience, including flush toilets, and water hookups. Turning the 3.2-acre abandoned Guard Station Site into a group camping area would provide additional overnight-use opportunities.

Dispersed use would continue but undeveloped camping would be restricted to only a few locations. This would displace some undeveloped camping into the new developed recreation sites or to other locations outside the river corridor.

The establishment of a small visitor center would primarily benefit more developed recreation seekers and would tend to attract a more nonlocal group of visitors. The center would also improve visitor information and help visitors find facilities or other areas appropriate to their needs. This alternative has the highest level of proposed interpretive and educational programs. These services would increase visitor

awareness about Quartzville Creek's cultural and natural resources, as well as encouraging appropriate visitor behavior.

Improvements in river access and Quartzville Access Road would enhance visitor safety and comfort. The construction of barrier-free and other trails would provide access to a more diverse group of visitors with new opportunities for hiking, biking, horseback riding and exploring.

This alternative would also have the highest level of regulation, with recreation being more structured and controlled. This alternative does not entail the elimination of any existing opportunities, however, many activities would be more regulated to help minimize user conflicts. An example of increased regulation would be restricting recreational mining in the Yellowbottom swimming hole during high-use periods of swimming. As recreation use increases, other restrictions may be necessary to minimize user conflicts and resource damage. Overall, dispersed and more primitive activities would be slowly replaced by more development-related use.

Alternative C

This alternative would provide a less developed experience, one similar to the existing situation. A limited amount of facility development and regulation would occur to accommodate current use, future use and to provide adequate resource protection.

Monitoring use patterns and activity preferences would help managers identify and prevent potential conflicts before they become serious. Monitoring would also help managers recognize changes in use patterns and preferences. Coordinating with other agencies would allow managers the chance to offer visitors more services than would be possible separately.

The proposed land acquisition would provide additional locations for the construction of new facilities that would be similar to those existing at Yellowbottom Recreation Site. Turning the 3.2-acre abandoned Guard Station Site into a group camping area would provide an additional overnight-use opportunities.

Dispersed use would continue under this alternative and minor improvements would be made to improve visitor comfort and encourage resource protection. There would be some reduction in undeveloped campsites resulting from closing sites within the 100-foot buffer or sites not meeting the standards developed in the LAC process. This loss could be replaced by better management and utilization of existing sites and the identification of new sites not currently being

used. Providing additional drinking water and sanitation facilities in key locations along the river would also make the corridor cleaner, safer and more convenient for visitors.

Interpretive and educational programs would be designed with the same focus as Alternative B, however, no visitor center would be developed. Visitors would still be provided with the information, but in a less developed manner. This would help minimize development and preserve the naturalness of Quartzville Creek while still providing interpretive opportunities.

Improvements in river access and Quartzville Access Road would improve visitor safety and comfort. The construction of barrier-free river access and trails would provide a wide range of visitors with new opportunities for hiking, biking, horseback riding and exploring.

The level of regulation would be higher than Alternative A but lower than B. This alternative does not entail the elimination of any existing opportunities. The minimum level of regulation necessary for providing visitor safety, visitor enjoyment and resource protection would occur. Overall, this alternative would try to maintain the recreational opportunities, occurring at this time, while trying to accommodate growing use.

Alternative D

Although demand for the recreation opportunities Quartzville Creek offers is expected to rise, this alternative would limit overnight use to below existing levels. Alternative D would provide the lowest level of camping opportunities of all the alternatives because overnight use would be limited to existing facilities. This alternative would eliminate all undeveloped overnight use. However, many activities could still occur as day use. The displacement of undeveloped camping occurring within the river corridor may cause overcrowding problems in neighboring areas. Because of the lack of camping opportunities, this alternative would favor local users, given the first-come, first-served policy for Yellowbottom Recreation Site.

Recreational activities would be highly controlled and less monitoring and interagency coordination for providing new recreational opportunities within the river corridor would occur. Limiting recreational mining to a four inch dredge size may displace visitors with larger equipment to areas with less restrictions.

Land acquisition would occur, however, other resource values would be the primary emphasis. River access would be increased, but no significant increase in

recreation opportunities would be expected.

This alternative offers the most severe limitation to recreational use of all the alternatives. Many users would be displaced either to neighboring lands or other areas, and implementation of this alternative would require a high level of enforcement.

Road Management

Under Alternatives A and D the existing road management conditions for Quartzville Access Road would continue. In Alternatives B and C, Quartzville Access Road would be brought up to acceptable safety standards. This would increase public access and traffic would be expected to increase. Dedicating Quartzville Access Road as a National Back Country Byway would also increase traffic.

Hydrology/ Water Quality

Under all of the alternatives, the BLM would recommend to the USGS that the stream gage on Quartzville Creek at Panther Creek continue operation to monitor discharge. Cooperative funding would be considered if necessary to keep the station operational. Federal and state point and non-point source water quality laws and regulations, non-degradation policies, and protection of beneficial uses would be enforced under all alternatives.

Alternative A

General recreation and recreational mining will increase along the river over time. Alternative A provides for no new sanitation facilities, campgrounds, patrols or signing for resource protection. Dispersed camping would not be regulated. Higher levels of recreation on the river could increase stream bank and riparian damage, increase the number of trails, reduce bank stability. This could result in increased sediment, trash, human waste and bacteria entering the stream. Under this alternative, water quality would be expected to decrease over time.

Alternative B

Recreation, trails and access would be maximized, and campgrounds, parking, and public access expanded to accommodate a greater number of visitors. This could have the potential for increasing erosion, and surface runoff from campgrounds, parking areas and trails, as well as increasing streambank and riparian damage, and reducing bank stability. Increases in inputs of sediment, trash, human waste, and bacteria could also occur.

The new facilities would help concentrate use in areas with adequate facilities for minimizing potential stream input increases of trash and human waste and bacteria in the corridor as a whole. Increasing management control, closing and rehabilitating undeveloped campsites with excessive use could also help minimize loss of vegetation and other user impacts. Public education and installing signs to promote resource conservation would help reduce some of the impacts of increased recreation numbers by encouraging appropriate resource use practices. Limiting the recreational dredge intake to five inches would decrease the amount of streambed disturbance from individual dredges.

The reconstruction of Quartzville Access Road would require widening and repaving the road and cutting into the hillside in several areas. The result could be short term increases in sediment delivery to the stream. Eventually sediment delivery from the access road would return to near current levels.

The acquisition of lands along Quartzville Creek would allow the BLM to potentially reduce impacts to water quality due to the unregulated recreation occurring on those lands. Monitoring and developing standards for water quality would provide a basis for identifying trends. Watershed and riparian enhancement opportunities would be sought, which would decrease sediment and other non-point source pollutant sources. Overall, water quality would be expected to remain stable or increase slightly under this alternative.

Alternative C

Existing recreation sites would be improved and a limited level of development allowed to reduce site specific impacts. Recreation use would grow within the corridor, potentially increasing erosion and surface runoff from campgrounds, parking areas and trails, increasing stream bank and riparian damage, reducing bank stability, and resulting in increased inputs of sediment, trash, human waste and bacteria.

To minimize these effects, additional restroom facilities would be constructed to reduce human waste and bacteria inputs to Quartzville Creek. River access trails, where excessive resource damage is occurring and areas where multiple trails exist, would be closed and rehabilitated. In addition, camping would not be allowed within 100 feet of the stream. The goal of these measures would be to decrease sediment and trash inputs to the stream and to improve damaged riparian and stream bank areas. Limiting the recreational dredge intake to five inches would decrease the amount of streambed disturbance from individual dredges. The level of management presence would be

greater than in Alternative A, but less than Alternative B. Public information, education, and sign installation to promote resource conservation would help minimize increases in recreation-related impacts in the corridor.

The reconstruction of Quartzville Access Road would require widening and repaving the road and cutting into the hillside in several areas. The result could be increases in short term sediment delivery to the stream. Eventually sediment delivery from the access road would return to near current levels. Construction of any additional pullouts along the access road would increase erosion and sediment delivery to Quartzville Creek.

The benefit of land acquisition to water quality are similar to that in Alternative B. Monitoring and developing standards for water quality would provide a basis for identifying trends. Watershed and riparian enhancement opportunities would be sought, which would decrease sediment and other non-point source pollutant sources. Overall, water quality would be expected to improve under this alternative.

Alternative D

A focus on watershed enhancement would improve existing water quality conditions and favor better water quality. Public access and recreation would be allowed only when not in conflict with watershed values. The level of management presence would be the high to insure visitor compliance with regulations. Limiting river access to designated trails, closing and re-vegetating road pullouts not needed for safety, prohibiting dispersed camping, and prohibiting camping within 100 feet of the stream would decrease sediment, human waste, bacteria and trash entering the stream. Installing signs to educate and encourage resource protection may also help reduce recreation-related impacts. Limiting the recreational dredge intake to four inches would decrease the amount of stream bed disturbance from individual dredges to a greater extent than Alternative A, B, or C.

The acquisition of lands along and in the uplands along Quartzville Creek would allow the BLM to potentially reduce impacts to water quality due to timber harvest and the unregulated recreation occurring on those lands. Monitoring and developing standards for water quality would provide a basis for identifying trends. Watershed and riparian enhancement opportunities would be sought, which would decrease sediment and other non-point source pollutant sources. Overall, water quality would be expected to improve relative to Alternative C.

Riparian Zone

Alternative A

The riparian zone would continue to deteriorate due to increasing unregulated recreational use.

Trail networks, loss of vegetation and firerings are already impacting the riparian habitat along Quartzville Creek. These impacts would be expected to increase as unregulated recreational use increases.

Alternative B

The riparian zone would be expected to improve over the long-term due to increased regulation of recreation use and the closure of undeveloped sites not meeting standards using the LAC System. Improving access in several locations may help channel use thereby reducing the trail network within the riparian zone. Land acquisition of riparian habitat along Quartzville Creek and managing recreation could reduce trail networks and loss of vegetation on private lands in the river corridor. On BLM-administered lands, no timber harvest would be allowed within 80 feet of Quartzville Creek, minimizing impacts to riparian habitat should timber harvest occur.

Alternative C

The effects of C would be similar to those discussed in Alternative B. The addition of a 100-foot buffer along both sides of Quartzville Creek where camping is prohibited would reduce help lower user impacts in the riparian zone.

Alternative D

Alternative D would provide the greatest degree of protection for the riparian zone by severely restricting recreation use and proposing no new construction projects. On BLM-administered lands, no harvest of timber would be allowed on BLM-administered lands within 200 feet of Quartzville Creek should timber harvest occur. This would provide the highest level of riparian protection of all the alternatives. The timber harvest riparian buffer and restrictions on recreation use would also apply to any private lands acquired by the BLM.

Wildlife

Alternative A

Impacts to wildlife resources from increased, primarily unregulated, recreational use is expected to be the highest under Alternative A. Alternative A offers the least control over recreational use and thus has the greatest potential for wildlife disturbance and would continue the downward trend in overall habitat condition.

Alternative B

Under Alternative B, recreational use is expected to increase. Recreational development and increased access with the reconstruction of Quartzville Access Road in this alternative would likely bring more human activity into the corridor. Increased human activity can increase disturbance and alter wildlife habitat. However, the increase in management authority would result in better control of recreational use, decreasing disturbance to wildlife. The identification and improvement of specific public access points would help control degradation of riparian habitat and disturbance to wildlife.

Under this alternative the BLM would work towards acquiring 365 acres (on a willing-seller basis) of private land within the river corridor boundaries. If these properties are acquired, the amount of wildlife habitat, in the river corridor, under BLM management would increase, thereby allowing wildlife habitat management to be consistent throughout the corridor. If this acquisition involves a land exchange, there may be habitat values lost or gained overall, depending on the BLM-administered lands selected for exchange. These tradeoff values would be evaluated on a site-specific basis as part of the acquisition process.

Alternative C

Under Alternative C, recreation use of the river corridor is expected to increase. Recreation development would be greater than in Alternatives A and D, but less than allowed under Alternative B. There would be less facility development under Alternative B, but the reconstruction of Quartzville Access Road would still occur. This would lead to increases in human activities which could increase disturbance to wildlife and alter wildlife habitat. However, with the increased regulation and closing of undeveloped campsites with excessive use, potential impacts to wildlife would be expected to be lower than in Alternatives A and B.

As in Alternative B, the BLM would work towards acquiring 365 acres (on a willing-seller basis) of private land within the river corridor boundaries. The impacts of acquiring these land are similar those discussed in Alternative B.

The Quartzville Access Road would be improved under this alternative as it would in Alternative B. Other In addition to attracting more people into the corridor, disturbance to wildlife would increase for a short time during the construction period due to blasting and equipment noise.

Alternative D

Under this alternative, impacts to wildlife habitat and populations would be the lowest of all the alternatives. In Alternative D, recreational use of the river corridor could decrease. There would be no further recreational development in the corridor and overnight use would be restricted to developed recreation sites. This could potentially reduce human activity in the corridor, thereby reducing disturbance to wildlife and possibly improving wildlife habitat conditions and trends.

In Alternative D, the BLM would work towards acquiring 1192 acres (on a willing-seller basis) of private land within the river corridor boundaries. If these lands are acquired, the amount of wildlife habitat under BLM management would increase and wildlife habitat management would be consistent throughout the corridor. If this acquisition involves a land exchange, there may be habitat values lost or gained overall, depending on the BLM-administered lands selected for exchange. These tradeoff values would be evaluated on a site-specific basis as part of the acquisition process.

The Quartzville Access Road would not be reconstructed under this alternative. This would minimize the disturbance to wildlife in comparison to Alternatives B and C.

Fisheries

Alternative A

Lack of regulations on dispersed day use and undeveloped camping could result in excessive fish and riparian habitat degradation. Since Quartzville Creek is a put-and-take fishery, the stocking program does not directly relate to stream and water conditions. The stocked fish do compete with native cutthroat populations existing in Quartzville Creek. However, the existence of Green Peter and Foster Dams provide the greatest limitation to managing Quartzville Creek as an anadromous fishery.

Alternative B

Due to higher levels of recreational use regulation, Alternative B would have lower impacts to fish and fish habitat than Alternative A. Monitoring use levels, improving river access and closing some undeveloped campsites may benefit fish by decreasing non-point pollution. Proposed road construction could result in the input of fine sediment into Quartzville Creek, resulting in short-term impacts fish spawning gravels. Using the LAC System to track recreational use and resource conditions will help identify problem areas before they become excessive. Leaving trees where they fall along and in the river would be beneficial to fish by increasing the amount of large woody material in the river, increasing channel complexity and the ability of the channel to store spawning-size gravel.

Alternative C

The LAC System would be used to develop standards for resource conditions. Standards in Alternative C would be higher than in Alternative B, resulting in lower user impacts to fish/riparian habitat. As with Alternative B, leaving fallen trees along and in Quartzville Creek would be beneficial. The restriction on camping within 100 feet of the stream would help reduce riparian habitat degradation. The closure of excessive river access routes within the riparian zone will further protect riparian zone integrity, providing more desirable fish habitat. Impacts due to road construction would be similar to those discussed in Alternative B.

Alternative D

Alternative D would have the lowest impacts to fish habitat of all the alternatives and would enhance fisheries from the existing situation. The standards developed using the LAC System would be the highest of all the alternatives, thereby allowing the least amount of impacts. Reduced recreation-use levels would lower impacts to riparian areas. Potential impacts associated with facility development and road construction would not occur and the restriction of overnight use to Yellowbottom Recreation Site would also reduce impacts. Limiting river access to designated routes would help reduce the level of riparian damage and decrease bank erosion and sedimentation of spawning gravel. Restricting the gold dredge size to four inches may help reduce the rate of displacement of riverbed gravels.

Visual Resources

The impacts to the viewshed are analyzed in terms of the foreground-middleground, background and seldom seen. Foreground-middleground includes areas seen from highways, rivers, or other viewing locations which are less than three to five miles away. Background included seen areas beyond the foreground-middleground zone but usually less than 15 miles away. Areas not seen as foreground-middleground or background are in the seldom-seen zone.

Activities on private lands, within and outside of the river corridor boundary can affect the viewshed of the river corridor. Harvesting timber on private lands within the river boundary in the future, may negatively impact the viewshed. The relatively unregulated recreational use on private lands could adversely affect the foreground-middleground zones immediately adjacent to the river. Incremental development of the river corridor could also gradually shift the character of the area towards a more developed setting.

Alternative A

Under the no action alternative, activities on private lands have the greatest potential for impacting visual resources. Recent harvesting activities on private lands have already impacted the viewshed at the northeastern end of the river corridor. While roadside salvage of blowdown may occur, every effort would be made to insure such activities are compatible with VRM guidelines. No significant changes in the background or seldom seen zones is expected, however, user impacts such as litter, firerings and loss of vegetation are already evident in the foreground-middleground zone.

Alternative B

Alternative B includes several activities such as road construction, facility construction and signing which have the potential for affecting visual resources in the foreground-middleground.

With facility development and the widening of Quartzville Access Road, the character of the river corridor would be slightly more developed in the foreground-middleground zone, but would remain primarily the same in the background and seldom seen zones. During road construction, visual resources could be negatively impacted, however, this impact would be short-term in nature.

Increases in management presence and control, along with site rehabilitation could reduce impacts such as litter, firerings and loss of vegetation. The acquisition of

365 acres of private land would increase the BLM's ability to manage for visual resources in the river corridor. Mapping and monitoring the viewshed would help identify any undesirable trends or incremental changes over time.

Overall, visual resources would be maintained over the long term.

Alternative C

Alternative C would have less impacts to visual resources than Alternative A and similar impacts to compared to Alternative B, with less facility development and less signing. The facility development in this alternative would not significantly alter the visual resources in the river corridor in the foreground-middleground, background or seldom seen zones.

The potential impacts of road construction to visual resources would be similar to those described in alternative B.

As with Alternative B, increases in management presence and control along with site rehabilitation could reduce already existing impacts such as litter, firerings and loss of vegetation. The acquisition of 365 acres of private land within the river corridor would improve the BLM's ability to manage for visual resources and mapping and monitoring would help identify any undesirable trends or incremental changes over time.

Overall, visual resources would be maintained over the long term.

Alternative D

Alternative D would have the least potential for negatively impacting visual resources and the greatest potential for improving visual resources in the river corridor. With no new road construction or facility development, and an increase in management presence and control this alternative would maintain the highest level of natural-appearing landscape in the foreground- middleground, background and seldom seen zones.

The acquisition of 1192 acres of private lands within the river corridor would also provide greater consistency in the management of visual resources compared to any of the other alternatives.

Overall, visual resource would be maintained over the long term.

Cultural Resources

Alternative A

Cultural resource inventory would not occur in a systematic manner. Sites currently unidentified and subject to natural or human-caused degradation may be identified only incidentally or as a result of a compliance inventory. Sites may be significantly impacted and site integrity destroyed before the site is actually identified. Opportunities to educate the public on the value of cultural resources will be missed. Public information on local prehistory and history will not be readily available for the river corridor.

Alternative B

Alternative B has the highest level of potential impacts to cultural resources because it has the highest level of construction. Though mitigation of impacts will be required if sites will be disturbed by construction, complete data recovery is rarely possible due to the limitations of current methodology and the high cost of data recovery efforts. In addition, heritage values manifested intrinsically cannot be mitigated. Heavy recreation development could result in some site data loss and some loss in cultural resources's heritage associational values. Cultural sites and data would be used to provide public education programs about human history and the need to protect cultural resources in the river corridor.

Alternative C

Alternative C has a lower potential of impact than Alternative B, however, some construction of new facilities and road improvements would still occur. Both resource protection and interpretation opportunities would be provided for cultural sites. Development that led to ground-disturbing activities would generally be designed to avoid sites, though some impacts might occur, with mitigation then being undertaken. Local prehistory and history could be presented in publications and on-site locations with the intent of fostering appreciation of and interest about cultural resources and the importance of protecting them. This would help to discourage artifact collection or site disturbance.

Alternative D

In general, cultural resource sites would be preserved in place except when excavation or other data collection is permitted for use in answering significant scientific questions regarding broad prehistoric or historic themes or issues. Opportunities for public

dissemination of such information would be sporadic and publication of the information would generally be targeted to a specialized scientific audience and would not be easily acquired or attractive to the general public.

Socio-Economics

Alternative A

The implementation of alternative A is not expected to have any significant short term or long term impacts at the local, state, or federal level.

Alternative B

The proposed land exchange (on a willing seller basis) under Alternative B would involve an exchange for 365 acres of private land and timber for BLM O&C lands and timber of equal value. Both ownerships of the proposed exchange lie within Linn County. The private lands which would be acquired are within the Wild and Scenic River boundary and surrounded by BLM-administered lands currently identified as critical habitat for the northern spotted owl. If these lands come under BLM management, timber harvest would be consistent with other management considerations in the corridor (i.e. scenery, recreation, water quality etc.). Lands available for timber harvest would be managed on a long rotation (300 years). It is likely that lands exchanged to the private owners would normally be managed on a shorter rotation (80 to 150 years). This difference in timber harvest intensities could result in a loss of O&C receipts to Linn County and the other O&C counties in Oregon. Based upon an average annual growth rate of 800 board feet/acre/year at the age of maximum annual growth (80 years) and an average stumpage value of \$250 per thousand board feet for timber of this size and quality, the loss of receipts to all O&C counties could be as much as \$36,500 per year. Of that, \$900 dollars per year would be lost to Linn County. To the degree possible, public domain lands rather than O&C lands would be used for the exchange. This would reduce the loss of O&C land timber receipts to the counties. (These estimates assume that BLM would exchange as many acres as it receives. To equalize values in the exchange, the BLM may give fewer acres than it receives. This would decrease revenue losses to the counties.)

Linn County's loss in timber revenue could be counter balanced by the increase in tourism revenue resulting from the increase in recreational use associated with the proposed facility developments. Other counties would probably not benefit from this increase in tourism.

Over the next ten years, it is anticipated that there will be an increase in timber harvest on BLM-administered lands proposed for exchange. This assumption is based on the fact that existing BLM lands currently contain harvestable age timber and the private lands do not. It is expected that the BLM lands acquired by a private land owner would be harvested at a faster rate than if they remained under BLM ownership. As a result of this anticipated increase in timber harvest over the next decade, the land exchange should not negatively impact timber-related employment. Taxes from this increased harvest would also offset some of the revenue losses to the counties.

Alternative C

The socio-economic consequences of Alternative C are very similar to Alternative B. The consequences of the land acquisition would be the same.

Alternative D

Alternative D proposes the acquisition of 1,192 acres through exchange (on a willing seller basis). Again, both ownerships of the proposed exchange are located within Linn County. Given the same assumptions as Alternative B, loss in timber receipts to all O&C counties are estimated at \$115,500 per year. Losses to Linn County are estimated at \$3,000 dollars per year. To the degree possible, public domain lands rather than O&C lands would be used for the exchange. This would reduce the loss of O&C land timber receipts to the counties.

Linn County would probably not experience the increase in tourism associated with outdoor recreation that would occur in alternatives B and C.

Impacts to timber-related employment would be similar to those anticipated under Alternatives B and C.

Land Ownership

Under Alternative A no changes in land ownership would occur. In Alternative B and C, the BLM has the potential for acquiring 365 acres within the corridor boundaries which would put the entire 2,147 acres within the existing river corridor boundaries under BLM administration.

In Alternative D the BLM has the potential for acquiring 1,192 acres of private land. Another 108 acres of BLM land would also be added to the corridor boundaries. With the boundary expansion proposed in Alternative D, the BLM would administer a total of 3,082 acres within the river corridor.

Soils

All management activities proposed in the different alternatives would be likely produce very minor negative, short-term or long-term effects on the soil resource. This is mainly because of the low percentage of area that would be affected at any one time or cumulatively over time. Soil disturbances would be isolated, localized, and concentrated. Some disturbance would be acceptable, in order to meet other management objectives in the river corridor, for example, severe soil compaction in a campground parking area.

Timber harvest, facility development and road construction have the greatest potential for producing negative effects on soils. The actual risk of negative effects would depend upon site-specific conditions and specific project proposals. Alternatives B and C would have the greatest potential for impacts to soils since they both contain facility development and road construction.

Site-specific analysis would be conducted for all specific project proposals. The proposed treatments and other mitigation measures would influence the potential impacts on soils.

In general, Alternative D would reduce the impacts of dispersed camping on soils by restricting camping to developed sites. Alternatives B and C would reduce dispersed use impacts by improving river access and closing sensitive areas.

Vegetation and Timber

Vegetation

Alternative A could result in a net loss of vegetation over time due to increases in unregulated recreational use. None of the other management activities proposed under the four alternatives are expected to cause long-term impacts to vegetation. Some short-term disturbance may occur during road and facility construction. However, no changes in the current plant associations is expected. Because no special status plant species were found in the recent survey, there are no known consequences under any of the alternatives to special status plant species.

Timber

Management activities proposed under the four alternatives are not expected to cause short-or long-term impacts to current timber management policy or activities. Any site-specific projects will be evaluated on

an case-by-case basis.

Navigability and State Ownership of the River Bed and Banks

At this time no impacts on navigability are expected under any of the proposed alternatives.

Cumulative Impacts

Regulations implementing NEPA define cumulative impacts as:

"The impact on the environment which results from the incremental impacts of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

For Quartzville Creek, the issue is whether any of the management plan alternatives contain measures which could contribute to cumulative impacts, which could be either adverse or beneficial. Following is a discussion of the most likely cumulative impacts that are relevant to the key planning issues.

Potential Cumulative Impacts Common to All Resources

A majority of BLM-administered land within the watershed is contained in a proposed 300-year timber harvest rotation management category, so timber harvesting will be lower than historic levels (less than a 100 year rotation). This would result in lower sediment inputs to the stream from BLM-administered lands. Without acquisition, intensive timber management practices on private lands will continue. Although the majority of the private land in the corridor has already been harvested in the last 40 years, impacts due to timber harvest can be expected at some time in the future. Road density in the watershed will increase somewhat due to logging road construction on private and USFS lands.

Recreational demands are expected to increase in the Quartzville Creek corridor, and will have a potential for impacting water quality, riparian zone, fisheries and wildlife resources. Since most of the land in the Quartzville watershed consists of federal land and privately owned commercial timber land, population growth within the watershed is not expected.

Water Quality

Small increase in sediment inputs to Quartzville Creek would be expected from an increase in roads on land outside the river corridor boundaries. Instream mining claims on USFS lands upstream, could affect water quality within the designated section by damaging the streambank and streambed, increasing bank and bed erosion, and potentially adding mercury to the stream. Water quality concerns on lands outside the designated segment, related to recreation include, increases in sediment, trash, human waste and bacteria, and riparian and streambank damage.

In addition to the potential impacts discussed above, there are both potential and negative cumulative impacts as a result of implementing each of the management alternatives.

For Alternative A, potential cumulative negative impacts to water quality could occur as a result from growing unregulated dispersed recreational use, lack of adequate facilities and lack of resource coordination with other neighboring land managing agencies and private landowners. The long timber rotation on BLM-administered lands would reduce impacts to water quality associated with timber harvest. However, the deterioration of water quality would be expected as a result of implementing Alternative A.

Potential cumulative impacts to water quality resulting from implementing Alternative B are both positive and negative. Increased facility development, road construction and improved river access may increase the level of recreation use at a faster rate than would have occurred with each action individually. These cumulative effects would be minimized by the additional sanitation and resource protection provided by the new recreation facilities. Due to the long rotation, potential impacts associated with timber harvest would also be greatly reduced. Combining increased management controls, interpretation and coordination with other land managing agencies and private land owners would work together in encouraging and enforcing appropriate resource and recreational use. Water quality would be expected to remain the same or improve slightly.

The potential cumulative impacts to water quality for Alternative C would be similar to those discussed in Alternative B. However, the combined negative impacts may be slightly lower due to the lower level of facility development and the addition of a 100-foot buffer, along Quartzville Creek, where camping is prohibited.

Alternative D has lowest level of potential negative cumulative impacts of all the alternatives. The proposed acquisition of private land currently being

intensively managed for timber production combined with restrictions on recreation use and watershed enhancement projects would be expected to have a positive effect on water quality in the long term.

Riparian Zone

Timber harvesting on private lands within the river corridor could affect the riparian zone. However, such impacts would not be expected to occur in the near future.

The potential cumulative impacts on the riparian zone would be the highest under Alternative A. Lack of active recreation management, increasing river access trails and a minimal monitoring program could result in the deterioration of the riparian zone over the long term.

The potential for cumulative impacts to the riparian zone under Alternative B would be both positive and negative. Increased facility development, road construction and improved river access may increase the level of recreation use at a faster rate than would have occurred with each action individually. Improved river access and increased management controls would work together to reduce the impacts of growing recreational use by channeling use and closing areas with over use. Acquiring private lands within the riparian zone in the river corridor would also add to the BLM's ability to manage this resource. Overall the cumulative impacts would be expected to be lower than Alternative A with the riparian zone improving over the long term.

The potential cumulative impacts to the riparian zone under alternative C would be similar to those described in Alternative B. The 100-foot camping buffer discussed in water quality would also add to the positive cumulative impacts to the riparian zone.

The potential cumulative impacts to the riparian zone under Alternative D would be expected to be the most positive of all the alternatives. The increased land acquisition combined with restricting overnight use to developed recreation sites and limiting river access to designated points would be expected to improve Quartzville Creek's riparian zone over the long term by reducing loss of vegetation and reducing erosion.

Wildlife

Activities on private lands, such as commercial mining and timber harvest, occurring outside the jurisdiction of the BLM would have potential for impacting wildlife habitat and populations. It is difficult to assess the full extent of such impacts.

Potential cumulative impacts to wildlife resulting from combining increasing unregulated dispersed recreational use, lack of adequate facilities and resource coordination with other neighboring land managing agencies and private-land owners would be the highest under Alternative A. Although, significant long-term impacts to wildlife species or habitat is not expected, some deterioration of wildlife habitat could occur.

The potential cumulative impacts of combining the disturbance associated with facility and road construction (if these projects occur simultaneously) could result in higher level of wildlife disturbance than if they were considered separately. The construction disturbances would most likely be short term in nature. The faster growth rate of visitation associated with these improvements could add to the disturbance to wildlife both in the short term and over the long term. Increases in management control on BLM-administered lands and the private lands proposed for acquisition could help minimize disturbances. No significant short-term or long-term impacts to wildlife species or habitat is expected.

Alternative C would have similar potential cumulative impacts as those discussed in Alternative B.

Alternative D would have the lowest level of potential cumulative impacts to wildlife of all the alternatives. Private land acquisition, increased restrictions on recreational use and habitat enhancement projects would all work together towards maintaining and improving wildlife habitat in the river corridor.

Fisheries

Activities such as road construction associated with timber harvest, timber harvest itself and mining activities on lands not under BLM administration, have the potential for impacting the fisheries habitat in the portion of Quartzville Creek above the designated segment as well as the designated segment. The presence of Green Peter and Foster Dams have already impacted the anadromous fisheries.

The comparison of potential cumulative impacts to fisheries would be similar to those discussed in water quality and the riparian zone. In Alternative A lack of regulation of recreational use and coordination with neighboring land managing agencies and private ownership would be expected to result in the deterioration of fisheries habitat over the long term.

The cumulative impacts of sediment input and surface run-off from facility and road construction, along with competition from stocked species in Alternative B could have short-term negatively impact fish habitat. Benefi-

cial impacts to fish habitat would be increases in riparian and water quality protection. Fish habitat would be expected to remain fairly stable at current levels.

The cumulative impacts for Alternative C would be similar to those discussed in Alternative B.

Alternative D would offer primarily beneficial impacts with the increased restrictions to recreational use and the completion of watershed and riparian habitat enhancement projects.

SQUATONVILLE CREEK ENVIRONMENTAL CONSEQUENCES	
	Alternative C
WATER	<p>Alternative C would result in a net increase in water quality protection. This is due to the increased riparian habitat protection and water quality protection measures. The net increase in water quality protection is estimated to be 100%.</p>
WATER QUALITY	<p>Alternative C would result in a net increase in water quality protection. This is due to the increased riparian habitat protection and water quality protection measures. The net increase in water quality protection is estimated to be 100%.</p>
WATER QUANTITY	<p>Alternative C would result in a net increase in water quantity protection. This is due to the increased riparian habitat protection and water quantity protection measures. The net increase in water quantity protection is estimated to be 100%.</p>
WATER QUALITY AND QUANTITY	<p>Alternative C would result in a net increase in water quality and quantity protection. This is due to the increased riparian habitat protection and water quality and quantity protection measures. The net increase in water quality and quantity protection is estimated to be 100%.</p>
WATER QUALITY AND QUANTITY AND HABITAT	<p>Alternative C would result in a net increase in water quality, quantity, and habitat protection. This is due to the increased riparian habitat protection and water quality and quantity protection measures. The net increase in water quality, quantity, and habitat protection is estimated to be 100%.</p>
WATER QUALITY AND QUANTITY AND HABITAT AND RECREATION	<p>Alternative C would result in a net increase in water quality, quantity, habitat, and recreation protection. This is due to the increased riparian habitat protection and water quality and quantity protection measures. The net increase in water quality, quantity, habitat, and recreation protection is estimated to be 100%.</p>
WATER QUALITY AND QUANTITY AND HABITAT AND RECREATION AND FISH HABITAT	<p>Alternative C would result in a net increase in water quality, quantity, habitat, recreation, and fish habitat protection. This is due to the increased riparian habitat protection and water quality and quantity protection measures. The net increase in water quality, quantity, habitat, recreation, and fish habitat protection is estimated to be 100%.</p>
WATER QUALITY AND QUANTITY AND HABITAT AND RECREATION AND FISH HABITAT AND WILDLIFE	<p>Alternative C would result in a net increase in water quality, quantity, habitat, recreation, fish habitat, and wildlife protection. This is due to the increased riparian habitat protection and water quality and quantity protection measures. The net increase in water quality, quantity, habitat, recreation, fish habitat, and wildlife protection is estimated to be 100%.</p>
WATER QUALITY AND QUANTITY AND HABITAT AND RECREATION AND FISH HABITAT AND WILDLIFE AND PLANT LIFE	<p>Alternative C would result in a net increase in water quality, quantity, habitat, recreation, fish habitat, wildlife, and plant life protection. This is due to the increased riparian habitat protection and water quality and quantity protection measures. The net increase in water quality, quantity, habitat, recreation, fish habitat, wildlife, and plant life protection is estimated to be 100%.</p>
WATER QUALITY AND QUANTITY AND HABITAT AND RECREATION AND FISH HABITAT AND WILDLIFE AND PLANT LIFE AND SOIL	<p>Alternative C would result in a net increase in water quality, quantity, habitat, recreation, fish habitat, wildlife, plant life, and soil protection. This is due to the increased riparian habitat protection and water quality and quantity protection measures. The net increase in water quality, quantity, habitat, recreation, fish habitat, wildlife, plant life, and soil protection is estimated to be 100%.</p>
WATER QUALITY AND QUANTITY AND HABITAT AND RECREATION AND FISH HABITAT AND WILDLIFE AND PLANT LIFE AND SOIL AND AIR	<p>Alternative C would result in a net increase in water quality, quantity, habitat, recreation, fish habitat, wildlife, plant life, soil, and air protection. This is due to the increased riparian habitat protection and water quality and quantity protection measures. The net increase in water quality, quantity, habitat, recreation, fish habitat, wildlife, plant life, soil, and air protection is estimated to be 100%.</p>
WATER QUALITY AND QUANTITY AND HABITAT AND RECREATION AND FISH HABITAT AND WILDLIFE AND PLANT LIFE AND SOIL AND AIR AND CLIMATE	<p>Alternative C would result in a net increase in water quality, quantity, habitat, recreation, fish habitat, wildlife, plant life, soil, air, and climate protection. This is due to the increased riparian habitat protection and water quality and quantity protection measures. The net increase in water quality, quantity, habitat, recreation, fish habitat, wildlife, plant life, soil, air, and climate protection is estimated to be 100%.</p>

QUARTZVILLE CREEK ENVIRONMENTAL CONSEQUENCES				
Alternative A	Alternative B	Alternative C	Alternative D	
NOTE:	<p>Impacts associated with site specific projects such as facility development, road construction, or timber harvest are not addressed in detail in this environmental assessment. Separate environmental assessments will be prepared, on a project by project basis, to identify and assess impacts related to implementing the management plan.</p>			
RECREATION	<p>Use would be expected to increase and user impacts and conflicts would increase leading to the deterioration of the visitor's recreation experience in the long term.</p>	<p>Use levels would increase and a more developed setting would be provided with undeveloped camping decreasing in the long-term. The highest level of public access, visitor services and interpretation would occur in this alternative. New recreational opportunities such as trails would be developed. The level of recreation regulation would increase significantly from the current situation.</p>	<p>Use would be expected to increase. The natural setting would be maintained and a balance of developed and undeveloped recreation opportunities would be maintained. Public access and new opportunities (trails) would be provided. Regulation of use would be lower than Alt. B, but higher than Alt. A</p>	<p>Recreational use (especially overnight use) would be expected to decrease because undeveloped camping is prohibited in this alternative. Day-use activities would still occur. Recreation in general would receive the greatest restrictions in this alternative.</p>
ROAD MANAGEMENT	<p>Public access would continue at present levels and increasing recreation-related traffic could result in traffic safety problems.</p>	<p>Public access and traffic safety would increase due to the reconstruction of the BLM segment of the Quartzville Access Road. Increased access on the BLM segment could present traffic problems for the USFS single-laned segment of Quartzville Access Road following the BLM improved segment.</p>	<p>Same as Alt. B</p>	<p>Same as Alt. A</p>
HYDROLOGY/ WATER QUALITY	<p>Short-term and long-term decreases in water quality from recreational use and lack of sanitation facilities</p>	<p>Short-term increase of sediment loads into Quartzville Creek due to road construction. Long-term water quality would remain stable or increase slightly under this alternative due to increased regulations and facility development.</p>	<p>Similar to Alt. B with the addition of a 100-foot buffer along Quartzville Creek in which overnight use is prohibited would help protect the riparian zone and minimize impacts of undeveloped camping in the river corridor.</p>	<p>Water quality would be expected to improve under this alternative due to limitations on undeveloped camping and the increased restrictions on recreational use.</p>
RIPARIAN ZONE	<p>The riparian zone would continue to deteriorate due to increasing unregulated recreational use.</p>	<p>The riparian zone would be expected to improve due to increased regulation. Monitoring would help identify any undesirable trends. Areas with unacceptable impacts would be identified and rehabilitated. Should timber harvest occur on BLM-administered lands near Quartzville Creek a 80-foot buffer would be provided along each side to help protect the riparian areas.</p>	<p>Similar to Alt. B with the addition of a 100-foot buffer on Quartzville Creek in which overnight use is prohibited would help minimize the impacts of undeveloped camping</p>	<p>Limiting overnight use to developed recreation sites and limiting river access to designated points would reduce both day and overnight dispersed recreation impacts. A 200-foot buffer along Quartzville Creek if timber harvest should occur would further protect riparian habitat. Riparian habitat would be expected to improve in the long term.</p>

QUARTZVILLE CREEK ENVIRONMENTAL CONSEQUENCES				
	Alternative A	Alternative B	Alternative C	Alternative D
WILDLIFE	Disturbance to wildlife would be high and habitat would continue to deteriorate due to increasing levels of unregulated recreational use. No significant impact to special status animal species is expected.	Short-term disturbance to wildlife would occur as a result of road construction. Long-term disturbance would increase with growing recreational use, however, increased regulation of this use would help minimize disturbance. Habitat integrity would still be maintained in the long term. <i>Added 5/1</i>	Similar as Alt. B, except disturbance may be less with less facility development and no construction of a visitor center. The buffer prohibiting camping within 100 feet of the river would lessen impacts to wildlife riparian habitat.	With restriction on recreation, Alternative D would have the least amount of disturbance to wildlife and wildlife habitat. Wildlife habitat would be expected to improve over the long-term.
FISHERIES	Unregulated dispersed use could result in excessive fish and riparian habitat degradation.	Input of fine sediments into the river from road construction could negatively impact spawning gravels in the short-term. Over the long-term fish habitat integrity would be maintained due to increased regulation of dispersed recreation use.	Similar to Alt. B except the 100-foot buffer prohibiting overnight use along the river would help provide additional protection to the riparian zone which would help maintain fish habitat in the long term.	Fish habitat would improve the most under this alternative, due to restrictions on undeveloped camping and the completion of habitat enhancement projects.
VISUAL RESOURCES	The foreground-middleground of the watershed has already been impacted by recent clearcuts on private lands and user impacts such as litter, loss of vegetation and vandalism. No significant impacts on the middle and seldom seen zones is expected.	A natural-appearing would continue to dominate, however, facility development would increase the evidence of human presence in the foreground-middleground zones. Negative user impacts such as litter, vandalism and loss of vegetation would be reduced with increased regulation of recreational use. No significant changes to the middle or background are anticipated.	Similar to Alt. B, however, less facility development would occur.	This alternative would maintain the highest level of natural-appearing landscape in the foreground-middleground, background and seldom zones. Restrictions on facility development and increased regulation of recreation to reduce undesirable user impacts.
CULTURAL RESOURCES	No systematic survey would occur resulting in a significant risk of losing knowledge or materials from unidentified sites.	Has the highest level of potential impacts to cultural resources due to high levels of construction. Discovered sites would be used to provide information to the public on human history and the importance of protecting cultural resources.	Similar to Alt. B however, Alternative C has lower potential for impacts to cultural resources, with less proposed construction and ground disturbance than Alt. B.	Alt. D has the lowest potential for impacting cultural resources. In general cultural resource sites would be preserved in place except when excavation or other data collection is permitted for scientific use.
SOCIO-ECONOMIC	None	Land exchange for 365 acres of private land would result in a total loss of \$36,500 per year to all O&C counties in Oregon and \$900 per year to Linn County. No significant negative impacts on timber-related employment is anticipated. Tourism associated with outdoor recreation would be expected to increase slightly for Linn County.	Same as Alt. B	Land exchange for 1192 acres of private land would result in a total loss of \$115,500 per year to all O&C counties in Oregon and \$3,000 dollars per year to Linn County. No significant negative impacts on timber-related employment is anticipated. No increase in tourism associated with outdoor recreation would be anticipated.

QUARTZVILLE CREEK ENVIRONMENTAL CONSEQUENCES				
	Alternative A	Alternative B	Alternative C	
	Alternative A	Alternative B	Alternative D	
LAND OWNERSHIP	No change in land ownerships would occur	The BLM would work towards acquiring (on a willing-seller basis) 365 acres of private land within the corridor boundaries increasing BLM-administered land to 2,147 acres within the river corridor.	Same as Alt. B	The BLM would work towards acquiring (on a willing-seller basis) 1,192 acres of private land within the corridor boundaries increasing BLM-administered land to 2,147 acres within the river corridor.
SOILS	All management activities proposed in the different alternatives would be unlikely to produce major, negative, long-term effects on soil resource, mainly because of the low percentage of area that would be affected at any one time or cumulatively over time. The application of RMP standards would insure that soil disturbances are minimal and localized. Timber harvest, facility development and road construction have the greatest potential for producing negative effects on soils. The actual negative effects would depend upon site-specific conditions and specific project proposals. Alternatives B and C would have the greatest potential for impacts to soils since they both propose facility development and road construction. Alternative D would reduce the impacts of dispersed camping on soils by restricting camping to developed sites. Alt. B and C would also reduce dispersed use by improving river access and closing sites showing unacceptable levels of deterioration.			
VEGETATION	Alt. A may result in the loss of some vegetation over time due to unregulated dispersed use. None of the other management alternatives are expected to cause long-term impacts to vegetation. Some short-term disturbance may result from road and facility construction, however, no changes in plant associations is expected. Since no special status plant species were identified within the corridor, no impacts on such species is expected.			
TIMBER	None of the proposed alternatives would have an effect on the existing timber management policy. If timber harvest is proposed, site specific environmental assessments would be prepared.			
NAVIGABILITY	None			

QUARTZVILLE CREEK COST OF IMPLEMENTATION				
	Alternative A	Alternative B	Alternative C	Alternative D
	<p>Note: The costs shown below represent estimates of the initial costs of implementation including facility development and resource inventory needs. They do not represent the costs any maintenance costs. Maintenance costs will be addressed for the alternative selected for the management plan.</p>			
LAND ACQUISITION	None	* Unknown at this time	* Unknown at this time	* Unknown at this time
RECREATION	10,000	2,500,000	1,000,000	250,000
ROAD MANAGEMENT	No initial costs	6,000,000	6,000,000	* No initial costs
WATER QUALITY	1,000	6,000	8,000	10,000
RIPARIAN ZONE	* Costs included in other resources	* Same as Alt. A	* Same as Alt. A	* Same as Alt. A
WILDLIFE	1,500	6,500	6,500	10,000
FISHERIES	5,500	5,500	5,500	5,500
BOTANICAL	500	500	500	500
CULTURAL RESOURCES	2,000	30,000	45,000	45,000
VISUAL RESOURCES	* No initial costs	1,700	1,700	1,700
TOTAL COSTS	20,500	8,550,200	7,067,200	97,700

<p>1. The following are the names of the four types of cells that make up the nervous system. Name each type and describe its function.</p>	<p>Neuron: carries electrical impulses from one part of the body to another.</p> <p>Dendrite: receives signals from other neurons.</p> <p>Cell body: contains the nucleus and organelles.</p> <p>Axon: carries signals away from the cell body.</p>	<p>2. The following are the names of the four types of neurons. Name each type and describe its function.</p>	<p>Multipolar: carries signals from the cell body to the axon terminals.</p> <p>Bipolar: carries signals from one end to the other.</p> <p>Unipolar: carries signals from the cell body to the axon terminals.</p> <p>Pseudounipolar: carries signals from the cell body to the axon terminals.</p>	<p>3. The following are the names of the four types of glial cells. Name each type and describe its function.</p>	<p>Oligodendrocyte: myelinates neurons in the CNS.</p> <p>Ependymal cell: lines the ventricles and produces cerebrospinal fluid.</p> <p>Astrocyte: provides nutrients to neurons and helps maintain the blood-brain barrier.</p> <p>Microglia: phagocytose debris and pathogens.</p>
<p>4. The following are the names of the four types of neurotransmitters. Name each type and describe its function.</p>	<p>Acetylcholine: stimulates muscle contraction and is involved in learning and memory.</p> <p>Dopamine: regulates movement, emotion, and cognition.</p> <p>Gamma-aminobutyric acid (GABA): inhibits neuronal activity.</p> <p>Norepinephrine: regulates attention and arousal.</p>	<p>5. The following are the names of the four types of receptors. Name each type and describe its function.</p>	<p>Ionotropic: opens ion channels, allowing ions to flow across the membrane.</p> <p>Metabotropic: activates G-proteins, which then activate ion channels.</p> <p>Enzyme-linked: activates enzymes, which then produce second messengers.</p> <p>Integrin: connects the cytoskeleton to the extracellular matrix.</p>	<p>6. The following are the names of the four types of synapses. Name each type and describe its function.</p>	<p>Excitatory: causes the postsynaptic neuron to fire.</p> <p>Inhibitory: prevents the postsynaptic neuron from firing.</p> <p>Autaptic: occurs on the same neuron.</p> <p>Electrical: allows for direct communication between neurons.</p>
<p>7. The following are the names of the four types of neural pathways. Name each type and describe its function.</p>	<p>Sensory: carries information from the body to the brain.</p> <p>Motor: carries information from the brain to the body.</p> <p>Association: carries information between different parts of the brain.</p> <p>Interneuron: connects different neurons.</p>	<p>8. The following are the names of the four types of neural circuits. Name each type and describe its function.</p>	<p>Monosynaptic: involves a single synapse.</p> <p>Polysynaptic: involves multiple synapses.</p> <p>Recurrent: involves a feedback loop.</p> <p>Divergent: one neuron connects to multiple neurons.</p>	<p>9. The following are the names of the four types of neural networks. Name each type and describe its function.</p>	<p>Feedforward: information flows from input to output.</p> <p>Feedback: information flows back from output to input.</p> <p>Recurrent: information loops back on itself.</p> <p>Associative: information is processed in a complex, interconnected manner.</p>
<p>10. The following are the names of the four types of neural plasticity. Name each type and describe its function.</p>	<p>Structural: changes in the number and arrangement of neurons.</p> <p>Functional: changes in the strength of synapses.</p> <p>Homeostatic: changes in the firing rate of neurons.</p> <p>Developmental: changes in the structure and function of the nervous system.</p>	<p>11. The following are the names of the four types of neural development. Name each type and describe its function.</p>	<p>Neurogenesis: the process of creating new neurons.</p> <p>Neurulation: the process of forming the neural tube.</p> <p>Neurulation: the process of forming the neural tube.</p> <p>Neurulation: the process of forming the neural tube.</p>	<p>12. The following are the names of the four types of neural differentiation. Name each type and describe its function.</p>	<p>Neurogenesis: the process of creating new neurons.</p> <p>Neurulation: the process of forming the neural tube.</p> <p>Neurulation: the process of forming the neural tube.</p> <p>Neurulation: the process of forming the neural tube.</p>
<p>13. The following are the names of the four types of neural regeneration. Name each type and describe its function.</p>	<p>Neurogenesis: the process of creating new neurons.</p> <p>Neurulation: the process of forming the neural tube.</p> <p>Neurulation: the process of forming the neural tube.</p> <p>Neurulation: the process of forming the neural tube.</p>	<p>14. The following are the names of the four types of neural repair. Name each type and describe its function.</p>	<p>Neurogenesis: the process of creating new neurons.</p> <p>Neurulation: the process of forming the neural tube.</p> <p>Neurulation: the process of forming the neural tube.</p> <p>Neurulation: the process of forming the neural tube.</p>	<p>15. The following are the names of the four types of neural recovery. Name each type and describe its function.</p>	<p>Neurogenesis: the process of creating new neurons.</p> <p>Neurulation: the process of forming the neural tube.</p> <p>Neurulation: the process of forming the neural tube.</p> <p>Neurulation: the process of forming the neural tube.</p>

Acronyms

BLM	Bureau of Land Management
CFS	Cubic Feet per Second
DBH	Diameter at Breast Height
DSL	Division of State Lands
EA	Environmental Assessment
GSA	General Services Administration
IDT	Interdisciplinary Team
LAC	Limits of Acceptable Change
MFP	Management Framework Plan
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NWPPC	Northwest Power Planning Council
O&C	Oregon and California (Railroad Grant Lands)
ODFW	Oregon Department of Fish and Wildlife
ODEQ	Oregon Department of Environmental Quality
RMP	Resource Management Plan
R&PP	Recreation and Public Purpose Act
SCORP	Statewide Comprehensive Outdoor Recreation Plan
TPCC	Timber Production Capability Classification
USDI	United States Department of the Interior
USFS	United States Forest Service
USGS	United States Geological Survey
VRM	Visual Resource Management

Glossary of Terms

Alternative - A comprehensive management strategy; when a federal agency is considering an action, NEPA requires the agency to develop and analyze a range of reasonable alternatives, including a "no action" or "no change" alternative. The alternatives must respond to the issues, and must show a reasonable range of actions.

Anadromous Fish - Those species of fish that mature in the ocean and migrate into freshwater rivers and streams to spawn; an example is salmon.

Archeological Site - Geographic locale containing structures, artifacts, material remains and other evidence of past human or animal activity.

Archeological Survey - Continuous, intensive survey of an entire target area. Directed towards locating and recording all cultural properties possessing surface and exposed profile indicators.

Bureau of Land Management (BLM) Lands - Any land and interest in land managed by the United States Government, administered by the Department of the Interior through the Bureau of Land Management.

Council on Environmental Quality (CEQ) - An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

Crowding - Subjective evaluation of some density level.

Cultural Resources - Historical and archeological remnants of human activity, occupation, and struggles. The resources can be structures, buildings, ruins, architecture, objects, artifacts, and works of art. They consist of physical remains, areas of the occurrence of significant human events, even though evidence of the remains no longer exist, and the environment immediately surrounding the actual resource.

Cumulative Effects - Effects on the environment resulting from actions that are individually minor, but that add up to a greater total effect as they take place over a period of time.

Decision Record - The written record of the decision made after a federal agency completes an environmental assessment. The decision record chooses one of the alternatives, or a blend of the alternatives, and may be appealed by the public.

Dispersed Campsites - Campsites outside of developed campgrounds.

Ecosystem - An interacting system of living organisms considered together with their environment; examples are a marsh ecosystem or a river ecosystem.

Enhancement - An activity that strengthens one or more functions of an existing wetland, stream, lake, riparian area, or other sensitive areas. Usually limited to degraded areas.

Environmental Assessment - A concise public document that evaluates a proposal for the possibility of significant environmental impacts; the analysis is required by NEPA laws. An environmental assessment results in either a FONSI (Finding of No Significant Impact) and decision notice; or, if impacts will be significant, the agency must then go on to prepare an environmental impact statement.

Environmental Impact Statement (EIS) - A document which considers significant environmental impacts expected from implementation of federal actions. An EIS is filed with the Environmental Protection Agency.

FONSI - Finding of No Significant Impact. Required by NEPA when a federal agency prepares an environmental assessment; documents the reasons why the impacts of the proposed action are not significant, and, therefore, the agency is not preparing an environmental impact statement.

Habitat - The area where a plant or animal lives and grows under natural conditions. Habitat consists of living and non-living attributes, and provides all requirements for food and shelter.

Historic Site - Locations used by the immigrants from the 1820's to the 1930's.

Impact - A change in the environment which is caused by humans.

Issues - Unresolved conflicts regarding alternative uses of available resources; or, subjects of public interest relating to resource management.

Limits of Acceptable Change - A concept for managing change in a natural area, based on the premise that ecological and social change will occur as a result of natural and human factors. With the LAC concept, management's goal is to keep the character and amount of change that results from human factors within acceptable levels that are consistent with objectives for the area.

Management Plan - A plan guiding overall management of an area administered by a federal or state agency; the plan usually includes objectives, goals, standards and guidelines, management actions, and monitoring plans.

Mitigation - Steps taken to avoid or minimize negative environmental impacts. Mitigation can include: avoiding the impact by not taking a certain action; minimizing impacts by limiting the degree or magnitude of the action; rectifying the impact by repairing or restoring the affected environment; reducing the impact by protective steps required with the action; and, compensating for the impact by replacing or providing substitute resources.

National Environmental Policy Act - Commonly known as NEPA; became law in 1969. NEPA is the basic national charter for protection of the environment. The Act requires all federal agencies to consider and analyze all significant environmental impacts of any action proposed by those agencies; to inform and involve the public in the agency's decision making process; and to consider the environmental impacts in the agency's decision making process.

O & C Lands - Public lands granted to the Oregon and California Railroad Company that were subsequently reverted to the United States.

Old Growth - Timber stands with the following characteristics: large mature and over-mature trees in the overstory, large standing dead trees (snags), dead and decaying logs on the ground, and a multi-layered canopy with trees of several age classes.

Outstandingly Remarkable Values - Term used in the National Wild and Scenic Rivers Act of 1968; to qualify as outstandingly remarkable, a resource value must be a unique, rare, or exemplary feature that is significant at a regional or national level.

Peak Flow - The highest flow of water attained during a particular flood for a given stream or river.

Recreation Opportunity Spectrum - A framework for understanding and defining various classes of recreation environments, activities, and experiences. The classes are defined in terms of the opportunities to have different sorts of experiences; examples are "primitive" and "roaded natural".

Resident Fish - Fish species that complete their entire life cycle in freshwater; non-anadromous fish; an example is rainbow trout.

Resource Assessment - An evaluation of the resources and values associated with a wild and scenic river and the river corridor; the evaluation determines the level of significance of river-related values.

Resource Values - A resource, natural or social, that is found in an area; resource values may have varying levels of significance. Examples of resource values are fish and recreation.

Riparian - Pertaining to areas of land directly influenced by water or that influence water. Riparian areas usually have visible vegetative or physical characteristics reflecting the influence of water. River sides, lake borders, and marshes are typical riparian areas.

Riparian Buffer - Riparian lands that are managed to protect the aquatic and riparian ecosystem; buffer protects water quality and temperature, habitat along the banks, upland habitat for aquatic and riparian species, and some or all of the floodplain.

River Corridor - The wild and scenic corridor, including all areas that are part of the designation.

Roaded Natural - One category on the recreation opportunity spectrum (ROS). "Roaded natural" describes an environment where natural characteristics remain dominant, and there is moderate evidence of human development, and moderate amounts of contact with other people is expected during recreation.

Rotation - Planned number of years between the formation of a generation of trees and its final harvest at a specified stage of maturity; appropriate for even-aged management only.

Scoping - A first step in the NEPA process, and in the river planning process. Through scoping, issues, concerns, and their significance are identified, and the range of alternatives developed. Scoping is done within the agency, with the public, and with other agencies.

Sedimentation - A process where material carried in suspension by water flows into streams and rivers, increasing turbidity and eventually settling to the bottom.

Significant Resource Values - Those resources or features which do not meet Outstandingly Remarkable Value criteria, but do contribute substantially to the functioning of the river ecosystem and its value for public use.

Socio-Economic - Of, or relating to, social or economic factors, or a combination of both social and economic factors.

Spawning Gravel - Sorted, clean gravel patches of a size appropriate for the needs of resident or anadromous fish.

Turbidity - The relative clarity of the water, which may be affected by material in suspension in the water.

Visual Resource Management - Categories of acceptable landscape alteration measured in degrees of deviation from the natural-appearing landscape.

Wild and Scenic River - Those rivers or sections of rivers designated as Wild and Scenic by Congressional action, either under the 1968 Wild and Scenic Rivers Act, or under supplements and amendments to that act.

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* We would like to thank all the other individuals who provided their old materials in preparation of this document.

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* We would also like to thank all the other individuals who provided input and assistance in preparing and reviewing this document.

Appendix D Consultation with Others

Consultation with Others

Champion International
Department of Land Conservation and Development
Linn County Commissioners
Linn County Parks and Recreation
Linn County Tourism Coalition
Northwest Mineral Prospectors Club
Oregon Department of Fish and Wildlife
Oregon Department of Geology and Mineral Industries
Oregon Equestrian Trails
Oregon Rivers Council
Oregon State Division of State Lands
Oregon State Highway Division - Department of Transportation
Oregon Trout
Salem District Advisory Board
Sweet Home City Council
U.S. Forest Service, Sweet Home Ranger District (Willamette National Forest)
Western Mining Council

* We would also like to thank all the other individuals who provided input and assistance in preparing and reviewing this document.

Environmental Elements Summary

The following table summarizes Environmental Features that have been considered in developing the Alternatives. Environmental Features that would be affected or that are related to relevant issues identified through scoping are described in Section III of the Environmental Assessment.

ENVIRONMENTAL FEATURE	EFFECT		REMARKS
	YES	NO	
Air Quality		X	No Issue Identified
Areas of Critical Env. Concern		X	No Issue Identified
Cultural, Historic, Paleontological Resources	X		Addressed in text.
Native American Religious Concerns		X	No Issue Identified
Special Status/Threatened or Endangered Plant Species		X	Survey date: Spring and Summer of 1991 Addressed in text.
Special Status/Threatened or Endangered Animal Species	X		Addressed in text.
Prime Farm Lands		X	No Issue Identified
Flood Plains		X	No Issue Identified
Hazardous/Solid Waste		X	No Issue Identified
Drinking/Ground Water Quality		X	No Issue Identified
Water/Fisheries Resources	X		Addressed in text.
Riparian Habitat	X		Addressed in text.
Wetlands		X	No Issue Identified
Cumulative Effects to Watershed	X		Addressed in text.
Wild/Scenic Rivers		X	No Issue Identified
Wilderness		X	No Issue Identified
Adjacent Land Uses		X	No Issue Identified
Mineral Resources		X	No Issue Identified
Visual and Recreation Resources	X		Addressed in text.
Soil Resources	X		Addressed in text.
Vegetation Resources	X		Addressed in text.
Wildlife Resources	X		Addressed in text.
Cumulative Effects to Wildlife	X		Addressed in text.
Fuels Management		X	No Issue Identified

Appendix F Recreation Opportunity Spectrum, Limits of Acceptable Change and Visual Resource Management

Note: The following paragraph was used as a guide for this document:

Stanley, George H., David H. Cox, Robert C. Lyall, Margaret S. Peterson and Betty S. Frank. 1980. The Limits of Acceptable Change (LAC) System for Wilderness Classifications. General Technical Report WO-170. Ogden, UT.

Recreation Opportunity Spectrum (ROS)

The Recreation Opportunity Spectrum (ROS) is the planning framework that was used in developing the proposed alternatives and will be used again in preparing the management plan for Quartzville Creek. ROS was selected because it offers a framework for understanding the relationships and interactions of visitor preference and use of natural resources for recreational activities. It also provides standards for the implementation of a Limits of Acceptable Change (LAC) monitoring system.

Three major components that affect visitor use and preference are setting, activity, and desired experience. Visitors participating in the same activity may be seeking different settings and experiences. For example, one camper may desire a wilderness setting to experience solitude and challenge. Another camper may want highly developed facilities that offer more comfort and social opportunities.

To meet these different needs, ROS is a system that is divided into six major classes that provide a spectrum of opportunities, ranging from more primitive to more developed.

Primitive: Characterized by an unmodified natural environment of fairly large size where evidence of humans and human-induced restrictions and controls is essentially absent and motorized access is not permitted.

Semi-Primitive / Non-Motorized: Characterized by a predominantly natural environment of moderate to large size where evidence of humans and human controls is present but low. Motorized use is not permitted.

Semi-Primitive / Motorized: This class is similar to the previous one, however, motorized use is allowed.

Roaded Natural: Characterized with a predominantly natural environment with moderate evidence of human modification and control, that are in harmony with a natural setting.

Rural: Characterized by a substantially modified natural environment aimed at enhancing specific recreational activities, including facilities for special activities and motorized use and parking.

Urban: This class is similar to rural however facility development is intensified and the environment though natural appearing is often landscaped. Modifications are designed to enhance specific recreational activities.

Limits of Acceptable Change (LAC)

The LAC process gives primary attention to resource conditions that exist and that are judged acceptable. Managers are interested in achieving certain conditions and in the relative effects of different management actions to achieve those desired resource conditions. The process requires deciding what kind of resource conditions are acceptable, and then prescribing actions to protect or achieve those conditions. The LAC approach to planning is not a new idea. It represents the latest efforts to improve defining both inputs to and outputs from the planning process.

The LAC process consists of four major components:

(1) the specification of acceptable and achievable resource and social conditions, defined by a series of measurable parameters.

(2) an analysis of the relationship between existing conditions and those judged acceptable.

(3) identification of management actions necessary to achieve these conditions.

(4) a program of monitoring and evaluation of management effectiveness. These four components are broken down into nine steps to facilitate application.



Figure 1.—The Limits of Acceptable Change (LAC) planning system.

Note: The following publication was used as a source for this information:

Stankey, George H., David N. Cole, Robert C. Lucas, Margaret E. Petersen and Sidney S. Frissell, (1985), The Limits of Acceptable Change (LAC) System for Wilderness Planning. General Technical Report INT-176, Ogden, UT.

Visual Resource Management (VRM)

Visual Resource Management (VRM) has dual program purposes: to manage the quality of the visual environment, and to reduce the visual impact of development activities, while maintaining effectiveness in all Bureau resource programs. VRM also identifies scenic areas that warrant special protection.

The inventory and evaluation process in the VRM consists of three steps: assessment of the visual quality of the landscape, the sensitivity of the people to change(s) in the landscape, and the viewing distance.

There are five management classes that describe the different degrees of modification allowed to the landscape. Class designations are derived by combining the scenic quality, sensitivity levels, and distance zones criteria.

VRM Classifications and Guidelines

Class 1: Natural ecological changes and very limited management activity are allowed. Any contrast created within the characteristic landscape must not attract attention.

Class 2: Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. Contrasts are seen, but must not attract attention.

Class 3: Contrasts to basic elements caused by a management activity are evident, but should remain subordinate to the existing landscape.

Class 4: Any contrast attracts attention and is a dominant feature of the landscape in terms of scale, but it should repeat the form, line, color, and texture of the character landscape.

Class 5: This classification is applied to areas where the natural character of the landscape has been disturbed to the point where rehabilitation is needed to bring it up to one of the four other classifications. It is often used as an interim classification until objectives of another class can be reached.

Appendix G Plant Species and Cultural Resource Site List

Site ID	Plant Species	Cultural Resource
100-1001
100-1002
100-1003
100-1004
100-1005
100-1006
100-1007
100-1008
100-1009
100-1010
100-1011
100-1012
100-1013
100-1014
100-1015
100-1016
100-1017
100-1018
100-1019
100-1020
100-1021
100-1022
100-1023
100-1024
100-1025
100-1026
100-1027
100-1028
100-1029
100-1030

Special Status Species (Plants)

The corridor was surveyed for special status plant species (ssps) in the spring and summer of 1991. No ssps were found. There are potential habitats for ssps in the corridor. Based on the available habitats the ssps listed in the table below could potentially inhabit the Quartzville Creek Corridor.

POTENTIAL SPECIAL STATUS PLANT SPECIES IN THE QUARTZVILLE CORRIDOR
 BASED ON AVAILABLE HABITAT TYPES

SPECIES	HABITAT	ELEVATION (FT)	BEST I.D. SEASON
ARABIS FURCATA cascade rockcress	CLIFFS TALUS ALPINE & SUBALPINE MEADOWS	MID-HIGH	MAY-JULY
ASTER CURTUS FC2 white-topped aster	WILLAMETTE VALLEY MEADOWS OAK SAVANNA	<1000	AUGUST-SEPT
ASTER VIALIS FC2 wayside aster	WILLAMETTE VALLEY OPEN WOODS	<1000	JULY-EARLY AUGUST
BOTRYCHIUM VIRGINIANUM TS Virginia grape-fern	MOIST WOODS & MEADOWS	>500	MID JUNE-JULY
CAREX BUXBAUMII TS Buxbaum's sedge	PEAT BOGS MARSHES WET MEADOWS	LOW-MID	JUNE-AUGUST
CAREX COMOSA TS bristly sedge	MARSHES LAKE SHORES WET MEADOWS		MAY-JULY
CAREX HYSTRICINA TS porcupine sedge	WET GROUND NEAR STREAMS		MAY-JUNE
CAREX LIVIDA AS pale sedge	MARSHES, BOGS	1500-3200	MAY-JULY
CASTILLEJA RUPICOLA TS cliff paintbrush	CREVICES IN ROCKS	>500	JUNE-AUGUST
CIMICIFUGA ELATA BS tall bugbane	MOIST WOODS	<2000	JUNE-MID JULY
CORYDALIS AQUAE-GELIDAE FC2 cold-water corydalis	COLD SPRINGS & STREAMS	>1000	MID JUNE-JULY
CYPRIPEDIUM MONTANUM TS mountain lady's-slipper	DRY TO FAIRLY MOIST, OPEN TO SHRUB- OR FOREST-COVERED VALLEYS OR MOUNTAIN SIDES.	LOW-MID	MAY-AUGUST
DOUGLASIA LAEVIGATA TS smooth-leaved douglasia	ROCK CREVICES ON WET CLIFFS	MID-HIGH	JUNE-JULY
ERIGERON CASCADENSIS TS cascade daisy		MID-HIGH	JUNE-JULY
ISOPYRUM STIPITATUM TS dwarf isopyrum	WILLAMETTE VALLEY CASCADES SHADY PLACES	LOW-MID	FEBRUARY-MAY
JUNCUS KELLOGGII TS Kellogg's dwarf rush	WILLAMETTE VALLEY DAMP OR WET PLACES FROM OPEN FIELDS TO MONTANE MEADOWS AT MID ELEVATIONS	LOW-MID	APRIL-JULY
LYCOPODIUM SELAGO AS fir club-moss	DENSE MOIST WOODS HUMID AREAS EXPOSED CLIFFS & TALUS	>1000	JULY-AUGUST
MONTIA DIFFUSA TS branching montia	MOIST WOODS RECENTLY BURNED AREAS	<3500	APRIL-JULY
MONTIA HOWELLII FC2 Howell's montia	ROCKY RIVER BANKS ESP. IN DISTURBED SITES	<2500	APRIL-EARLY MAY

SPECIES	HABITAT	ELEVATION (FT)	BEST I.D. SEASON
POA LAXIFLORA AS loose-flowered bluegrass	OPEN SLOPES DISTURBED AREAS	<4000	JUNE-EARLY JULY
POA MARCIDA TS weak bluegrass		<3000	JUNE-JULY
POLYSTICHUM CALIFORNICUM AS California sword-fern	BASE OF CLIFFS & OUTCROPS IN SHADE	MID	
ROMANZOFFIA THOMPSONII BS Thompson's mistmaiden	SEEPY ROCK WALLS WITH FULL SUNLIGHT	>2600	APRIL-EARLY MAY
STREPTOPUS STREPTOPOIDES AS kruhsea	DENSE CONIFEROUS WOODS	1600-3300	JULY-AUGUST
SULLIVANTIA OREGANA FC2 Oregon sullivantia	WET ROCKY	<4500 High end in Cascades	MAY-JULY
TIARELLA TRIFOLIATA VAR. LACINIATA TS cutleaf foam flower	MOIST WOODS	LOW-MID	JUNE-JULY
TRILLIUM PARVIFLORUM TS small-flowered trillium	DAMP HARDWOOD OR MIXED CONIFER & HARDWOOD FOREST, USUALLY WITH EXTENSIVE SHRUB LAYER	<1000	APRIL-MAY

Quartzville Species List

Conifers

- Pinus monticola* (Western white pine)
- Pseudotsuga menziesii* (Douglas-fir)
- Taxus brevifolia* (Pacific yew)
- Thuja plicata* (Western red cedar)
- Tsuga heterophylla* (Western hemlock)

Hardwoods

- Acer macrophyllum* (bigleaf maple)
- Alnus rubra* (Red alder)
- Arbutus menziesii* (Madrone)
- Castanopsis chrysophylla* (Golden chinkapin)
- Cornus nuttallii* (Dogwood)
- Quercus garryana* (Garry oak)

Tall Shrubs (2-8m tall)

- Acer circinatum* (Vine maple)
- Acer glabrum* var. *douglasii* (Rocky mountain maple)
- Amelanchier alnifolia* (Pacific serviceberry)
- Cornus stolonifera* (Red-osier dogwood)
- Corylus cornuta* (Hazelnut)
- Holodiscus discolor* (Oceanspray)
- Oemleria cerasiformis* (Indian plum)
- Rhamnus purshiana* (Cascara)
- Salix* sp. (Willow)

Medium Shrubs (0.5-2m tall)

- Cytisus scoparius* (Scotch broom)
- Oplopanax horridum* (Devil's club)
- Physocarpus capitatus* (Ninebark)
- Rhododendron macrophyllum* (Rhododendron)
- Rhus diversiloba* (Poison oak)
- Ribes Bracteosum* (Stink Currant)
- Rosa gymnocarpa* (Baldhip rose)
- Rubus leucodermis* (Blackcap)
- Rubus parviflorus* (Thimbleberry)
- Rubus spectabilis* (Salmoberry)
- Sambucus racemosa* (Red elderberry)
- Symphoricarpos albus* (Snowberry)
- Vaccinium parvifolium* (Red huckleberry)

Low Shrubs (<0.5m tall)

- Berberis nervosa* (Oregon grape)
- Chimaphila menziesii* (Little prince's pine)
- Gaultheria shallon* (Salal)
- Rubus ursinus* (Dewberry)
- Vaccinium ovatum* (Evergreen huckleberry)

Ferns & Alies

- Adiantum pedatum* (Maidenhair fern)
- Aspidotis densa* (Pod fern)
- Asplenium trichomanes* (Maidenhair spleenwort)
- Athyrium filix-femina* (Lady fern)
- Blechnum spicant* (Deer fern)
- Cryptogramma crispera* (Parsley-fern)
- Cystopteris fragilis* (Brittle bladder-fern)
- Pityrogramma triangularis* (Gold-back fern)
- Polypodium glycyrrhiza* (Licorice fern)
- Polystichum minitum* (Sword fern)
- Pteridium aquifolium* (Bracken fern)
- Selaginella* sp. (Selaginella)

Herbs

- Achlys triphylla* (Vanilla leaf)
- Agoseris* sp. (False dandelion)
- Anaphalis margaritacea* (Pearly-everlasting)
- Anemone deltoidea* (Windflower)
- Anemone oregana* (Oregon anemone)
- Aquilegia formosa* (columbine)
- Aralia nudicaulis* (Wild Sarsaparilla)
- Arenaria macrophylla* (Sandwort)
- Arnica amplexicaulis* (Clasping arnica)
- Aruncus sylvester* (Goatsbeard)
- Asarum caudatum* (Wild ginger)
- Aster modestus* (Few-flowered aster)
- Boykinia elata* (Slender boykinia)
- Boykinia major* (Mountain boykinia)
- Brassica* sp. (Mustard)
- Brodiaea coronaria* (Bluedick's brodiaea)
- Campanula scouleri* (Scouler's harebell)
- Cardamine* sp. (Bittercress)
- Castilleja* sp. (Indian paintbrush)
- Chrysanthemum leucanthemum* (Ox-eye daisy)
- Circaea alpina* (Enchanter's nightshade)

- Cirsium* sp. (Thistle)
- Coralorrhiza maculata* (Spotted coralroot)
- Coralorrhiza straita* (Striped coralroot)
- Corydalis scouleri* (Scouler's corydalis)
- Daucus pusillus* (Rattlesnake weed)
- Dicentra formosa* (Bleeding heart)
- Digitalis purpurea* (Foxglove)
- Disporum smithii* (Fairy-lanterns)
- Epilobium angustifolium* (fireweed)
- Epilobium* sp. (Willow-herb)
- Equisetum* sp. (Horsetail)
- Erigeron strigosus* (Branching daisy)
- Eriophyllum lanatum* (Oregon sunshine)
- Erythronium oregonum* (Fawn lily)
- Galium* sp. (Bedstraw)
- Geum macrophyllum* (Large-leaved avens)
- Gilia capitata* (Bluefield gilia)
- Goodyera oblongifolia* (Rattlesnake orchid)
- Habenaria elegans* (Elegant rein-orchid)
- Hemitomes congestum* (Gnome plant)
- Heuchera* sp. (Alumroot)
- Hieracium albiflorum* (Hawkweed)
- Hypericum perforatum* (Klamath weed)
- Hypopitys monotropa* (Pinesap)
- Iris tenax* (Oregon iris)
- Isopyrum hallii* (Hall's isopyrum)
- Lactuca muralis* (Wall lettuce)
- Lathyrus* sp. (Sweat-pea)
- Lilium columbianum* (Tiger lily)
- Linnaea borealis* (Twinflower)
- Lysichitu americanum* (Skunk cabbage)
- Mentha* sp. (Mint)
- Mimulus alsinoides* (Chickweed monkeyflower)
- Mimulus guttatus* (Monkeyflower)
- Mitella* sp. (Mitrewort)
- Monotropa uniflora* (Indian pipe)
- Montia parvifolia* (Littlelf montia)
- Montia sibirica* (Candy flower)
- Oxalis oregana* (Oregon oxalis)
- Penstemon serrulatus* (Cascade penstemon)
- Prunella vulgaris* (Heal-II)
- Pyrola* sp. (Wintergreen)
- Ranunculus* sp. (Buttercup)

Saxifraga punctata (Dotted saxifrage)
Scoliopus hallii (Fetid adder's tongue)
Sedum sp. (Stonecrop)
Senecio jacobaea (Tansy ragwort)
Senecio triangularis (Triangle-leaf groundsel)
Smilacina stellata (Starry smilacina)
Stachys sp. (Betony)
Synthyris reniformis (Snow-queen)
Tellima grandiflora (Fringe-cup)
Thalictrum sp. (Meadowrue)
Tiarella trifoliata var. *trifoliata* (Foamflower)
Trientalis latifolia (Starflower)
Trifolium sp. (Clover)
Trillium ovatum (Pacific trillium)
Vancouveria hexandra (Inside-out-flower)
Viola glabella (Stream violet)
Viola sempervirens (Redwood violet)
Xerophyllum tenax (Beargrass)

Other

Grasses

Carex sp. (Sedge)
Juncus sp. (Rush)

Quartzville Creek Cultural Resource Sites

The following sites are affiliated with historic mining and settlement within the Quartzville Mining District. All of the sites are located in the BLM's (U.S.D.I., n.d.; Stumpf, 1979) Quartzville Creek Wild and Scenic River corridor:

Note: ownership of the site is shown in parentheses following the site description.

SHS 638 - A cabin site designated "Miners Cabin" on the 1897 GLO survey map in an area that was heavily mined. (Private Land)

SHS 640 - The George Ross cabin, shown on the 1897 GLO survey map. Prior to 1897, Ross built a water ditch from Boulder Creek to Quartzville Creek, apparently for mining purposes. The land on which the cabin stood was purchased in 1906 and now belongs to BLM. (BLM)

SHS 642 - A cabin and small power plant built in the 1940's by four men from Albany, this site was destroyed by construction of the Yellowstone Road. (BLM)

SHS 657 - The W.B. Stevens cabin, shown on the 1907 GLO survey map. (BLM)

SHS 658 - The H.H. Stevens cabin, shown on the 1907 GLO survey map. (BLM)

SHS 659 - A cabin designated "Old Cabin" on the GLO survey map of 1907, this cabin site may date to the gold rush of the 1860's. (BLM)

SHS 662 - The Crutch field cabin, shown on the 1907 GLO survey map. (BLM)

SHS 663 - The Nat Needham cabin, shown on the 1907 GLO survey map. (BLM)

SHS 667 - A cabin designated "Hunter's Cabin" on the 1907 GLO survey map. (BLM)

SHS 670 - The Elizabeth Cox cabin, shown on the 1907 GLO survey map. (Private Land)

SHS 671 - The C.B. Chandler cabin, shown on the 1907 GLO survey map. (Private Land)

SHS 820 - Quartzville Access Road. An 1879 GLO survey map shows a trail running from Foster to the Quartzville Mining District along the west and north sides of Quartzville Creek. Portions of the trail were improved into road at various times. In the 1930's, the CCC improved the entire road from Foster to Quartzville. Originally, the trail was used by early miners and settlers to carry supplies from Sweet Home to Quartzville. After 1911, the Linn County Fire Patrol Association used the trail grade for a string of telephone lines connecting fire lookouts at High Deck, Green Peter and Yellowstone Mountain to their Lebanon main station. Today, the road is incorporated into the major Quartzville county access route. (Private and BLM)

SHS 821 - A short trail branching from the Quartzville Wagon Road at Bryant City and extending south along Canal Creek to join the Quartzville Access road. This trail was in use prior to the 1900's. (BLM)

SHS 828 - Dogwood Park was the location of intensive placer mining from the 1890's through the 1930's. (BLM)

SHS 876 - The A.J. and Robert Babb's cabin on the Maple Leaf placer claim, dates to 1955. The claim was declared void in 1965. (BLM)

SHS 877 - August Kroop cabin on the Big Bend Placer Mining claim dates to 1934. the claim may actually have been made to get the timber. (BLM)

The sites of the town of Quartzville and the town of Bryant City, the Mining District's entertainment center, are outside the Wild and Scenic River corridor on private land. No structures remain on either site.

With the exception of SHS 642 and SHS 820, the condition of these mining-related cultural resources along Quartzville Creek is unknown.

Nearly all the BLM managed lands along Quartzville Creek are originally those unhomesteaded lands granted by Congress to the Oregon and California Railroad Company (O&C company) between 1866 and 1869 for the purpose of raising money to pay for the construction of a railroad which would start in Portland and go through the Willamette Valley, south to California. The O&C Company was required to sell these lands to settlers, but in many cases, as with this area, the land was heavily timbered, steeply dissected, slopes with forest-type soils, and so unsuitable for farming. In 1916, unsold O&C lands were reverted to the Federal Government due to numerous violations in the terms of the original grant, and these Quartzville Creek lands returned to be managed as timber lands by the GLO and ultimately, its successor, the Bureau of Land Management. The first timber sales on these lands occurred in the early 1950's.

Other historic sites in the corridor include:

Yellowstone Guard Station, which was built in 1936 by the Linn County Fire Patrol Association (Linn County Fire Patrol Association, 1962) for fire patrol and suppression purposes.

Quartzville Guard Station/Work Center (11-4-29-1h), built in the 1930's at Rabbit Camp on the Willamette National Forest as part of a CCC camp, and moved before 1956 to its present location on BLM land. The two buildings at the site have never been used in their current location and have been found ineligible for the National Register of Historic Places. (U.S.D.I., n.d.)

At this time, the Quartzville Guard Station/Work Center is the only site in the corridor to have been evaluated for National Register eligibility.

Findings: The identified existing historic sites within the Quartzville Creek Wild and Scenic River corridor are not associated with rare, unusual or one-of-a-kind events or cultural activities in the region. Scattered gold mining districts of small production in the western Cascades dating to the same era include the North Santiam District in Clackamas and Marion Counties (1872 to 1947), the Blue River District in Linn and Lane Counties (1887 to 1913), Fall Creek District in Lane County (1901 to 1931) and the bohemia district in Lane County (1858 to recent) (Brooks and ramp, 1968). None of the Quartzville historic sites are currently listed on or determined eligible for the National Register of Historic Places, although this may be due to the fact that these sites have not been systematically inventoried and evaluated. The current information on historic resources in the Quartzville Creek corridor is incomplete and does not support a finding of outstandingly remarkable value. However, additional inventory and evaluation should be conducted in the future to accurately assess these historic resources' values.

The site of the town of Quilley is located in the southwest corner of the section of land which was granted to the Quilley family in 1763 and is situated on the east side of the road which runs north and south through the center of the section. The site of the town of Quilley is located in the southwest corner of the section of land which was granted to the Quilley family in 1763 and is situated on the east side of the road which runs north and south through the center of the section.

Other lands in the section which were granted to the Quilley family in 1763 are situated on the west side of the road which runs north and south through the center of the section. The site of the town of Quilley is located in the southwest corner of the section of land which was granted to the Quilley family in 1763 and is situated on the east side of the road which runs north and south through the center of the section.

The site of the town of Quilley is located in the southwest corner of the section of land which was granted to the Quilley family in 1763 and is situated on the east side of the road which runs north and south through the center of the section. The site of the town of Quilley is located in the southwest corner of the section of land which was granted to the Quilley family in 1763 and is situated on the east side of the road which runs north and south through the center of the section.

Appendix H Wild and Scenic Rivers Act

WILD AND SCENIC RIVERS ACT¹

AN Act To provide a National Wild and Scenic Rivers System, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) this Act may be cited as the "Wild and Scenic Rivers Act".

(b) It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

(c) The purpose of this Act is to implement this policy by instituting a national wild and scenic river system, by designating the initial components with that system and by prescribing the methods by which and standards according to which additional components may be added to the system from time to time.

SEC. 2 (a) The national wild and scenic rivers system shall comprise rivers (i) that are authorized for inclusion therein by Act of Congress, or (ii) that are designated as wild, scenic or recreational rivers by or pursuant to an act of the legislature of the State or States through which they flow, that are to be permanently administered as wild, scenic or recreational rivers by an agency or political subdivision of the State or States concerned, that are found by the Secretary of the Interior, upon application of the Governor of the State or the Governors of the States concerned, or a person or persons thereunto duly appointed by him or them, to meet the criteria supplementary thereto as he may prescribe, and that are approved by him for inclusion in the system.... Upon receipt of an application under clause (ii) of this subsection, the Secretary shall notify the Federal Energy Regulatory Commission and publish such application in the Federal Register. Each river designated under clause (ii) shall be administered by the State or political subdivision thereof without expense to the United States other than for administration and management of federally owned lands. For purposes of the preceding sentence, amounts made available to any State or political subdivision under the Land and Water Conservation Act of 1965 or any other provision of law shall not be treated as an expense to the United States. Nothing in this subsection shall be construed to provide for the transfer to, or administration by, a State or local authority of any federally owned lands which are within the boundaries of any river included within the system under clause (ii).

¹ The Wild and Scenic Rivers Act (16 U.S.C. 1271-1287) consists of Public Law 90-542 (October 2, 1968) as amended. P.L. 99-590 (October 30, 1986) was the last Act that added generic amendments to the Act.

(b) A wild, scenic or recreational river area eligible to be included in the system is a free-flowing stream and the related adjacent land area that possesses one or more of the values referred to in section 1, subsection (b) of this Act. Every wild, scenic or recreational river in its free-flowing condition, or upon restoration to this condition, shall be considered eligible for inclusion in the national wild and scenic rivers system and, if included, shall be classified, designated, administered as one of the following:

(1) Wild river areas - Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

(2) Scenic river areas - Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

(3) Recreational river areas - Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

SEC. 3 (a) The following rivers and the land adjacent thereto are hereby designated as components of the national wild and scenic rivers system:

(Designation language for individual W&S rivers)

(b) The agency charged with the administration of each component of the national wild and scenic rivers system designated by subsection (a) of this section shall, within one year from the date of designation of such component under subsection (a) (except where a different date is provided in subsection (a)) establish detailed boundaries therefor; determine which of the classes outlined in section 2, subsection (b), of this Act best fit the river or its various segments. Notice of the availability of the boundaries and classification, and of subsequent boundary amendments shall be published in the Federal Register and shall not become effective until ninety days after they have been forwarded to the President of the Senate and the Speaker of the House of Representatives.

(c) Maps of all boundaries and descriptions of the classifications of designated river segments, and subsequent boundary amendments to such boundaries, shall be available for public inspection in the offices of the administering agency in the District of Columbia and in locations convenient to the designated river.

(d) (1) For rivers designated on or after January 1, 1986, the Federal agency charged with the administration of each component on the National Wild and Scenic Rivers System shall prepare a comprehensive management plan for such river segment to provide for the protection of the river values. The plan shall address resource protection, development of lands and facilities, user capacities, and other management practices necessary or desirable to achieve the purposes of this Act. The plan shall be coordinated with and may be incorporated into resource management planning for affected adjacent Federal lands. The plan shall be prepared, after consultation with State and local governments and the interested public within three full fiscal years after the date of designation. Notice of the

completion and availability of such plans shall be published in the Federal Register.

(2) For rivers designated before January 1, 1986, all boundaries, classifications, and plans shall be reviewed for conformity within the requirements of this subsection within 10 years through regular agency planning processes.

SEC. 4 (a) The Secretary of the Interior or, where national forest lands are involved, the Secretary of Agriculture, or, in appropriate cases, the two Secretaries jointly shall study and submit to the President reports on the suitability or unsuitability for addition to the national wild and scenic rivers system of rivers which are designated herein or hereafter by the Congress as potential additions to such system. The President shall report to the Congress his recommendations and proposals with respect to the designation of each such river or section thereof under this Act.... In conducting these studies the Secretary of the Interior and the Secretary of Agriculture shall give priority to those rivers (i) with respect to which there is the greatest likelihood of developments which, if undertaken, would render the rivers unsuitable for inclusion in the national wild and scenic rivers system, and (ii) which possess the greatest proportion of private land within their areas. Every such study and plan shall be coordinated with any water resources planning involving the same river which is being conducted pursuant to the Water Resources Planning Act (79 Stat. 244; 42 U.S.C. 1962 et seq.).

Each report, including maps and illustrations, shall show among other things the area included within the report; the characteristics which do or do not make the area a worthy addition to the system; the current status of land ownership and use in the area; the reasonably foreseeable potential uses of the land and water which would be enhanced, foreclosed, or curtailed if the area were included in the national wild and scenic rivers system; the Federal agency (which in the case of a river which is wholly or substantially within a national forest, shall be the Department of Agriculture) by which it is proposed the area, should it be added to the system, be administered; the extent to which the costs thereof, be shared by State and local agencies; and the estimated cost to the United States of acquiring necessary land and interests in land and of administering the area, should it be added to the system. Each such report shall be printed as a Senate or House document.

(b) Before submitting any such report to the President and the Congress, copies of the proposed report shall, unless it was prepared jointly by the Secretary of the Interior and the Secretary of Agriculture, be submitted by the Secretary of the Interior to the Secretary of Agriculture or by the Secretary of Agriculture to the Secretary of the Interior, as the case may be, and to the Secretary of the Army, the Chairman of the Federal Power Commission, the head of any other affected Federal department or agency and, unless the lands proposed to be included in the area are already owned by the United States or have already been authorized for acquisition by Act of Congress, the Governor or the State or States in which they are located or an officer designated by the Governor to receive the same. Any recommendations or comments on the proposal which the said officials furnish the Secretary or Secretaries who prepared the report within ninety days of the date on which the report is submitted to them, together

with the Secretary's or Secretaries' comments thereon, shall be included with the transmittal to the President and the Congress.

(c) Before approving or disapproving for inclusion in the national wild and scenic rivers system any river designated as a wild, scenic or recreational river by or pursuant to an act of a State legislature, the Secretary of the Interior shall submit the proposal to the Secretary of Agriculture, the Secretary of the Army, the Chairman of the Federal Power Commission, and the head of any other affected Federal department or agency and shall evaluate and give due weight to any recommendations or comments which the said officials furnish him within ninety days of the date of which it is submitted to them. If he approves the proposed inclusion, he shall publish notice thereof in the Federal Register.

(d) The boundaries of any river proposed in section 5 (a) of this Act for potential addition to the National Wild and Scenic Rivers System shall generally comprise that area measured within one-quarter mile from the ordinary highwater mark on each side of the river. In the case of any designated river, prior to publication of boundaries pursuant to section 3 (b) of this Act, the boundaries also shall comprise the same area. This subsection shall not be construed to limit the possible scope of the study report to address areas which may lie more than one-quarter mile from the ordinary high water mark on each side of the river.

SEC. 5. (a) The following rivers are hereby designated for potential addition to the national wild and scenic river system:

(designation language for individual W&S study rivers)

(b)(4) For the purposes of conducting the studies of rivers named in subsection (a) there are authorized to be appropriated such sums as necessary.

(c) The study of any of said rivers shall be pursued in as close cooperation with appropriate agencies of the affected State and its political subdivisions as possible, shall be carried on jointly with such agencies if request for such joint study is made by the State, and shall include a determination of the degree to which the State or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the national wild and scenic rivers system.

(d) In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas, and all river basin and project plan reports submitted to the Congress shall consider and discuss any such potentials. The Secretary of the Interior and the Secretary of Agriculture shall make specific studies and investigations to determine which additional wild, scenic and recreational river areas within the United States shall be evaluated in planning reports by all Federal agencies as potential alternative uses of the water and related land resources involved.

SEC. 6. (a)(1) The Secretary of the Interior and the Secretary of Agriculture are each authorized to acquire lands and interests in land within the authorized boundaries of any component of the national wild and scenic rivers system designated in section 3 of this Act, or hereafter designated for inclusion in the system by Act of Congress, which is administered by him, but he shall not acquire fee title to an average of more than 100 acres

per mile on both sides of the river. Lands owned by a State may be acquired only by donation or by exchange in accordance with subsection (d) of this section. Lands owned by an Indian tribe or a political subdivision of a State may not be acquired without the consent of the appropriate governing body thereof as long as the Indian tribe or political subdivision is following a plan for management and protection of the lands which the Secretary finds protects the land and assures its use for purposes consistent with this Act. Money appropriated for Federal purposes from the land and water conservation fund shall, without prejudice to the use of appropriations from other sources, be available to Federal departments and agencies for the acquisition of property for the purposes of this Act.

(2) When a tract of land lies partially within and partially outside the boundaries of a component of the National Wild and Scenic System, the appropriate Secretary may, with the consent of the land owners for the portion outside of the boundaries, acquire the entire tract. The land or interest therein so acquired outside the boundaries shall not be counted against the average one-hundred-acre-per-mile limitation of subsection (a)(1). The lands or interests therein outside such boundaries, shall be disposed of, consistent with existing authorities of law, by sale, lease, or exchange.

(b) If 50 per centum or more of the entire acreage outside of the ordinary high water mark on both sides of the river within a federally administered wild, scenic or recreational river area is owned in fee title by the United States, by the State or States within which it lies, or by political subdivisions of those States, neither Secretary shall acquire fee title to any lands by condemnation under authority of this Act. Nothing contained in this section, however, shall preclude the use of condemnation when necessary to clear title or to acquire scenic easements or other such easements as are reasonably necessary to give the public access to the river and to permit its members to traverse the length of the area or of selected segments thereof.

(c) Neither the Secretary of the Interior nor the Secretary of Agriculture may acquire lands by condemnation, for the purpose of including such lands in any national wild, scenic or recreational river area, if such lands are located within any incorporated city, village, or borough which has in force and applicable to such lands a duly adopted, valid zoning ordinance that conforms with the purposes of this Act. In order to carry out the provisions of this subsection, the appropriate Secretary shall issue guidelines, specifying standards for local zoning ordinances, which are consistent with the purposes of this Act. The standards specified in such guidelines shall have the object of (A) prohibiting new commercial or industrial uses other than commercial or industrial uses which are consistent with the purposes of this Act, and (B) the protection of the bank lands by means of acreage, frontage, and setback requirements on development.

(d) The appropriate Secretary is authorized to accept title to non-Federal property within the authorized boundaries of any federally administered component of the national wild and scenic rivers system designated in section 3 of this Act or hereafter designated for inclusion in the system by Act of Congress and, in exchange therefor, convey to the grantor any federally owned property which is under his jurisdiction within the State in which the component lies and which he classifies as suitable for exchange or other disposal. The values of the properties so exchanged

either shall be approximately equal or, if they are not approximately equal, shall be equalized by the payment of cash to the grantor or the Secretary as the circumstances require.

(e) The head of any Federal department or agency having administrative jurisdiction over any lands or interests in land within the authorized boundaries of any federally administered component of the national wild and scenic rivers system designated in section 3 of this Act or hereafter designated for inclusion in the system by Act of Congress is authorized to transfer to the appropriate Secretary jurisdiction over such lands for administration in accordance with the provisions of this Act. Lands acquired by or transferred to the Secretary of Agriculture for the purposes of this Act within or adjacent to a national forest shall upon such acquisition or transfer become national forest lands.

(f) The appropriate Secretary is authorized to accept donations of land and interests in land, funds, and other property for use in connection with his administration of the national wild and scenic rivers system.

(g)(1) Any owner or owners (hereinafter in this subsection referred to as "owner") of improved property on the date of its acquisition, may retain for themselves and their successors or assigns a right of use and occupancy of the improved property for noncommercial residential purposes for a definite term not to exceed twenty-five years or, in lieu thereof, for a term ending at the death of the owner, or the death of his spouse, or the death of either or both of them. The owner shall elect the term to be reserved. The appropriate Secretary shall pay to the owner the fair market value of the property on the date of such acquisition less the fair market value on such date of the right retained by the owner.

(2) A right of use and occupancy retained pursuant to this subsection shall be subject to termination whenever the appropriate Secretary is given reasonable cause to find that such use and occupancy is being exercised in a manner which conflicts with the purposes of this Act. In event of such a finding, the Secretary shall tender to the holder of that right an amount equal to the fair market value of that portion of the right which remains unexpired on the date of termination. Such right of use or occupancy shall terminate by operation of law upon tender of the fair market price.

(3) The term "improved property", as used in this Act, means a detached, one-family dwelling (hereinafter referred to as "dwelling"), the construction of which was begun before January 1, 1967, (except where a different date is specifically provided by law with respect to any particular river), together with so much of the land on which the dwelling is situated, the said land being in the same ownership as the dwelling, as the appropriate Secretary shall designate to be reasonably necessary for the enjoyment of the dwelling for the sole purpose of noncommercial residential use, together with any structures accessory to the dwelling which are situated on the land so designated.

SEC. 7. (a) The Federal Power Commission shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act (41 Stat. 1063), as amended (16 U.S.C. 791a et seq.) on or directly affecting any river which is designated in section 3 of this Act as a component of the national wild and scenic rivers system or which is hereafter designated for inclusion

in that system, and no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration. Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to, developments below or above a wild, scenic or recreational river area or on any stream tributary thereto which will not invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of designation of a river as a component of the National Wild and Scenic Rivers System. No department or agency of the United States shall recommend authorization of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration, or request appropriations to begin construction of any such project, whether heretofore or hereafter authorized, without advising the Secretary of the Interior or the Secretary of Agriculture, as the case may be in writing of its intention so to do at least sixty day in advance, and without specifically reporting to the Congress in writing at the time it makes its recommendation or request in what respect construction of such project would be in conflict with the purposes of this Act....

(b) The Federal Power Commission shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act, as amended on or directly affecting any river which is listed in section 5, subsection (a), of this Act, and no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river might be designated, as determined by the Secretary charged responsible for its study or approval -

(i) during the ten-year period following enactment of this Act or for a three complete fiscal year period following any Act of Congress designating any river for potential addition to the national wild and scenic rivers system, whichever is later, unless, prior to the expiration of the relevant period, the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture, on the basis of study, determine that such river should not be included in the national wild and scenic river system and notify the Committees on Interior and Insular Affairs of the United States Congress, in writing, including a copy of the study upon which the determination was made, at least one hundred and eighty days while Congress is in session prior to publishing notice to that effect in the Federal Register: *Provided*, That if any Act designating any river or rivers for potential addition to the national wild and scenic river system provides a period for the study or studies which exceeds such three complete fiscal year period the period provided for in such Act shall be substituted for the three complete fiscal year period in the provisions of this clause (i); and

(ii) during such interim period from the date a report is due and the time a report is actually submitted to Congress; and

(iii) during such additional period thereafter as, in the case of any river the report for which is submitted to the President and the Congress for inclusion in the national wild and scenic rivers system, is necessary for congressional consideration thereof or, in the case of any river recommended to the Secretary of the Interior under section 2(a)(ii) of this Act, is necessary for the Secretary's consideration thereof, which additional period, however, shall not exceed three years in the first case and one year in the second.

Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to developments below or above a potential wild, scenic or recreational river area or on any stream tributary thereto which will not invade the area or diminish the scenic, recreational, and fish and wildlife values present in the potential wild, scenic or recreational river area on the date of designation of a river for study as provided by section 5 of this Act. No department or agency of the United States shall, during the periods hereinbefore specified, recommend authorization of any water resources project on any such river or request appropriations to begin construction of any such project, whether heretofore or hereafter authorized, without advising the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture in writing of its intention so to do at least sixty day in advance of doing so and without specifically reporting to the Congress in writing at the time it makes its recommendation or request in what respect construction of such project would be in conflict with the purposes of this Act and would affect the component and the values to be protected by it under this Act.

(c) The Federal Power Commission and all other Federal agencies shall, promptly upon enactment of this Act, inform the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture, of any proceedings, studies, or other activities within their jurisdiction which are now in progress and which affect or may affect any of the rivers specified in section 5, subsection (a), of this Act. They shall likewise inform him of any such proceedings, studies, or other activities which are hereafter commenced or resumed before they are commenced or resumed.

(d) Nothing in this section with respect to the making of a loan or grant shall apply to grants made under the Land and Water Conservation Act of 1965 (78 Stat. 897; 16 U.S.C. 4601-5 et seq.).

SEC. 8. (a) All public lands within the authorized boundaries of any component of the national wild and scenic rivers system which is designated in section 3 of this Act or which is hereafter designated for inclusion in that system are hereby withdrawn from entry, sale, or other disposition under the public land laws of the United States. This subsection shall not be construed to limit the authorities granted in section 6(d) or 14A of this Act.

(b) All public lands which constitute the bed or bank, or are within one-quarter mile of the bank, of any river which is listed in section 5, subsection (a), of this Act are hereby withdrawn from entry, sale, or other disposition under the public land laws of the United States for the periods specified in section 7, subsection (b), of this Act....

SEC. 9. (a) Nothing in this Act shall affect the applicability of the United States mining and mineral leasing laws within components of the national wild and scenic rivers system except that --

(i) all prospecting, mining operations, and other activities on mining claims which, in the case of a component of the system designated in section 3 of this Act, have not heretofore been perfected or which, in the case of a component hereafter designated pursuant to this Act or any other Act of Congress, are not perfected before its inclusion in the system and all mining operations and other activities under a mineral lease, license, or permit issued or renewed after inclusion of a component in the system shall be subject to such regulations as the Secretary of the Interior or, in the case of national forest lands, the Secretary of Agriculture may prescribe to effectuate the purposes of this Act;

(ii) subject to valid existing rights, the perfection of, or issuance of a patent to, any mining claim affecting lands within the system shall confer or convey a right or title only to the mineral deposits and such rights only to the use of the surface and the surface resources as are reasonably required to carrying on prospecting or mining operations and are consistent with such regulations as may be prescribed by the Secretary of the Interior or, in the case of national forest lands, by the Secretary of Agriculture.

(iii) subject to valid existing rights, the minerals in Federal lands which are part of the system and constitute the bed or bank or are situated within one-quarter mile of the bank of any river designated a wild river under this Act or any subsequent Act are hereby withdrawn from all forms of appropriation under the mining laws and from operation of the mineral leasing laws including, in both cases, amendments thereto.

Regulations issued pursuant to paragraphs (i) and (ii) of this subsection shall, among other things, provide safeguards against pollution of the river involved and unnecessary impairment of the scenery within the components in question.

(b) The minerals in any Federal lands which constitute the bed or bank or are situated within one-quarter mile of the bank of any river which is listed in section 5, subsection (a) of this Act are hereby withdrawn from all forms of appropriation under the mining and leasing laws during the periods specified in section 7, subsection (b) of this Act. Nothing contained in this subsection shall be construed to forbid prospecting or the issuance of leases, licenses, and permits under the mineral leasing laws subject to such conditions as the Secretary of the Interior and, in the case of national forest lands, the Secretary of Agriculture find appropriate to safeguard the area in the event it is subsequently included in the system....

SEC. 10 (a) Each component of the national wild and scenic rivers system shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration primary emphasis shall be given to protecting its esthetic, scenic, historic, archeologic, and scientific features. Management plans for any such

component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area.

(b) Any portion of a component of the national wild and scenic rivers system that is within the national wilderness preservation system, as established by or pursuant to the Act of September 3, 1964 (78 Stat. 890; 16 U.S.C., ch. 23), shall be subject to the provisions of both the Wilderness Act and this Act with respect to preservation of such river and its immediate environment, and in case of conflict between the provisions of these Acts the more restrictive provisions apply.

(c) Any component of the national wild and scenic rivers system that is administered by the secretary of the Interior through the National Park Service shall become a part of the national park system, and any such component that is administered by the Secretary through the Fish and Wildlife Service shall become a part of the national wildlife refuge system. The lands involved shall be subject to the provisions of this Act and the Acts under which the national park system or national wildlife system, as the case may be, is administered, and in the case of conflict between the provisions of these Acts, the more restrictive provisions shall apply. The Secretary of the Interior, in his administration of any component of the national wild and scenic rivers system, may utilize such general statutory authorities relating to areas of the national park system and such general statutory authorities otherwise available to him for recreation and preservation purposes and for the conservation and management of natural resources as he deems appropriate to carry out the purposes of this Act.

(d) The Secretary of Agriculture, in his administration of any component of the national wild and scenic rivers system area, may utilize the general statutory authorities relating to the national forest in such manner as he deems appropriate to carry out the purposes of this Act.

(e) The Federal agency charged with the administration of any component of the national wild and scenic rivers system may enter into written cooperative agreements with the Governor of a State, the head of any State agency, or the appropriate official of a political subdivision of a State for State or local governmental participation in the administration of the component. The States and their political subdivisions shall be encouraged to cooperate in the planning and administration of components of the system which include or adjoin State- or County-owned lands.

SEC. 11. (a) The Secretary of the Interior shall encourage and assist the States to consider, in formulating and carrying out their comprehensive statewide outdoor recreation plans and proposals for financing assistance for State and local projects submitted pursuant to the Land and Water Conservation Fund Act of 1965 (78 Stat. 897), needs and opportunities for establishing State and local wild, scenic and recreational river areas.

(b) (1) The Secretary of the Interior, the Secretary of Agriculture, or the head of any Federal agency, shall assist, advise, and cooperate with States or their political subdivisions, landowners, private organizations, or individuals to plan, protect, and manage river resources. Such assistance, advice, and cooperation may be through written agreements or otherwise. This authority applies within or outside a federally administered area and applies to rivers which are components of the Wild and Scenic Rivers System and to other rivers. Any agreement under this section may include

provisions for limited financial or other assistance to encourage participation in the acquisition, protection and management of river resources.

(2) Whenever appropriate in furtherance of this Act, the Secretary of Agriculture and the Secretary of the Interior are authorized and encouraged to utilize the following:

(A) For activities on federally owned land, the Volunteers in the Parks Act of 1969 (16 U.S.C. 18g-j) and the Volunteers in the Forest Act of 1972 (16 U.S.C. 558a-558d).

(B) For activities on all other lands, section 6 of the Land and Water Conservation Fund Act of 1965 (relating to the development of statewide comprehensive outdoor recreation plans).

(3) For purposes of this subsection, the appropriate Secretary or the head of any Federal agency may utilize and make available Federal facilities, equipment, tools, and technical assistance to volunteers and volunteer organizations, subject to such limitations and restrictions as the appropriate Secretary or the head of any Federal agency deem necessary or desirable.

(4) No permit or other authorization provided for under provision of any other Federal law shall be conditioned on the existence of any agreement provided for in this section.

SEC. 12 (a) The Secretary of the Interior, the Secretary of Agriculture, and the head of any other Federal department or agency having jurisdiction over any lands which include, border upon, or are adjacent to, any river included within the National Wild and Scenic Rivers System or under consideration for such inclusion in accordance with section 2(a)(ii), 3(a), or 5(a), shall take such action respecting management policies, regulations, contracts, plans, affecting such lands, following the date of enactment of this sentence, as may be necessary to protect such rivers in accordance with the purposes of this Act. Such Secretary or other department or agency head shall, where appropriate, enter into written cooperative agreements with the appropriate State and local official for the planning, administration, and management of Federal lands which are within the boundaries of any rivers for which approval has been granted under section 2(a)(ii). Particular attention shall be given to scheduled timber harvesting, road construction, and similar activities which might be contrary to the purposes of this Act.

(b) Nothing in this section shall be construed to abrogate any existing rights, privileges, or contracts affecting Federal lands held by any private party without the consent of said party.

(c) The head of any agency administering a component of the national wild and scenic rivers system shall cooperate with the Administrator, Environmental Protection Agency and the appropriate State water pollution control agencies for the purpose of eliminating or diminishing the pollution of waters of the river.

SEC. 13 (a) Nothing in this Act shall affect the jurisdiction or responsibilities of the States with respect to fish and wildlife. Hunting and fishing shall be permitted on lands and waters administered as parts of the system under applicable State and Federal laws and regulations unless, in the case of hunting, those lands or waters are within a national park or monument. The administering Secretary may, however, designate zones

where, and establish periods when, no hunting is permitted for reasons of public safety, administration, or public use and enjoyment and shall issue appropriate regulations after consultation with the wildlife agency of the State or States affected.

(b) The jurisdiction of the States and the United States over waters of any stream included in a national wild, scenic or recreational river area shall be determined by established principles of law. Under the provisions of this Act, any taking by the United States of a water right which is vested under either State or Federal law at the time such river is included in the national wild and scenic rivers system shall entitle the owner thereof to just compensation. Nothing in this Act shall constitute an express or implied claim or denial on the part of the Federal Government as to exemption from State water laws.

(c) Designation of any stream or portion thereof as a national wild, scenic or recreational river area shall not be construed as a reservation of the waters of such streams for purposes other than those specified in this Act, or in quantities greater than necessary to accomplish these purposes.

(d) The jurisdiction of the States over waters of any stream included in a national wild, scenic or recreational river area shall be unaffected by this Act to the extent that such jurisdiction may be exercised without impairing the purposes of this Act or its administration.

(e) Nothing contained in this Act shall be construed to alter, amend, repeal, interpret, modify, or be in conflict with any interstate compact made by any States which contain any portion of the national wild and scenic rivers system.

(f) Nothing in this Act shall affect existing rights of any State, including the right of access, with respect to the beds of navigable streams, tributaries, or rivers (or segments thereof) located in a national wild, scenic or recreational river area.

(g) The Secretary of the Interior or the Secretary of Agriculture, as the case may be, may grant easements and rights-of-way upon, over, under, across, or through any component of the national wild and scenic rivers system in accordance with the laws applicable to the national park system and the national forest system, respectively: *Provided*, That any conditions precedent to granting such easements and rights-of-way shall be related to the policy and purpose of this Act.

SEC. 14. (a) The claim and allowance of the value of an easement as a charitable contribution under section 170 of title 26, United States Code, or as a gift under section 2522 of said title shall constitute an agreement by the donor on behalf of himself, his heirs, and assigns that, if the terms of the instrument creating the easement are violated, the donee or the United States may acquire the servient estate of its fair market value as of the time the easement was donated minus the value of the easement claimed and allowed as a charitable contribution or gift.

(b) For the conservation purposes of preserving or enhancing the values of components of the National Wild and Scenic River System, and the environs thereof as determined by the appropriate Secretary, landowners are authorized to donate or otherwise convey qualified real property interests to qualified organizations consistent with section 170(h)(3) of the Internal Revenue Code of 1954. Such interest may include, but shall not be limited to, rights-of-way, open space, scenic, or conservation easements without

regard to any limitation on the nature of the estate or interest otherwise transferable within the jurisdiction where the land is located. The conveyance of any such interest in land in accordance with this subsection shall be deemed to further a Federal conservation policy and yield a significant public benefit for purposes of section 6 of Public Law 96-541.

SEC. 14A. (a) Where appropriate in the discretion of the Secretary, he may lease federally owned land (or any interest therein) which is within the boundaries of any component of the National Wild and Scenic Rivers system and which has been acquired by the Secretary under this Act. Such lease shall be subject to such restrictive covenants as may be necessary to carry out the purposes of this Act.

(b) Any land to be leased by the Secretary under this section shall be offered first for such lease to the person who owned such land immediately before its acquisition by the United States.

SEC. 15....

SEC. 16. As used in this Act, the term--

(a) "River" means a flowing body of water or estuary or a section, portion, or tributary thereof, including rivers, creeks, runs, kills, rills, and small lakes.

(b) "Free-flowing", as applied to any river or section of a river, means existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the national wild and scenic river system shall not automatically bar its consideration for such inclusion: *Provided*, That this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the national wild and scenic rivers system.

(c) " Scenic easement" means the right to control the use of land (including the air space above such land) within the authorized boundaries of a component of the wild and scenic river system, for the purpose of protecting the natural qualities of a designated wild, scenic or recreational river area, but such control shall not affect, without the owner's consent, any regular use exercised prior to the acquisition of the easement. For any designated wild and scenic river, the appropriate Secretary shall treat the acquisition of fee title with the reservation of regular existing uses to the owner as a scenic easement for the purposes of this Act. Such an acquisition shall not constitute fee title ownership for purposes of section 6(b).

SEC.17....

(Provisions of the Wild and Scenic Rivers Act that are applicable only to specific rivers have been deleted from this version of the Act in the interest of brevity. The Federal Power Commission is now the Federal Energy Regulatory Commission.)

Friends of the River & the Merced Canyon Committee 11/88

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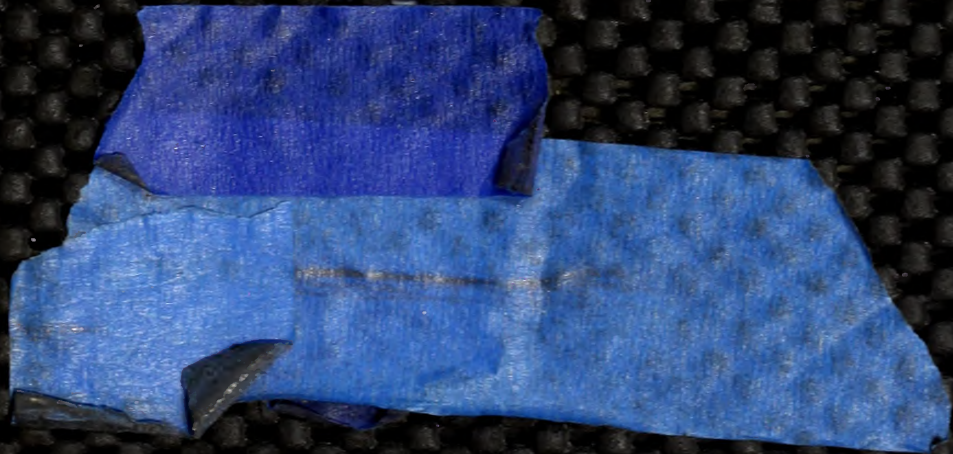
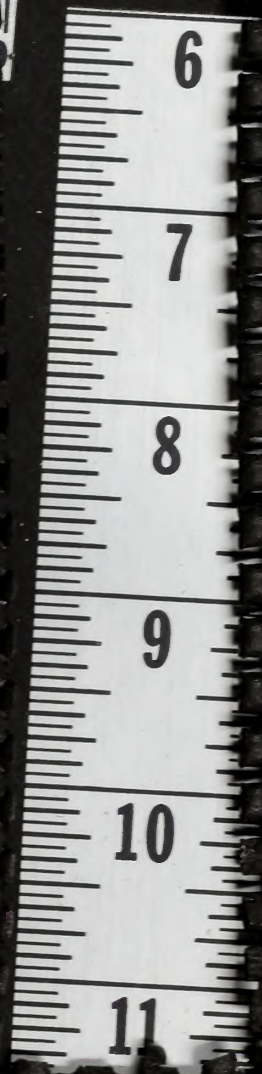
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