

Agate Lake Resource Management Plan

Finding of No Significant Impact
and
Environmental Assessment

September 2000

United States Department of the Interior
Bureau of Reclamation
Pacific Northwest Region
Lower Columbia Area Office



In cooperation with Jackson County Roads and Parks Services



Mission Statements

Department of the Interior

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to tribes.

Bureau of Reclamation

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally sound manner in the interest of the American public.

Jackson County Parks

To protect Jackson County's recreational resources and provide a quality County Park system that meets recreation needs and provides recreation opportunities to the citizens and visitors of Jackson County.

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Agate Lake
Resource Management Plan
Environmental Assessment

Rogue River Basin Project
Talent Division
Medford, Oregon

United States Department of the Interior
Bureau of Reclamation
Pacific Northwest Region
Boise, Idaho

Lower Columbia Area Office
Portland, Oregon

In cooperation with
Jackson County
Roads and Parks Services
Medford, Oregon

September 2000

FINDING OF NO SIGNIFICANT IMPACT
AGATE LAKE RESOURCE MANAGEMENT PLAN
ROGUE RIVER BASIN PROJECT
TALENT DIVISION, OREGON

PN-FONSI 00-03

INTRODUCTION

In accordance with the Council on Environmental Quality's Regulations for implementing the procedural provisions of the National Environmental Policy Act of 1969, as amended, a draft and final environmental assessment (EA) were prepared for the Agate Lake Resource Management Plan (RMP). This finding of no significant impact provides a brief description of the scoping process and the environmental analysis as fully documented in the EA.

PURPOSE AND NEED

The purpose of the RMP is to set forth defined management goals, objectives, and standards to guide and direct future resource management actions, activities, and uses within the study area, while not negatively affecting existing, authorized purposes. The RMP is intended to establish the desired future condition for the study area and the process to achieve that condition. The proposed RMP would direct the management of the resources at Agate Lake to maximize overall public and resource benefits for the next 10 years.

An RMP is needed because uncontrolled public use within the study area in recent years has resulted in numerous health, safety, and access problems as well as resource degradation. Drug use; trash dumping; vandalism; and unauthorized off-highway vehicle (OHV) use, camping, fires, and shooting have made the area difficult to manage and less desirable to visit.

ALTERNATIVES CONSIDERED

The EA considered three alternatives in detail: No Action Alternative (Alternative A), Natural Resource Enhancement with Moderate Recreation Development Alternative (Alternative B), and Natural Resource Enhancement with Maximum Recreation Development Alternative (Alternative C).

Under Alternative A, facilities would continue to be operated for authorized Rogue River Basin Project purposes. Existing recreation facilities and lands would be operated and maintained as today.

Under Alternative B (preferred alternative), a moderate number of low-density day use sites would be constructed, and steps would be taken to conserve, protect, enhance, and interpret the natural resources within the study area.

Under Alternative C, a maximum number of high-density recreation sites would be constructed, and a maximum number of recreation opportunities would be created. Development would be based on user demand and the ability of the resources to absorb such increased development.

PREFERRED ALTERNATIVE

Under the preferred alternative (proposed RMP), a moderate number of low-density day use sites would be developed in two phases, based on user demand. Actions designed to conserve, protect, enhance, and interpret the natural resources at Agate Lake would be emphasized.

Key elements of the RMP include the following:

- Termination of the existing off-highway vehicle plan; 2.71 miles of roads would remain open for vehicle use, and 8 miles would be closed and re-vegetated.
- Construction of up to seven low-density day use sites on the west side of the lake (phase I).
- Construction of up to eight additional day use sites on the southern peninsula area of the lake (phase II).
- Improvement of an existing boat ramp and associated facilities on both the west and east sides of the lake and closure of unauthorized, unimproved boat launch sites.
- Phased construction of a nonmotorized, unpaved multiple use trail system, approximately 18,924 feet long, that includes equestrian use and portions accessible to persons with disabilities. A trail plan would be developed before construction to ensure that impacts to wildlife habitat are minimized.
- Development of prescribed burning and noxious weed control plans.
- Recommendation to complete a regional vernal pool survey and to develop a vernal pool management plan, as appropriate.
- Construction of fish habitat improvements.
- Development of a cultural resource management plan, if eligible sites are present.
- Implementation of a long-term water quality monitoring plan.

ENVIRONMENTAL COMMITMENTS

In addition to management actions contained in the preferred alternative, the following environmental commitments will also be implemented:

- Design and construction of facilities will employ best management practices to prevent possible soil erosion and subsequent effects on water quality.
- Developed facilities will complement the surrounding landscape and follow strict design and construction criteria, guidelines, and standards.
- Disturbed areas resulting from construction will be revegetated.
- Carrying capacity limits and user demand will be properly determined before construction of any major facility.
- Proper regulatory and informational signs will be posted, listing the rules and regulations that govern use of lands within the Lake Area Boundary.
- Jackson County Roads and Parks Services (JCP) and Reclamation-issued land use licenses, leases, and permits will contain sufficient language and stipulations to help protect existing resources and help mitigate possible conflicts among the various visitors and between visitors and adjacent landowners.
- OHV roads and disturbed areas that are not needed for trails or recreation facilities will be closed and revegetated.
- Prescribed burning and noxious weed control plans will be developed.
- Plant and animal species of concern will be identified, and a management plan will be developed.
- Completion of a regional vernal pool survey will be recommended, and a vernal pool management plan will be developed, as appropriate.
- In conjunction with site-specific implementation planning, additional archeological surveys, test excavations, or consultations with the State Historic Preservation Officer (SHPO) or Indian tribes will occur, as necessary, to comply with Section 106 of the National Historic Preservation Act.
- Funding will be requested to complete systematic archeological test excavations of recorded cultural material scatters to determine if deposits are present that are eligible for the *National Register of Historic Places* (Register). Reclamation will periodically monitor Register eligible sites or unevaluated cultural resources to assess impacts and the need for investigation or protection.

- If Register eligible archeological sites or traditional cultural properties are present, Reclamation will prepare a cultural resource management plan that defines additional investigation or protection appropriate for each site.
- If archeological investigations or tribal comments indicate Register-eligible cultural resources are present and are being adversely affected by land use or plan implementation actions, Reclamation will seek to avoid such impacts.
- If consultation with Indian tribes determines that Indian sacred sites are present and are being adversely affected by land use, then, when feasible, Reclamation will seek to implement actions to avoid such impacts.
- To offset possible negative impacts to low-income visitors, entrance and user fees will be structured to allow many individuals and families of different income levels to use Agate Lake lands and facilities.
- A long-term water quality monitoring plan will be implemented.

COORDINATION

Fish and Wildlife Resources

Reclamation consulted with the Fish and Wildlife Service (Service), as required by the Fish and Wildlife Coordination Act and Section 7 of the Endangered Species Act. The Service provided a list of federally listed and proposed endangered and threatened species, candidate species, and species of concern that may occur in the study area. The draft EA evaluated impacts to the bald eagle, a threatened species; peregrine falcon, an endangered species (now delisted); the northern spotted owl, a threatened species; the vernal pool fairy shrimp, a threatened species; and candidate species, such as the Oregon spotted frog, as well as species of concern, such as the olive-sided flycatcher. On the basis of this evaluation, Reclamation has determined that the preferred alternative may affect, but is not likely to adversely affect, listed, proposed, or candidate ESA species. The Service concurred with Reclamation's finding of "may affect, but not likely to adversely affect." Therefore, further consultation or conferencing or preparation of a more detailed biological assessment are not required. In conformance with the Fish and Wildlife Coordination Act, the Service prepared a Planning Aid Memorandum following its review of the draft EA. Recommendations made by the Service in its Planning Aid Memorandum have been incorporated into the final EA.

Archeological Sites and Traditional Cultural Properties

Reclamation and its archeological contractor, Heritage Research Associates, contacted appropriate area Indian tribes during the course of conducting fieldwork and during the EA public review period to determine if the tribes have knowledge of archeological sites or traditional cultural properties within the Lake Area Boundary and to learn if they had related cultural resource management concerns. Reclamation and the contractor received no response. Reclamation provided a copy of the draft EA to the SHPO for review and received no response.

Therefore, Reclamation will complete specific Section 106 consultations with tribes and the SHPO during the planning period before implementing RMP actions that could potentially affect unidentified archeological resources or traditional cultural properties.

Indian Trust Assets, Indian Sacred Sites, and Environmental Justice

Reclamation requested information from the Bureau of Indian Affairs' (BIA) Siletz Agency about the presence of Indian trust assets (ITAs) within the study area. BIA informed Reclamation that no ITAs were known to exist within the study area. Reclamation requested the same information from the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Grande Ronde Community of Oregon, the Klamath Tribe, and the Cow Creek Band of the Umpqua Tribe of Indians but did not receive a response from any of the tribes.

No Indian sacred sites are known to exist within the study area. During the EA public review period, Reclamation notified the tribes listed above about the proposed project and requested information about the presence of Indian sacred sites within the study area but did not receive a response. Therefore, before implementing RMP actions that could affect Indian sacred sites, Reclamation will contact the tribes to determine if they are aware of the presence of any sites in specific impact areas.

Reclamation has determined that imposition of user fees would have minimal adverse effects on low-income populations.

Other Coordination

Reclamation coordinated with city, county, State, and Federal agencies to ensure that proposed land uses would be compatible with adjacent land uses. JCP administers recreation use for Reclamation at Agate Lake, and Reclamation worked closely with JCP throughout the planning process and development of the environmental assessment. In addition, Reclamation solicited information from adjacent landowners about existing and future uses of their lands.

SCOPING AND PUBLIC REVIEW

Reclamation held a public meeting in November 1998 in White City, Oregon, to provide information and solicit input about the proposed project. About 300 copies of the draft environmental assessment were distributed on October 21, 1999, for a 60-day public review. A public meeting was held on November 9, 1999, in White City to discuss details of the alternative formulation process, the alternatives and associated environmental impacts, and information to be included in the RMP. A total of 22 letters were received on the draft environmental assessment. Copies of these letters and Reclamation's responses to them are included in appendix II of the EA.

SUMMARY OF SIGNIFICANT DRAFT EA COMMENTS AND RESPONSES BY RECLAMATION

Substantive comments and Reclamation's responses are summarized as follows.

Comment: Add equestrian use to the multiple use trail.

Response: Equestrian use has been added as an authorized use of the multiple use trail.

Comment: Change policy on upland game and/or waterfowl hunting.

Response: Upland game and waterfowl hunting will continue to be allowed, except on the dam. Hunting will be monitored to identify potential conflicts, and corrective measures will be implemented if conflicts occur.

Comment: Concern about migrating shorebirds that use mud flats at the south end of Agate Lake and location of proposed development on the southern peninsula.

Response: Information concerning shorebird use of mudflats was incorporated into the EA. Additionally, because of concern for shorebirds, the decision was made to move the proposed development from the end of the southern peninsula to a location closer to the highway. A spur trail will be developed through the center of the southern peninsula to the lake.

Comment: Concern about model boating and other incidental uses at Agate Lake.

Response: Rowing, model boating, model airplane events, and other incidental uses will be allowed. However, organized events will be allowed only through a permit process.

Comment: Concern about OHV use.

Response: The RMP includes measures to prevent potential resource damage caused by OHV use. Appropriate physical barriers will be installed to prevent access to old OHV roads. Costs and material availability will determine the types of barriers installed.

Comment: Concern about impact of development on wildlife.

Response: Existing wildlife habitat will be protected. The RMP will be implemented within stated criteria for development so that wildlife and other natural resources are minimally affected.

Comment: Concern about water quality of Agate Lake.

Response: The RMP will include a long-term monitoring program to determine the water quality of Agate Lake in relationship to the designated uses allowed and to monitor possible negative effects to water quality from offsite land uses.

MAJOR MODIFICATIONS TO THE DRAFT EA

Key modifications to the draft EA included:

- Moving the location of proposed Phase II developments on the southern peninsula because of concern for shorebirds and including information about shorebirds and their use of the mudflats on the southern peninsula.
- Including equestrian use on the multiple use trail.
- Allowing upland game and waterfowl hunting to continue.
- Closing Agate Dam to all hunting and other recreational use by installing signs and physical barriers to restrict access to the dam and spillway.

FINDING

Reclamation analyzed, and the EA documented, the environmental and social impacts of the proposed action on the following: water quality, lands, soils, vegetation and wildlife, fish, special status species, recreation and visual resources, social environment, cultural resources, Indian trust assets, Indian sacred sites, and environmental justice.

Reclamation's analysis showed that under the proposed action:

- Water quality would improve because of reduced nutrients in runoff to Agate Lake.
- Erosion on steeper slopes would be reduced; disturbed areas, especially Medco soils, would improve.
- Conflicts with adjacent landowners would decrease.
- Destruction of vegetation and disturbance to wildlife would be greatly reduced.
- Disturbed areas would be restored.
- Warmwater fish habitat would improve.
- Special status species and their habitat, including vernal pool habitat, would be protected and restored.
- Recreational use would be less dispersed and more controlled.
- OHV users would be displaced to other areas.

- Public health and safety would be improved.
- User conflicts would be reduced.
- For historical users, sense of crowding on Agate Lake would increase.
- Visitation would increase; visitor experience would be enhanced.
- Visual quality would be enhanced.
- More visitors who prefer a safer, controlled recreation environment would be attracted to the study area. Visitors who previously engaged in unauthorized activities would be displaced.
- Potential impacts to cultural resources would be significantly reduced.
- If user fees are not assessed, there will likely be an increase in use by all groups, including low-income families and individuals, because of increased recreational opportunities.

On the basis of a thorough review of the comments received, analysis of environmental impacts as presented in the final EA, and implementation of all environmental commitments identified in the final EA, Reclamation has concluded that implementation of the preferred alternative would have no significant impact on the quality of the human environment or the natural resources of the study area. Therefore, an environmental impact statement will not be prepared for this project. This finding of no significant impact has been prepared to document environmental review and evaluation in compliance with the Council of Environmental Quality's regulations for implementation of the National Environmental Policy Act.

Recommended:

J. Eric Glover
Lower Columbia Area Manager

Date

Concur:

Robert C. Christensen
Regional Environmental Officer

Date

Approved:

J. William McDonald
Regional Director

Date

Abbreviations and Acronyms

BIA	U.S. Bureau of Indian Affairs
EA	environmental assessment
ESA	Endangered Species Act
District	Rogue River Valley Irrigation District
CFR	Code of Federal Regulations
CRMP	cultural resource management plan
FLWC	Fish Lake Water Company
HB	House Bill
ITAs	Indian trust assets
JCP	Jackson County Roads and Parks Services
Lake Area Boundary	Agate Dam and Lake and adjacent Reclamation lands
µg/L	micrograms per liter
µs/cm	microsiemens per centimeter (units used to measure conductivity of an aqueous solution)
m	meters
mg/L	milligrams per liter
MID	Medford Irrigation District
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NWI	National Wetlands Inventory
O&M	operation and maintenance
OHV	Off-highway vehicle
ODFW	Oregon Department of Fish and Wildlife
ONHP	Oregon Natural Heritage Program
Project	Rogue River Basin Project
Reclamation	U.S. Bureau of Reclamation
Register	National Register of Historic Places
RFP	request for proposal
RMP	resource management plan
SCORP	Oregon State Comprehensive Outdoor Recreation Plan
Service	U.S. Fish and Wildlife Service
SHPO	Oregon State Historic Preservation Office
Stat.	Statute
study area	Agate Dam and Lake and adjacent Reclamation lands
TCPs	traditional cultural properties
team	Reclamation interdisciplinary team
TID	Talent Irrigation District
USFS	U.S. Forest Service

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CHAPTER 1

Introduction and Background

Introduction

This document is an environmental assessment (EA) for an Agate Lake resource management plan (RMP). Agate Lake is located in southwest Oregon's Jackson County (**Map 1-1, Location Map, Agate Lake**).

This EA sets forth three alternatives (including a No Action Alternative) for managing the water surface and land surface immediately adjacent to Agate Lake and Dam (Lake Area Boundary or study area) and describes the effects of the alternatives on resources within the Lake Area Boundary. These resources include water quality, soils, lands, vegetation and wildlife, fish, special status species, recreation and visual resources, socio-economics, cultural resources, Indian trust assets, Indian sacred sites, and environmental justice.

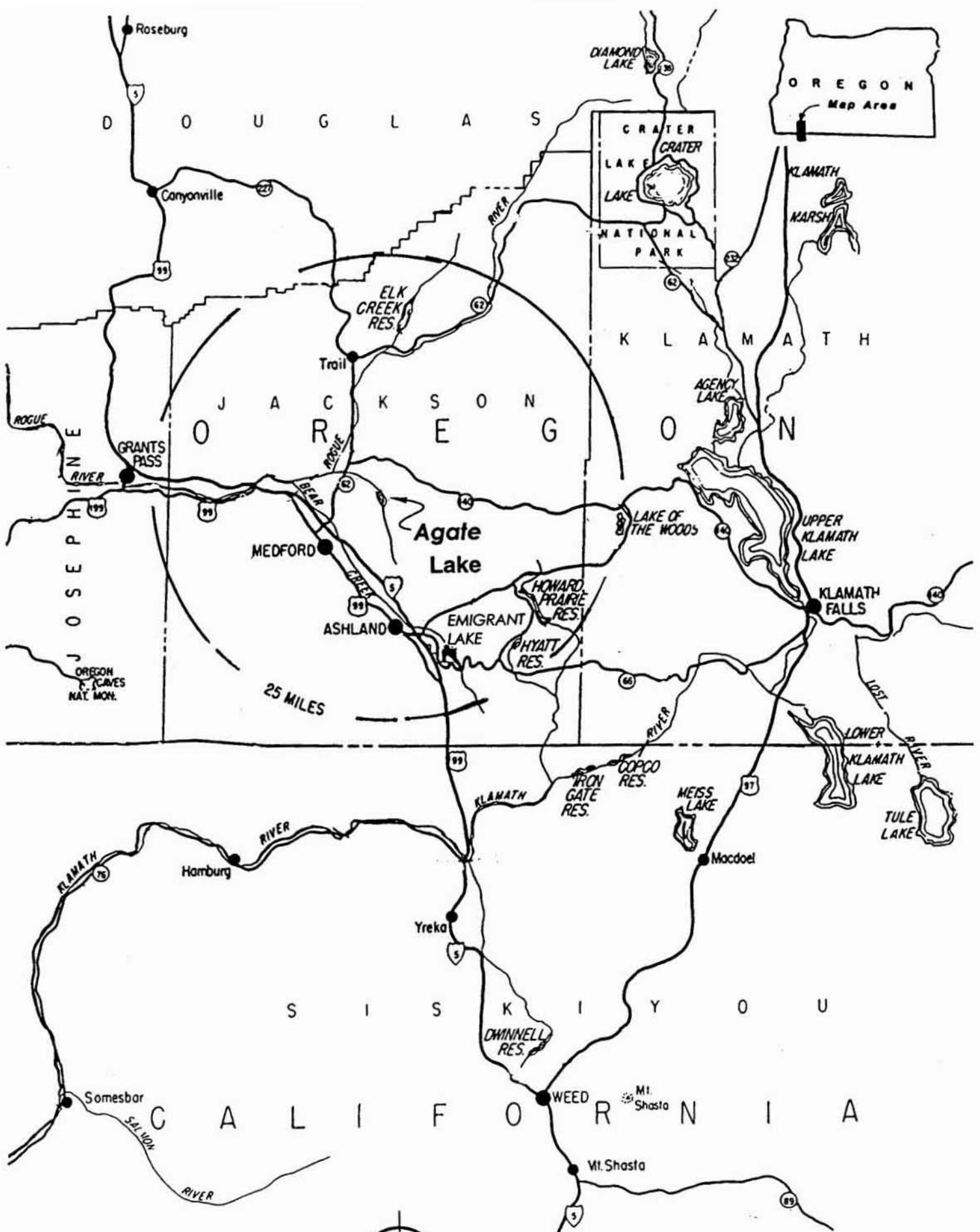
This EA was prepared by the U.S. Bureau of Reclamation (Reclamation), in cooperation with Jackson County Roads and Parks Services (JCP), in compliance with the National Environmental Policy Act (NEPA).

Authority

Title 28 of Public Law 102-575, Section 2805 (106 Statute [Stat.] 4690; Reclamation Recreation Management Act of October 30, 1992) provides Reclamation with authority to prepare resource management plans.

Proposed Federal Action

Preparation and implementation of an RMP is a **Federal action** that is intended to direct the management of resources within the Lake Area Boundary to maximize overall public and



SCALE IN MILES

resource benefits for the next 10 years. NEPA requires Federal agencies to consider the potential environmental impact(s) of a proposed Federal action before it is implemented.

Purpose and Need

The purpose of the RMP is to set forth defined management goals, objectives, and actions to guide and direct future resource management actions, activities, and uses within the Lake Area Boundary, while not negatively affecting existing, authorized purposes. The RMP is intended to establish the desired future condition for the Lake Area Boundary and the process to achieve that condition.

The RMP is needed because uncontrolled public use within the Lake Area Boundary in recent years has resulted in numerous public health, safety, and access problems as well as resource degradation. Drug use; trash dumping; vandalism; and unauthorized off-highway vehicle (OHV) use, camping, fires, and shooting have made the area difficult to manage and less desirable to visit.

JCP took aggressive steps in 1995 to limit public use to day use activities because of concerns for the health and safety of visitors. (See **Attachment A, May 24, 1995, Medford Mail Tribune news article.**) JCP reported numerous illegal incidents within the Lake Area Boundary for several years before closing it to overnight use. For example, fencing and other barriers that surround the irrigation spillway at the dam had been destroyed or removed. The fencing is intended to warn and, subsequently, prevent visitors, especially small children, from playing on the spillway and injuring themselves. Vandalism also was spreading to lands adjacent to the Lake Area Boundary, including the Stone Ridge Golf Course and Dry Creek Landfill. The Agate Lake RMP will ensure Agate Lake is a more desirable place for the public to visit and will guide future development and land use.

Objectives

The overall objectives of the RMP are as follows:

- Determine the most appropriate uses of all Reclamation-administered and JCP-managed recreation lands around Agate Lake, considering the use of adjacent private lands.

- Explore ways to enhance and protect the natural, recreational, aesthetic, and cultural resources.
- Identify long-term programs that address public health and safety, fish and wildlife, and recreation.
- Identify financially feasible opportunities or partnerships to assist JCP in managing recreation facilities.

Related Activities

The following activities and actions are related to the proposed action.

- Jackson County Comprehensive Plan, updated December 1996: This plan sets forth general land use planning policies and allocations of land uses and provides the basis for the coordinated development of physical resources and the development or redevelopment of the county based on physical, social, economic, and environmental factors.
- The U.S. Forest Service (USFS), Rogue River National Forest, and the Bureau of Land Management have jurisdiction of Federal lands in the vicinity of Agate Lake. However, the management of these lands by the respective agencies will have little or no effect on the way Reclamation manages its lands, nor will the management of Reclamation lands conflict with management of other Federal lands in the area.
- Jackson County Land Development Ordinance of 1989: This document outlines the minimum requirements and standards necessary for efficient, safe, and attractive land division and development consistent with the physical characteristics of the county; establishes procedures to be followed in the development and approval of land divisions and related maps and plats; and provides penalties and notices of violations. Authorization and minimum standards for this document are provided by Oregon Revised Statutes Chapters 92 and 215.

Location and Background

Agate Dam and Lake, located on Dry Creek in southwestern Oregon near the city of Medford, are part of Reclamation's Talent Division of the Rogue River Basin Project (Project). (See **Map 1-2, General Map**.) The land and water area within the Lake Area Boundary, as shown on **map 1-2**, is under the primary jurisdiction of Reclamation and is considered the **study area**. The Project

was authorized on August 20, 1954, under Public Law 83-606 (68 Stat. 752). Agate Dam and Lake were authorized by the Act of October 1, 1962, Public Law 87-727 (76 Stat. 677). Reclamation completed construction of the dam in 1966.

The Project originally was authorized for irrigation, flood control, hydroelectric power production, and other beneficial purposes. The Talent Division of the Project was authorized for the same purposes, as well as for minimal recreation facilities and fish and wildlife purposes, both of which are nonreimbursable costs¹ under Federal law. The conservation and development of fish and wildlife are to be in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended). Reoperations² of the Project to benefit recreation or fish and wildlife are beyond the scope of this RMP effort and, therefore, are not addressed. The irrigation storage features of Agate Dam are managed by the Rogue River Valley Irrigation District (District) under contract with Reclamation.

On January 17, 1968, Reclamation entered into a 50-year lease agreement with Jackson County (represented by JCP) to administer public outdoor recreation and associated activities within the Lake Area Boundary. This agreement terminated the original agreement between both parties, dated March 19, 1965. An amendment to the 1968 agreement, dated April 23, 1969, clarifies the various possibilities for initiating cost-sharing arrangements. In addition, a supplement to the 1968 agreement, also dated April 23, 1969, was finalized to provide stipulations and guidance for eventual construction of recreation facilities and other improvements at the lake.

Before negotiating with JCP for the recreation management of the Lake Area Boundary, Reclamation constructed minimum basic facilities consisting of an access road, domestic water supply, and a boat ramp, pursuant to the Federal Water Project Recreation Act of 1965, Public

¹ Nonreimbursable costs are those costs incurred by the U.S. Government in constructing a project and/or administering a program for which no repayment obligation is required from project beneficiaries. Funds are appropriated from the Congress for such purposes.

² For the purposes of this document, reoperations would be the deliberate attempt by Reclamation and the Rogue River Valley Irrigation District (District) to operate the Talent Division of the Rogue River Valley Project for irrigation purposes differently than in the past. Changing existing project operations in order to provide more benefits for other purposes, such as recreation or fish and wildlife, would involve significant changes to the existing operations which is outside the scope of this study.

Law 89-72 (79 Stat. 213), as amended. These facilities were constructed in conjunction with the dam and lake. After the agreement was signed, JCP funded and constructed four pit toilets, 15 picnic units, and an 80- by 200-foot graded and graveled parking area. Except for the boat ramp and the access road, none of these facilities exist today. All original facilities were vandalized to the point that JCP could no longer afford to operate and maintain them. Therefore, JCP removed all constructed capital improvements.

In 1967, the National Park Service (NPS) prepared a recreation development plan at the request of Reclamation. The development plan outlined future facilities that could accommodate public demand through the year 2000. NPS projected annual visitation at 200,000 in the year 2000. However, visitor use of the Lake Area Boundary has decreased in recent years, even as the population of Jackson County has grown. Currently, JCP estimates that the Lake Area Boundary receives approximately 5,000 visitors annually, or about 3 percent of NPS's projected visitation.

The public presumably is using other recreation sites within the Medford area, including USFS lands and Reclamation's Emigrant Lake Recreation area, which are managed by JCP. NPS did not determine the potential impacts that full development and an annual visitation of 200,000 would have on the natural resources within the Lake Area Boundary. However, because of the limited land base, it is apparent that the level of visitation anticipated by the NPS cannot be accommodated without negatively affecting other resources within the Lake Area Boundary.

In 1968, JCP prepared a management plan pursuant to the lease agreement between the two agencies. The management plan is now outdated and does not reflect the existing resource conditions or visitor use patterns within the Lake Area Boundary.

Scoping

Reclamation and JCP held a public meeting in White City, Oregon, in November 1998 to provide information and solicit input about the proposed project. Before the meeting, a notice of the meeting, background information, and a comment sheet were sent to those on the mailing list provided by JCP. A paid notice of the meeting appeared in the local newspaper, the *Medford Mail Tribune*. A JCP representative personally invited representatives of several local agencies to the meeting. Approximately 30 people, mostly private citizens, attended. Reclamation and JCP representatives provided an overview of the study. Attendees' questions and comments were recorded on a flipchart, and several comment sheets and additional information were turned in at the end of the meeting. A total of 15 written comments were received by mail before and after the meeting.

Map 1-2.—General Map.

Color foldout

Summary of Issues

Comments were divided into four groups of issues: recreation management, health and safety, natural resources, and water quality. As discussed in chapter 2, the alternatives were formulated in response to the identified issues. The summarized issues include the following:

Health and Safety

- Enforce restrictions against the unauthorized discharge of firearms and other unauthorized activities, such as trash dumping and drug sales.
- Provide adequate sanitary facilities (i.e., restrooms and trash receptacles).
- Provide adequate signage and visitor information regarding rules, regulations, and safety requirements.
- Institute measures to prevent unauthorized OHV use.
- Provide onsite security to control public use of Agate Lake lands and to prevent public misuse of adjacent private lands.

Recreation Management

- Limit/restrict development.
- Keep Lake Area Boundary appearance natural.
- Provide trail system within Lake Area Boundary.
- Determine carrying capacity of land and water areas.
- Limit area to day use only.
- Eliminate OHV use.
- Minimize effects of National Guard maneuvers.
- Close some roads currently designated as open to OHV use.
- Provide adequate facilities to meet future demand.

Natural Resources

- Enhance wildlife habitat.
- Protect existing habitat values for nesting raptors; mudflats for fall waterfowl migrants.
- Protect fishing quality and enhance fishing opportunities.
- Identify and protect vernal pool habitat.³
- Provide trails that minimize adverse impacts to wildlife.

Cultural Resources

- Protect cultural resources eligible to the National Register of Historic Places.
- Plan improvements or habitat restoration activities to avoid impacts to cultural resource sites.
- Prepare a cultural resource management plan, if necessary.

Water Quality

- Assess suitability of existing water quality for selected beneficial uses.
- Monitor the effects of landfill on water quality.
- Identify entity responsible for maintaining water quality.
- Control illegal dumping that negatively affects water quality.

³ Vernal pools are seasonal wetlands that are formed in depressions on soils that have either clay or silicate layers and are filled by rainwater, groundwater, or overland flows. Although they appear barren during the summer and fall, vernal pools teem with life during winter and spring with uniquely adapted plants and wildlife—many of which appear nowhere else.

Document Organization

This EA is organized as follows:

Chapter 1 Introduction and Background.—Chapter 1 sets forth the purpose of and need for the proposed Federal action, provides background, and summarizes the issues.

Chapter 2 Alternatives.—Chapter 2 describes the three alternatives that were formulated in response to the issues identified by the public, Reclamation, and JCP.

Chapter 3 Affected Environment and Environmental Consequences.—Chapter 3 describes the affected environment and discusses the potential effects of each of the proposed alternatives on the resources of Agate Lake.

Chapter 4 Consultation and Coordination.—Chapter 4 describes public involvement and consultation and coordination with other agencies that occurred throughout preparation of the EA.

Chapter 2 Alternatives

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CHAPTER 2

Alternatives

Introduction

This chapter presents the process used to formulate alternatives to the proposed Federal action, describes the alternatives in detail, and provides summary comparisons of the alternatives and their effects on resources within the Lake Area Boundary.

Alternative Formulation

NEPA calls for the consideration and evaluation of a range of reasonable alternatives to a proposed Federal action. The alternatives should meet the purpose and need of the proposal while minimizing or avoiding environmental impacts.

As discussed in chapter 1, the proposed Federal action is to prepare and implement an RMP for Agate Lake. The NEPA alternative formulation process facilitates the planning process by providing a mechanism by which Reclamation, with interested agencies and the public, can formulate alternative management plans in response to identified issues. The basic goal in formulating alternatives is to develop various combinations of land uses and resource management actions that respond to the issues identified during the planning process. The EA documents Reclamation's planning and decision processes for the RMP.

In response to the issues identified through the public involvement process (summarized in chapter 1) and internal review of JCP and Reclamation policies and procedures, Reclamation developed two reasonable "action" alternatives (i.e., alternatives that prescribe a change in resource management). In addition to the action alternatives, NEPA requires consideration of a "no action" alternative (i.e., the most likely future condition without the proposed Federal action). The alternatives include the following:

- No Action Alternative (Alternative A)

- Natural Resource Enhancement with Moderate Recreation Development (Alternative B) (Preferred)

- Natural Resource Enhancement with Maximum Recreation Development (Alternative C)

To develop these alternatives, a Reclamation interdisciplinary team (team) first determined management actions, or elements, that would best respond to the identified issues. The team then combined the various elements into two action alternatives. Each alternative would achieve a different desired future condition, if implemented.

Some elements are common to all alternatives, while some are distinct to a specific alternative. The elements addressing recreation development and management were formulated, in part, by following the principles contained in Public Law 89-72, Federal Water Projects Recreation Act of 1965, as amended by Title 28 of Public Law 102-575. In the absence of a non-Federal Government entity that has agreed to manage recreation on Reclamation lands, Reclamation is limited to providing only “minimum basic” facilities for public use. However, if a non-Federal Government entity were to agree to manage recreation, Reclamation is authorized to cost share with the managing partner the recreation development and future operation and maintenance (O&M) costs. Reclamation’s cost-share amount for construction and O&M cannot exceed 50 percent of the total cost. Further, the type or number of facilities that can be constructed and the amount of money that can be spent on these facilities are not limited when an agreement has been reached with a non-Federal Government entity to manage the facilities. For the purposes of this document, the alternative elements that were formulated are based on the fact the JCP is a non-Federal Government entity that has contractually agreed to manage the recreation lands, facilities, and resources within the Lake Area Boundary in lieu of Reclamation management. Table 2-1 summarizes the elements contained in each alternative.

Under **Alternative A**, a minimum number of facilities could be provided to meet basic public health and safety needs and demands. Resource management policies and practices would not change. Management actions would be implemented on a case-by-case basis to meet Federal, State, and local regulations. The RMP would not be developed.

Under **Alternative B**, a moderate number of low-density day use sites would be developed based on user demand; actions designed to conserve, protect, enhance, and interpret the natural resources within the Lake Area Boundary would be emphasized.

Table 2-1.—Comparison of alternative elements: Agate Lake RMP EA

Alternative Elements	Alternative A No Action Alternative	Alternative B (Preferred) Natural Resource Enhancement with Moderate Recreation Development Alternative	Alternative C Natural Resource Enhancement with Maximum Recreation Development Alternative
Water operations	Continued operation of facilities for authorized Project irrigation purposes.	Same as Alternative A.	Same as Alternative A.
O&M of recreation lands and facilities	Same level of O&M as now.	Increased staff time and O&M funds to protect capital investments.	Same as Alternative B.
Carrying capacity¹	Would not be determined.	Carrying capacity limits determined prior to development and balanced with user demand.	Same as Alternative B.
OHV plan	Still in effect.	Termination of OHV plan following properly mandated procedures.	Same as Alternative B.
Vehicle access and road closures	Same vehicle access to lake as now. No closure of the 4.68 miles of designated OHV roads or any other roads within the Lake Area Boundary.	Upgrade or construction of about 2.7 miles of roads that lead to developed day use areas, trailheads, and boat ramp parking areas. Closure of all 4.68 miles of designated OHV roads and 3.32 miles of other roads (8 miles total).	Same as Alternative B except for paving of vehicle access roads to east and west side boat ramps, picnic areas, trailheads, and campgrounds.
Restrooms/trash receptacles	None.	Restroom and trash receptacles at west side day use area (phase I). Restrooms and trash receptacles at southern peninsula day use area and east side boat ramp area, based on demand (phase II).	Same as Alternative B, plus an additional restroom and trash receptacles at campgrounds on west side of lake and southern peninsula area, and additional restroom, based on demand.
Picnic areas	None.	No more than seven low-density day use sites adjacent at west side day use area (phase I). Additional day use sites (no more than eight) in southern peninsula day use area, based on demand (phase II).	Same as Alternative B, plus high-density day use sites on the west side of lake (no more than 10) and southern peninsula area (no more than 22), based on demand.

¹ Carrying capacity is the ability of a resource to accommodate a user population at a reasonable threshold without negatively affecting the resource.

Table 2-1.—Comparison of alternative elements: Agate Lake RMF EA (continued)

Alternative Elements	Alternative B (Preferred) Natural Resource Enhancement with Moderate Recreation Development Alternative		Alternative C Natural Resource Enhancement with Maximum Recreation Development Alternative	
	Alternative A No Action Alternative			
Campgrounds	No camping would be allowed.	Same as Alternative A.	Overnight campground south of the west boat ramp site; number of sites based on demand [no more than 16].	
Boat ramps	Continued use of concrete boat ramp with no upgrades on west side and existing primitive boat ramps on east side.	On west side of lake, extension of boat ramp, courtesy dock, and gravel parking lot On east side of lake, improved primitive gravel boat ramp and parking lot. Closure of unauthorized, unimproved boat launch sites.	Same as Alternative B, plus asphalt parking lot on west side of lake and concrete boat ramp and asphalt parking lot on east side of lake.	
Trails	None.	Nonmotorized, unpaved multiple use trail (including equestrian use), approximately 17,694 feet long, circumnavigating the lake, with portions accessible to persons with disabilities. Spur trail, approximately 1,230 feet long, into southern peninsula area (18,924-foot total trail system) Development of trail plan.	About 20,650 feet of paved, nonmotorized multiple use trails and a separate unpaved horse trail, approximately 17,694 feet long, circumnavigating the lake. Development of trail plans.	
Shooting regulations/hunting	Continued level of enforcement of shooting and hunting regulations.	Continued waterfowl and upland game hunting per Oregon Department of Fish and Wildlife rules and regulations, except for elimination of waterfowl hunting from Agate Dam.	Elimination of all hunting Additional security to enforce hunting ban.	
Security	Same level of security as now, except for posting of fencing and/or warning signs around the spillway.	Same as Alternative A, plus increased security to ensure compliance with State fishing regulations; to eliminate long-term camping; to enforce road closures. Onsite resident manager.	Same as Alternative B, plus additional security to enforce ban on hunting.	

Table 2-1.—Comparison of alternative elements: Agate Lake RMP EA (continued)

Alternative Elements	Alternative A No Action Alternative	Alternative B (Preferred) Natural Resource Enhancement with Moderate Recreation Development Alternative	Alternative C Natural Resource Enhancement with Maximum Recreation Development Alternative
Model airplane field and other existing permitted uses	Would continue under existing permits.	Same as Alternative A.	Same as Alternative A.
Fees	No fees.	Optional for local managing agency as development of new facilities occurs.	Day use and overnight camping fees.
Land use	Continued evaluation and authorization of new requests for proposed land use on a case-by-case basis. Existing authorized uses would continue to be honored. Re-zoning of farm lands to rural residential by county.	Compatibility of authorized land issues with adjacent land uses and planned public use. Water, electric, and sanitation service for onsite resident manager. Land use permits for National Guard maneuvers.	Same as Alternative A except for issuance of requests for proposal (RFP) to solicit bids for development of a (1) concession operated campground, (2) roving archery range, and (3) model boat facility.
Stream/riparian vegetation, fish habitat (lake), and wildlife habitat protection and enhancement	None.	Closure and revegetation of disturbed areas not needed for trails or recreation facilities. Trail designed to minimize adverse impacts to wildlife habitat. Prescribed burning plan. Noxious weed control plan. Fish habitat improvements.	Same as Alternative B, plus trails with stream crossings designed to minimize adverse impacts to wildlife.

Table 2-1.—Comparison of alternative elements: Agate Lake RMP EA (continued)

Alternative Elements	Alternative B (Preferred)		Alternative C Natural Resource Enhancement with Maximum Recreation Development Alternative
	Alternative A No Action Alternative	Natural Resource Enhancement with Moderate Recreation Development Alternative	
Special status species protection and enhancement	None	Identification of plant and animal species of concern and development of a management plan.	Same as Alternative B.
Vernal pool habitat protection and enhancement	None	Recommendation to complete a regional vernal pool survey and development of a vernal pool management plan, as appropriate.	Same as Alternative B.
Cultural resources	Continued completion of resource clearances as specific projects occur.	Proposed improvements designed to avoid impacts to archaeological resources. Completion of archeological test excavations of selected sites to determine National Register of Historic Places eligibility. If eligible sites are present, completion of a cultural resource management plan to protect and manage those sites. Monitoring of eligible sites to determine if they are impacted by operations or public use. Implementation of treatments to address impacts, as funding is available.	Same as Alternative B.
Water quality monitoring	None	Long-term monitoring plan.	Same as Alternative B.

Under **Alternative C**, development of a maximum variety of high-density recreation facilities and opportunities within the Lake Area Boundary would be emphasized, while protecting the natural resources of the area.

Elements common to all alternatives, including the No Action Alternative, include the following:

- Removing the abandoned pump house, located on the east side of the lake, and baseball diamond dugouts and backstops, located on the southeast side of the lake.
- Repairing the fence along the eastern boundary of Reclamation lands.
- Installing fencing and/or warning signs around the spillway.
- Continuing O&M of Reclamation lands and facilities.
- Operating the Project for the primary purpose of irrigation.
- Continuing existing permitted uses with evaluation of continued use when permits expire.
- Adhering to existing and future Federal, State, and county laws and regulations.
- Authorizing special recreation events on a case-by-case basis, such as rowing and model boating events.

Alternatives Considered in Detail

No Action Alternative (Alternative A)

Under Alternative A, facilities would continue to be operated for authorized Project irrigation purposes. Existing recreation facilities and lands would be operated and maintained as today.

Under the existing Designated Off Highway Vehicle Use Plan (**attachment B**), vehicular use is restricted to designated roads; and cross country vehicle use is not permitted. Within JCP's legal authority, staffing, and funding limitations, the plan would continue to be implemented; and authorized vehicle access to Agate Lake would remain as identified in the plan (**map 3-6** later in this document). Existing use outside of the designated roads would likely continue due to

insufficient enforcement. Although the public has raised concerns that additional law enforcement is needed to protect the health and safety of visitors and to control vandalism, the county would continue to enforce park ordinances and regulations at the same level as today. Reclamation and JCP would continue to adhere to the terms, conditions, and stipulations of their long-term lease agreement. All existing Federal environmental and resource laws, regulations, and Executive orders would continue to be enforced.

Recreation facilities provided under this alternative would consist only of minimum basic facilities needed for public health and safety. Future developments would comply with all applicable Federal, State, and local laws, regulations, and policies, such as the Americans with Disabilities Act and NEPA, including public involvement. Prior to any such developments, carrying capacity limits of the land and water surface should be determined, with consideration given to safety, quality of the visitor experience, user conflicts, and resource limitations. In addition, JCP would demonstrate the financial capability to adequately operate and maintain any constructed facilities while, at the same time, maintaining the ability to manage visitor use and enforce necessary rules and regulations. Any facilities contemplated would be compatible with adjacent land uses. No areas would be closed to protect wildlife and habitat.

Current authorized activities, such as hunting, fishing, boating, swimming, hiking, bird watching, and dispersed day use, would continue. Nonmotorized boating, except for boats with electric motors with less than 25 pounds of thrust, would continue. The same level of security would be provided, except that fencing and/or appropriate warning signs would be posted around the dam spillway.

The Rogue Eagles Radio Club, Inc., would be allowed to operate its model airplane field. Upon expiration of the current lease agreement with JCP on December 31, 2003, it would be re-evaluated and extended, if appropriate. No private, exclusive use of Federal lands managed for recreation purposes by the county would be allowed. Existing land uses authorized by contract, permit, or agreement would continue; and continuation of use would be evaluated prior to any renewals. Any new land use requests would be allowed after a case-by-case basis evaluation using normal and customary screening criteria.

No action would be taken to protect or enhance existing natural resources, including stream/riparian vegetation, fish habitat, wildlife habitat, special status species, or vernal pool habitat.

Reclamation would continue to complete cultural resource clearances as specific projects occur within the Lake Area Boundary.

Water quality would not be monitored.

Natural Resource Enhancement With Moderate Recreation Development (Alternative B) (Preferred)

In addition to the elements common to all alternatives, Alternative B details actions to develop a moderate number of day use sites and steps to conserve, protect, enhance, and interpret the natural resources within the Lake Area Boundary. See **Map 2-1, Natural Resource Enhancement with Moderate Recreation Development Alternative map.**

Under this alternative, the existing OHV plan would be terminated. Only 2.7 miles of the original 10.71 miles of roads would be open for vehicle use. Eight miles of interior roads, including those that were originally designated open for OHV use, would be closed and revegetated, except for those portions used for trails or recreational facilities. Roads that currently are officially designated open to OHV use (approximately 4.68 miles) would have to be closed officially following the procedures and guidelines contained in the Code of Federal Regulations (CFR), 43 CFR Part 420. Proper signage would provide information about the rules and regulations governing vehicle use of Reclamation-owned and JCP-managed lands. The only roads left open for vehicle use would be those leading to designated day use sites, trailheads, and parking lots (2.7 miles). An OHV plan is not needed to allow the public to use these 2.7 miles of road. Roads leading to the dam and appurtenant Project facilities would be open only to the District for O&M purposes. The road adjacent to the southern boundary that traverses Dry Creek would be left open for private use pursuant to a right-of-way agreement, Contract No. 9-07-10-L0241, as described in chapter 3. This road would be closed to public use.

OHV roads across and adjacent to the Dry Creek riparian corridor (that are not used for nonmotorized trails or recreation facilities) and other disturbed areas, particularly in the southwest and southeast sections of the Lake Area Boundary, would be restored through closure and revegetation. Appropriate physical barriers would be installed to prevent access to old OHV roads. The soil in disturbed areas would be reseeded with a native grass and forb seed mixture adapted for the soil and climate conditions of the Lake Area Boundary.

Any facility developments planned under this alternative would be consistent with the Oregon State Comprehensive Outdoor Recreation Plan (SCORP).

Low-density day use sites (no more than seven with 75-foot center-to-center spacing) would be developed adjacent to the existing west side boat ramp (phase I). Facilities at the west side day use area would include picnic tables, barbeque grills, trash receptacles, and a restroom.

If demand warrants, additional low-density day use sites (no more than eight with 75-foot center-to-center spacing) would be developed in the southern peninsula area (phase II). An additional restroom would be constructed if all proposed day use sites are built or if needed with fewer sites.

The sites in the southern peninsula day use area would be located an adequate distance from the shoreline to protect the mudflats and associated shorebirds. The sites would have individual parking; several day use sites, including restrooms, at both locations would be accessible to persons with disabilities.

The day use sites and associated facilities would be constructed in areas that have already been disturbed by human activity or in areas where impacts to other resources are unlikely. Trails would be located on existing trails, closed and revegetated OHV roads, and other disturbed areas whenever practical.

On the west side of the lake, an 80- by 140-foot gravel parking lot would be constructed for visitors using the picnic facilities and trail, as well as for anglers and boaters using the boat ramp. A parking lot of this size would accommodate 32 individual vehicles or 16 individual vehicles with boat trailers no longer than 16 feet. The gravel access road to the west side boat ramp would remain open and improved, to meet county specifications. The concrete boat ramp would be extended to allow the public to use the ramp for a longer period of time during the recreation season. A courtesy dock also would be installed.

On the east side of the lake, the existing primitive (gravel) boat ramp would be improved. A restroom, trash receptacle, gravel access road, and an 80- by 50-foot parking lot would be provided at the launch site to provide additional boating access. A parking lot of this size would accommodate 12 individual vehicles or 6 vehicles with boat trailers no longer than 16 feet.

Except for the boat ramp on the west side of the lake and the improved primitive launch site on the east side, all existing unauthorized, unimproved boat launch sites located at other areas around the lake would be closed. Currently, there are numerous sites, especially on the east and south sides of the lake, where boats are launched.

No overnight camping would be allowed.

A nonmotorized, unpaved multiple use trail system, approximately 18,924 feet long, to include equestrian use, would be developed to circumnavigate Agate Lake. A trail plan would be developed before construction. The trail would be designed to minimize impacts to wildlife habitat while providing a rewarding recreational experience.

**Map 2-1.—Natural Resource Enhancement with
Moderate Recreation Development Alternative map.**

Black and white foldout map

The portion of the trail on the west side of the lake would meander south from the parking lot for about 4,840 feet (the entire length of the lake). Visitors using this portion of the trail would share the restroom and gravel parking lot adjacent to the boat ramp. An observation and interpretative platform would be constructed on a small shoreline peninsula located midway along the trail. The trail would be accessible to persons with disabilities from the trailhead to the platform (about 1,764 feet). A wildlife observation platform also would be constructed near the southern end of the trail on the west side of the lake.

On the north side of the lake, about 5,712 feet of trail would be developed in the area adjacent to and along the north side of the retention dike and dam to the trailhead near the west side boat ramp. The trail would be accessible to persons with disabilities from the trailhead to the end of the retention dike. A 50- by 40-foot parking lot that would accommodate five vehicles would be constructed. A trail bridge would be constructed across Dry Creek below the dam.

Additionally, an observation and interpretative platform with information on area resources and the dam would be constructed near the stream below the dam.

The portion of the trail along the east side of the lake would connect the trail at the south end of the lake north to the north trailhead (about 7,142 feet). A spur trail (about 1,230 feet long) would be constructed into the southern peninsula area. During the trail planning phase, a decision will be made whether to construct a bridge across Dry Creek or to install a culvert.

The trail would be located at least 200 feet from the lake shoreline, except where it is intentionally located on closed and revegetated OHV roads, so that established vegetative communities and wildlife habitat are not disturbed.

Information and regulatory signs would be posted at road access points, boat launch sites, trailheads, and observation and interpretive platforms.

Nonmotorized boats and boats with electric motors would be allowed; however, motorized boats would be allowed for administrative purposes, such as law enforcement and fisheries management.

Waterfowl and upland game hunting would continue, pursuant to existing Oregon Department of Fish and Wildlife (ODFW) rules and regulations, except that waterfowl hunting from the dam would be eliminated. Waterfowl and upland game hunting would be monitored to identify potential conflicts and corrective measures. Hunting rules and regulations would be posted.

The general public would not be allowed access to the dam feeder canal and spillway area to protect their health and safety and to decrease the District's O&M costs and Reclamation's and JCP's liability.

Security would be increased to ensure compliance with State fishing regulations, to eliminate unauthorized shooting and long-term camping, and to enforce road closures. An onsite resident manager and an associated developed overnight campsite would be provided. The site would include electric and water service and appropriate sanitation facilities.

Fees would be optional for the local managing agency as development of new facilities occurs.

Reclamation would issue a land use permit to the National Guard for maneuvers occurring within the Lake Area Boundary.

A prescribed burning plan would be developed in cooperation with the Oregon Natural Heritage Program (ONHP) and ODFW to restore native vernal pool vegetation and vegetation for wildlife habitat. Reclamation would develop a noxious weed control plan. Reclamation would work with ONHP to identify the presence of plant and animal species of concern and develop a management plan. Fish habitat improvements, such as placing brush bundles and logs on the lake bottom and shoreline willow plantings, would be designed and implemented.

Reclamation and JCP would recommend completion of regional vernal pool survey to determine the location, condition, and value of vernal pool habitat. JCP and Reclamation would then partner with the U.S. Fish and Wildlife Service (Service), ODFW, and OHNP to develop and implement a vernal pool management plan, as appropriate. The plan would include an appropriate regional interpretative site and may consider the use of prescribed burns to enhance vegetation growth.

Proposed improvements would be designed to avoid impacts to cultural resources. Archeological test excavations of selected sites would be conducted to determine if they are Register eligible. If eligible sites are present, Reclamation will complete a cultural resource management plan to protect and manage those sites. Reclamation will monitor eligible sites to determine if they are affected by operations or public use. As funding becomes available, Reclamation will implement needed treatments to address impacts.

A water quality monitoring program would be initiated to determine the water quality of Agate Lake in relationship to the designated uses allowed and to monitor possible negative effects to water quality from offsite land uses.

Natural Resource Enhancement With Maximum Recreation Development (Alternative C)

In addition to the elements included in Alternative B, Alternative C details actions that would result in development of a maximum number of high-density recreation facilities and opportunities within the Lake Area Boundary. Development would be based on user demand and the ability (carrying capacity limits) of the resources to absorb such increased development. See **Map 2-2, Natural Resource Enhancement with Maximum Recreation Development Alternative map.**

High-density day use sites with picnic tables, grills, trash receptacles, and a restroom would be located adjacent to the west side boat ramp near the campground. No more than 10 sites (with 50-foot center-to-center spacing) would be constructed. Each site would have individual parking. Plus, high-density day use sites with picnic tables, grills, and a restroom would be constructed in the southern peninsula area. No more than 22 of these sites (with 50-foot center-to-center spacing) would be constructed. All day use sites would have concrete pads for tables and grills. Some of the sites would be accessible to persons with disabilities.

An overnight campground would be constructed in an area south of the proposed west side day use area. Each campsite would contain a picnic table and grill. A mix of trailer and tent sites would be provided. A restroom and an appropriate number of trash receptacles would be provided. No more than 16 campsites would be constructed. Nine of the sites would be located adjacent to the shoreline, while another seven could be located on a loop road to the west. All campsites would be spaced 60 feet apart, center to center. JCP would issue an RFP to solicit bids from potential concessionaires for the development and O&M of the campground. The number and mix of campsites would be based on public demand and the ability of the concessionaire to make a reasonable profit while providing a fair return to JCP. The economic feasibility and carrying capacity of the land resources would also be considered.

An asphalt parking lot would be constructed on the west side of the lake, and a concrete boat ramp and asphalt parking lot would be constructed on the east side of the lake.

JCP would investigate the possibility of providing a model boat site and accompanying boat dock on the west side of the lake. JCP would also evaluate the need for providing a roving archery range in the area below the dam and west of the main access road. Both opportunities would be solicited through the issuance of an RFP, which would describe the conditions and terms required of an individual or entity in providing these opportunities.

A total of about 20,650 feet of nonmotorized, multiple use trails would be developed to circumnavigate the lake. This total includes a multiple use trail (about 2,956 feet long) that would be constructed uphill and west of the trail proposed for Alternative B. All multiple use trails would be paved.

Additionally, a primitive, unpaved horse trail and spur trail (approximately 18,924 feet long) would circumnavigate the lake. The horse trail would be parallel to and approximately the same length as the nonmotorized trail. The nonmotorized and horse trails would be designed so that they would be a reasonable distance apart and take advantage of topographic and vegetative screening to prevent any potential user conflicts. Trails with stream crossings would be designed to minimize adverse impacts to wildlife.

Asphalt vehicle access roads would be constructed to the east and west side boat ramps, picnic areas, trailheads, and campgrounds (2.7 miles). Interior campground roads and individual parking pads would be paved. All other roads within the Lake Area Boundary would be closed and revegetated (8 miles), except those portions used for trails or recreational facilities.

JCP and ODFW regulations would be changed to reflect the elimination of all hunting within the Lake Area Boundary. Additional security would be required to enforce the ban.

Reasonable day use and camping fees would be charged for the use of the lands and developed facilities. Fees would be comparable to the fees charged at other recreation areas that offer similar amenities and opportunities.

Table 2-2 summarizes the impacts of the alternatives on resources within the Lake Area Boundary.

Alternative Elements Eliminated From Consideration

Several suggested recreational uses were considered but eliminated from further consideration. These suggestions and the reasons for their elimination follow:

- Installing fishing platforms was determined to be economically unfeasible because of the severe lake drawdown during the summer recreation season.
- Redeveloping an area for little league and soccer fields was determined to be unnecessary because the Sports Park Complex, located within 2 miles of Agate Lake,

Table 2.2—Summary comparison of impacts of alternatives: Agate Lake RMP EA

Resource	Alternative A	Alternative B (Preferred)	Alternative C
	No Action Alternative	Natural Resource Enhancement with Moderate Recreation Development Alternative	Natural Resource Enhancement with Maximum Recreation Development Alternative
Water quality	Unchanged from existing conditions.	Reduced nutrients (phosphorus and nitrogen) in runoff to Agate Lake	Same as Alternative B.
Soils	Disturbed areas would increase in size and, without reclamation, would continue to erode.	Reduced erosion on steeper slopes. Disturbed areas, especially Medco soils, would improve.	Same as Alternative B.
Land use	Continued conflicts with adjacent landowners. Increase in population from re-zoning of adjacent lands.	Same as Alternative A, except a decrease in conflicts with adjacent landowners. Organized and compatible land use authorizations.	Increased commercial service opportunities for private entities. Increased opportunities for public to use Project lands. Organized and compatible land use authorizations; however, possible increase in user conflicts with adjacent landowners due to increased visitation.
Vegetation and wildlife	Continued destruction of vegetation and disturbance to wildlife and wildlife habitat. Disturbed areas would not be restored.	Greatly reduced destruction of vegetation and disturbance to wildlife and wildlife habitat. Restoration of disturbed areas.	Reduced destruction of vegetation and disturbance to wildlife and wildlife habitat.
Fish	Lack of law enforcement would allow for continued decline in fishing experience and may allow poaching, exceeding bag limits, and out-of-season fishing. Continued fish stocking and regulations at current levels.	Possible increase in compliance with State fishing regulations. Possible improvements in warmwater fish habitat.	Same as Alternative B.

Table 2-2—Summary comparison of impacts of alternatives. Agate Lake RMP EA (continued)

Resource	Alternative A No Action Alternative	Alternative B (Preferred) Natural Resource Enhancement with Moderate Recreation Development Alternative	Alternative C Natural Resource Enhancement with Maximum Recreation Development Alternative
Special status species	Continued risk to special status species and their habitat, including vernal pool habitat, because of OHV use, potential for poaching and other illegal shooting, and lack of habitat management.	Protection and restoration of special status species and their habitat, including vernal pool habitat.	Less risk of illegal shooting of bald eagles than under Alternative A; reduced habitat damage and disturbance to special status species.
Recreation	Continued dispersed and uncontrolled recreation use. Continued compromise of visitor health and safety. Continued user conflicts. Continued decline in visitation and the quality of experience for most users.	Greater recreational opportunities and facilities. Less dispersed and uncontrolled recreation use. Displacement of OHV users. Protection of public healths and safety. Reduced user conflicts. Slightly increased sense of crowding on Agate Lake. Increased visitation and enhanced visitor experience. Enhanced visual quality.	Much greater recreational opportunities and facilities. Displacement of hunters and OHV users. Substantially increased user conflicts and sense of overcrowding on Agate Lake. Substantially increased visitation. Decreased quality of visitor experience for some; enhanced experience for most others. Changed visual quality.
Socio-economics	Continued population, income, and employment trends. Further degradation and increased unlawful uses of area.	Continued population, income, and employment trends. More visitors who prefer a safer, controlled recreation environment would be attracted to the Lake Area Boundary, and visitors who previously engaged in unauthorized activities would be displaced.	Same as Alternative B, with heavier traffic in summer.

Table 2-2.—Summary comparison of impacts of alternatives: Agate Lake RMP EA (continued)

Resource	Alternative A No Action Alternative	Alternative B (Preferred) Natural Resource Enhancement with Moderate Recreation Development Alternative	Alternative C Natural Resource Enhancement with Maximum Recreation Development Alternative
Cultural resources	Unchanged from existing conditions.	Restricting motorized access would significantly reduce potential impacts to cultural resources. More active enforcement of land management policies and the presence of an onsite resident manager should further reduce the potential for resource impacts from unauthorized uses.	Same as Alternative B.
Indian trust assets	Unchanged from existing conditions.	Same as Alternative A.	Same as Alternative A.
Indian sacred sites	Unchanged from existing conditions.	If present, little change is anticipated in existing impacts. Improvement may occur due to closure of most roads and trails to OHV use.	Same as Alternative B.
Environmental justice	Continued decrease in use by low-income groups.	Without user fees, likely increase in use by all groups, including low-income families and individuals, because of increased recreational opportunities.	With user fees, likely decrease in use by all groups, including low-income families and individuals.

- Operating Agate Lake water fluctuations to benefit recreation is considered outside the scope of this Federal action because the Project is operated for other legally mandated purposes, such as irrigation.

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CHAPTER 3

Affected Environment and Environmental Consequences

Introduction

This chapter describes the existing physical, biological, and socioeconomic resources within the Lake Area Boundary (affected environment). Resources include water quality, lands, soils, vegetation and wildlife, fish, special status species, recreation and visual resources, social environment, cultural resources, Indian trust assets, Indian sacred sites, and environmental justice.

The depth of analysis corresponds to the scope and magnitude of the potential environmental impact. Climate and hydrology are not discussed because no impacts were identified.

This chapter also describes the effects of the three alternatives—No Action Alternative (Alternative A), Natural Resource Enhancement with Moderate Recreation Development Alternative (Alternative B), and Natural Resource Enhancement with Maximum Recreation Development Alternative (Alternative C)—on these resources (environmental consequences). The No Action Alternative, the basis to which the two “action” alternatives are compared, describes conditions in the future if the RMP were not implemented. This chapter also describes the residual and cumulative impacts of the alternatives, as well as potential mitigation measures for each resource.

It is the goal of this chapter to quantify, to the extent possible, impacts of each alternative on the resources that were analyzed. However, if quantitative estimates are not possible, qualitative estimates are provided to facilitate comparison between alternatives needed for the planning process.

Water Quality

Affected Environment

Minimal water quality data are available for Agate Lake except for a water sample that was obtained in October 1998 as part of the work on the current RMP. However, comments received from the public indicate that turbidity, caused by algae or pondweed, is an aesthetic problem.

Public comments also indicate concerns about “swimmers itch” and “parasites” observed on fish taken from the lake. The lake generally functions as warmwater habitat for fish and other uses, including swimming, and is naturally susceptible to algal blooms during the hot summer months. The extent of the blooms depends on the availability of the necessary nutrients—phosphorus and nitrogen.

The October 1998 water quality sample was collected from the lake at the north end at the dam and was analyzed by Reclamation’s Denver Chemistry Laboratory. Table 3-1 presents the results of the analysis performed on this water sample.

Table 3-1.—Water quality parameters in sample collected from Agate Lake on October 29, 1998

Parameter	Result	Units
General Parameters		
pH	7.52	—
Conductivity	111	µs/cm ¹
Total dissolved solids	66	mg/L ²
Total suspended solids	14.3	mg/L
Sulfate	0.57	mg/L
Chloride	2.6	mg/L
Calcium	10.2	mg/L
Potassium	<1	mg/L
Magnesium	3.3	mg/L
Sodium	6.0	mg/L
Trace elements		
Arsenic	2.0	µg/L ³
Copper	11	µg/L
Iron	2400	µg/L
Manganese	36.8	µg/L
Silica	16,900	µg/L
Selenium	<2	µg/L
Zinc	8.5	µg/L
Nutrients		
Total phosphorus	<.05	mg/L
Total Kjeldahl nitrogen	0.24	mg/L

¹ µs/cm = microsiemens per centimeter.

² mg/L = milligrams per liter.

³ µg/L = micrograms per liter.

The analysis shows that Agate Lake water quality is generally good, reflecting the water quality of Little Butte Creek, the major source of water for the lake. Major ions, pH, conductivity, and trace elements are within the acceptable limits for all existing beneficial uses. The concentration of iron is somewhat elevated but is acceptable for the existing beneficial uses of the lake. The bacteriological quality of the lake is not known, as water samples apparently have never been

collected and analyzed. The main problem with the lake's water quality appears to be suspended solids, primarily algae that forms during the summer and fall. The concentrations of phosphorus and nitrogen (table 3-1) were both quite low; however, the critical phosphorus concentration, which could possibly cause algal blooms during the summer and fall, is as low as 10 micrograms per liter ($\mu\text{g/L}$) (i.e., 0.01 milligrams per liter [mg/L]). This concentration is less than the detection limit for chemical analysis. The source of nutrients to the lake is probably natural runoff from the drainage basin above the lake, and most of the runoff generally occurs in the winter and spring months.

The regional landfill is located in a small subtributary to the main basin above the lake. There has been concern that seepage from the landfill might affect the water quality of the lake. However, surface water from the landfill does not appear to be reaching the lake. Rogue Disposal and Recycling, Inc. (operators of the landfill) has been monitoring water quality in surface water at the site during the early spring and late fall. The analytical results indicate no organics; acceptable levels of field parameters, anions, and cations; and minor concentrations of selected trace metals. Consequently, it appears that currently there are no adverse effects on water quality related to the presence of the landfill. On the basis of the current landfill operations, future effects on water quality should be minor.

Environmental Consequences

Alternative A.—Water quality under the No Action Alternative would remain unchanged from present conditions. Turbidity problems caused by algae would continue. Erosion of soils due to local runoff from vehicle impacted areas around the lake would also continue. The extent of lake turbidity caused by soil erosion is not known at this time, but it is apparent that soil erosion would continue to contribute to the lake's turbidity during rainfall/runoff events.

Alternative B.—Eliminating OHV use and returning impacted areas to their more natural state may reduce the amount of sediment in runoff that enters the lake, with associated reductions in the nutrients—phosphorus and nitrogen. The construction of restroom/trash disposal services also could slightly improve water quality.

Alternative C.—The water quality of the lake would be the same as under Alternative B.

Residual Impacts

The impacts of natural runoff on water quality would still occur under any of the alternatives because nutrients in the natural runoff would still enter the lake. The extent of impacts and level of nutrients in the natural runoff entering the lake currently is not known.

Cumulative Impacts

The action alternatives, as a whole, would have the cumulative effect of delaying any long-term negative impacts that soil erosion and the landfill could have on water quality. Not implementing the RMP would probably contribute to the overall degradation of water quality.

Mitigation

Mitigation would not be required because none of the alternatives would negatively affect the lake's water quality. The design and construction of recreation facilities and restroom/trash disposal facilities would employ best management practices to prevent soil erosion and subsequent water quality impacts. Additionally, a long-term water quality monitoring program will be developed and implemented.

Topography and Soils

Affected Environment

Topography on the west side of Agate Lake varies from moderate to fairly steep slopes. The east side of the lake has slight to moderate slopes.

The soils on the west side of the lake are mainly composed of a McMullin-Medco complex, with 8- to 50-percent slopes (**Map 3-1, Soils Map**). The McMullin soils are shallow, gravelly loams to clay loams. They may be cobbly and are moderately permeable with a moderate water erosion hazard. The Medco soils are generally cobbly clay loams with very slow permeability and with a moderate water erosion hazard. These soils may have a perched shallow water table from December through March, greatly increasing the damage from OHV abuse. Off-road vehicles can compact the soil and increase the erosion hazard. Revegetation of the Medco soils can be difficult.

Map 3-1.—Soils Map.

Color foldout

The west side also has areas of Carney clay, with 5- to 20-percent slopes. This soil is moderately well drained, very slowly permeable, and has a moderate erosion hazard. It is commonly gravelly or cobbly and has a high shrink-swell potential.

The soils on the northeast side of the lake are composed of Carney clay with 1- to 5-percent slopes. This area has a lower erosion hazard because of the soil texture and the gentle slopes.

Soils on the southeast side are comprised mainly of an Agate-Winlo complex, with 0- to 5-percent slopes. These soils are loam to clay loam and are well drained. They may have a gravelly or cobbly surface and slight water erosion hazard.

When subjected to OHV use and other adverse conditions, soils with even slight to moderate erosion potential are likely to erode, especially when the slopes are from 8 to 50 percent.

Photos 3-11 and 3-13 (later in this chapter) show erosion caused by OHV use. Depending on the topography, the soil that erodes off the steeper slopes may not wash into the lake but, instead, will be deposited near the base of the steeper slopes. As discussed under “Water Quality,” the extent of lake turbidity caused by soil erosion is not known at this time, but it is apparent that soil erosion contributes to the lake’s turbidity during rainfall/runoff events.

Environmental Consequences

Alternative A.—Unauthorized OHV use would continue to increase the erosion, especially on the west side of the lake. The disturbed areas would increase in size and, without reclamation, would continue to deteriorate.

Alternative B.—Eliminating OHV use and closing roads would reduce erosion on the steeper slopes. Reclamation of disturbed areas by closing roads and reseeding would improve their condition, especially on the Medco soils.

Alternative C.—Impacts would be the same as under Alternative B.

Residual Impacts

Some soil erosion would continue under all action alternatives but would be much less than under the No Action Alternative.

Cumulative Impacts

Not implementing the RMP would have the cumulative effect of increasing the amount of soil erosion, especially if the recreational use within the Lake Area Boundary increases as a result of expected population increases in the Medford area. Implementing any of the action alternatives would reduce the cumulative effects of soil erosion.

Mitigation

Careful design and proper maintenance of the roads and trails would minimize soil erosion under all action alternatives. Using best management practices in designing and constructing recreation improvements would prevent additional erosion. Any areas disturbed by construction would require revegetation.

Land Use

Affected Environment

Land Use Agreements/Permits.—Land use activities within the Lake Area Boundary are authorized and managed under specific license agreements, lease agreements, right-of-way easements, special use permits, and other legal contracts (**Map 3-2, Land Use Agreement Map**). Reclamation issues and administers all land use agreements. JCP administers permits related to recreation use within the Lake Area Boundary pursuant to the long-term lease agreement between Reclamation and JCP. Land use agreements/permits currently administered by JCP and/or Reclamation are as follows:

Repayment Contract Between Reclamation and the Rogue River Valley Irrigation District: August 2, 1955, Contract No, 14-06-100-794, as Amended by Numerous Supplemental Contracts and Agreements

In 1955, Reclamation entered into a repayment contract with the District to fund a rehabilitation and betterment program of the District's deteriorated water delivery systems to ensure an adequate supply of water for the lands within the District.

Map 3-2.—Land Use Agreement Map.

Color foldout

**Contract Between Reclamation and Jackson County, Oregon: January 17, 1968,
Contract No. 14-06-100-6115**

In 1968, Reclamation leased to Jackson County the land and water areas within the Lake Area Boundary, as shown on **maps 1-2** and **3-2**, for public outdoor recreation purposes. The contract terms set forth the basic provisions for operating and maintaining recreation facilities and activities within the Lake Area Boundary. The county is required to occupy, use, operate, maintain, develop, improve, manage, and supervise the leased lands to the extent that funds are available. Reclamation has oversight responsibility for activities conducted by the county.

**Amendment No. 1 Between Reclamation and Jackson County, Oregon: April 23, 1969,
Contract No. 1406-100-6115**

In 1969, Reclamation and the county negotiated an amendment to their existing contract to more clearly establish the various cost-sharing arrangements that could be accomplished.

**Right-of-Way Easement Granted by Bureau of Reclamation to Lawrence E. and Marie
Ousterhout: December 11, 1978, Contract No. 9-07-10-L0241**

In 1978, Reclamation granted a right-of-way to the Ousterhouts for two access roads to the Grantee's property adjacent to Agate Lake. One access road is northwest of the lake and the other is southwest of the lake.

**Partial Assignment of Right-of-Way Easement by Bureau of Reclamation to Marvin E.
Sands and Sibylla P. Sands: November 7, 1983, Contract No. 9-07-10-L0241**

In 1983, Reclamation assigned to the Sands the right-of-way easement southwest of the lake that was originally granted to the Ousterhouts.

**Right-of-Way Easement Granted by Bureau of Reclamation to PACIFICORP, d.b.a. Pacific
Power and Light: April 9, 1991, Contract No. 1-07-10-L1048**

In 1991, Reclamation granted a right-of-way easement to Pacific Power and Light to continue to operate and maintain up to a 12-kilovolt power line in the northern portion of the Lake Area Boundary to serve the Rogue River Valley Irrigation District for Project purposes and to serve JCP for recreation purposes.

Lease Agreement Between Jackson County, Oregon, and Rogue Eagles Radio Control Club, Inc.: March 31, 1993

In 1993, Jackson County leased certain lands within the Lake Area Boundary for the operation of a model aircraft field and associated support facilities.

Right-of-Way Easement Granted by Bureau of Reclamation to PACIFICORP, d.b.a. Pacific Power and Light: March 29, 1999, Contract No. 9-07-10-L1518

In 1999, Reclamation granted a right-of-way easement to Pacific Power and Light for extension of its powering, which was originally authorized by Reclamation under Contract 1-07-10-L1048 (previously mentioned).

Services.—Although there is an abandoned well near the west abutment of the dam, there is no potable water for public use. There are no sanitation facilities currently available and no sewage treatment facilities within the Lake Area Boundary. Pacific Power and Light has several transmission lines that traverse Reclamation lands near the lake; however, no power sources are available for general public use. The District, in its operation of the dam and appurtenant irrigation structures, uses electricity supplied by Pacific Power and Light.

Adjacent Land Uses.—The varying uses and resource management of lands adjacent to the Lake Area Boundary could potentially affect its resources. Reclamation is required by laws to coordinate its planning efforts with other governmental entities, such as city, county, State, and other Federal agencies. It is Reclamation's intent not to conflict with other agencies' planning efforts and to be compatible with adjacent land uses, as is practical. Following is a discussion of the management of lands adjacent to the Lake Area Boundary.

The lands immediately surrounding Agate Land have been zoned by Jackson County as forest, aggregate, and farm lands intermingled with tracts zoned as rural residential. The definitions of the zoning types of the lands surrounding Agate Lake are contained in **attachment C**. In addition, lands within the Lake Area Boundary have been designated as a county park by the County Board of Commissioners.

In 1990, Jackson County amended Chapter 257 of the Land Development Ordinance to exempt the Jackson County Public Park Overlay District from the provisions of Chapter 257 (**Attachment D, Chapter 257, Jackson County Public Park Overlay District**). The Public Park Overlay District provides a mechanism for the development and adoption of long range park master plans for designated parks and open spaces in Jackson County. The purpose of the overlay zone is to establish a special framework under which designated parks and open spaces may be properly regulated within unincorporated Jackson County consistent with the comprehensive plan and Oregon Statewide Land Use Planning Goals.

In 1997, the Oregon Legislature passed House Bill (HB) 2924 relating to the establishment and implementation of State and local government park master plans. The rules to implement the legislation require review and adoption by local governments. The master plan must be consistent with listed allowable uses for parks located on lands zoned for resource use.

Under the overlay zone or HB 2924, only major changes in the use of a park area would initiate the need to do master planning. The alternatives developed during this process and established

in the resource management plan would not conflict with State or county master planning requirements.

Following is a description of the specific uses of lands adjacent to the Lake Area Boundary.

- Jackson County Sports Park: The sports park is located just west of the Lake Area Boundary. The park is dedicated to motorized racing and target shooting. The property is now occupied by a drag strip, dirt oval race track, go-kart road track, and several target shooting ranges. The main facilities in the sports park are currently managed and operated by private for-profit and private nonprofit corporations. The park has public sanitary sewer service, public water service, off-street parking, restrooms, concessions, seating structures, and other facilities.
- Rogue Disposal and Recycling, Inc.: Rogue Disposal and Recycling, Inc. operates a municipal solid waste landfill that has been in operation since 1973. The landfill is located south of Agate Lake and upstream of Dry Creek. The property consists of 656 acres. There are two distinct cells, or areas of operation, on the site.¹ Cell 1, which operated from 1973 to 1998, has been closed in compliance with State and Federal regulations. Cell 1, which has now been capped with about 6 feet of soil, including 2 feet of clay, covers 26 acres.

A new, 15-acre landfill cell has been constructed that meets all State and Federal requirements, including a 6-foot-thick liner system with leak detection. A new shop and 2 acres of lined lagoons have also been constructed to hold water. Water that comes in contact with waste material is trucked to the regional wastewater plant for disposal. Water that drains from the site and has not contacted the waste flows to a detention basin. The outlet structure for the basin is designed to discharge water at a rate mimicking pre-landfill conditions. The detention pond also aids in removing silt and clay prior to discharge. Surface water and groundwater permits are routinely tested under solid waste and National Pollutant Discharge Elimination System (NPDES) permits. Additional cells will be developed as the need arises. An additional 50 acres are expected to be added in the next 15 to 20 years.

- Rogue Aggregates: Rogue Aggregates operates a gravel pit west and north of the Lake Area Boundary. Currently, approximately 40 acres of the 320-acre tract have been developed. The company processes 3/4-inch to cobble-sized stone for commercial purposes.
- Stone Ridge Golf Course: Mr. Jim Cochran operates an 18-hole public golf course on 230 acres immediately west of the Lake Area Boundary. The golf course is open year-round and has a pro shop and deli. Mr. Cochran also owns an adjacent 130-acre tract

¹ A cell is a formally developed solid waste containment area.

of land that could be developed in the future if proper zoning clearances were to be obtained.

- **Fire Station:** Jackson County Fire District No. 3 operates and maintains a fire station and two mobile home sites on 4.82 acres of county land. The station lies directly east of the north entrance road to Agate Lake.

As discussed in chapter 1, current land uses within the Lake Area Boundary have created conflicts with adjacent landowners. These landowners are concerned that vandalism of their lands will continue unless management of the Lake Area Boundary changes.

The public has also raised concerns that National Guard maneuvers conducted within the Lake Area Boundary have caused undue resource damage and disturbed resident wildlife species.

Environmental Consequences

Alternative A.—Except for the gradual re-zoning of farm lands to rural residential, uses of adjacent lands are not expected to change within the 10-year planning life of the RMP. However, populations of adjacent lands are expected to increase due to re-zoning. Conflicts with adjacent landowners would continue if different uses are not prescribed for lands surrounding Agate Lake.

Alternative B.—Authorized uses would be permitted so they would not conflict with uses on adjacent lands nor interfere with the intended public use of lands within the Lake Area Boundary. Therefore, a decrease in conflicts between the public and adjacent landowners is anticipated. Populations of adjacent lands would continue to increase due to re-zoning.

Alternative C.—Impacts would be the same as under Alternative B, except that commercial concession opportunities for private entities would increase, along with opportunities for public use of these commercial operations.

Residual Impacts

Under all alternatives, some conflicts between adjacent landowners and visitors may occur.

Cumulative Impacts

No cumulative impacts have been identified.

Mitigation

Under the action alternatives, all land use permits would contain specific stipulations to protect existing resources and decrease possible conflicts with adjacent landowners.

Vegetation and Wildlife

Affected Environment

Vegetation.—The Lake Area Boundary lies in the vegetational zone known as the Interior Valleys of Western Oregon (Franklin and Dyrness, 1973). This zone is further subdivided into the Rogue River Valley. These interior valleys are bounded on the east by the Cascade Mountains and on the west by the Coast Range and Siskiyou Mountains. These valleys were settled during the middle of the 19th century and have been subjected to extensive human influences. The landscape is dominated by cities and farmlands. Fire control, clearing, logging, and grazing have influenced even areas of apparently natural vegetation. The vegetational mosaic was also shaped by presettlement Indians using fire during hunting activities. Natural and human caused fires have played an extremely important role in the vegetation communities in southwestern Oregon, where fire danger can reach very high levels during the long, hot dry summers.

The interior valleys of western Oregon are the driest areas west of the Cascades. Most of the major vegetation communities found in southwest Oregon are the northern extensions of communities typical of the California Coast Ranges and Sierra Nevada. **Map 3-3, Vegetation Map**, depicts the vegetation within the Lake Area Boundary. The west and southeast sides of the Lake Area Boundary have extensive oak woodland/grass savannah. This vegetation community is characterized by an overstory of Oregon white oak, the most drought tolerant of all trees in southwestern Oregon, as well as madrone. The dominant shrub is wedge-leaved ceanothus or “buckbrush,” interspersed with poison oak. Herb/forb layers are characterized by ashy rock cress, Rogue River milkvetch, fringed brome, Henderson’s shootingstar, California fescue, Idaho fescue, woods strawberry, mission bells, scarlet fritillaria, lewisia, fineleaf biscuit-root, Sandberg’s bluegrass, western buttercup, Sucksdorf’s romanzoffia, groundsel, checkermallow, Lemmon’s needle grass, and American vetch.

Open areas on the west side of the Lake Area Boundary are dominated by grasslands and buckbrush. Grasslands have been invaded by noxious weed species, such as star thistle, and other exotic, introduced species, such as cheat grass. The south side of the Lake Area Boundary consists of more open grassland areas. Teasel, an exotic species, has invaded moist sites.

A small stand of ponderosa pine occurs north of the dam. A well developed riparian forest exists along a narrow corridor on either side of Dry Creek north of the dam. This community type is dominated by blackberry, willow, alder, madrone, and dense stands of Oregon white oak. An extensive area of grasslands with vernal pools (also see “Vernal Pools”) occurs on the northwest side of Agate Lake.

Upstream of Agate Lake, Dry Creek provides a well developed riparian community dominated by willows, cottonwoods, and alders. As it empties into Agate Lake, Hopkins Canal also has a small riparian forest community dominated by willows and cottonwoods. **Photos 3-1 through 3-10** show the vegetation communities found within the Lake Area Boundary.

Vegetation communities have been damaged by OHV use on both designated and nondesignated trails. Roads have proliferated, particularly in wet areas, where multiple tracks scar the land.

Map 3-3.—Vegetation Map.

Color foldout

Photos 3-1 and 3-2

Photos 3-3 and 3-4

Photos 3-5 and 3-6

Photos 3-7 and 3-8

Photos 3-9 and 3-10

Extensive parking areas exist that are far in excess of the recreational demand in the area immediately south of the dam on the west side. These heavily impacted areas are either devoid of vegetation or have been invaded by exotic weeds, such as star thistles.

Photos 3-11 through **3-14** show some of these impacted areas.

Wetlands.—**Map 3-4, Wetlands Map**, is the Service's National Wetland Inventory (NWI) map for the Lake Area Boundary. Seven wetland types have been identified. The most extensive wetland type is the lacustrine limnetic area, which is the open water of the reservoir. The second largest area is the uplands/palustrine, emergent seasonally flooded wetland, which corresponds to the vernal pool habitat in the northeast section of the Lake Area Boundary. Another extensive wetland type is the lacustrine, littoral unconsolidated shore, which consists of the shallow, grassy submerged areas along the east and south lake shorelines. Three wetland types occur in the Dry Creek inlet area: palustrine emergent, temporarily flooded; palustrine emergent, seasonally flooded; and palustrine forested, seasonally flooded. A very small area of palustrine, unconsolidated bottom, permanently flooded wetland is located at the spillway of the dam.

The palustrine forested wetland type also extends along the riparian corridor of Dry Creek north of the dam (not indicated on the NWI map). Additionally, several small (less than 1 acre) recently formed wetlands are scattered along the northwest boundary of the Lake Area Boundary adjacent to the golf course. These small wetlands are most likely caused by runoff from golf course irrigation and are not on the official NWI map. One of the larger of these wetland areas has been sketched in on **map 3-4** to show its location. (See **photos 3-15 and 3-16.**) Brief surveys conducted on these recently formed wetlands on July 1, 1998, indicate they were colonized by bullfrogs.

Medford Canal traverses the southwestern edge of the Lake Area Boundary (**photo 3-17**). The canal also supports a thin strip of riparian vegetation. Leakage occurs in several places along the canal, appearing downslope of the canal (**photo 3-18**). These wet areas are very ephemeral and usually do not develop associated wetland vegetation, although some wetland vegetation has developed around these puddles in shady areas. Additionally, clumps of blackberries have established in moist soil areas below the canal, probably also as a result of the canal leakage.

Photo 3-11 and 3-12

Photos 3-13 and 3-14

Map 3-4.—Wetlands map.

Color foldout

Photos 3-15 and 3-16

Photos 3-17 and 3-18

Wildlife.—

Big Game.—An elk herd of approximately 60 animals occupies the lower hillsides of Roxy Ann Peak, 3 to 4 miles south of Agate Lake. John Thiebes, Wildlife Biologist, Oregon Department of Fish and Wildlife, has not seen elk within the Lake Area Boundary but indicates that they could potentially use the area. Blacktail deer travel 20 miles from prime winter range on Dead Indian Plateau to use habitat within the Lake Area Boundary and nearby habitats during the spring, summer, and fall. Blacktail deer were observed during wildlife surveys conducted on July 17, 18, and 19, 1998. Wedgeleaf ceanothus or “buckbrush” is the prime forage species for deer and elk. This brush species is fire adapted, reproducing primarily after a burn. However, fire control programs have allowed this species to become decadent and of less forage value for big game. Big game and other wildlife species are also experiencing extensive habitat loss as the areas around Medford, White City, and Ashland are rapidly suburbanizing.

Birds.—The Lake Area Boundary provides breeding, migration, and wintering habitat for a large number of bird species. Agate Lake is a popular destination for birders, who have observed at least 190 bird species there. A bird species list developed for Agate Lake (adapted from Janes et al., 1996 by O.D. Swisher) is included as **attachment E**. Also included in **attachment E** is a list of other wildlife species adapted from the Wildlife Checklist for the Kenneth Denman Wildlife Area, located on the Rogue River near Eagle Point. Species found at the Denman Wildlife Area would also occur within the Lake Area Boundary (Thiebes, ODFW, personal communication, 1998).

Reservoir drawdowns attract a large number of shorebirds to the mudflats at Agate Lake. These mudflats are considered to be a critical staging area for 24 species of shorebirds known to use Agate Lake. The mudflats comprise one of only three such staging areas in the Rogue Valley and, thus, are extremely important (Swisher, 1999). Shorebirds differ from many other neotropical migrants in that they have narrow habitat requirements that limit them to relatively few, highly productive stopover sites. Shorebirds use the same coastal staging areas year after year probably because the areas provide more highly productive, predictable feeding and roosting areas than other sites along the migratory route (Helmets, 1992).

Shorebirds stopping at these staging areas can increase body mass up to 100 percent before continuing their migration. Most of this increased mass is body fat that is used as fuel for their long-distance migration. Shorebirds have higher metabolic rates than other nonpasserines (passerines are small or medium-sized songbirds with perching feet) of similar size, which forces them to spend much of their day, during staging periods, foraging for maintenance and fat storage. The elimination or degradation of stopover habitats can be detrimental to entire shorebird populations (Helmets, 1992).

Breeding bird and wildlife surveys were conducted on July 17, 18, and 19, 1998 (**attachment F**). A large number of neotropical migrant songbirds, as well as resident birds, were breeding within the Lake Area Boundary, as evidenced by singing males and brood rearing activities. Several broods of western bluebirds, a species designated as vulnerable by ODFW, were observed in the oak woodlands/savannah north of the dam and along the west side of Agate Lake. A pair of grasshopper sparrows and seven vesper sparrows, both designated by ODFW as vulnerable species, were observed in the vernal pool/grassland community north of the dam. Raptor species included a black-shouldered kite, a pair of ospreys nesting in the southwest section of the Lake Area Boundary, two bald eagles, and four red-tailed hawks. Shorebirds and waterfowl observed during this survey included greater yellow legs, killdeer, spotted and least sandpipers, western grebes, great blue and green herons, mallards, and Canada geese. Game birds included nine ring-necked pheasants and four California quail adults with broods in hiding. The most numerous species observed during the 3-day survey was the European starling (86). Additionally, 12 brown-headed cowbirds were observed.

Wildlife Habitat Conditions.—Significant tracts of relatively undisturbed, intact habitat were found throughout the Lake Area Boundary (**Map 3-5, Outstanding Wildlife Habitat Map**), with high numbers of neotropical and resident songbirds present.

Songbirds, particularly neotropical migrants, are sensitive to habitat conditions and can serve as indicators of overall wildlife habitat quality. Neotropical migrant songbird numbers decline in areas that are heavily impacted by development. Declines can be caused by a variety of factors. Habitat fragmentation resulting from clearing vegetation for roads, trails, housing developments, and other human activities create conditions that favor brown-headed cowbirds, a nest parasite that lays its eggs in the nests of other birds, as well as nest predators, such as magpies and crows. Habitat fragmentation also favors non-native species such as the European starling, which compete with native songbirds for nest cavities and food resources.

Recreational impacts on neotropical migrant songbirds and other wildlife species are well documented (**attachment F**). Birds tend to avoid nesting near heavily used trails and recreational sites. Nest predators, such as magpies and crows, tend to follow people; and the resulting increases in nest predation adjacent to heavily used trails and other recreational facilities is well documented. Wildlife subjected to recreational disturbance experience increased stress and metabolic energy demands. Pets can be a significant source of disturbance and direct mortalities on wildlife as well. The type of recreation can influence the degree of adverse impact on wildlife. For example, hikers moving slowly and quietly along a trail are less disturbing to wildlife than people riding bicycles or running (**attachment F**).

Map 3-5.—Outstanding wildlife habitat map.

Color foldout

These well documented impacts to wildlife habitat, in particular, habitat for neotropical migrant songbirds, are illustrated within the Lake Area Boundary. The greatest numbers of birds and species were found in relatively undisturbed blocks of habitat. The oak woodland/savanna and riparian corridor in the northwest section of the Lake Area Boundary, the grassland/vernal pool area in the northeast section, and the oak woodland/savanna, shrub and riparian areas in the southwest and southeast sections all had relatively high numbers of neotropical migrant songbirds. The heavily disturbed areas around the boat ramp on the west side, the boat ramp on the east side, and the peninsula area in the southeast section of the Lake Area Boundary had much fewer numbers of birds. These areas have large areas denuded of vegetation and experience heavy recreational use by campers, fishers, boaters, and picnickers.

Locations of day use sites, campgrounds, and boat ramps contained in the alternatives are based on the principle of concentrating proposed recreational development to these already disturbed, heavily impacted areas, while providing a measure of protection for those areas of the park that still have relatively large intact areas of habitat.

Unregulated shooting poses particular concern for wildlife. Given the lack of law enforcement, it is very likely that wildlife, particularly birds, squirrels, and rabbits, are used as targets or are poached (deer, quail). During the wildlife surveys conducted in July 1998, random shooting was observed in the southwest section of the Lake Area Boundary. Members of the public have expressed concern over this activity. (See chapter 1, "Summary of Issues.") Another activity discussed by the public in scoping meetings and also observed during the wildlife surveys conducted during July 1998 was long-term camping, i.e., use of the area as a semipermanent place to live. Individuals in well used, semipermanent camps were observed in an isolated oak grove in the southeast section of the Lake Area Boundary and in the oak woodland near the spillway area. These unregulated camps disturb wildlife and trample vegetation. They usually occur in the better habitat areas, resulting in greater impacts to wildlife.

Of the outstanding wildlife habitat areas shown on **map 3-5**, the southwest section of the Lake Area Boundary has been the most damaged by OHV use (**photos 3-11, 3-13, and 3-14**). The proliferation of OHV trails has resulted in the loss of vegetative cover that otherwise would have provided wildlife habitat. Despite these habitat losses and the disturbance to wildlife, significant areas of good wildlife habitat remain.

Vernal Pools.—Vernal pools are seasonal wetlands that are formed in depressions on soils that have either clay or silicate layers and are filled by rainwater, groundwater, or overland

flows. Although they appear barren during the summer and fall, vernal pools teem with life during winter and spring with uniquely adapted plants and wildlife—many of which appear nowhere else.

A water body can be designated a "vernal pool" only if certain obligate species are present. In Oregon, these species include the vernal pool fairy shrimp, a federally listed threatened species; large flowered wooly meadowfoam and Cook's desert parsley; long-toed salamander; and Pacific tree frog. Vernal pool species have evolved to adjust to the drying and refilling of the pool. Fairy shrimp survive as long as the vernal pool contains cool water. They die when it dries up, but their eggs remain on the dry bottom of the pool.

Oregon vernal pools are found in the Agate Desert mounded prairie. Of the original 32 square miles of Agate Desert mounded prairie that existed in southwest Oregon, only 20 percent (about 5,000 acres) remains. Within the Lake Area Boundary, vernal pools are generally found on the Agate-Winlow soils surrounding the north and northeast areas of the lake in upland areas left ungraded during the original construction of Agate Lake (Borgias, ONHP, personal communication, 1999). See **map 3-5**.

In a survey conducted in December 1998 and January 1999 by ONHP biologists, four vernal pools within the Lake Area Boundary were found to support the vernal pool fairy shrimp (Borgias, 1999). More thorough surveys may reveal their presence in other vernal pools in the area. This species is listed by the Service as threatened. The vernal pool habitat on the Agate Desert mounded prairie may also support populations of the large flowered wooly meadowfoam and Cook's desert parsley, both candidates for listing under the Endangered Species Act (ESA).

Vernal pools at Agate Lake began filling up around Thanksgiving 1998 and by December 1 were fully filled. The fairy shrimp were found in early January. Their life cycle is nearly completed by early March (Borgias, 1999). Fairy shrimp have several unique characteristics. They can develop from egg to sexually mature individuals in 6 days. The eggs, referred to as encysted embryos, are unique in that they show no evidence of respiration. They can withstand boiling water to being frozen in liquid nitrogen. The cyst case is made from highly unique polysaccharides, which is of interest for technological applications.

Management of vernal pools is a relatively new endeavor. Some experimental applications of prescribed burning and controlled cattle grazing have been conducted on other vernal pool systems to remove decadent vegetation and reinvigorate native vegetation. Historically, these vernal pool systems were subject to periodic wildfires which have now been controlled, resulting in decadent vegetation (Borgias, 1999). ONHP has expressed interest in developing a management plan that may include prescribed burning or controlled cattle grazing. ONHP has

also expressed interest in conducting a more thorough survey of all vernal pools within the Agate Desert mounded prairie. The survey would determine if those vernal pools within the Lake Area Boundary are some of the best remaining vernal pools in the State and, thus, in need of a high degree of protection from disturbance and habitat damage. The Service has recommended against constructing vernal pool trails or interpretive sites within the Lake Area Boundary to avoid any potential loss or damage.

Environmental Consequences

Alternative A.—The extensive network of OHV trails would continue to exist under the No Action Alternative. Observations during the summer of 1998 indicated several new trails were being worn into the hillsides as OHV users continued to look for new areas to ride. These new trails would continue to be used, eventually denuding the trails of vegetation and eliminating these areas as cover and forage habitat for wildlife. The presence of the riders and vehicles disturbs wildlife in the area. Deer, for example, are forced to move out of the area when OHVs are present. This can negatively affect an animal, particularly during stressful times, such as the breeding season, when young are present, and during the winter, when nutritional levels are at their lowest.

Much of the vegetation that still remains intact is decadent and does not provide optimum food and cover values for wildlife. This is particularly true of the oak woodland/grass savannah that exists along the west side of the Lake Area Boundary. The No Action Alternative would preclude any management activities, such as prescribed burning and reseeding, designed to restore this habitat.

The lack of law enforcement would continue to create an environment in which activities such as unauthorized OHV use and shooting frequently would occur. Long-term camping in remote areas, such as that observed in the extreme southeast section and northwest section of the Lake Area Boundary would continue to occur, disturbing wildlife and damaging vegetation.

Alternative B.—Eliminating OHV use throughout the Lake Area Boundary and replacing that use with a nonmotorized, multiple use trail would greatly reduce disturbance to wildlife. Trail crossings would be designed to minimize destruction of riparian vegetation. Denuded roads and parking areas would be reseeded, restoring lost wildlife habitat. Eliminating OHV traffic around the osprey nest in the southwest section of the Lake Area Boundary would likely enhance the nesting success of this pair.

Law enforcement would reduce the amount of shooting and the potential for poaching, as well as long-term camping, which disturbs wildlife and damages vegetation.

A cooperative effort with ODFW and JCP to develop and implement a habitat improvement plan for the west side of the Lake Area Boundary under the Hunting Access and Habitat Program would improve decadent habitat for big game and upland game birds. Prescribed burning and reseeding would likely be the principal management tools used. Other nongame species would also benefit by renewed plant vigor and elimination of weed species.

Developing day use sites; improving the boat ramp on the west side of the lake; and constructing a primitive gravel boat ramp, parking lot, and restroom on the east side of the lake would not increase disturbance of wildlife, although human use is likely to increase. The day use sites would tend to concentrate use in an area already heavily impacted by human use. In recent breeding bird surveys (**attachment F**), the peninsula area was found to have far fewer birds than areas in large, relatively undisturbed habitat areas to the north, south, and west. This reduced number of breeding birds is probably a result of the fragmented, isolated nature of the habitat. Concentrating use here in this relatively less valuable wildlife habitat and eliminating dispersed camping likely would reduce impacts to wildlife. Because human use would be concentrated in already disturbed areas, larger areas of habitat free of human disturbance would be created. Improving boat ramps may decrease the vegetation damage and disturbance caused by boat launching activities that presently occur on the peninsula and in the cove in the southeast corner of Agate Lake.

Alternative C.—Creating camping sites near the west side boat ramp would concentrate use in an already disturbed area, which would benefit wildlife by reducing the wildlife disturbance and vegetation damage that results from dispersed camping. However, this benefit may be offset by increased recreational use in the southern peninsula area.

The nonmotorized, paved multiple use trail and a horse trail would encourage a potentially significant increased use of the trail system in the Lake Area Boundary compared to Alternative B.

Overall recreational use would likely increase as a result of improvements in security, boat ramps, picnic and camping facilities, and trails. As a result, more hikers, bikers, horseback riders, anglers, picnickers, and campers would converge on a relatively small area. Because of this increased recreational use, hunting would be eliminated to prevent potential conflicts. This, in turn, would eliminate the opportunity to use ODFW's Hunting Access Habitat Program funds to improve wildlife habitat on the west side of Agate Lake. Increased recreational use would result

in increased disturbance to wildlife. An indepth discussion of recreational impacts and habitat fragmentation impacts on wildlife appears in **attachment F**.

Residual Impacts

Despite habitat protection and management and reduced disturbance of wildlife—in particular to special status species—it may be impossible to stem the tide of population declines of neotropical migrant birds, amphibians, sensitive plant species, and other special status species. The Lake Area Boundary is a small area, and the Medford area is experiencing rapid growth. Increasing suburbanization of western Oregon and the resulting habitat loss and wildlife disturbance cannot be offset by habitat improvements within the Lake Area Boundary alone.

Cumulative Impacts

Eliminating OHV use, developing recreational facilities that better manage human resource use, developing and implementing management plans for revegetating damaged areas, improving wildlife habitat, and protecting vernal pools would improve conditions overall for wildlife and plant species.

Mitigation

Certain portions of the trail system would be closed to recreation use on a temporary, seasonal basis if it were determined that public use negatively affects wildlife species and habitat during breeding and nesting seasons.

Fish

Affected Environment

Agate Lake is a popular warmwater fishing lake, with quality largemouth bass, bluegill, and black crappie available. Before 1992, Agate Lake was regularly stocked mostly with winter steelhead fingerlings, as well as some summer steelhead and rainbow trout. Table 3-2 summarizes the 1988-92 stocking history for Agate Lake. The lake had not been stocked for several years because of poor access to the lake (Evenson, 1998). However, trout from the Cole Rivers Hatchery were stocked in Agate Lake in fall 1999.

Table 3-2.—5-year stocking history for Agate Lake—1988-92
(ODFW, 1992)

Year	Number stocked	Type	Species
1992	10,000	Fingerling	Winter steelhead
1991	5,400	Precocial	Winter steelhead
1991	24,800	Fingerling	Winter steelhead
1991	15,700	Fingerling	Summer steelhead
1991	110,000	Fingerling	Rainbow trout
1990	3,900	Fingerling	Winter steelhead
1989	3,300	Fingerling	Winter steelhead
1988	2,400	Fingerling	Winter steelhead

ODFW does not stock warmwater fish species, except initially when a new reservoir is created. Natural reproduction is sufficient to provide an adequate sport fishery.

ODFW sampled Agate Lake in May 1999 and found the catch for all species, except yellow perch, was higher than in its May 1995 fish sampling results. The size structure of the fish populations had not changed considerably since 1995. Largemouth bass numbers had increased, but the condition and size of the fish were poor. Most bluegill were small (3 to 5 inches long), but some were about 6 inches long, a size that would interest anglers. Black crappie were still of a catchable size, about 8 to 9 inches long, and should continue to contribute to the fishery. Bullheads were abundant and of good size. As mentioned earlier, ODFW stocked Agate Lake in the fall of 1999 with excess trout from the Cole Rivers Hatchery on the Rogue River. ODFW may also stock legal size rainbow trout in 2000 in an attempt to improve angling if funding is available. Nongame fish in Agate Lake are probably similar to those in Emigrant Lake: red-side shiner, golden shiner, black-nose dace, and coarse-scale sucker (Evenson, 1998).

Catch limits are in place for two fish species found in Agate Lake: a catch limit of five trout per day with an 8-inch minimum length, and a catch limit of five largemouth bass per day, with no more than three bass more than 15 inches long. No catch limits are in place for bluegill, crappie, catfish, and yellow perch (ORFW, 2000).

ODFW prepared a draft management plan that includes a section for Agate Lake. This plan was never approved, but Evenson (personal communication) indicates that it seems reasonable. Following are relevant excerpts from this draft plan; however, these policies are subject to change.

Because the lake bottom was cleared of vegetation before the dam was built, additional habitat is needed to provide cover, spawning, and rearing areas.

Policy 1. Black crappie, largemouth bass, brown bullhead, bluegill, and yellow perch shall be managed for natural production consistent with the basic yield management alternative for warmwater fish.

Policy 2. Trout shall be managed for hatchery production consistent with the basic yield management alternative for trout.

Policy 3. Agate Lake shall be managed for warmwater fish, with trout management of secondary emphasis.

Objective 1. Provide diverse angling opportunities for a consumptive fishery on naturally produced warmwater fish and hatchery produced trout.

Objective 2. Protect and enhance habitat for warmwater gamefish.

The assumptions and rationale behind management directions for trout management at Agate Lake are that poor trout production is likely related to severe annual drawdown to meet downstream irrigation needs, predation by abundant warmwater fish present, and excessively high summer water temperatures. Action items call for determining temperature and depth profiles and available food items through summer to determine if trout could survive through the summer. If suitable habitat is found, excess steelhead fingerlings could be stocked, if available.

The assumptions and rationale behind the warmwater gamefish policy are that vegetation clearing during initial reservoir construction resulted in loss of aquatic food production potential and fish rearing habitat. The addition of woody structure and vegetative plantings would increase aquatic food and rearing habitat. Action items call for placing brush bundles to increase habitat for juvenile black crappie and forage fish; planting willows to provide cover, nutrient input, attract fish for anglers, and to help control turbidity from wave action; and adding logs to the bottom to provide habitat for largemouth bass and brown bullheads.

Creel surveys are not conducted at Agate Lake. Only incidental reports are obtained. Evenson (personal communication) indicated that creel surveys could be conducted if fishing use at Agate Lake increases.

Environmental Consequences

Alternative A.—The lack of law enforcement would continue to detract from the fishing experience, particularly for families; and use may decline. The lack of law enforcement may also allow poaching, exceeding bag limits, and fishing out of season. ODFW has not stocked Agate Lake for several years, in part due to the lack of management and the relatively low level of fishing use. Periodic fish sampling is conducted, but creel surveys are not done. A draft fisheries management plan for Agate Lake has been developed; but stocking, creel surveys, and habitat improvement for warmwater fish would be unlikely to occur given the present conditions at Agate Lake.

Alternative B.—Increased law enforcement may improve compliance with State fishing catch limits and regulations. The presence of resource management and law enforcement within the Lake Area Boundary may result in increased fishing use of Agate Lake which, in turn, may encourage ODFW to resume active management of Agate Lake. Habitat improvement measures, such as placing brush bundles and logs in the lake to provide rearing and food producing areas for warmwater fish habitat, could be implemented. Willows could be planted along the shoreline to reduce the amount of wind-caused turbidity.

Alternative C.—Impacts would be similar to those described for Alternative B.

Residual Impacts

No residual impacts to fish have been identified.

Cumulative Impacts

No cumulative impacts have been identified.

Mitigation

No mitigation has been identified.

Special Status Species

Affected Environment

This section serves as both the environmental assessment and the biological assessment for the Agate Lake Resource Management Plan. In compliance with the Endangered Species Act, Reclamation consulted with the Service to obtain a list of Federal special status species that may occur within the Lake Area Boundary (**attachment G**). State special status species are also included (from the Oregon Natural Heritage Programs online database at <<http://www.heritage.tnc.org/nhp/us/or/>> [The Natural Heritage Network, 2000]). These species are summarized in table 3-3.

Table 3-3.—Federal and State special status species that may occur within the Lake Area Boundary

Common Name	Scientific Name	Status ¹
Plants		
Large-flowered wooly meadowfoam	<i>Limnanthes floccosa</i> ssp. <i>grandiflora</i>	FC, SC
Cook's lomatium	<i>Lomatium cookii</i>	FC, SE
Henderson's bentgrass	<i>Agrostis hendersonii</i>	FS, SC
Howell's camassia	<i>Camassia howellii</i>	FS, SC
Tall bugbane	<i>Cimicifuga elata</i>	FS, SC
Bellinger's meadowfoam	<i>Limnanthes floccosa</i> ssp. <i>bellingariana</i>	FS, SC
Dwarf wooly meadowfoam	<i>Limnanthes floccosa</i> ssp. <i>pumila</i>	FS, ST
Slender meadowfoam	<i>Limnanthes gracilis</i> ssp. <i>gracilis</i>	FS, SC
Pygmy monkeyflower	<i>Mimulus pygmaeus</i>	FS
Coral seeded allocarya	<i>Plagiobothrys figuratus</i> ssp. <i>corallicarpus</i>	FS, SC
Southern Oregon buttercup	<i>Ranunculus austro-oreganus</i>	FS, SC
Columbia cress	<i>Rorippa columbiae</i>	FS, SC

Table 3-3.—Federal and State special status species that may occur within the Lake Area Boundary (continued)

Common Name	Scientific Name	Status ¹
Fish		
Coho salmon (southern Oregon/ northern California coast)	<i>Oncorhynchus Kisutch</i>	FT, ST

Chinook salmon (southern Oregon/ California coast)	<i>Oncorhynchus tshawytscha</i>	FPT
Sea-run cutthroat trout	<i>Oncorhynchus clarki clarki</i>	FC, SV
Steelhead (Klamath Mountains Province)	<i>Onchorhynchus mykiss</i>	FC, SV
Pacific lamprey	<i>Lampetra tridentata</i>	FS, SV
Invertebrates		
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FT
Franklin's bumblebee	<i>Bombus franklini</i>	FS
Siskiyou chloealtis grasshopper	<i>Chloealtis aspasma</i>	FS
Schuh's homoplectran caddisfly	<i>Homoplectra schuhi</i>	FS
Siskiyou gazelle beetle	<i>Nebria gebleri siskiyouensis</i>	FS
Amphibians and Reptiles		
Oregon spotted frog	<i>Rana pretiosa</i>	FC, SC
Tailed frog	<i>Ascaphus truei</i>	FS, SV
Northwestern pond turtle	<i>Clemmys marmorata marmorata</i>	FS, SC
Northern red-legged frog	<i>Rana aurora aurora</i>	FS, SU
Foothill yellow-legged frog	<i>Rana boylei</i>	FS, SV
Siskiyou caddisfly	<i>Tinodes siskiyou</i>	FS
Mammals		
White-footed vole	<i>Arborimus albipes</i>	FS, SU
Pacific western big-eared bat	<i>Corynorhinus (=Plecotus) townsendii townsendii</i>	FS, SC
California wolverine	<i>Gulo gulo luteus</i>	FS, ST
Pacific fisher	<i>Martes pennanti pacifica</i>	FS, SC
American marten	<i>Martes americana</i>	SV
Western gray squirrel	<i>Sciurus griseus</i>	SU
Pallid bat	<i>Antrozous pallidus</i>	SV
Silver-haired bat	<i>Lasionycterus noctivagans</i>	SU
Long-eared myotis (bat)	<i>Myotis evotis</i>	FS, SU
Fringed myotis (bat)	<i>Myotis thysanocetes</i>	FS, SV
Long-legged myotis (bat)	<i>Myotis volans</i>	FS, SU
Yuma myotis (bat)	<i>Myotis yumaneus</i>	FS

Table 3-3.—Federal and State special status species that may occur within the Lake Area Boundary (continued)

Common Name	Scientific Name	Status ¹
Birds		
Peregrine falcon ²	<i>Falco peregrinus</i>	FE, SE
Bald eagle	<i>Haliaeetus leucocephalus</i>	FT, ST
Northern spotted owl	<i>Strix occidentalis caurina</i>	FT, ST
Northern goshawk	<i>Accipiter gentilis</i>	FS, SC

Tricolored blackbird	<i>Agelaius tricolor</i>	FS, SP
Olive-sided flycatcher	<i>Contopus cooperi (=borealis)</i>	FS, SV
Little willow flycatcher	<i>Empidonax traillii brewsteri</i>	FS, SV
Lewis' woodpecker	<i>Melanerpes lewis</i>	SC
Purple martin	<i>Progne subis</i>	SC
Western bluebird	<i>Sialia mexicana</i>	SV
Oregon vesper sparrow	<i>Pooecetes gramineus affinis</i>	SC

¹FE=Federal Endangered FT=Federal Threatened FPT=Federal Proposed Threatened FC=Federal Candidate
FS= Federal Species of Concern SE=State Endangered ST=State Threatened SC=State Critical SV=State
Sensitive - Vulnerable SU=State Sensitive - Status Unknown

² Removed from Endangered Species List on August 25, 1999.

Two federally listed candidate plant species and ten federally listed plant species of concern may occur within the Lake Area Boundary. ODFW has listed one endangered and one threatened plant species along with nine species listed as critical. Surveys for these species have not been conducted within the Lake Area Boundary.

Five special status anadromous fish species potentially occur in the study area: southern Oregon/northern California coho salmon, southern Oregon/California coast chinook salmon, sea-run cutthroat trout, Klamath Mountains Province steelhead, and Pacific lamprey. Suitable habitat for these species does not exist either in Agate Lake or in Dry Creek. Dry Creek downstream of Agate Lake is subject to severe seasonal dewatering related to operating the lake for irrigation purposes. No passage facilities exist in the dam structure to provide anadromous fish passage. Withdrawing water from Little Butte Creek for storage in Agate Lake via the Medford Canal could potentially adversely affect these species; however, irrigation operations at Agate Lake do not fall under the purview of Reclamation and are outside the scope of this RMP. No changes to current operations would occur as a result of implementing this RMP.

As discussed previously, the vernal pool fairy shrimp is federally listed as threatened. Surveys conducted during the fall and winter of 1998 and 1999 by ONHP confirmed the presence of this species in vernal pools in the northeast section of the Lake Area Boundary. The remaining intact, unaltered vernal pool habitat within the Lake Area Boundary (**map 3-5**) is, at present, subject to little disturbance from OHV use or other forms of disturbance. However, OHVs have been driven at high speed through nearby vernal pools (outside the Lake Area Boundary) that are known to be occupied by fairy shrimp (Borgias, 1999). OHV use within the Lake Area Boundary also places this fragile habitat at risk.

Five other Federal sensitive invertebrate species potentially occur within the Lake Area Boundary. They include Franklin's bumblebee, Siskiyou chloelalis grasshopper, Schuh's homoplectran caddisfly, Siskiyou gazelle beetle, and Siskiyou caddisfly. Surveys for these five species have not been conducted at Agate Lake.

Four frog species and one turtle species are federally listed as species of concern and potentially occur within the Lake Area Boundary. The Oregon spotted frog is a federally listed candidate species and a State critical species. It is found in or near a perennial water body such as a spring, pond, lake, or sluggish stream, most often associated with nonwoody wetland plant communities (see <<http://www.wsdot.wa.gov/eesc/environmental/RanaPretiosa.htm>> [Washington State Department of Transportation, 2000]). This species has declined seriously throughout its range in western Oregon, western Washington, and southwest British Columbia. Habitat loss and impacts from introductions of exotic wildlife and plant species appear to be the major causes of decline. Recent surveys in known historic habitat have found few populations (see <<http://www.isu.edu/departments/museum/herpetology/4.html>> [Idaho State University, 2000]).

The tailed frog inhabits cold swift mountain streams in humid forests of Douglas fir, pine, spruce, redwood, maple alder, and bay. It is semi-aquatic and has no vocal sac (Behler and King, 1991; Stebbins, 1966). The northern red-legged frog inhabits marshes, sluggish streams, lakes, reservoirs, and ponds. It is most common in wooded areas in the lowlands and foothills as well as grasslands (Stebbins, 1966). Introduction of non-native fishes and bullfrogs is probably responsible for population declines (Hayes and Jennings, 1986). The foothill yellow-legged frog occurs west of the crest of the Cascade Mountains in Oregon above elevation 3000 feet. This species is unlikely to be found in the low elevation streams near Agate Lake (around 1640 feet).

The northwestern pond turtle is federally listed as a species of concern and a State critical species.

The current northwestern pond turtle population is thought to number less than 10 percent of its historical population, with the greatest declines occurring in the Willamette Valley as a result of agricultural and urban development, flood control, and predation by exotic species (see <<http://www.nwp.usace.army.mil/op/V/western.htm>> [U.S. Army Corps of Engineers, 2000]). It requires ponds and small lakes with abundant vegetation (Behler and King, 1991). Suitable habitat may exist in the Dry Creek inlet area of Agate Lake, although no surveys have been conducted to verify its presence.

The Service lists eight sensitive mammal species of concern as potentially occurring in the study area, of which five species are bats. The white-footed vole inhabits riparian areas in primarily deciduous forests and is considered one of the rarest microtine rodents north of Mexico (Verts and Carraway, 1998). The California wolverine is considered to be a wilderness species and was long thought to be extirpated from Oregon until a large male was killed in Linn County (Verts and Carraway, 1998). Other tracks have been reported sporadically since then. The Pacific fisher has been reported west of the Cascade Mountains in coniferous forests. None have been recorded from oak woodlands (Verts and Carraway, 1998). Three of the Federal bat species of concern are listed as occurring in the nearby Denman Wildlife Area (**attachment G**): long-eared, fringed,

and long-legged bat. Surveys have not been conducted to determine the composition of the bat community within the Lake Area Boundary.

The peregrine falcon was included in the Service's species list. This species was removed from the Endangered Species List on August 20, 1999. It once was a widespread summer and winter resident in Oregon, with peak nesting concentrations along the coast, the Columbia Gorge, and near the large southeastern and south-central Oregon marshes (Gilligan et al., 1994). The nesting American peregrine falcon experienced severe declines due to DDT poisoning. The 1972 ban on DDT and reintroduction efforts have proven successful, and several pairs have successfully nested (Gilligan et al., 1994). Peregrines inhabit open wetlands near cliffs, preying mostly on ducks, shorebirds, and seabirds (Scott, 1995). The relatively small wetland area within the Lake Area Boundary and the absence of nearby cliffs probably make this area unsuitable for nesting; however, migrants may forage in the area.

The bald eagle is both a Federal and State listed threatened species. Bald eagles are not presently known to nest within the Lake Area Boundary. Historically, bald eagles nested intermittently on Roxy Ann Peak adjacent to the Lake Area Boundary on the west side, and those eagles were observed foraging on Agate Lake (Thiebes, 1999). Two bald eagles were observed foraging over Agate Lake Park during wildlife and breeding bird surveys conducted in July 1998 (**attachment F**), but no nesting activity was observed. Within the State of Oregon, most bald eagle nesting activities are concentrated around the upper Klamath Lake area (Gilligan et al., 1994), along the Columbia River, and around lakes in the Cascade Mountains. Bald eagles appear in lesser numbers in the interior valleys of southwest Oregon. Nesting has been documented a mile west of Emigrant Lake (Reclamation and JCP, 1995) less than 18 miles away from Agate Lake, indicating that bald eagles do nest in the area. Although no bald eagle shootings have been documented within the Lake Area Boundary, the current lack of law enforcement and shooting that occur within the Lake Area Boundary (**attachment A**) create the potential for such an event. Eagles are attracted to Agate Lake for its foraging opportunities on fish and waterfowl, and the risk of such an illegal take exists.

The northern goshawk is a Federal sensitive species and a State critical species. In Oregon, it is an uncommon permanent resident in the Cascades, Siskiyou Mountains, and mountain ranges of eastern Oregon. It is a rare to very rare winter visitor in western Oregon. The northern goshawk possibly could use the Lake Area Boundary as a foraging area during migration or wintering.

The tricolored blackbird is a Federal sensitive species and a State sensitive species that is peripheral or naturally rare. It is known to breed in Jackson County (Wray, 1993). This species nests in large colonies in emergent cattail or tule marshes. This habitat type does not exist in sufficient numbers to support breeding colonies; however, birds may migrate through or forage within the Lake Area Boundary. Gilligan et al. (1994) indicates this species appears to be expanding its range north through Jackson County.

The olive-sided flycatcher is a Federal sensitive species and a State vulnerable species. It is a common summer resident in coniferous forests. Nonbreeding transients appear in a variety of habitats, including oak woodlands and riparian areas (Gilligan et al., 1994).

The little willow flycatcher is a Federal sensitive species and a State vulnerable species. This bird is primarily a lowland species, nesting in willow thickets bordering stream side lakes, woodland edges, young alder forests, and tall brush stands. It is also a common transient throughout the State. Potentially suitable habitat exists along Dry Creek within the Lake Area Boundary.

There are four State critical or vulnerable species: Lewis woodpecker, purple martin, western bluebird, and Oregon vesper sparrow. The Lewis woodpecker is a local summer resident in the chaparral-oak community in Jackson County. This species is declining drastically due to competition for nesting cavities by European starlings and the destruction of low elevation oak communities in the interior valleys of western Oregon. The purple martin is an uncommon summer resident west of the Cascades. It is unable to successfully compete for nest cavities with the European starling. Western bluebirds were observed throughout the Lake Area Boundary during breeding and fall migrant bird surveys conducted in 1998 (**attachment F**). Additionally, the Oregon vesper sparrow was detected during spring bird surveys in grasslands adjacent to Dry Creek in the southwest section of the Lake Area Boundary (**attachment F**).

Environmental Consequences

Alternative A.—Under the No Action Alternative, the damage and disturbance caused by OHV use, the potential for poaching and other shooting, and the lack of habitat management would continue to put special status species either directly or indirectly at risk. A failure to inventory

habitat for the more obscure species, such as plants, frogs, invertebrates, small mammals, and birds, could allow resource damage to inadvertently destroy species directly or to destroy their habitat. Failure to take advantage of the opportunities that are available to develop and implement management plans to improve habitat conditions may close the window of opportunity to recover at risk species.

Under the No Action Alternative, bald eagles could be at risk from shooting while foraging at Agate Lake. The vernal pool fairy shrimp would be vulnerable to habitat destruction if OHV use moves to the vernal pool areas. The opportunity to develop and implement a management plan for the vernal pool habitat within the Lake Area Boundary would be foregone. Habitat for sensitive plant species would not be identified or protected from damage resulting from OHV use and long-term camping. Several special status species potentially use riparian areas along Dry Creek, such as the northern red-legged frog, foothills yellow-legged frog, and little willow flycatcher, and could be at risk from OHV use that damages riparian habitat.

Vernal pool habitat is at particular risk in unregulated environments. OHV use in the nearby Hoover Ponds has resulted in extensive damage to the pools and the potential loss of vernal pool fairy shrimp, as well as the special status plant species associated with vernal pools (Borgias, ONHP, personal communication, 1999). While little OHV use presently occurs in these areas in the northeast section of the Lake Area Boundary, the potential of such use is a threat to these fragile habitats and species.

Alternative B.—Enforcement of shooting regulations would reduce the potential for shooting bald eagles and peregrine falcons that may use Agate Lake for foraging habitat. Eliminating OHV use would protect remaining habitat for special status plant species that may exist within the Lake Area Boundary, as well as habitat for special status frog and bird species that require riparian habitat that may exist along Dry Creek.

Replacing OHV use with nonmotorized trails would significantly reduce human disturbance to wildlife. The vernal pool fairy shrimp and large-flowered woolly meadowfoam and Cook's lomatium that occur in the vernal pool areas in the southeast section of the Lake Area Boundary would be protected from OHV damage at similar areas in the nearby Hoover Ponds. A cooperative management plan with the Service, ONHP, and ODFW would help restore vernal pool habitat and create opportunities for public education.

Eliminating camping and concentrating picnicking activities to the already disturbed area near the two boat ramps would reduce disturbance to such species as bald eagles, peregrine falcons, western bluebirds, and Lewis' woodpeckers.

On the basis of its evaluation, Reclamation has determined that the preferred alternative may affect, but is not likely to adversely affect, listed, proposed, or candidate ESA species.

Alternative C.—Increased recreational use of the Lake Area Boundary that could result from improvements to recreational facilities also could result in increased disturbance to foraging bald eagles, although the risk of shooting would be less than under the No Action Alternative.

Concentrating recreational use in picnicking and camping areas in already disturbed areas and eliminating dispersed and long-term camping would tend to reduce wildlife disturbance and vegetation damage. However, these benefits may be offset by overall increases in recreational activities within the Lake Area Boundary.

Residual Impacts

Despite habitat protection and management and reduced disturbance of wildlife, in particular to special status species, it may be impossible to stem the tide of population declines of neotropical migrant birds, amphibians, sensitive plant species, and other special status species. The Lake Area Boundary is a small area, and the Medford area is experiencing rapid growth. Increasing suburbanization of western Oregon and the resulting habitat loss and wildlife disturbance cannot be offset by habitat improvements within the Lake Area Boundary alone.

Cumulative Impacts

Eliminating OHV use, developing recreational facilities that better manage human resource use, developing and implementing management plans for revegetating damaged areas, improving wildlife habitat, and protecting vernal pools would improve conditions overall for wildlife and plant species.

Mitigation

Any undisturbed areas that may be affected by trail, campground, day use area, or boat ramp development would be surveyed for the presence of sensitive and candidate plant species. Measures would be implemented in cooperation with ONHP and ODFW to protect any identified species.

Recreation and Visual Resources

Affected Environment

JCP manages Project lands for recreation purposes, pursuant to the existing lease agreement with Reclamation and existing JCP regulations (**Attachment H, JCP Codified Rules and Regulations, County Park Ordinances, Chapter 1064, Parks**). **Attachment I** includes the recreation portion of the Jackson County Comprehensive Plan. The area within the take-line of the lake² consists of 476 land acres and 216 surface acres at a water elevation of 1510 feet. Day use activities are the only activities legally allowed within the Lake Area Boundary. JCP currently administers one recreation permit with a third party for public use (Rogue Eagles Radio Control Club, Inc.).

The Lake Area Boundary is within planning Region 9 of the SCORP. The planning region includes Jackson, Klamath, Josephine, and most of Douglas Counties in southwestern Oregon. Region 9 contains 20 lakes/reservoirs that offer diverse recreation opportunities to the public. Because of its appealing climate and recreational diversity, Region 9 attracts visitors from throughout Oregon and other States. The Lake Area Boundary, however, is used primarily by local residents for fishing, swimming, and other activities—such as hiking, OHV use, wildlife viewing, and hunting. No user fees are charged.

Currently, JCP estimates that Agate Lake receives approximately 5,000 visitors annually. The lack of adequate public facilities, as well as the occurrence of unauthorized activities, as discussed in chapter 1, have contributed to a decrease in visitation over the past few years, as observed by JCP. Figures showing the actual decrease in visitation are not available at this time. JCP estimates that approximately 10 to 15 boaters use Agate Lake each day on weekends and that 4 to 6 boaters use the lake each day during the week.

The typical recreation season lasts approximately 4 months, from Memorial Day to Labor Day. The heaviest recreation use occurs on these holiday weekends, the Fourth of July weekend, and other weekends throughout the summer months. It can be assumed that the number of visitors to the Lake Area Boundary at any particular time corresponds to the gradual summer release of water from the lake for Project irrigation purposes (i.e., as the water surface elevation decreases, the amount of visitors using the area also decreases). The water elevation drops approximately 25 feet from April to September on the average. In addition, the surface area of the lake in

² Take-line refers to the lands immediately adjacent to and under Agate Lake that the Federal Government acquired for the Talent Division of the Rogue River Basin Reclamation Project.

September is half the size as it is in April. (See “Appendix I, Hydrology.”) The smaller surface area available for fishing and other water-related activities and the numerous mudflats created by the drawdown of the lake, as well as observation of visitor use patterns, has led to this assumption. This trend is especially apparent at the southern end of the lake, where extensive mudflats make this area a less than desirable place to visit during the late summer months. As the water elevation drops, access for boaters and swimmers becomes more difficult.

The public currently participates in the following primary activities within the Lake Area Boundary: bank and boat fishing for crappie, trout, bluegill, and bass; night fishing for catfish; upland game hunting for dove; waterfowl hunting for ducks and geese; bird watching; hiking; swimming; and OHV use.

Fishing typically begins around the first of June and continues until August. Low to moderate fishing occurs in the spring and fall. Bank fishing for crappie is the most common fishing activity and occurs primarily on the west side. Anglers using boats fish for bass near the dam and for crappie, trout, and bluegill in other areas of the lake. The existing concrete boat ramp is usually “high and dry” by mid-July, making the ramp unsafe for launching boats. Boaters, however, still attempt to launch their boats from this ramp and from other primitive launch sites located around the lake. Cat fishing typically occurs at night from the east side of the lake. Anglers use the east side of the lake because of the unauthorized activities that often occur on the west side after daylight hours (Korbolic, 1999).

Dove hunting occurs on the west side of the lake in early spring. Waterfowl hunting occurs in the late fall, typically at the southern end of the lake. The District has expressed concern about waterfowl hunting on the face of the dam. Hunters who build blinds on the dam increase the District’s O&M costs as well as its liability for the safety of the hunters. In addition, the general public currently has unrestricted access to the spillway and other areas of the dam, which creates serious public safety and liability concerns for all management entities.

Bird watching occurs in spring, summer, and fall, primarily in the wooded areas on the west side of the lake and below the dam.

Hiking occurs primarily on the west side of the lake. Swimming has been observed primarily on the west side of the lake, although it probably occurs at other areas around the lake.

Winter recreational use primarily is limited to birding and waterfowl hunting.

OHV use is currently authorized only on designated roadways by Reclamation’s Off-Highway Vehicle Proposal (**attachment B**). Reclamation published a notice in the *Federal Register*

concerning this OHV proposal and regulations on July 14, 1978. The OHV proposal, finalized by this *Federal Register* notice, became effective on August 14, 1978. OHV use within the Lake Area Boundary was to be restricted to 4.68 miles of designated roads, pursuant to the OHV proposal. The locations of designated OHV roads open to public use are shown on **map 3-6**.

However, OHV use is currently more widespread than is authorized on the east, south, and west sides of Agate Lake. There are approximately 3.32 miles of undesignated roads. This unauthorized use, combined with use on designated roads, has caused some soil erosion and degraded other natural resources within the Lake Area Boundary. **Map 1-2** shows the extensive road system within the Lake Area Boundary.

On the basis of comments received from the public, numerous user conflicts have occurred between OHV users and bird watchers, hikers, and other recreationists who attempt to use the area simultaneously. In addition, the public has raised concerns about the potential negative impacts that OHV use may have on soils, vegetation, and wildlife. (See the “Topography and Soils” and “Vegetation and Wildlife” sections for discussion of possible impacts to these resources or refer to **attachment F** for possible impacts.)

On May 24, 1995, an article published in the *Medford Mail Tribune* (**attachment A**) announced that JCP would limit public use of the Lake Area Boundary to day use only. Numerous incident reports previously filed with JCP concerning public vandalism, dumping, and other unauthorized activities resulted in this restriction (JCP, 1999).

In addition to providing increased security, the public has indicated the need for JCP to establish a variety of developed recreation facilities and opportunities, such as trails, restrooms, and day use sites to supplement the existing opportunities.

Except for the boat ramp on the northeast side of the lake, no recreation or sanitation facilities are available to the public. The dam and associated irrigation structures are not for use by the general public. The model airplane facilities on the north end of the lake, operated by the Rogue Eagles Radio Control Club, are available to the public on a limited basis. The domestic water supply—supplied by Reclamation when the dam was constructed—and the four pit toilets, 15 picnic units, and the 80- by-200-foot graded and graveled parking area constructed by JCP in

the mid-1960s no longer exist. As stated earlier, all original facilities were vandalized to the point that JCP could no longer afford to operate and maintain them. Therefore, JCP removed all constructed capital improvements.

As discussed in chapter 1, NPS prepared a recreation development plan for the Lake Area Boundary in 1967. The plan outlined future developments that would accommodate visitor demand through the year 2000. However, the 200,000 visitors per year projected for the year 2000 have never materialized. The Lake Area Boundary has found a niche in Region 9 as an undeveloped area having dispersed and unconfined recreation opportunities for the Medford community. The Oregon State Marine Board's prohibition against the use of power boats, primarily for the safety of young swimmers, has contributed to establishment of this niche.

The size of the Lake Area Boundary limits the amount of development that can occur and the number of visitors that can use the area at any one time. For most of the public, the quality of the recreation experience diminishes as the number of visitors increase (i.e., the social carrying capacity exceeds the capacity of the land and water areas to adequately accommodate users while maintaining the quality of the recreation experience the public demands). The social, physical, and environmental carrying capacities of the Lake Area Boundary have not been determined.

Generally, visual resources below the dam to the north and at the south and west sides of Agate Lake maintain a somewhat natural appearance. The character of the landscape and vegetation types account for some of this natural appearance because of the "absorptive capability" of the trees and vegetative cover in these areas. (Absorptive capability refers to the ability of the landscape to conceal human activity and developments, such as roads and parking lots.) With the exception of the riparian area immediately below the dam, the north and east sides of the lake have less absorptive capability than other areas around the lake. The vegetation types at these locations lack the height, density, and mass to screen human activity and developments.

The denuded areas adjacent to the west side boat ramp and the Rogue Aggregates' gravel pit are clearly visible from the east side of the lake. The existing OHV roads/trails along the steep west slopes are also visible. The denuded areas and some of the OHV roads/trails on the east and south sides of the lake are somewhat visible from the steep slopes on the west side of the lake. These areas, in particular, negatively affect the visual quality of the area.

Map 3-6.—Designated Off-Road Vehicle Use Map.

Color foldout

Environmental Consequences

Alternative A.—Under the No Action Alternative, no mandates would be imposed on the types of recreational activities that could occur within the Lake Area Boundary, and no land or public use restrictions would be imposed on where they could occur. Although no recreation facilities are expected to be developed within the Lake Area Boundary, future development would not be precluded.

Maintaining current management practices would allow dispersed and uncontrolled recreation use to continue throughout the Lake Area Boundary. No new recreational opportunities would be created to enhance the visitor experience. Visitor health and safety would continue to be compromised by the lack of adequate sanitary facilities and law enforcement. Conflicts among the different types of users would continue. In addition, dumping and other unauthorized activities likely would continue. As a result, visitation and the quality of the recreation experience for most users would continue to decline.

OHV use regulations would be enforced at the same level as they are today, and the 1978 OHV plan would not be modified. Conflicts between OHV users and other recreationists within the Lake Area Boundary would, therefore, continue.

Repair of the existing perimeter fence would better delineate Reclamation's jurisdictional and JCP's management boundary. Removing the abandoned pump house, baseball dugouts, and backstops would help enhance the visual quality of the area in the short term but would probably be offset by the continued degradation of the visual resources caused by OHV use around the lake.

The District would continue to incur additional O&M costs and liability risks associated with the use of the dam by waterfowl hunters and the use of the dam, feeder canal, and spillway area by the general public.

Alternative B.—More recreational opportunities and facilities would be available under this alternative than under Alternative A. Visitors would be directed into the developed use area, thereby protecting natural resources. Informational, directional, and regulatory signage would be placed at appropriate locations.

Development of the day use sites on the west side; establishment of a nonmotorized multiple use trail circumnavigating the lake; extension of the west side concrete boat ramp; upgrade of the primitive boat ramp on the east side; and the construction of the parking lots on the west and east sides of the lake would increase recreation opportunities, visitation, and enhance the visitor

experience for most users. Observation and interpretative platforms along the developed trails would provide educational information. Extending the length of the existing west side concrete ramp would allow boaters to use the lake for a longer period of time during the recreation season. Assuming that the two parking lots on the east and west sides of the lake are developed and fully used by boaters under this alternative, the number of boaters using the lake at any one time on weekends could increase from an estimated 15 to 22 (approximately a 50-percent increase). The assumption also has to be made that weekend boat use would be limited to the number of vehicles with trailers that can fit into the two parking lots. Assuming that weekday use drops approximately 66 percent from weekend use, it can be assumed that weekday use might increase from an estimated 6 to 7 boaters. As boating visitation increases, the number of visitors experiencing a feeling of crowding may also increase due to the limited water surface acres. As new recreationists visit Agate Lake, long-time users would likely experience this feeling of overcrowding.

Proper trail design and siting would offer increased opportunities for wildlife viewing, sightseeing, bird watching, and other nonconsumptive uses and would limit user conflicts.

Termination of Reclamation's OHV proposal would decrease user conflicts and is expected to increase visitation to the area because many of the past user conflicts were caused by uncontrolled OHV use. OHV users would be restricted to the new road system within the Lake Area Boundary or displaced to other areas that allow OHV use.

Allowing hunting to continue, except at the dam, could increase the number of conflicts between hunters and other recreationists. Nonhunters may be displaced to other areas during the hunting season. Because the dam would be closed to hunting, waterfowl hunters who previously used the dam would be displaced to other areas within the Lake Area Boundary or to other water bodies.

Because the general public would no longer be allowed access to the dam and spillway area, their health and safety would be protected, and the District's O&M costs and liability would decrease.

Visitors would feel more secure because an onsite resident manager would be present during the summer recreation season.

The orderly development of facilities and closure of the roads are expected to improve the visual quality of the area. The closed roads would be reclaimed to their natural state, and the facilities would be designed to be harmonious with the surrounding landscape.

If public demand indicated that additional day use sites were needed, JCP would construct the facilities in the southern peninsula area. This development would tend to increase visitor use of

land-based types of recreation activities, such as hiking and picnicking, and of water-based activities, such as bank fishing and swimming.

Alternative C.—A maximum amount of recreation development would occur under this alternative. This alternative would provide for a limited number of overnight campgrounds, commercial services, high-density day use sites and associated support facilities, and paved multiple use and unpaved horse trails circumnavigating the lake. All interior roads would be paved. Therefore, substantially more recreational facilities and opportunities would be available than under the other alternatives.

Impacts expected under this alternative are similar to those for Alternative B, except for the possible increased impacts directly attributed to the construction of additional trails, a greater number of day use sites, and the construction of overnight campsites and associated facilities (e.g., restrooms, picnic tables, grills, etc.). User conflicts could increase as the social, physical, and facility carrying capacity limits are met or exceeded. Eliminating all dove and waterfowl hunting and OHV use within the Lake Area Boundary would displace those users to other areas offering those opportunities. Visitation at other areas would, therefore, increase. Although hunters and OHV users would be displaced to other areas, the increase in visitation that would result from expanded facilities and opportunities would more than offset any decrease in visitation resulting from the elimination of hunting and OHV use. As user conflicts increase, some visitors may be displaced to other areas that receive less use.

For some visitors, visual quality might decrease as the ability of the land to absorb development is exceeded; however, proper site planning prior to development may offset any potential adverse impacts that could be caused by increased facility development.

Residual Impacts

As Project lands are used for developments such as trails, day use areas, and parking lots, less natural appearing landscape would be available for public use. This would be true for both action alternatives; however, closing OHV and other nonessential roads and eliminating unauthorized use activities would more than offset any loss of natural appearing landscape that may be caused by future developments.

Cumulative Impacts

Except for the No Action Alternative, the cumulative impacts of controlling unauthorized uses and restricting the public to developed recreation sites and trails would be the displacement of users who desire an unconfined and uncontrolled recreational experience. Therefore, visitation at other recreation areas that offer dispersed and uncontrolled use would increase. Both action alternatives would tend to increase visitor use, thereby increasing traffic and congestion on the roads surrounding Agate Lake. However, traffic would increase only during the recreation season (June to September), with the heaviest concentrations occurring on weekends and holidays.

Mitigation

No mitigation measures would be needed for closing roads to prevent resource damage and other unauthorized uses. No mitigation has been identified for controlling unconfined and dispersed recreational use, enhancing visual quality, recreation opportunities, and the quality of visitor experience. Recreation facilities would complement the surrounding landscape as much as is practical and would follow strict design and construction criteria, guidelines, and standards. Carrying capacity limits and user demand would be properly determined before major facility development occurs. Proper regulatory and informational signage would be posted throughout the area instructing the public of the rules and regulations governing the use of federally owned and JCP managed lands within the Lake Area Boundary.

Socio-Economics

Affected Environment

Agate Lake is located in Jackson County, Oregon, about 11 miles northeast of Medford, the county seat and largest city in the county. (See **Map 1-1, Location Map.**) Unincorporated White City, the nearest community, is approximately 5 miles west of Agate Lake.

The populations of Jackson County and Medford have grown steadily from 1970. The county population was estimated to be 172,800 in 1998. Medford's 1998 population was estimated to be 58,900. The 1990 population of White City was 5,891. The county population is projected to be

210,400 in 2015 and 233,000 in 2025. The largest minority group in the area is Hispanic. In 1990, approximately 5 percent of the population of Medford and White City and approximately 4 percent of the county population were Hispanic.

The median family income in Medford in 1990 (latest data available) was \$31,332, with 11.5 percent of all families below poverty level and an unemployment rate of 7 percent. In 1990, the median family income in White City was \$22,783, with 20.4 percent of all families below poverty level and an unemployment rate of 13.5 percent. The median family income in Jackson County in 1990 was \$29,800, with 9.7 percent of all families below poverty level and an unemployment rate of 7.4 percent. In comparison, the 1990 median family income for the State of Oregon was \$32,336, with 8.7 percent of all families below poverty level and an unemployment rate of 6.2 percent. The 1990 median family income in the United States was \$35,225, with 10 percent of all families below poverty level and an unemployment rate of 6.3 percent.

The economy of Jackson County is based in timber, agriculture, software, tourism, and retirement but is experiencing strong growth in nonfarm employment, primarily in the trades and services sectors. Employment in manufacturing outside of the timber and wood products industries also continues, with an increase of 38 percent during the past decade. Overall, employment grew by 3.1 percent between 1995 and 1996.

Degradation and increased occurrence of unauthorized activities within the Lake Area Boundary have made it unattractive and unacceptable to many potential users. The lack of enforcement of existing laws and regulations make it attractive to those who wish to engage in such activities as drug use, underage drinking, reckless driving, or vandalism. Recreationists who do not wish to participate in or be around such activities no longer regularly visit the area.

Nearby residents are bothered by noise and people coming to their homes asking for assistance and would like to have security and law enforcement for the area.

Many residents are interested in and concerned about the area. They have expressed desire for the area around Agate Lake to be cleaned up and made attractive for use by law abiding citizens. The Jackson County area is noted for its community spirit and volunteerism.

Environmental Consequences

Alternative A.—Current population, income, and employment trends would continue. Further degradation and increased unauthorized uses of the area would make it unattractive and unacceptable to most users; only those wishing to engage in these activities would find the area acceptable. These users would continue to disturb residents near Agate Lake.

Alternative B.— Population, income, and employment would not be affected under this alternative. Increased security and law enforcement would reduce or eliminate unauthorized activities within the Lake Area Boundary. As a result, greater numbers of visitors who prefer a safer controlled recreation environment are likely to be attracted to the area. These visitors would be less likely to disturb local residents. Users who previously engaged in unauthorized activities would be displaced to other areas, likely causing or increasing problems there.

Alternative C.—Impacts would be about the same as under Alternative B. Nearby residents would encounter increased traffic volume during the summer because of increased visitation.

Residual Impacts

With implementation of either action alternative, visitors to the Lake Area Boundary may still seek assistance from nearby residents in emergencies. Also, although increased security and law enforcement would be provided under both action alternatives, occasional trespass and vandalism of adjacent lands may still occasionally occur. However, these incidents would be less likely to occur.

Cumulative Impacts

No cumulative impacts have been identified.

Mitigation

No mitigation has been identified.

Cultural Resources and Traditional Cultural Properties

Affected Environment

Cultural resources are historic and traditional properties that reflect our heritage. Historic properties include prehistoric and historic archeological sites, buildings, and places that are eligible for inclusion in the Register. Traditional cultural properties (TCPs) are places of special heritage value to contemporary communities (often, but not necessarily, Indian communities) because of their association with the cultural practices or beliefs that are important in maintaining the cultural identity of that community.

Archeological investigations have documented prehistoric use of southwestern Oregon for at least 10,000 years, possibly extending back to around 11,500 years before present. Aikens (1986) characterizes the population of the Rogue River basin subarea as “mountain people, relatively few in number and isolated by the ruggedness of their country into scattered bands.” Linguistic studies and historical data document that, at the time of European contact, the Rogue River Valley in the Medford vicinity was occupied by the Upland Takelma, with additional Takelma bands to the north, the Klamath and Shasta to the east and south, and various Athabaskan-speaking bands further north and to the west (DePuydt et al., 1903).

Tribes throughout the Rogue River basin followed a seasonal round designed to maximize the harvest of natural resources. Important resources were fish, acorns, camas, and large and small game. People typically wintered in villages located in the valley bottoms near favored fishing locations. In the spring through the summer, people scattered to camps throughout the valleys and uplands, where they harvested camas, hunted, and gathered acorns and other plant resources. In the fall, they returned to the rivers to fish.

Europeans first visited the interior of southwestern Oregon in 1826-27, when a Hudson’s Bay Company fur trapping expedition passed through the area. From this time onward, trappers, emigrants, and others moving between the Willamette Valley and California traveled through the area. Few stayed, however, until 1850 when gold was discovered near present-day Jacksonville. Miners clashed with resident Indians; and, in 1853, the Rogue Indian War erupted. Soon afterward, area tribes signed a treaty with the U.S. Government and were moved from their homelands to reservations. With peace restored, settlement increased; and, by 1860, farms and small orchards had been established along Bear Creek from present-day Ashland to Brownsboro. However, it wasn’t until the Southern Pacific Railroad line from San Francisco to Portland was

completed in 1887 that the population boomed. The local economy was based upon timber and agricultural industries, with much of the new agriculture focused upon fresh fruit for export (DePuydt et al., 1993; Pfaff, 1998).

The infant orchard industry needed an adequate water supply, and many early orchards failed due to insufficient and unreliable water supplies. In 1898, the Fish Lake Water Company (FLWC) organized to develop an irrigation system intended to provide water to 55,000 acres in the Bear Creek Valley below the town of Talent. FLWC distributed promotional literature with embellished accounts of flourishing area agriculture, leading to a new influx of settlers. By 1907, nearly 10,000 acres were planted in orchards, including lands not yet receiving irrigation service. However, the FLWC lacked the financing to complete its project; and, from 1908 to 1917, very little additional irrigation development occurred. Many farmers without water were forced to sell their lands. In 1916-17, in response to the situation, local farmers voted to form irrigation districts; and the newly formed districts purchased the water rights and existing irrigation improvements to lands within their service boundaries. The Medford Irrigation District (MID), Rogue River Valley Irrigation District, and Talent Irrigation Districts (TID) were formed at this time. In 1953, Reclamation estimated that approximately 20,000 acres within the Bear Creek Valley were irrigated, with no unallocated water available for additional irrigation development (Pfaff, 1998). However, studies indicated that additional water could be made available through construction of new storage reservoirs. In 1954, the Congress approved a bill to expand and rehabilitate the irrigation system serving TID and MID. In 1962, the Congress amended the 1954 bill to approve construction of Agate Dam and Lake to serve the Rogue River Valley Irrigation District (Pfaff, 1998). Agate Dam was completed in 1966.

Previous Investigations

No archeological survey was completed within the Lake Area Boundary before construction of the dam and lake. Therefore, to collect cultural resources information for RMP planning, Reclamation contracted with Heritage Research Associates of Eugene, Oregon, for an archeological survey of selected lands. The survey was completed on January 4 and 5, 1999. Reclamation selected the lands to be surveyed based upon the following criteria: (1) evidence of present focused recreational use; (2) probable continued focused use under the RMP; (3) lake operation impacts; and (4) mineral soil visibility to aid survey. Approximately 65 acres of lands, plus about 5 linear miles of shoreline and dirt roads, were surveyed, including: (1) lands on the west side from the dam to about 2,000 feet south, extending from the low water shoreline west to the Medford Canal; (2) the east peninsula; (3) the east boat launch area; (4) the entire shoreline perimeter; (5) all existing roads and trails on the west side; and (6) existing roads and trails on the east side leading to the boat launch and the peninsula. No surveys were performed below the

dam. The contractor was to complete limited test probing of all recorded sites to collect preliminary information about soils and subsurface site content. However, the ground was so saturated with water that the soils could be screened only with great difficulty; so preliminary testing of most of the locations was deferred. However, unanticipated delays prevented the contractor from completing the initial archeological testing in 1999. It is expected to be completed in 2000. All necessary testing to determine if sites near impact areas are eligible for the Register will be completed before the final selection of improvement sites.

The survey resulted in discovery of 11 concentrations of archeological material. The characteristics of the possible sites are summarized in table 3-4. Only three of the recorded locations contain 10 or more stone flakes or tool fragments within a 10-meter-diameter area, which is the minimum requirement necessary to meet the Oregon State Historic Preservation Office (SHPO) definition of an archeological site. One location included a circular depression.

Table 3-4.—Characteristics of possible archeological sites within Lake Area Boundary

Location	Characteristics	Potential direct effects
1	8 flakes, 10- by 20-meter (m) area, in drawdown zone and dirt road	Place operations, off-highway vehicle, near trail/observation and interpretive platform in Alternative B, near camping in Alternative C
2	15 flakes, 3 tools, 1 core in 20- by 60-m area, in pool	Same as for location 1
3	2 flakes, 1 tool fragment, in 20- to 30-m square area along road	Recreational use, all alternatives
4	2 flakes, 20- by 40-m area	Possible impacts by previous recreational development
5	1 tool, 2 flakes in 10- by 30-m area in drawdown zone	Lake operations
6	3 "possible" flakes in 10- by 20-m area	Lake operations
7	2 flakes, 1 tool, 1 "possible" core in 10- by 30-m area in drawdown zone	Lake operations
8	2 "possible" flakes in 10-m area in drawdown zone along a road	Lake operations and recreational use
9	25 flakes, 1 tool in 30- by 100-m area in drawdown zone	Lake operations
10	20 flakes, 2 tools in 20- by 60-m area in drawdown zone	Lake operations
11	Depression, 2 "possible" flakes ¹ in drawdown zone	Lake operations

¹ "Possible" flakes or tools are those that might not have been created by human activities but have the general appearance of tools or tool-making debitage. Further investigations are needed to determine if they are the product of human activity.

The depression was filled with water when surveyed, and test excavations will be needed to determine if the depression is an archeological or a natural feature. Testing will also be needed

to determine if any of the other 10 recorded sites or locations contain archeological deposits that would make them eligible for listing on the Register and to assess the impacts of existing uses on those sites (Oetting, 1999).

In the summer of 1999, Reclamation's archeological contractor, Heritage Research Associates, contacted appropriate area Indian tribes to determine if the tribes have knowledge of archeological sites or TCPs within the Lake Area Boundary and to learn if they had related cultural resource management concerns. The contractor received no response. During the EA public review period, Reclamation again contacted the tribes to notify them about the proposed project, request the same information, and to indicate its availability for face-to-face meetings, if desired. Reclamation received no response. Reclamation provided a copy of the draft EA to the SHPO for review and received no response. Therefore, Reclamation will complete specific Section 106³ consultations with tribes and the SHPO during the planning period before implementing RMP actions that could potentially affect unidentified archeological resources or TCPs.

Environmental Consequences

Alternative A.—Nine of the 11 recorded cultural material locations, including all 3 of the locations that meet the SHPO definition of an archeological site, are located within the upper margins of the lake drawdown zone. If testing demonstrates that any of these locations contain Register-eligible cultural deposits, then it is likely that lake operations have and could continue to damage those deposits. Operational impacts on archeological sites typically involve eroding away the soils that surround artifact deposits and moving those artifacts both vertically and horizontally, which destroys scientifically valuable depositional data and exposes artifacts to relic collection. Repeated wet and dry cycles associated with the rising and falling of the lake accelerate the deterioration of organic materials in a site. Wakes generated by boats operating near the shoreline can cause bank erosion, affecting archeological deposits in the eroding areas.

Three of the 11 recorded locations are in or adjacent to existing dirt roads used by motorized vehicles. If testing demonstrates that these locations contain intact archeological deposits adjacent to or under the dirt road, then continued use of the road by motorized vehicles can

³ Section 106 of the National Historic Preservation Act requires Federal agencies to consider the effects of their actions on historic properties and to consult with the SHPO and other parties, as defined in the regulations (36 Code of Federal Regulations 800)

damage the archeological deposit. Types of damage typically caused by vehicles driving through an archeological site are artifacts being broken by the weight of passing vehicles and destruction of site depositional integrity when soft or wet soils containing cultural material are rutted and churned by vehicle tires.

Most of the recorded archeological sites and material concentrations are located along the lake shoreline, where public use is concentrated. Although no site vandalism has been documented, there is the possibility that visitors are collecting exposed artifacts. Relic collection reduces the scientific value of a site by removing artifacts that can be used to date when a site was used and to interpret its function and organization.

Under Alternative A, JCP and Reclamation would continue to provide only a limited level of land management oversight. Consequently, impacts on cultural resources that might be occurring from existing, largely unregulated uses would continue. Without an RMP, Reclamation would not programmatically plan for necessary additional cultural resource management activities to further survey, test excavate, or protect Register-eligible sites. Instead, cultural resource investigations would occur only in response to each new agency action, without a unified management approach.

Alternative B.—The possible erosional impacts from lake operations would continue under this alternative.

The presence of an onsite resident manager at the west side camping area would help prevent unauthorized uses that might damage cultural resources. At other reservoirs, Reclamation has noted a significant decrease in vandalism and unauthorized camping and other damaging uses when a camp host is present

No archeological sites or material concentrations were recorded at or near the west side boat ramp or east boat launch or on lands that would be crossed by an improved access road to the east boat launch. Therefore, construction for these improvements and the focus of public use in these areas would have no effect upon archeological resources. It cannot presently be determined if there would be any impacts upon TCPs.

Closure of most of the roads presently open to motorized vehicles and unauthorized tracks would prevent continued vehicle damage to archeological or TCP sites, where such damages are presently occurring. The probability of new unauthorized dirt tracks being created by motorized users would be reduced because of the improved access road to the east side boat launch and enforcement of the motorized vehicle closure to other areas. As a result, the spread of vehicle-induced damages to archeological and TCP resources throughout the Lake Area Boundary would

be prevented. Closure of vehicle access to much of the area would most likely also reduce the number of visitors to lands away from the boat launches or the shoreline, which would reduce the probability of users collecting exposed archeological materials in those areas.

A nonmotorized multiple use trail, observation and interpretive platforms, and a parking lot are proposed at the north side of the lake. The archeological survey did not include that area. The segments of these developments that are located on the crest or toe of the dam should not impact archeological or TCP sites, since those areas are either fill or were extensively disturbed during dam construction. The remainder of the potential impact area from the north trail features will require survey to determine if cultural resources are present.

The trail and observation and interpretive platforms along the west side could impact archeological resources. One proposed trail loop and platform are located in an area where one archeological site and one cultural material concentration were recorded. If subsequent test excavations demonstrate that the site or material concentration are eligible for the Register, then construction of trail facilities could damage or destroy significant archeological deposits. Focusing public use in the area would expose the sites to relic collection or vandalism. However, this area appears to presently be a popular recreation area, including unauthorized camping. Therefore, potential impacts from trail and platform construction and use may be less damaging than the present uncontrolled vehicle access and public use of the same area. Elsewhere along the west side, if the trail uses the existing roads, it could cross as many as four of the cultural material concentrations. If they are Register eligible, then construction associated with trail improvement could impact significant archeological deposits, and pedestrian use of the trail could increase the potential for relic collection by trail users. If a new trail alignment were to be established through previously undisturbed areas, then additional archeological surveys and testing would be needed to determine if Register-eligible sites lie within the alignment.

Alternative C.—Impacts would be the same as for Alternative B. No archeological sites were found in the area tentatively identified for the camping sites and restroom, so that development would have no impact upon resources.

Residual Impacts

Some level of relic collection may occur by visitors.

Cumulative Impacts

No cumulative impacts have been identified.

Mitigation

All Alternatives.—Mitigation under any alternative would occur only if cultural resources are present that are eligible for the Register and they are being adversely affected by lake operations or land uses or are being damaged by natural agents.

- Reclamation’s policy is to seek to avoid impacts to cultural resources whenever feasible. If an action is planned that could adversely affect an archeological or TCP site, then Reclamation will investigate options to avoid the site.
- Cultural resource management actions will be planned and implemented consistent with consultation requirements defined in 36 CFR 800, using methods consistent with the Secretary of the Interior’s *Standards and Guidelines*.

Alternative A.—No mitigation actions are proposed under Alternative A, since no new undertaking will occur. However, Reclamation recognizes that, under Section 110 of the National Historic Preservation Act, a Federal agency is responsible for the stewardship of cultural resources on lands under its jurisdiction. Therefore, as funding becomes available, Reclamation, over time, will complete test excavations at the recorded archeological sites/material concentrations that could potentially be affected by ongoing operations and existing uses sufficient to determine if the site is eligible for the Register. If a site is determined eligible, then as funding is available, Reclamation will take action to protect a site from adverse impacts.

Action Alternatives.—Specific mitigation requirements cannot be identified until test excavations are completed to determine if recorded sites or material concentrations are eligible for the Register. Also, the routes or locations of improvements must be more specifically identified to determine if they will affect eligible sites. The following mitigation strategies presume that one or more archeological sites and/or TCPs will be determined eligible for the Register and will be affected by proposed actions or lake operations. The exact nature of treatment would be determined in consultations with the SHPO and others, as appropriate, and documented in a memorandum of agreement with the consulting and interested parties.

To mitigate the impacts on cultural resources from an action alternative, Reclamation would implement any of the following activities, as appropriate to the resource type and the nature of the impact:

- Prepare a cultural resource management plan (CRMP), which would identify affected sites and the sources of impacts and define additional investigation or protective actions appropriate for each site. The CRMP would serve to support requests for funding to implement necessary actions.
- Periodically monitor Register-eligible or unevaluated sites to assess impacts and the need for investigative or protective action.
- Place protective materials over portions of sites being impacted by erosion or road or trail construction or use to prevent additional disturbance.
- Recover site data through systematic surface collection or excavation and provide resulting reports to the professional community and interested public.
- Further consult with tribes about appropriate actions to protect endangered TCP sites, if such are present, and implement those actions where reasonable and feasible.
- Incorporate information about cultural resources into brochures, observation and interpretive platforms, and other educational materials created for use at the lake.

Indian Trust Assets

Affected Environment

Indian trust assets (ITAs) are legal interests in property held in trust by the United States for Indian tribes or individuals. Examples of trust assets are lands, minerals, hunting and fishing rights, and water rights. The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to Indian tribes or Indian individuals by treaties, statutes, and Executive orders, which rights are sometimes further interpreted through court decisions and regulations. This trust responsibility requires Reclamation to take all actions reasonably necessary to protect trust assets.

During the EA public review period, Reclamation notified area tribes and the U.S. Bureau of Indian Affairs (BIA) about the proposed project and requested information about the presence of

ITAs within the Lake Area Boundary. By telephone on January 18, 2000, BIA's Siletz Agency informed Reclamation that no ITAs are known to exist within the study area. Reclamation requested the same information from the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Grande Ronde Community of Oregon, the Klamath Tribe, and the Cow Creek Band of the Umpqua Tribe of Indians but did not receive a response from any of the tribes.

Environmental Consequences

As discussed under "Affected Environment," no Indian trust assets have been identified within the Lake Area Boundary.

Residual Impacts

No residual impacts have been identified.

Cumulative Impacts

No cumulative impacts have been identified.

Mitigation

No mitigation has been identified

Indian Sacred Sites

Affected Environment

Sacred sites are defined in Executive Order 13007 as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site." Federal agencies are required, to the extent practicable, to

accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sites.

No Indian sacred sites are known to exist within the Lake Area Boundary. JCP has no knowledge of past or ongoing use of Agate lands for Indian religious purposes, and it has not received requests for such use. During the EA public review period, Reclamation notified area tribes (listed under “Indian Trust Assets”) about the proposed project and requested information about the presence of Indian sacred sites within the Lake Area Boundary. Reclamation indicated it was available for face-to-face meetings, if desired. Reclamation received no response. Therefore, before implementing RMP actions that could affect Indian sacred sites, Reclamation will contact the tribes to determine if they are aware of the presence of any sites in specific impact areas.

Environmental Consequences

Possible impacts to Indian sacred sites cannot be clearly determined until consultations are completed to learn if such sites are present. If sacred sites are identified, then Reclamation will ask the informant to identify the nature of any impacts from proposed actions on those sites.

Residual Impacts

If sacred sites were present and were being adversely affected by operations or land use and Reclamation could not find means to avoid the impact, then a residual adverse impact would exist.

Cumulative Impacts

No cumulative impacts have been identified.

Mitigation

Executive Order 13007 does not authorize agencies to mitigate for the impact of their actions upon Indian sacred sites. However, it does direct them to avoid adverse impacts when possible. If consultations determine that adverse impacts are occurring (Alternative A) or would occur from implementation of any action alternative, then Reclamation would seek means to avoid adverse impacts.

Environmental Justice

Executive Order 12898, dated February 11, 1994, requires agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minorities and low-income populations and communities as well as the equity of the distribution of the benefits and risks of their decisions. To comply with the environmental justice policy established by the Secretary of the Interior, Reclamation is to identify and evaluate any anticipated effects, direct or indirect, from the proposed project, action, or decision on minority and low-income populations and communities, including the equity of the distribution of the benefits and risks.

Affected Environment

As discussed under “Socio-Economics,” the largest minority group in the area is Hispanic. In 1990, approximately 5 percent of the population of Medford and White City and approximately 4 percent of the county were Hispanic. In 1990, 11.5 percent of all families in Medford, 20.4 percent in White City, and 9.7 percent of all families in Jackson County were below poverty level. Approximately 43 percent of area residents have low to moderate incomes. Low-income families and individuals are among the visitors to the Lake Area Boundary.

Environmental Consequences

Alternative A.—Further degradation and increased unlawful uses within the Lake Area Boundary would make it unattractive and unacceptable to most users. Low-income groups would continue to be affected, because there are few, if any, similar areas nearby without user fees.

Alternative B.—Without user fees, use of Agate Lake by all groups, including low-income individuals and families, would likely increase because of increased recreational opportunities.

User fees could affect the use of the area by low-income families and individuals. For some, imposition of any fee would preclude use of the area, while others would be able to visit less frequently.

Alternative C.—With user fees, use of Agate Lake by all groups, including low-income families and individuals, would likely decrease.

Residual Impacts

No residual impacts have been identified.

Cumulative Impacts

No cumulative impacts have been identified.

Mitigation

To offset possible negative impacts to low-income visitors, entrance and user fees would be structured to allow many individuals and families of different income levels to use Agate Lake lands and facilities. In addition, a range of recreational opportunities that appeal to a wide variety of visitors, including low-income users, would be provided.

Unavoidable Adverse Impacts

Unavoidable adverse impacts are assumed to be long-term impacts to resources that would be affected by implementing the RMP. No unavoidable adverse impacts are expected as a result of this action.

Relationship Between Short-Term Uses and Long-Term Productivity

For this study, short-term is defined as the 10-year planning life of the RMP. Implementation strategies proposed in the RMP will be accomplished within this 10-year timeframe. Even though rehabilitating and revegetating certain areas to their natural state (i.e., prior to Project

construction) may require more than 10 years, that process will begin during the planning life of the RMP (short term). Long term is defined as any time period beyond the 10-year planning life of the RMP and the remaining life of the Rogue River Basin Project. As long as the Project is used for water storage for agriculture and other purposes, pressure on the natural resources within the Lake Area Boundary will continue. This long-term pressure can be attributed to Reclamation's and JCP's efforts to accommodate visitor use through the development of public use facilities and the use of the dam, lake, and water distribution facilities for the benefit of Project beneficiaries (i.e., agricultural users).

The management actions detailed in the EA are intended to reverse the deterioration of the environment that is occurring under current conditions. It is assumed that the short- and long-term goals and objectives for managing the area would not change over time and that there will be no loss of productivity of the natural and social environment.

Irreversible and Irrecoverable Commitments of Resources

Irreversible and irretrievable commitments are considered to be the permanent reduction or loss of a resource.

Implementation of any of the alternatives would not result in any irreversible loss of resources. Any irreversible commitment of resources would be attributed to the use of Federal lands for the original construction of the dam, lake, and associated water conveyance features. These resources already have been irreversibly committed for the life of the Rogue River Basin Project.

No irretrievable commitments of resources are considered under any of the action alternatives. Although the action alternatives suggest different degrees of recreation development and increased visitor use, they are intended to either enhance and/or protect the wildlife, recreational, and physical resources within the Lake Area Boundary. Implementation of the No Action Alternative may have negative and irreversible effects on vernal pools, wildlife habitat, soils, and water quality. Additional information and analysis would be needed to determine if the No Action Alternative would have a significant negative effect on existing resources to the point that they would be considered irretrievable. If the RMP were not implemented, the irreversible commitment of existing resources would essentially be the same as if the No Action Alternative were implemented.

Chapter 4 Consultation and Coordination

Public Involvement
Agency Consultation and Coordination
Tribal Consultation and Coordination
Adjacent Landowners
Other

CHAPTER 4

Consultation and Coordination

This chapter describes Reclamation's public involvement activities and its consultation and coordination with other agencies and tribes during the course of preparing the environmental assessment.

Public Involvement

Reclamation held a public meeting in November 1998 in White City, Oregon, to provide information and solicit input about the proposed project. Before the meeting, a notice of the meeting, background information, and a comment sheet were sent to those on the mailing list provided by JCP. A paid notice of the meeting appeared in the Medford *Mail Tribune* newspaper. A JCP representative personally contacted representatives of several local agencies and invited them to attend the meeting. Approximately 30 people, mostly private citizens, attended. Reclamation and JCP representatives provided an overview of the study. Attendees' questions and comments were recorded on a flipchart, and several comment sheets and additional information were turned in at the end of the meeting. A total of 15 written comments were received by mail before and after the meeting. The comments are summarized in chapter 1.

About 300 copies of the draft environmental assessment were distributed on October 21, 1999, for a 60-day public review. A public meeting was held on November 9, 1999, in White City, Oregon, to discuss details of the alternative formulation process, the alternatives and associated environmental impacts, and information to be included in the RMP. Notice of the meeting was provided in a letter accompanying the EA, in a press release to area media, and in a paid notice in the Medford *Mail Tribune* newspaper. Approximately 40 people, mostly local residents, attended the meeting. A total of 22 letters were received. Copies of these letters and Reclamation's responses to them are included in appendix II of this document.

Agency Consultation and Coordination

Fish and Wildlife Coordination Act, as Amended, and Endangered Species Act of 1973, As Amended

Reclamation consulted with the Fish and Wildlife Service, as required by the Fish and Wildlife Coordination Act and Section 7 of the Endangered Species Act. The Service provided a list of federally listed and proposed endangered and threatened, candidate species, and species of concern that may occur in the study area (**attachment G**). The draft EA evaluated impacts to the bald eagle, a threatened species; peregrine falcon, an endangered species (now delisted); the northern spotted owl, a threatened species; the vernal pool fairy shrimp, a threatened species; and candidate species, such as the Oregon spotted frog, as well as species of concern, such as the olive-sided flycatcher. On the basis of this evaluation, Reclamation has determined that the preferred alternative “may affect, but is not likely to adversely affect,” listed, proposed, or candidate ESA species. The evaluation of endangered species contained in the EA will serve as Reclamation’s biological assessment.

The Service concurred with Reclamation’s finding of “may affect, but not likely to adversely affect.” Therefore, further consultation or conferencing or preparation of a more detailed biological assessment are not required. In conformance with the Fish and Wildlife Coordination Act, the Service prepared a Planning Aid Memorandum following its review of the draft EA. Recommendations made by the Service in its Planning Aid Memorandum have been incorporated into the RMP and final EA.

Five species of anadromous fish were included on the Service’s list. However, suitable habitat for these species does not exist within the Lake Area Boundary. In addition, no changes would be made in Agate Lake operations that would affect habitat in Little Butte Creek or Bear Creek. The National Marine Fisheries Service received a copy of the draft EA for its review and submitted no comments.

National Historic Preservation Act of 1966, as Amended

In the summer of 1999, Reclamation’s archeological contractor, Heritage Research Associates, contacted appropriate area Indian tribes to determine if the tribes have knowledge of archeological sites or traditional cultural properties within the Lake Area Boundary and to learn if they had related cultural resource management concerns. The contractor received no response. During the EA public review period, Reclamation again contacted the tribes to notify them about the proposed project, request the same information, and to indicate its availability for face-to-face meetings, if desired. Reclamation received no response. Reclamation provided a copy of the

draft EA to the SHPO for review and received no response. Therefore, Reclamation will complete specific Section 106¹ consultations with tribes and the SHPO during the planning period before implementing RMP actions that could potentially affect unidentified archeological resources or TCPs.

Tribal Consultation and Coordination

Indian Trust Assets

Reclamation requested information from the Bureau of Indian Affairs' (BIA) Siletz Agency about the presence of Indian trust assets (ITAs) within the study area. BIA informed Reclamation that no ITAs were known to exist within the study area. Reclamation requested the same information from the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Grande Ronde Community of Oregon, the Klamath Tribe, and the Cow Creek Band of the Umpqua Tribe of Indians but did not receive a response from any of the tribes.

Indian Sacred Sites

No Indian sacred sites are known to exist within the Lake Area Boundary. JCP has no knowledge of past or ongoing use of Agate lands for Indian religious purposes, and it has not received requests for such use. During the EA public review period, Reclamation notified the tribes listed under "Indian Trust Assets," about the proposed project and requested information about the presence of Indian sacred sites within the study area. Reclamation indicated its availability for face-to-face meetings, if desired. Reclamation received no response either to its request for a meeting or for information about the presence of Indian sacred sites. Therefore, before implementing RMP actions that could affect Indian sacred sites, Reclamation will contact the tribes to determine if they are aware of the presence of any sites in specific impact areas.

¹ Section 106 of the National Historic Preservation Act requires Federal agencies to consider the effects of their actions on historic properties and to consult with the SHPO and other parties, as defined in the regulations (36 CFR 800).

Government-to-Government Consultation

As discussed under “National Historic Preservation Act of 1966, as Amended,” “Indian Trust Assets,” and “Indian Sacred Sites,” Reclamation contacted area tribes to inform them about the proposed project; solicit input and information about archeological resources, traditional cultural properties, Indian trust assets, and Indian sacred sites; and to indicate its availability for face-to-face meetings, if desired. Reclamation did not initiate formal consultation soliciting the tribes’ participation in developing the RMP and EA because it was determined the tribes would not be affected by the proposed action.

Adjacent Landowners

Reclamation coordinated with city, county, State, and Federal agencies to ensure that proposed land uses would be compatible with adjacent land uses. JCP administers recreation use for Reclamation at Agate Lake, and Reclamation worked closely with JCP throughout the planning process and development of the environmental assessment.

In addition, Reclamation solicited information from adjacent landowners about existing and future uses of their lands. The following individuals/entities were contacted:

- Jackson County Roads and Parks Services, which supplied information about the Jackson County Sports Park, county ordinances, comprehensive county planning, Jackson County Fire District No. 3, and general background information pertaining to public use of Agate Lake.
- Rogue Disposal and Recycling, Inc., which supplied pertinent information pertaining to the solid waste landfill located south of the lake and along Dry Creek.
- Rogue Aggregates, which supplied information on the present and future operations of the commercial gravel pit which operates on adjacent lands to the west of the lake.
- Mr. Jim Cochran, operator of the Stone Ridge Golf Course immediately west of the lake, who supplied information regarding the present and future use of those adjacent lands and provided valuable insight into the problems encountered in operating a commercial business adjacent to public lands.

Other

Other agencies contacted in the course of preparing the EA include the following:

Rogue Valley Irrigation District
Rogue Valley Council of Governments
Oregon Department of Environmental Quality
John Thiebes, Wildlife Biologist, ODFW
Mike Evensen, Regional Fisheries Biologist, ODFW
Darren Borgias, ONHP, Ashland, Oregon

Environmental Commitments

Environmental Commitments

The following environmental commitments will be implemented to offset potential effects to the resources within the Lake Area Boundary that could occur if the preferred alternative were implemented. Although not listed here, the elements identified in the preferred alternative as needed for proper stewardship resources are also considered to be environmental commitments.

- Design and construction of facilities will employ best management practices to prevent possible soil erosion and subsequent effects on water quality.
- Developed facilities will complement the surrounding landscape and follow strict design and construction criteria, guidelines, and standards.
- Disturbed areas resulting from construction will be revegetated.
- Carrying capacity limits and user demand will be properly determined before construction of any major facility.
- Proper regulatory and informational signs will be posted, listing the rules and regulations that govern use of lands within the Lake Area Boundary.
- Jackson County Roads and Parks Services (JCP) and Reclamation-issued land use licenses, leases, and permits will contain sufficient language and stipulations to help protect existing resources and help mitigate possible conflicts among the various visitors and between visitors and adjacent land owners.
- OHV roads and disturbed areas that are not needed for trails or recreation facilities will be closed and revegetated.
- Prescribed burning and noxious weed control plans will be developed.
- Plant and animal species of concern will be identified, and a management plan will be developed.
- Completion of a regional vernal pool survey will be recommended, and a vernal pool management plan will be developed, as appropriate.

- In conjunction with site-specific implementation planning, additional archeological surveys, test excavations, or consultations with the State Historic Preservation Officer (SHPO) or Indian tribes will occur, as necessary, to comply with Section 106 of the National Historic Preservation Act.
- Funding will be requested to complete systematic archeological test excavations of recorded cultural material scatters to determine if deposits are present that are eligible for the National Register of Historic Places (Register). Reclamation will periodically monitor Register eligible sites or unevaluated cultural resources to assess impacts and the need for investigation or protection.
- If Register eligible archeological sites or traditional cultural properties are present, Reclamation will prepare a cultural resource management plan that defines additional investigation or protection appropriate for each site.
- If archeological investigations or tribal comments indicate Register-eligible cultural resources are present and are being adversely affected by land use or plan implementation actions, Reclamation will seek to avoid such impacts.
- If consultation with Indian tribes determines that Indian sacred sites are present and are being adversely affected by land use, then, when feasible, Reclamation will seek to implement actions to avoid such impacts.
- To offset possible negative impacts to low-income visitors, entrance and user fees will be structured to allow many individuals and families of different income levels to use Agate Lake lands and facilities.
- A long-term water quality monitoring plan will be implemented.

Preparers

Preparers

Name	Title	Contribution
Patty Alexander	Editorial Assistant	Editorial assistance and desktop publishing
Robert Black	Resource Manager	Study team leader
Susan Black	Social Science Analyst	Socio-economic analysis; environmental justice analysis; public involvement
Susan Broderick	Biologist	Biological resources analysis
Dianne Clark	Technical Writer-Editor	Report editing
Jack Jibson	Soil Scientist	Topography and soils analysis
Chuck Korson	Project Manager	Project management
Joseph Lyons	Hydrologist	Surface water hydrology analysis
Lynne MacDonald	Archeologist	Cultural resources property analysis
Kenneth Mangelson	Physical Scientist	Water quality analysis
Mary Lou Pierce	Landscape Architect	Map preparation
Monica Rodriguez	Editorial Assistant	Editorial assistance and desktop publishing
Darrell Welch	Outdoor Recreation Planner	Recreation and land use analysis

Distribution List

Distribution List

Congressional Delegation

U.S. Senators

Gordon H. Smith

Ron Wyden

U.S. Representative

Greg Walden

Oregon State Legislature

Lenn Hannon, Senator

Jason A. Atkinson, Representative

Susan Morgan, Representative

Rob Patridge, Representative

Judy Uherbelau, Representative

Federal, State, and Local Agencies

Department of the Interior

Bureau of Indian Affairs, Siletz, Portland

Bureau of Land Management, Medford

Oregon Cooperative Fishery Research
Unit, Corvallis

U.S. Fish and Wildlife Service, Portland

Department of Agriculture

U.S. Forest Service, Rogue River

National Forest, Medford

U.S. Soil and Conservation Service, Salem

Jackson County

Commissioners, Medford

Department of Health and Human Services,
Medford

Fire District No. 3, White City

Planning Department, Medford

Roads and Parks Services, White City

Sheriff's Office, Medford

Little Butte Creek Watershed Council,
Eagle Point

Mayor of Central Point, Central Point

Rogue Valley Council of Governments,
Grants Pass

State of Oregon

Department of Agriculture, Salem

Department of Environmental Quality,
Medford

*Department of Fish and Wildlife, Central
Point

Department of Forestry, Central Point

Department of Land Conservation and
Development, Salem

Department of Rangeland Resources,
Corvallis

Department of Transportation, Bend

Division of State Lands, Salem

Governor, Salem

Historic Preservation Office, Salem

Marine Board, Salem

Parks and Recreation, Salem

State Police, Central Point

Watermaster, Medford

Water Resources Department, Salem

White City Urban Renewal, Medford

Indian Tribes

Confederated Tribes of Siletz Indians, Siletz

Cow Creek Band of Umpqua Tribe of Indians,
Medford and Roseburg

The Confederated Tribes of The Grand Ronde
Community of Oregon, Grand Ronde

The Klamath Tribe, Chiloquin

* Commented on draft environmental assessment.

Libraries

Ashland Public Library, Ashland
 Central Point Public Library, Central Point
 Eagle Point Public Library, Eagle Point
 Jackson County Ruch Library, Jacksonville
 Jacksonville Public Library, Jacksonville
 Medford Public Library, Medford
 Phoenix Public Library, Phoenix
 Shady Cove Public Library, Shady Cove
 Talent Public Library, Talent
 White City Public Library, White City

Interested Organizations*Environmental Groups*

Audubon Society, Ashland
 Native Plant Society, Jacksonville
 The Nature Conservancy of Oregon, Ashland
 Oregon Environmental Council, Portland
 Oregon Natural Heritage Program, Portland
 Oregon Natural Resources Council, Portland
 *Rogue Group Sierra Club, Ashland
 Rogue Valley Audubon Society, Medford
 Water Watch of Oregon, Portland

Water Districts

Medford Irrigation District, Medford
 *Rogue River Valley Irrigation District,
 Medford
 Talent Irrigation District, Talent

Other Organizations and Individuals

*Adee, Eileen, Medford
 Arute, Carolyn, Eagle Point
 Ashcraft, Rex, Central Point
 Bell, Frank E./Mary K., Eagle Point
 *Benson, Pat Wolfe, Medford
 *Boren, Roderick C., Eagle Point
 Buffaloe, Robert/Jacqueline, Eagle Point
 Cochran, James A./Tamara L., Medford
 Crisel, C.A./Amanda S Hertz, Eagle Point
 Cupernall, Steven, Medford
 Davis, Thomas A./Kathleen E., Belfair,
 Washington
 Elam, Merline J./Judith E., Eagle Point
 *Eliason, Jeanette, Medford
 *Erwin, Alan/Myra, Ashland

Eubanks, T.H., White City
 *Ferris, Don, Eagle Point
 *Frazee, Deborah/Phillip, Eagle Point
 Frei, Gordon, Eagle Point
 Goble, Mark D./Angela P., Eagle Point
 Goetz, Steve & Laurie, Eagle Point
 *Greb, Ronald C./Sally M., Eagle Point
 Grove, Floyd W., Merlin
 Hanson, Mark E./Carrie M., Eagle Point
 Hetherton, Jack L. Sr., Eagle Point
 Hollinger, Daniel/Kimberlie, Eagle Point
 *Hutton, Randy, White City
 Jones, Steven E./Debbie, Eagle Point
 *Kahnert, Otto, Medford
 Konopasek, Bob/Joan, Medford
 Lemon, J Lloyd, Eagle Point
 Lininger, M.C. & Sons Inc., Medford
 Lovitt, Marsha, Medford
 Maier, Albert C./Gwen F., Eagle Point
 Matney, Frances S./Paul B., Eagle Point
 Mead, Andy C., Eagle Point
 Meeds, Homer D./Loretta, Jacksonville
 *Mercer, Carole L., Eagle Point
 Moore, Delbert G./Betty R., Eagle Point
 Muir, James B. III/Kathie A., Eagle Point
 Naumes Inc., Medford
 Nelmes, John, Eagle Point
 Newlun, Mike, Eagle Point
 Oregon Trout, Portland
 Oregon Water Resources Congress, Salem
 Pacific Power & Light Co., Hermiston,
 Portland
 Parker, Emmitt E./Burleigh M., Eagle Point
 *Phillips, Tom, Talent
 Pierce, John, Central Point
 Pingle, Allan E./Debra M., Eagle Point
 Pingle, Julia, Trustee, Butte Falls
 Pingle, Morley H., Co-Trustee, Butte Falls
 Powell, Margaret E., Eagle Point
 Raper, Darryl, Medford
 Regimbal, Gerald David, Eagle Point
 Resh, Larry J./Sonja M., White City
 Rogue Aggregates, Central Point
 Rogue Disposal & Recycling, White City
 Rogue Eagles, Medford
 Rovens, Edward, Medford
 *Rovens, Maryanne, Medford
 Russell, Bill, Medford
 Sands, Howard, Eagle Point

Shaffer, Gary, White City
 Shubin, Harry/Ardith, Eagle Point
 *Sims, Jim, Ashland
 Skivington, Ilse, Eagle Point
 Skivington, William/Berta, Eagle Point
 *Slessler, Larry, Medford
 *Smith, Thomas T./M. Diane H., Eagle Point
 Stegall, Larry S./Amy F., Eagle Point
 *Steinkamp, Steven, D., Central Point
 Stephens, Jacqueline Kay, Klamath Falls
 Stevens, Phillip C., Eagle Point
 Story, W.M. Jr./Judith A., Eagle Point
 Swanson, Valdomar, Ashland
 Sweeney, Thomas S./Jodeanna M., Eagle Point
 *Swisher, Otis D., Medford
 Teeters, Mark R., Medford
 Thompson, Leroy W./Brenda J., Santa Maria,
 California
 Walker, Charles/Beverly J., Eagle Point
 Walorny, Lawrence G., Eagle Point
 Wardle, Darran L./Tracie L., Eagle Point
 Warner, Jim, Prospect
 Weems, Robert D./Ilene C., Eagle Point
 Widmer, Donna, Medford
 Winkler, John J., Costa Mesa, California
 Zillgitt, Leroy R., Central Point

Media

Radio

KAKT/KBOY/KCMX/KTMT, Medford

Television

KDRV, Medford

KTVL, Medford

KSYS, Medford

Newspapers

Medford Mail Tribune, Medford

Jacksonville Review Newspaper, Jacksonville

Rogue River Press, Rogue River

Glossary

Glossary

A

absorptive capability.—The ability of the landscape to conceal human activity and developments, such as roads and parking lots.

acre-foot.—Volume of water (43,560 cubic feet) that would cover 1 acre of land, 1 foot deep.

affected environment.—Existing biological, physical, social, and economic conditions of an area subject to change, both directly and indirectly, as the result of a proposed human action. Also, the chapter in an environmental document describing current environmental conditions.

algae.—Mostly aquatic single celled, colonial, or multicelled plants, containing chlorophyll and lacking stems, roots, and leaves.

algal bloom.—Rapid and flourishing growth of algae.

alternatives.—Courses of action which may meet the objectives of a proposal at varying levels of accomplishment, including the most likely future conditions without the project or action.

amphibian.—Vertebrate animal that has a life stage in water and a life stage on land (e.g., salamanders, frogs, and toads).

aquatic.—Living or growing in or on the water.

archeology.—Related to the study of human cultures through the recovery and analysis of their material relics.

archeological site.—A discrete location that provides physical evidence of past human usage.

artifact.—A humanmade object.

B

best management practices.—Recommended methods, structures, and practices designed to prevent or reduce water pollution while maintaining economic returns. Best management practices can be classified as either source, structural, or managerial controls.

C

candidate species.—Plant or animal species not yet officially listed but which are undergoing a status review as published in the *Federal Register* by the U.S. Fish and Wildlife Service and are candidates for possible addition to the list of threatened and endangered species.

carrying capacity.—The ability of a resource to accommodate a user population at a reasonable threshold without negatively affecting the resource.

cell.—A formally developed solid waste containment.

community.—A group of one or more interacting populations of plants and animals in a common spatial arrangement at a particular point in time.

concentration.—The density or amount of a substance in a solution (water quality).

cubic foot per second.—As a rate of streamflow, a cubic foot of water passing a reference section in 1 second of time. A measure of a moving volume of water (1 cfs = 0.0283 cubic meter per second).

cultural resource.—Cultural resources are historic and traditional properties that reflect our heritage.

D

drawdown.—Lowering of a reservoir's water level; process of releasing reservoir storage.

E

emergent vegetation.—Aquatic plants having most of the vegetation parts growing above water.

endangered species.—A species or subspecies whose survival is in danger of extinction throughout all or a significant portion of its range.

ephemeral.—Streams that contain running water only for brief periods of time in direct response to precipitation.

erosion.—Refers to soil and the wearing away of the land surface by water, wind, ice, or other physical processes.

exotic species.—A non-native species that is introduced into an area.

extirpated.—A species of plant or animal that is no longer found in a particular area.

F

facilities.—Manmade structures.

Fish and Wildlife Service Species of Concern.—Species identified by the Service for which further biological research and field study are needed to resolve these species' conservation status.

H

habitat.—Area where a plant or animal lives.

hydrologic.—Pertaining to the quantity, quality, and timing of water.

I

invertebrate.—An animal without a backbone or vertebral column.

J

juvenile.—Young animal that has not reached reproductive age.

L

lacustrine.—Of or pertaining to a lake.

Lake Area Boundary.—The water surface and land surface immediately adjacent to Agate Lake and Dam

limnetic.—Open water of the lake.

littoral.—Pertains to the shallow water area along the edge of a body of water.

M

microsiemens.—The unit of measurement of electrical conductivity or conductivity of a water sample.

mitigation (measures).—Action taken to avoid, reduce the severity of, or eliminate an adverse impact. Mitigation can include one or more of the following: (1) avoiding impacts; (2) minimizing impacts by limiting the degree or magnitude of an action; (3) rectifying impacts by restoration, rehabilitation, or repair of the affected environment; (4) reducing or eliminating impacts over time; and (5) compensating for the impact by replacing or providing substitute resources or environments to offset the loss.

N

National Register of Historic Places.—A federally maintained register of districts, sites, buildings, structures, and properties that meet the criteria of significance defined in 36 CFR 63.

nonreimbursable costs.—Those costs incurred by the U.S. Government in constructing a project and/or administering a program for which no repayment obligation is required from project beneficiaries. Funds are appropriated from the Congress for such purposes.

P

palustrine emergent wetlands.—Wetlands dominated by erect, rooted water plants, excluding moss and lichens.

palustrine forested wetlands.—Wetlands dominated by woody vegetation greater than 20 feet tall.

passerines.—Small or medium songbirds with perching feet.

perennial.—Plants that have a life cycle that lasts for more than 2 years.

precipitation.—Rain, sleet, snow, etc..

predation.—The consumption of one organism (the prey) by another (predator).

public involvement.—Process of obtaining citizen input into each stage of development of planning documents.

R

raptor.—Any predatory bird, such as a falcon, eagle, hawk, or owl, that has feet with sharp talons or claws and a hooked beak.

reoperation.—For the purposes of this document, reoperation would be the deliberate attempt by Reclamation and the District to operate the Talent Division of the Rogue River Valley Project for irrigation purposes differently than in the past. Changing existing Project operations to provide more benefits to other purposes, such as recreation or fish and wildlife, which is outside the scope of this study.

reptile.—Coldblooded vertebrate of the class Reptilia, comprised of turtles, snakes, lizards, and crocodiles.

resident.—A wildlife species commonly found in an area during a particular time; summer, winter, or year round.

riparian.—Of, on, or pertaining to the bank of a river, pond, or lake.

runoff.—That part of precipitation that contributes to streamflow, groundwater, lakes, or reservoir storage.

S

sediment.—Unconsolidated solid material that comes from weathering of rock and is carried by, suspended in, or deposited by water or wind.

site.—In archeology, any location of past human activity.

songbird.—Small to medium-sized birds that perch and vocalize or "sing," primarily during the breeding season.

spawning.—Laying eggs directly in water, especially in reference to fish.

species.—In taxonomy, a subdivision of a genus which (1) has a high degree of similarity, (2) is capable of interbreeding only in the species, and (3) shows persistent differences from members of allied species.

T

take-line.—The lands immediately adjacent to and under Agate Lake that the Federal Government acquired for the Talent Division of the Rogue River Basin Reclamation Project.

threatened species.—Any species which has the potential of becoming endangered in the near future.

traditional cultural property.—A site or resource that is eligible for inclusion in the *National Register of Historic Places* because of its association with cultural practices or beliefs of a living community.

turbidity.—Cloudiness of water, measured by how deeply light can penetrate into the water from the surface.

V

vernal pool.—Seasonal wetlands that are formed in depressions on soils that have either clay or silicate layers and are filled by rainwater, groundwater, or overland flows. Although they appear barren during the summer and fall, vernal pools teem with life during winter and spring with uniquely adapted plants and wildlife—many of which appear nowhere else.

vertebrate.—An animal having a segmented backbone or vertebral column. Includes mammals, birds, fish, amphibians, and reptiles.

vigor.—Refers to plants with healthy growth.

W

wetland habitat.—Habitat provided by shallow or deep water (but less than 6 feet deep), with or without emergent and aquatic vegetation in wetlands.

wetlands.—Lands transitional between aquatic and terrestrial systems where the water table is usually at or near the land surface or the land is covered by shallow water. Often called marshes or wet meadows.

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Attachments

May 24, 1995, Medford <i>Mail Tribune</i> News Article	A
Existing Designated Off-Highway Vehicle Use Plan	B
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Chapter 257, Jackson County Park Overlay District	D
Checklist of Bird Species and Other Wildlife Species Found at Agate Lake	E
Breeding Bird and Wildlife Surveys	F
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JCP Codified Rules and Regulations, County Park Ordinances, Chapter 1064, Parks	H
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Attachment A

May 24, 1995, Medford *Mail Tribune*
News Article

Attachment B

Existing Designated Off-Highway Vehicle
Use Plan

Attachment C

Zoning Definitions

Zoning Definitions

Forest Lands.—Lands composed of existing and potential forest lands which are suitable for commercial forest uses; other forested lands needed for watershed protection, wildlife and fisheries habitat, and recreation; lands where extreme conditions of climate, soil, and topography require the maintenance of vegetative cover, irrespective of use; other lands which lie adjacent to urban and agricultural areas and which provide urban buffers, windbreaks, wildlife and fisheries habitat, scenic corridors, and recreational use; and ranching and grazing areas in the above environments.

Aggregate.—Any tract of land from which any aggregate materials are removed or excavated, stockpiled, or processed for sale as an industrial or commercial product by either retail, wholesale, contract purchase or other considerations, including uses by a government agency.

Farm.—A tract of land used for the primary purpose of raising, harvesting, and selling of crops, stock, poultry, fur-bearing animals, or honeybees, or for dairying and the sale of dairy products, or any other agricultural or horticultural use or animal husbandry, or any combination thereof. Also includes the preparation and storage of the products raised on such land for human and animal use, and disposal by marketing or otherwise.

Rural Residential.—Lands which are generally located on lowland foothills, valley terraces, and valley floor areas. These lands are typically located contiguous to, or interspersed among, lands designated as exclusive farm use or woodland resource. They are typically comprised of grasslands and open mixed woodlands.

Attachment D

Chapter 257, Jackson County Public
Park Overlay District

Attachment E

Checklist of Bird Species and Other Wildlife
Species Found at Agate Lake

Attachment E

Checklist of Birds Found at Agate Lake

(Adapted from Janes et al., 1996)

Explanation of symbols:	Turkey Vulture S	Pectoral Sandpiper P Mudflats
co Most likely seen on coast	Osprey S	Dunlin P Mudflats
la Most likely seen in lake	White-tailed Kite R	Stilt Sandpiper P co Mudflats
mo Most likely seen in mountains	Bald Eagle R	Buff-breasted Sandpiper P Mudflats
pe Pelagic	Northern Harrier R	Short-billed Dowitcher P co Mudflat
P Passing through on migration	Sharp-shinned Hawk R	Long-billed Dowitcher P Mudflats
R Year-long resident	Cooper's Hawk R	Common Snipe R Mudflats
S Summer visitor, usually nesting	Common Merganser R	Wilson's Phalarope S Mudflats
W Winter	Ruddy Duck R	Red-necked Phalarope P Mudflats
		Red Phalarope P co Mudflats
Common Loon R	Turkey Vulture S	Bonaparte's Gull P
	Osprey S	Ring-billed Gull R
	White-tailed Kite R	California Gull R
Pied-billed Grebe R	Bald Eagle R	
Horned Grebe W	Northern Harrier R	Herring Gull R co
Eared Grebe R	Sharp-shinned Hawk R	Caspian Tern S
Western Grebe R	Cooper's Hawk R	Arctic Tern P co
Clark's Grebe R la	Red-tailed Hawk R	Forster's Tern S la
	Rough-legged Hawk W	Black Tern S la
Double-crested Cormorant R	Golden Eagle R	
	American Kestrel R	Rock Dove R
American Bittern R la	Merlin R	Band-tailed Pigeon R
Great Blue Heron R	Prairie Falcon R	Mourning Dove R
Great Egret R		
Green Heron R	Ring-necked Pheasant R	Barn Owl R
Tundra Swan W	Wild Turkey R	Western Screech Owl R
Brant W co	California Quail R	Great Horned Owl R
Canada Goose R		Northern Pygmy-Owl R
Wood Duck R	Virginia Rail R	Burrowing Owl R
Green-winged Teal R	Sora S	
Mallard R	American Coot R	Common Nighthawk S
Northern Pintail R		
Blue-winged Teal S	Black-bellied Plover W co Mudflats	Black Swift S
Cinnamon Teal R	Pacific Golden Plover P Mudflats	Vaux's Swift S
Northern Shoveler R	Semipalmated Plover P Mudflats	Anna's Hummingbird R
Gadwall R	Killdeer R Mudflats	Rufous Hummingbird S
American Wigeon W	Greater Yellowlegs P Mudflats	
Ring-necked Duck W	Less Yellowlegs P Mudflats	Belted Kingfisher R
Greater Scaup W co	Solitary Sandpiper P Mudflats	
Lesser Scaup R	Spotted Sandpiper R Mudflats	Lewis' Woodpecker R
Common Goldeneye W	Long-billed Curlew S la Mudflats	Acorn Woodpecker R
Bufflehead W	Marbled Godwit P co Mudflats	Red-breasted Sapsucker R
Hooded Merganser R	Semipalmated Sandpiper P Mudflats	Downy Woodpecker R
Common Merganser R	Western Sandpiper P Mudflats	Hairy Woodpecker R
Ruddy Duck R	Least Sandpiper P Mudflats	Northern Flicker R
	Baird's Sandpiper P Mudflats	Pileated Woodpecker R

Checklist for Agate Lake (Cont.)

Olive-sided Flycatcher S mo	House Wren S	Lazuli Bunting S
Western Wood-pewee S	Winter Wren R	Spotted Towhee R

Willow Flycatcher S	Golden-crowned Kinglet R	California Towhee R
Dusky Flycatcher S	Ruby-crowned Kinglet R	Chipping Sparrow S
Cordilleran Flycatcher S	Blue-gray Gnatcatcher S	Vesper Sparrow S
Black Phoebe R	Western Bluebird R	Lark Sparrow R
Say's Phoebe S la, P	Mountain Bluebird R la	Savannah Sparrow R
Ash-throated Flycatcher S	Townsend's Solitaire R	Fox Sparrow R
Western Kingbird S	Hermit Thrush R	Song Sparrow R
Horned Lark W	American Robin R	Lincoln's Sparrow R
Purple Martin S co la	Varied Thrush W, R co	White-throated Sparrow W
Tree Swallow S	American Pipit W, S mo	Golden-crowned Sparrow W
Violet-green Swallow S	Cedar Waxwing R	White-crowned Sparrow W
N.Rough-winged Swallow S	Northern Shrike W	Dark-eyed Junco R
Cliff Swallow S	Loggerhead Shrike R la	Lapland Longspur W
Barn Swallow S	European Starling R	Red-winged Blackbird R
Steller's Jay R mo	Solitary Vireo S	Tricolored Blackbird S
Western Scrub-jay R	Warbling Vireo S	Western Meadowlark R
Black-billed Magpie R la	Orang-crowned Warbler S	Brewer's Blackbird R
American Crow R	Nashville Warbler S	Brown-headed Cowbird R
	Yellow Warbler S	Bullock's Oriole S
Common Raven R	Yellow-rumped Warbler R	Purple Finch R
Black-capped Chickadee R	Black-throated Gray Warbler S	Cassin's Finch R
Mountain Chickadee R	Townsend's Warbler P W co	House Finch R
Chestnut-backed Chickadee R	MacGillivray's Warbler S	Pine Siskin R
Oak Titmouse R	Common Yellowthroat S	Lesser Goldfinch R
Bushtit R	Wilson's Warbler S	American Goldfinch R
White-breasted Nuthatch R	Yellow-breasted Chat S	Evening Grosbeak R
Brown Creeper R	Western Tanager S	House Sparrow R
Bewick's Wren R	Black-headed Grosbeak S	

Checklist of Other Wildlife Species Found at Agate Lake

(Adapted from ODF&W 1999)

Explanation of symbols:

m - marsh	R - year long resident
p - ponds	S - summer visitor, nesting
cr - creeks and shorelines	W - winter visitor
gr - grass	P - Passing through on migration
ll - leaf litter	a - abundant
r - river	c - common
ro - rocks	u - uncommon
rl - rotten logs	r - rare
sh - shrubs	
t - tree	

AMPHIBIANS AND REPTILES

Long-toed Salamander rl, gr, ll
 Pacific Giant Salamander R, cr
 Rough-skinned Newt P, cr, m, R
 Western Toad P, gr, cr, m
 Pacific Tree Frog t, cr, R, P, ll, m
 Bullfrog P, cr, m, R
 Western Pond Turtle P, gr, cr, R, ll, m
 Western Fence Lizard ro, gr, sh, ll
 Western Skink rl, cr, ll, ro
 Southern Alligator Lizard cr, ro, ll, sh
 Rubber Boa ro, ll, cr
 Ringneck Snake cr, ro, ll, gr
 Sharp-tailed Snake ll, ro, cr, rl
 Racer (western) ll, gr, ro, sh, rl, m
 Gopher Snake ro, m, gr, cr, ll, sh
 Common King Snake ro, gr, ll
 California Mountain King Snake ll, gr, ro, rl
 Common Garter Snake P, gr, m, ro, ll
 Western Terrestrial Garter Snake ll, gr, ro, rl
 Northern Garter Snake ro, gr, t, ll, rl, m
 Western Rattlesnake ro, ll, gr

MAMMALS

Broad-footed Mole c, gr, ll, cr
 Shrew-mole a, gr, ll, cr, m
 Vagrant Shrew a, gr, ll, m, cr
 Trowbridge's Shrew c, gr, ll, m, cr
 Yuma Myotis c, m, P, cr, R, t
 California Myotis a, m, P, cr, R, t
 Fringed Myotis c, m, P, cr, R, t
 Long-legged Myotis c, m, P, cr, R, t
 Long-eared Myotis c, m, P, cr, R, T
 Big Brown Bat c, m, P, R, cr, t
 Hoary Bat r, m, p, R, cr
 Silver-haired Bat r, m, P, R, cr
 Pallid Bat u, m, P, R, cr, t
 Brazilian Free-tailed Bat a, m, P, R, cr
 Raccoon a, m, P, R, t, ll, rl, gr, sh
 Striped Skunk a, m, cr, gr, ll, ro, rl, sh
 Long-tailed Weasel c, m, P, cr, gr, rl
 Mink c, m, P, cr, R
 Western Spotted Skunk c, m, cr, gr, ll, ro, rl, sh
 River Otter a, m, cr, P, R
 Gray Fox a, cr, gr, ro, sh, t
 Coyote a, cr, gr, ro, sh
 Bobcat c, cr, gr, ro, sh, t
 Badger r, gr, ro, rl, sh
 House Mouse a, gr, ll, sh
 Creeping Vole a, gr, ll, cr
 Muskrat a, m, P, cr, R
 Pinon Mouse a, m, cr, gr, sh, ll
 Deer Mouse a, cr, gr, ll, sh, t, rl
 Harvest Mouse a, m, cr, gr, ll, rl
 Heerman Kangaroo Rat c, m, cr, gr, ll, ro, sh
 Dusky-footed Woodrat a, m, cr, gr, ll, ro, rl, sh, t
 Valley Picket Gopher c, cr, gr, ro, sh
 California Ground Squirrel a, cr, gr, ll, t
 Western Gray Squirrel a, cr, gr, ll, ro, rl, sh, t
 Northern Flying Squirrel c, cr, gr, ll, t
 Porcupine a, cr, ll, sh, t
 Black-tailed Jackrabbit a, cr, gr, sh
 Brush Rabbit a, cr, gr, sh
 Beaver a, m, P, cr, R, t
 Black-tailed Deer a, cr, gr, sh, t

Attachment F

Breeding Bird and Wildlife Surveys

**BREEDING BIRD SURVEY AT AGATE LAKE PARK
JACKSON COUNTY, OREGON**

JULY 17 - 19, 1998

**Susan Broderick
Biologist**

**U.S. Bureau of Reclamation
Denver Technical Service Center
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INTRODUCTION

A breeding bird survey was conducted during early summer 1998 in Agate Lake Park in conjunction with the Bureau of Reclamation's efforts to develop a resource management plan for the park. Observations of other wildlife species and habitat conditions were also recorded. A migratory bird survey was also conducted during the fall of 1998. The purpose of these surveys was to assess the habitat value of Agate Lake Park for breeding and migrating birds, as well as other wildlife species.

STUDY AREA

Breeding bird surveys and fall surveys were conducted in Agate Lake Park in Jackson County, Oregon. The Park was divided into five study areas (Map 1): Northwest, Southwest, Southeast, Vernal Pool and Northeast, to facilitate surveying the entire area..

METHODS

Breeding bird surveys were conducted at each of the 5 study areas during the later part of the breeding season, July 17 through 19, using a modified form of the area search technique (Ralph et al. 1993). Surveys began a half hour before dawn and continued until approximately 10:00 a.m. to coincide with peak singing activities. I walked through each study area identifying species by sight and song. All individuals detected were recorded and the relationship to each of several broad habitats was indicated. I compared bird use to vegetation structure because many studies have demonstrated the importance of vegetation structure and habitat heterogeneity to patterns of avian distribution and abundance (Hink and Ohmart 1984; Rider 1986; Farley et al 1994). Survey routes are shown in Map 1. Raw data collected in the field are included at the end of this report. Survey duration at each site was recorded to allow the calculation of an index of relative abundance of detected bird species to be made.

RESULTS AND DISCUSSION

A total of 746 birds, representing 60 species were detected during the summer breeding bird surveys. Of this total, 423 were neotropical migrants comprised of 41 species (DeGraaf and Rappole 1995). The evening portion of the October 28, 1998 survey resulted in the greatest number of birds counted — 585, representing 39 species. Of these, 25 species were neotropical migrants. Table 1 summarizes the results of these surveys by study section.

A large number of neotropical migrant songbirds as well as resident birds were breeding at Agate Lake as evidenced by singing males and brood rearing activities. Several broods of western bluebirds, a species designated as vulnerable by ODFW, were observed in the oak woodlands/savannah north of the dam and along the west side of Agate Lake. A pair of grasshopper sparrows and 7 vesper sparrows, both designated by ODFW as vulnerable species were observed in the vernal pool/grassland community north of the dam. Raptor species included a black-shouldered kite, a pair of ospreys nesting in the southwest corner of the park, 2 bald eagles, and 4 red-tailed hawks. Shorebirds and waterfowl observed during this survey included greater yellow legs, killdeer, spotted and least sandpipers, western grebes, great blue and green herons, mallards, and Canada geese. Game birds included 9 ring-necked pheasants

and 4 California quail adults with broods in hiding. The most numerous species observed during the three-day survey was the European starling (86). Additionally 12 brown-headed cowbirds were also observed. Significant tracts of relatively undisturbed, intact habitat were found throughout the Park (see Map 1), with high numbers of neotropical and resident songbirds present. The Northwest section contains a relatively undisturbed oak woodland.

Table 1. Summary of Breeding and Fall Migrating Bird Surveys Conducted at Agate Lake during July and October 1998.

Section	Total # Birds Counted	Total # Bird Species	Total # Neotropical Migrants Counted	Total # Neotropical Species	# Birds Observed per Hour	Total # Mammals Counted	Total # Mammal Species	Total # Reptiles & Amphibians Counted	Total # Reptile & Amphibian Species
Northwest	109	30	61	19	50.3	5	2	2	2
Southwest	197	38	122	22	60.6	6	4	0	0
Southeast	191	35	87	24	69.3	0	0	0	0
Vernal Pool	12	4	11	3	60.0	0	0	0	0
Northeast	248	47	142	29	66.1	3	2	3	2
10/28 a.m.	432	20	349	13	432.0	0	0	0	0
10/28 p.m.	585	35	490	22	234.0	0	0	20	1

Ideally, at least two breeding bird surveys could have been conducted, one during the early part of the breeding season in May and another conducted in June. This would have ensured that many migrants passing through Agate Lake Park during early spring would have been detected and larger numbers of species breeding at Agate Lake Park would have been detected, in particular the vireos and warblers. The survey dates of July 17 through July 19 no doubt caught the late breeders, but missed many of the earlier breeding species which had ceased singing. However, the purpose of these surveys was to determine the relative value of various habitats within the Park for breeding songbirds and other wildlife species, rather than to definitively identify all the potential breeding species.

Research and management emphasis on neotropical migratory birds has dramatically increased in recent years. This is due largely to increased knowledge of the critical role of biodiversity in maintaining healthy ecosystem functioning. Birds are significant components of biodiversity, and declines in avian communities can adversely affect ecosystem health. Changes in bird populations can serve as early warning signals for environmental problems. Birds are excellent environmental monitors for several reasons: 1) many species can be monitored simultaneously with a single method and without extensive equipment; 2) methods for monitoring are standardized and well understood; and 3) they occupy all habitat types (Portland State University 1998). Tremendous energy and impetus for neotropical bird monitoring has been generated by the Neotropical Migratory Bird Conservation Program and Partners in Flight, a collaborative state, federal and local effort to monitor and restore neotropical migratory bird populations.

Recognition, protection and management of declining and vulnerable neotropical migrant bird species and important habitats is a key element in any conservation strategy. The National

Partners in Flight database (Carter and Barker 1993) identify priority species for monitoring. Partners in Flight (PIF) has identified 15 high priority species that were either observed in Agate Lake Park during the 1998 breeding bird and fall migrant surveys or are listed in the Wildlife Checklist for the Denman Wildlife Area (Appendix ___). These species have experienced significant range-wide population declines. These include:

<i>Prairie Falcon</i>	<i>Calliope Hummingbird</i>	<i>Hermit Warbler</i>
<i>California Quail</i>	<i>Rufous Hummingbird</i>	<i>MacGillivray's Warbler</i>
<i>Western Gull</i>	<i>Lewis Woodpecker</i>	<i>Tri-colored Blackbird</i>
<i>Band-tailed Pigeon</i>	<i>Willow Flycatcher</i>	
<i>Burrowing Owl</i>	<i>Oak Titmouse</i>	
<i>Vaux's Swift</i>	<i>Black-throated Gray Warbler</i>	

This is a fairly large number of high priority species for an area as small as Agate Lake Park, probably indicating relative value of the remaining intact habitat for breeding, migration and wintering. This PIF priority designations form the basis for Audubon's Watch List, which alerts birders to species at risk of significant population declines.

The Northwest section contains a relatively undisturbed and undamaged oak/grass savannah bordered on the east by Dry Creek and on the west by a golf course. Runoff from the golf course and the Medford Canal creates several small wetlands composed primarily of cattails. A total of 109 birds were detected, of which 61 were neotropical migrants. A black-tailed deer and several California ground squirrels were also observed in this area. I noted that throughout Agate Lake Park, dry ground was often cracked, and I noted on several occasions that lizards, particularly western fence lizards, would dart into those cracks. Broods of chipping sparrows, lark sparrows, downy woodpeckers and bushtits were observed in this area. A MacGuillivray's Warbler, a PIF high-priority species, was observed singing in the Dry Creek riparian vegetation. A pair of California quail, also a PIF high-priority species was observed in dense poison oak/buckbrush and several broods of oak titmouse were observed in the oak woodland, also a PIF high priority species.

The Southwest section between the Medford Canal and the lakeshore was traversed by numerous OHV trails, though relatively undamaged expanses of oak/grass savannah exist. Dry Creek as it flows into Agate Lake contained a dense multi-layered riparian stand dominated by willows and alders. A total of 197 birds were observed in this section, of which 122 were neotropical migrants. A bald eagle, a federally and state listed threatened species, was observed flying over the lake. Three newly fledged broods of western bluebirds, a PIF high-priority species, were observed in the area, as were 3 pairs of oak titmouse. A well known pair of ospreys were nesting atop a power pole in the southwest corner of the Park.

A total of 191 birds, of which 85 were neotropical migrants were detected in the southeast section. Oak titmouse and western bluebirds were observed in this section. Shorebirds included a pair of greater yellowlegs, 2 spotted sandpipers, 3 great blue herons and a green heron. There were several broods of lesser goldfinches, oak titmouse and western bluebirds. A group of 6 turkey vultures were observed roosting on a dead cottonwood along Dry Creek. Raptors included the pair of nesting osprey out foraging over the lake, a black-shouldered kite which is considered by Gilligan et al. (1994) to be a very rare summer resident in western Oregon. I

could not detect if the kite was nesting in the area. It appeared regularly over Agate Lake Park area apparently foraging.

One of the most notable observations in the southeast section was the scarcity of birds on the peninsula. I believe this is due to its fragmented, isolated character and the heavy recreational use of the peninsula by picnickers and fishers. This area would be a good place to channel recreational activities, while keeping other areas in a less disturbed, more pristine condition. These more pristine undisturbed areas include the island of oak woodland surrounded by stands of grass and forbes in the southeast corner of the park (see Map 1), the Dry Creek area, both the inlet and outlet reaches, the southwest section, the oak/grass savannah in the northwest corner and northeast section adjacent to Dry Creek, and the vernal pool areas in the northeast corner of the Park and across the highway. Another suitable area to channel recreational activity is the already disturbed area adjacent to the boat ramp near the dam on the west side of the lake.

The vernal pool section is an isolated piece of the park on the east side of the highway. This small area had a total of 12 birds detected, of which 11 were neotropical migrants. This remnant of vernal pool habitat should be protected from disturbance and should remain in the Park. Its primary value is in containing some of the last relatively undamaged vernal pool habitat remaining in southwest Oregon. It also provides habitat for grassland birds.

The northeast section had the greatest number of birds at 248, of which 142 were neotropical migrants. Several unique grassland bird species were observed here including grasshopper sparrows, vesper sparrows (listed as a state vulnerable species), lark sparrows, as well as numerous western meadowlarks. A pair of California quail were observed as was a nearly fledged brood of ring-necked pheasants. A blue-gray gnatcatcher was observed in a buckbrush/grass area on the slope above Dry Creek. Gilligan et al. (1994) indicate this is a local uncommon summer resident in buckbrush in the hills of the Rogue Valley. This section also contains a large area of relatively undamaged vernal pools.

The northeast section has a large area of relatively undisturbed habitat from the dam north to the Park access road. This outstanding area should remain undisturbed as it harbors a large number of nesting birds as well as the vernal pool habitat.

FALL BIRD USE OF AGATE LAKE PARK

Birds and other wildlife were surveyed in Agate Lake Park during the morning and afternoon of October 28, 1998 to get a snapshot of fall bird and wildlife use. Of the two survey periods, the afternoon period resulted in the largest number of birds and species observed, with a total of 585 birds observed and 35 species. American coots were the most numerous waterfowl species with 247 observed foraging in the quiet bays near the boat ramp. Other waterfowl observed included bufflehead, mallard, pied-billed grebe, ruddy duck, and western grebe. A large flock of gulls was observed wheeling over Agate Lake, but the cloud conditions made positive identification of individuals difficult. Golden-crowned sparrows had arrived from their arctic breeding grounds and were observed foraging in dense buckbrush, willows and blackberries. Gilligan et al. (1994) indicates that this species is a common fall migrant and winter resident west of the Cascades. Also present in October, but not during the July surveys were 7 savannah sparrows. Gilligan et al. indicate this species is a common transient in Oregon and a rare summer resident in the

Rogue Valley. There were also large numbers of Oregon juncos, mourning doves, bushtits, western bluebirds and western meadowlarks.

The morning survey resulted in a total of 432 birds observed, of which 349 were neotropical migrants. The highlights of the morning survey included 50 pine siskins foraging in the star thistle, teasel and grass area near the boat ramp on the west side of the dam. A large group of 76 American robins was observed migrating through the oak woodland northwest of the boat ramp. Also seen in fairly large numbers were golden crowned sparrows (22), and lesser goldfinches (25). Ring-billed gulls (2) and herring gulls (6) were observed on the lake along with American coots (218); greater scaup (6) and ruddy ducks (2). Two great egrets and 4 greater yellowlegs were observed along the shoreline.

These brief snapshot observations clearly show that Agate Lake Park is being used heavily by migrating shorebirds, waterfowl, and neotropical migrant songbirds. It also serves as winter habitat for many resident species such as the acorn woodpecker, oak titmouse and western scrub-jays. Interestingly, one of the main foraging areas for pine siskins and lesser goldfinches was in the star thistle, teasel and other weeds near the western boat ramp.

SIGNIFICANT ISSUES AFFECTING THE PRODUCTIVITY OF AGATE LAKE PARK FOR NEOTROPICAL MIGRANT BIRDS AND OTHER WILDLIFE

Three major issues that directly impact the value of Agate Lake Park for neotropical migrant birds and other wildlife include habitat fragmentation, brown-headed cowbird nest parasitism and recreational impacts. The following sections review the current literature in view of the results of the breeding bird surveys conducted at Agate Lake Park and the resource management planning process ongoing by the Bureau of Reclamation and Jackson County Parks.

Habitat Fragmentation

Several studies have shown the positive relationship between habitat patch size and bird community complexity (Galli et al. 1976, Blake 1986 and Dickson et al. 1995). Dickson et al. (1995) found that as stream side habitat zones increased in width, bird abundance and variety increased. They also found that wide zones provided breeding habitat for bird species associated with mature hardwood habitats - habitats which are declining. They found abundant numbers of birds in narrow riparian strips, but those species were associated with young, brushy stands and habitat edge - habitat that is increasing in area.

Kilgo et al. 1998 found that total bird species richness and total species richness of neotropical migrants was associated positively with bottomland hardwood stand width. They found that though narrow riparian stands were extremely valuable avian habitat, complete avian community characteristics in bottomland hardwoods require > 500 m wide stands. Others recommend that stands should be \geq 100 m wide (Keller et al. 1993 and Hodges and Krementz 1996). Habitat fragmentation occurs when a large, fairly continuous tract of a vegetation type is converted to other vegetation types or land uses such that only scattered fragments of the original vegetation type remain. These remnants or fragments occupy less area of habitat than the initial condition, area of variable size, shape and location and are separated by habitats that differ from the original condition. Island biogeography has provided the initial conceptual

framework for describing the effects of fragmentation through MacArthur and Wilson's (1963 and 1967) early work. However there are some major differences between how birds respond to real islands vs. habitat islands. Not only do birds adapted to living in large, nonfragmented habitats have to survive the loss of area as their habitat is fragmented, they also must cope with changing microsite conditions, higher levels of nest predation and parasitism and competing bird species.

Quantitative loss of habitat is the most obvious and direct effect of habitat fragmentation. Species directly affected by habitat loss through fragmentation include those with large home ranges or territories, species that depend on specific microhabitats and species with poor dispersal abilities. When the home range or territory requirements of a species are greater than fragment size, the species may disappear. This may be a factor for raptors, such as the Northern Goshawk (Faaborg, et al. 1995). While habitat patch size may be a strong predictor of species abundance on fragments, it is often not clear how reduced habitat area causes declines in numbers or disappearance from small fragments. Most neotropical migrants have small territories (< 2ha), but disappear from fragments tens or even hundreds of times larger than territory size (Wenny et al. 1993). This suggests that fragmentation produces important qualitative changes in the remaining habitat (Temple and Wilcox 1986, Wilcove et al. 1986).

Abandoning the Idea that Edge Effect is Good For All Wildlife.--As an area is fragmented through agricultural conversion, encroachment of houses, roads and trails, the amount of edge increases and any "edge effects" increase. Traditionally, edge effect has been defined as an increase in abundance and diversity of wildlife along the boundary between two habitat types (Leopold 1933). Since many game species responded well to increases in edge effect, wildlife managers believed that "edge" was good for wildlife. Wildlife management was often considered synonymous with creating edge habitat (Harris 1988). However edge effects are generally negative for neotropical migrants that require forest interior habitats. The concept of edge effect has changed - mostly due to the redefinition of "wildlife" to include nongame species and to new information about adverse affects to reproductive success. Increasing habitat fragmentation and the resulting edge effect can negative affect neotropical migrants in the following ways.

Microhabitat Changes.--Lovejoy et al. (1986) found that temperature and evaporation rates increased in openings and that such changes can extend less than 30 m into a temperate forest (Wilcove et al. 1986, Saunders et al. 1991). These microclimatic changes could affect succession, habitat structure, etc.

Nest Predation and Ecological Traps.--There is a good deal of empirical evidence that indicates predation rates by several species of mammalian and avian predators increases significantly within 50 m of the forest edge. Gates and Gysel (1978) believed that edges may serve as "ecological traps" to some species by offering an enticing distribution of habitat characteristics, but exposing the nesting bird to higher predation rates. Several researchers have tested Gates and Gysel's theory including Wilcove 1985, Small and Hunter 1988, Yahner and Scott 1988 and Johnson and Temple 1986. Faaborg, et al. 1995 indicate that several studies attempting to refute this theory were unconvincing (those by Yahner and Wright 1985, Angelstam 1986, Ratti and Reese 1988).

Brood Parasitism.--Several researchers found that brown-headed cowbird brood parasitism is greater along forest edges than in the forest interior (Brittingham and Temple 1983, Robinson and Wilcove 1994). However Faaborg, et al. 1995 caution that cowbird densities and parasitism rates are not always highest near the edge - these factors vary depending on the landscape context in which is fragment is situated.

Reductions in Pairing Success.--Reduced pairing success of birds near edges has been documented in several studies. In some cases females avoid edges and in other cases males experience greatly reduced pairing success in fragments (Gentry 1989, Gibbs and Faaborg 1990, Villard et al. 1993).

Reduced Nesting Success.--In Wisconsin only 18% of nests within 100 m of forest edge were successful, but > 200 m from an edge 70% of the nests were successful (Temple and Cary 1988). Perneluzi et al. (1993) found that the probability of nest success was correlated with forest area in Pennsylvania forest fragments ranging from 9.2 to > 500 ha. Faaborg et al. 1995 state strongly that reduced pairing success and increased predation and parasitism rates can be devastating to populations of neotropical migrants living in fragments, whether or not these effects are edge related.

Distributions of species are not randomly distributed with regard to fragment size. Long distance neotropical migrants tend to be more abundant in large fragments while short distance migrants or residents tend to be more abundant in small habitat fragments. Attempts to determine minimum area requirements (MAR) for each species has met with inconsistent and conflicting results. For example MARs for the ovenbird ranged from 4 ha in New Jersey, 300 ha in central Missouri and 2650 ha in eastern Maryland. These differences are a result of different study methods; additionally most MARs were based on presence-absence data without accounting for nesting success (Faaborg et al. 1995). One of the major problems with determining MARs was the failure to recognize the ability of species to colonize fragments continually where production was low or nonexistent.

Kilgo et al. (1998) found that total species richness and species richness of neotropical migrants were associated positively with stand width in bottomland hardwoods. They concluded that while narrow riparian zones can support abundant and diverse avifauna, to maintain complete avian community characteristics of bottomland hardwoods, it is necessary to conserve wide (> 500 m) riparian zones. Another study by Dickson et al (1995) found that mean bird abundance increased as stream side zone widths increased. They found differences in the species composition of bird communities between stream side zones of varying widths. Narrow stream side zones tended to harbor species characteristic of early succession habitats such as yellow-breasted chats, blue grosbeaks and common yellowthroats. In contrast, species abundant in the wide zones were characteristic of mature bottomland hardwood forest stands.

A number of researchers have attempted to develop source-sink models of populations in fragments to understand the regional dynamics of populations in fragments. A sink population is one that does not produce enough young to balance adult mortality and which exists because of colonization from other areas - or the "rescue effect (Brown and Kodric-Brown (1977)). A source produces enough young to exceed the number needed to replace the annual mortality of breeding adults. Excess young produced in source populations could populate other fragments through dispersal. Faaborg, et al. (1995) state strongly that it is critical that future studies

determine whether areas are serving as sources or sinks over time so that areas of a region that are supporting populations can be determined and protected. Faaborg, et al. (1995) cautions that the theory of source-sink dynamics is well ahead of our empirical knowledge. They believe that we are a long way from estimating true MAR's for species.

Management Tools.--In spite of the uncertainties and lack of site-specific data, Faaborg, et al. (1995) do offer guidance to managers, summarized below:

Shape of Reserve.--The shape of a forest fragment strongly influences habitat quality since the reproductive success of many neotropical migrants is highest within the forest interior. Diamond (1975) illustrated the qualitative principles for selecting and managing nature reserves. In this scheme a large round habitat patch was better than a smaller round area; a small round habitat patch was better than several very small round areas tightly grouped; tightly grouped areas were better than sparsely distributed habitat patches; small connected patches were better than small disconnected patches and a roundish habitat patch is better than a long narrow patch. Circular or square areas offer more interior than long narrow areas.

Maximize Area and Amount of Interior.--Faaborg et al. (1995) stress the importance of forest area and interior, offering these general guidelines:

- In general the manager should minimize disturbance within the forest interior to avoid increasing fragmentation of existing habitat.
- Where possible select areas for forestation that will maximize the amount of forest interior. Emphasis should be placed on creating large blocks of habitat, rather than a similar amount of acreage composed of smaller habitat blocks.
- Openings, including roads and power lines should be concentrated along existing habitat edges.
- The size of small fragments can be increased by allowing reforestation to occur either through natural regeneration or through planting trees and shrubs.

Maximize Vertical Density.--In general species diversity increases with an increase in vertical foliage diversity (MacArthur and MacArthur 1961, MacArthur et al. 1962). Vertical diversity can be enhanced by:

- Planting trees and shrubs,
- Protecting the fragment from livestock grazing,
- Prevent overbrowsing by deer.

Insecticide Use.--Faaborg et al. (1995) cautions that since neotropical migrants are primarily insectivorous during the breeding season and the number of young produced has been correlated with available food supply, insecticides should not be used on fragments managed for neotropical migrants.

Concentrate Recreational Use in Designated Areas.--Heavy recreational use and unrestrained pets has a negative impact on nesting birds, particularly ground nesters. Managers should concentrate any permitted recreational use along edges and maintain interior areas with little disturbance. Unrestrained dogs should be forbidden during the breeding season (Faaborg, et al. 1995), and during any other sensitive periods.

Cowbird Parasitism and Management Considerations

Brown-headed cowbirds were originally associated with the bison herds of the central North American Great Plains. With the livestock and forest clearing of European settlement, brown-headed cowbirds substantially increased their range, and now occupy most of North America (AOU, 1983 and Mayfield 1965). Cowbirds are currently associated with domestic livestock and are abundant enough to be a major threat to several species of neotropical migrants (Rothstein et al. 1980, 1984).

Neotropical landbirds may be more vulnerable to brood parasitism by brown-headed cowbirds in areas where cowbird feeding habitat has been created or enhanced by human activities and cowbird numbers are high (Robinson et al. 1995). Such parasitism can substantially reduce breeding productivity of host species. This parasitic trait enables brown-headed cowbirds to breed in a wider range of habitats than nearly any other North American Passerine (Robinson et al 1995).

The Commuter Effect.--Brood parasitism frees cowbirds from the need to tend to their own offspring, and they are thus able to exploit abundant food sources at great distances. Rothstein et al. 1984 found that cowbirds commuted daily between morning breeding ranges and afternoon feeding sites - the "commuter effect". Cowbirds are highly adept at exploiting human-created food sources, such as livestock corrals, bird feeders and campground scraps. Cowbirds exploit insects attracted by the livestock and on hay and grain provided for livestock (Rothstein et al. 1980, 1987, Verner and Ritter 1983.). Verner and Ritter (1983) found that cowbird numbers and parasitism levels were highest near these food sources, but numbers decline with distance. The presence of a single livestock yard, for example, can make large tracts of forest land available to breeding cowbirds. Nonparasitic species must remain close to their nests to forage, and are limited to habitats meeting both nesting and foraging requirements.

Cowbird populations are highest in mixed habitats with grassy areas and scattered bushes and trees such as old-field and forest-meadow ecotones, riparian areas, freshwater marshes and orchards (Robinson et al. 1995). There are several factors that can influence the abundance of cowbirds, including the amount of edges related to habitat fragmentation, livestock and other human influenced feeding sites, and host density. Robinson and Wilcove (1994) also found that cowbird abundance was strongly correlated with host density.

The Parasitism Edge Effect.--Several researchers in eastern deciduous forests found that cowbird parasitism levels varied with distance from openings (Gates and Gysel 1978, Brittingham and Temple 1983). Nest parasitism fell from 65% on nests within 99 m of an opening to 18% on nests more than 300 m from forest openings.

It is reasonable to conclude that increases in forest fragmentation indirectly result in increases in nest parasitism. However Robinson and Wilcove (1994) failed to find edge-related changes in parasitism in highly fragmented areas in Illinois with high cowbird populations. Thus the parasitism edge effect may vary as a function of the local landscape and cowbird abundance. The relationship between cowbird parasitism and habitat fragmentation in the West is similarly unclear. Robinson et al. (1995) call for more research to clarify this relationship.

Corridors within forest habitats such as powerlines and rivers create internal edges. Gates and Giffen (1991) and Chasco and Gates (1982) found that the rates of cowbird parasitism was greater near both these types of corridors. Other researchers in the Midwest have found that cowbird parasitism increases with greater habitat fragmentation (Robinson, 1992; Robinson & Wilcove 1994),

Cowbird Density in Agate Lake Park.--There were a fairly large number of brown-headed cowbirds detected in Agate Lake Park as indicated in Table 2. The largest number of cowbirds occurred in the southwest section with 5 observed, followed by the northwest section with 4 observed. It is possible that these numbers reflect the greater amount of OHV trails, associated recreational use and resulting habitat fragmentation.

Table 2. Brown-headed Cowbirds in Agate Lake Park.

Section	Number of Cowbirds
Northwest	4
Southwest	5
Southeast	2
Northeast	2

Cowbird Management.--Cowbirds are potentially one of the most severe threats to neotropical and resident songbirds. As this abundant parasitic species continues to increase, detrimental effects on host species are likely to increase. Cowbirds can commute up to 7 km between breeding and feeding areas, making management at the landscape level necessary (Robinson et al. 1993). In areas with fragmented habitats and abundant cowbird feeding sites, such as the habitat replacement areas along the Colorado River, management options will need to encompass a combination of local and broader scale options.

Management options include eliminating cowbird feeding sites within habitat fragments and reduction of feeding sites by consolidating existing forest patches (Robinson et al. 1995). Vegetation plantings should be designed as blocks rather than strips to increase interior area. In areas with locally endangered hosts, intensive trapping and removal of cowbirds is a strategy being explored by the Bureau of Reclamation in the Rio Grande River for the endangered southwest willow flycatcher. Livestock grazing should not be permitted on the areas unless there is an overriding wildlife benefit that can be clearly demonstrated.

Recreational Impacts to Neotropical Migrant Birds and Management Considerations

Recreational disturbance is increasingly being recognized as a dominant structuring force in wildlife communities. Projections indicate the frequency and extent of such disturbance will continue to increase (Gutzwiller 1995). Knight and Cole (1995) identify four primary routes that human activities impact wildlife - exploitation, disturbance, habitat modification and pollution. Exploitation is a direct impact resulting in death from hunting, trapping or collection; disturbance can be intentional such a harassment or unintentional. Hiking, wildlife photography and bird watching can cause unintentional disturbance. Indirect impacts include habitat modification and pollution. Recreational activities can modify vegetation, soil, water and microclimates which affect wildlife species dependent on these habitats. Wildlife can be adversely affected by contaminants such as food scraps that attract predators, tangled fishing line or plastic six-pack tops (Knight and Cole 1995).

Many recreational pursuits that seem innocuous can alter animal behavior, reproduction, distribution and habitats. Nature viewing and “environmental education” has the potential to negatively affect wildlife. Wildlife viewers approach wildlife closely, encounters are often repeated and may last for extended time periods. An example of adverse impact to migrating birds arising from viewing has occurred on the Platte River in central Nebraska during the sandhill crane migration (Norling et al. 1992). People approaching roosting or feeding cranes disturb the birds, causing them to flush. This expends critical body fat and reduces feeding time necessary to accumulate fat reserves for the northward migration. Cranes are also directly injured or killed as they fly into powerlines. Anglers have been found to disturb breeding waterfowl, leading to a 90% decrease in population (Richholf 1976.)

Uncontrolled pets in wildlands chase and kill wildlife. MacArthur et al. (1982) found that bighorn sheep heart rates increased the most when they were approached by humans with a dog. Hamerstrom et al. (1965) found that prairie chickens showed a stronger fear response to domestic dogs than to foxes. Ungulates habituated to predictable events such as highway traffic, but failed to habituate to the unpredictable disturbance of humans and dogs away from roads and trails (Geist 1978; Geist et al. 1985.)

Physiological responses of wildlife to recreational disturbance has been documented by Gabrielsen and Smith (1995). The flight or fight response is referred to as active defense. Physical responses that increase include heart rate, metabolism, blood sugar, body temperature, respiration rate and depth, oxygen consumption and heart and brain blood flow. Conversely blood flow to the gut, gut motility and digestive secretions decrease. The passive defense response occurs when the animal is alerted to the presence of a potential threat or is remaining motionless to avoid detection by a predator or is “playing dead”. This response also involves profound physiological responses including decreasing heart rate and oxygen consumption, body temperature drop, decreased metabolism and blood sugar and decreased brain and heart blood flow.

A number of researchers have found that several species of wildlife are very tolerant of aircraft, car, motorcycle and snowmobile noise at a distance of 1 to 2 km (MacArthur et al. 1979, 1982; Tyler 1991). However at shorter distances, the active defense response may be activated when vehicles approach the animal. The greatest physiological response occurs when animals are

directly provoked by humans, with the magnitude of the response a function of the distance, movement pattern of the provoker and access to cover. Most animals tolerate disturbance better in woodland than in open terrain, and respond at a higher degree to unpredictable human movement compared to humans following a permanent path (Gabrielsen and Smith 1995).

Recreationist's behavior can influence wildlife responses. Klein (1993) found that rapid movement directly toward wildlife frightens them, while movement away from or an oblique angle to the animal is less disturbing. Slow-moving disturbances elicit a milder response from wildlife. Humans slowly approaching roosting waterbirds flushed fewer birds than did those approaching rapidly (Burger 1981).

The timing of wildlife disturbance also affects the magnitude of wildlife response. The two most critical periods of vulnerability to human disturbance in wildlife is the immediate postnatal period in mammals and the breeding period in birds (Gabrielsen and Smith 1995). Winter periods can be critical for many resident species. Seasonal closures to human activity is a common management tool on Colorado Division of Wildlife properties. Closures begin in February or March and last through mid-July.

The creation of habitat edge and associated human disturbance are two mechanisms that recreational trails both can influence breeding bird communities (Miller and Knight 1995; Van der Zande and Vos 1984, and Wilcove and Robinson 1990). A study by Gutzwiller et al. (1994) indicated that human intrusion (walking through the area for 1 to 2 hours) in the subalpine zone in Wyoming reduced the incidence of singing in some songbird species. Because song is essential in territory defense, mate acquisition and other reproductive activities, levels of intrusion that alter normal singing behavior have the potential to lower reproductive fitness of males that are sensitive to this form of disturbance. Singing consistency on intruded sites was lower than on control sites for mountain chickadees, ruby-crowned kinglets, hermit thrushes, yellow-rumped warblers, Cassin's finch and yellow-rumped warblers. The authors were surprised at the decrease in singing consistency in these species given the low levels of intrusion involved.

In a study in the City of Boulder Open Space and Mountain Parks, Miller and Knight (1995) found a significant, positive relationship between nest survival and distance from trails in both generalist species and interior-nesting species in both grassland and forest ecosystems. Grassland species such as vesper sparrows, western meadowlarks, and grasshopper sparrows and forest species such as mountain chickadees, mourning doves, western bluebirds, Townsend's solitaires, great-horned owls, western-wood pewees, pygmy nuthatches, white-breasted nuthatches and Plumbeous Vireos were sensitive to the presence of trails. Generalists such as black-billed magpies, a grassland species, and American robins and house finches, forest species, were more numerous near trails.

The predator assemblage of an area appears to be a key factor affecting nesting predation rates (Miller and Knight 1992). Mammalian nest predators such as raccoons, skunks and coyotes are often associated with habitat edges and humans (Harris and Silva-Lopez 1992). Avian nest predators such as corvids typically concentrate their activities on edge habitats. Miller and Knight's (1995) work indicates that potential nest predators perceive trails as edges and concentrate predation activities there. Their work is supported by Hickman (1990) and Rich et

al. (1994) who found that avian nest predators were attracted to nature trails and transmission-line corridors. Keith (1961) found that trails and tracks leading to nests and disturbance of nest cover caused predation on nests in Alberta wetlands.

Miller and Knight (1995) also found fewer nest sites near trails, indicating a decrease in nesting attempts. They speculated this reduction in the number of nests nearer trails may be due to birds avoiding establishing nesting sites near trails because of human disturbance or because predation rates were higher.

Miller and Knight's (1995) work indicates that some avian species view trails as edges, while other species do not. It is unclear whether the influence of recreational trails on birds is due to the physical presence of the trail or to the associated human disturbance. They speculate both mechanisms may be acting together.

Management Tools.--Four types of recreationist management are commonly used to protect wildlife include spatial, temporal, behavioral and visual (Knight and Temple 1995).

Spatial restrictions are the most common management technique used to reduce recreational disturbance. Closures and refuges are permanently set aside whereas buffer zones are temporary. Buffer zones focus on areas that are crucial to wildlife survival and reproduction including feeding, breeding, roosting and nursery areas (Knight and Temple 1995). Buffer zone widths are determined by the flushing responses and flight distances of the species being protected. This can vary widely from species to species and seasonally.

Temporal restrictions protect wildlife that use critical resources, such as wintering bald eagles in the Pacific Northwest.

Changing human behavior toward wildlife through educational outreach is also a viable management approach. Klein (1993) believes that if the noise and movement of recreationists could be lessened, there would be an increased likelihood of coexistence and easing of restrictions.

Wildlife are often less affected by recreationists when visually shielded from human activities. It is preferable to locate screening vegetation nearer the source of the disturbance as opposed to near the animals (Knight and Temple, 1995).

CONCLUSION

In spite of the damage created by OHV use, illegal dumping and uncontrolled recreational use, the habitat at Agate Lake Park is fundamentally intact. There are fairly large tracts of habitat that are relatively undamaged and undisturbed. These areas include the oak/grass savanna and vernal pool habitat on the north side of the dam, the riparian corridors along both the inlet and outlet sections of Dry Creek, and the southeast corner of Agate Lake Park. The southwest side has numerous OHV trails that have damaged understory plants, but the oak canopy is intact and provides habitat for breeding birds. The peninsula on the southeast section of the lake is relatively depauperate of bird species most likely because of its isolated, fragmented situation. There is a large disturbed area surrounding the boat ramp area on the west side of the dam. I

recommend that recreational use be channeled in these two areas to minimize disturbance of high value undamaged habitat elsewhere in the park. Trails should be designed to avoid sensitive habitats and seasons and to minimize fragmentation of habitat as much as possible. OHV closures and revegetation will reduce the amount of fragmentation and disturbance, particularly in the southwest and southeast sections of the Park.

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Attachment G

Federal Special Status Species List That
May Occur Within the Lake Boundary Area

Attachment H

JCP Codified Rules and Regulations,
County Park Ordinances, Chapter 1064,
Parks

Attachment I

Jackson County Comprehensive Plan,
Recreation

Appendices

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Appendix I

Hydrology

Hydrology Appendix

Climate

U.S. Weather Service records show that annual precipitation at Medford averaged 18.9 inches from 1910-98. Rainfall is concentrated during the months of November through March; the greatest rainfall occurs in November and December. Average high summer temperatures are 89 degrees Fahrenheit (°F) in July and 85 °F in August. Average winter low temperatures are 22 °F in December and 30 °F in January.

Winds in the area are generally from the south during the winter and from the northwest during summer and average 10 to 15 miles per hour.

Hydrology

Agate Dam and Lake are features of the Talent Division of the Rogue River Basin Project. The Project is located on Dry Creek about 11 miles northeast of Medford, Oregon. Dam construction began in 1965 and was completed in 1966. The dam is a rolled earth-fill structure, blanketed on both sides with rocks and cobbles.

Agate Lake has a total capacity of 4,782 acre-feet at water elevation 1510 feet. Of this, 4,672 acre-feet is used for irrigation and 110 acre-feet is for sediment detention and to sustain fish populations. The spillway, located on the left abutment, has a capacity of 3,300 cubic feet per second (cfs). The outlet works, also located on the left abutment, have a capacity of 78 cfs.

Table H-1 summarizes dam and lake data.

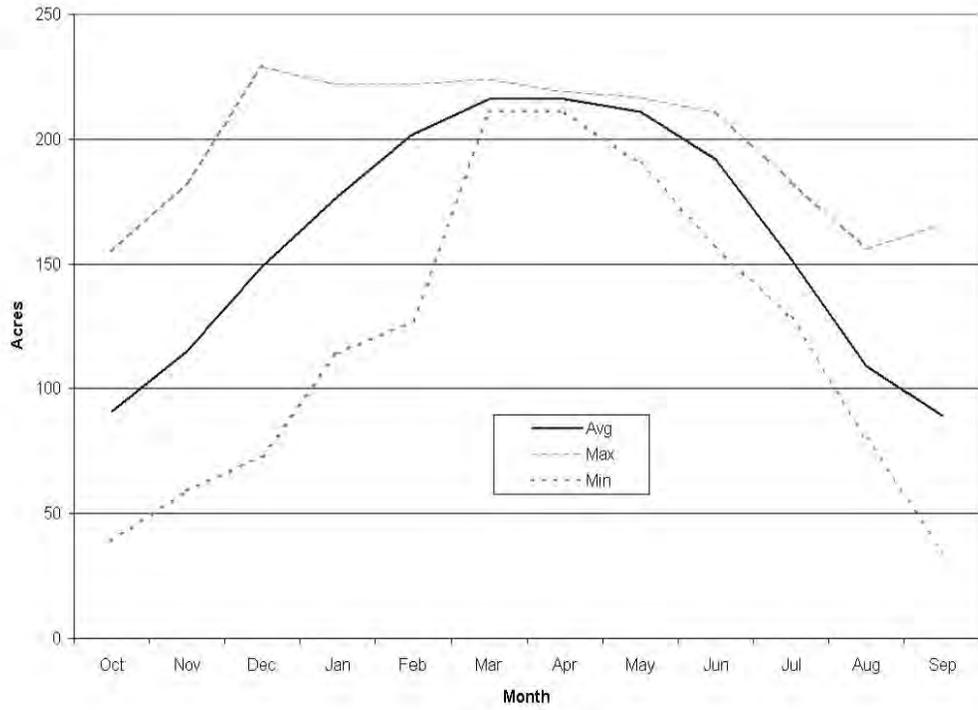
Table H-1.—Agate Dam and Lake Statistics.

Agate Dam	
Structural height	86 feet
Top width	25 feet
Crest length (includes wing dike)	3,800 feet
Spillway elevation	3,300 cfs
Outlet works capacity	78 cfs
Agate Lake	
Normal water elevation	1510 feet
Surface area at water elevation 1510 feet	216 acres
Total capacity at water elevation 1510 feet	4,780 ac/ft
Shoreline length	3 miles

Note: 1 acre-foot (ac/ft) is the volume of water needed to cover 1 acre of land with 1 foot of water.

The facilities provide controlled storage of the water that previously flowed down Dry Creek and divert excess winter, spring, and early summer runoff from Antelope Creek into the Hopkins Canal. From Hopkins Canal, water is carried about three-quarters of a mile to a feeder canal, which conveys the water to Agate Lake to supplement the natural runoff of Dry Creek. Water is released from the lake into Dry Creek Diversion Canal and then re-diverted into the Hopkins Canal about one-half mile downstream of the dam. This water supply supplements the original project water supply obtained from Little Butte Creek. Most of the stored water is collected during the rainy season. The stored water is used for irrigation, recreation, and fish and wildlife.

Beginning April 1 in most years and continuing through summer, the stored water in Agate Lake is released through the outlet works at the dam for use on irrigated agricultural lands of the Rogue River Valley Irrigation District. The water elevation decreases rapidly from June through September as irrigation demand increases and natural inflow decreases. The water surface area is generally at a minimum at the end of September. On average, the water elevation decreases about 25 feet from April to September, and the water surface area in September is roughly half as large as the lake surface area in April. Average, minimum, and maximum end-of-month surface areas for Agate Lake are shown in **figure H-1**.



Map H-1.—Water Surface Level map, shows water surface elevations for Agate Lake.

Map 3-1.—Water elevation map

Appendix II

Responses to Public Comments

Appendix II Responses to Public Comments

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APPENDIX II

Responses to Public Comments

This appendix contains Reclamation's responses to written public comments received on the draft environmental assessment (EA) dated September 1999. The draft EA was distributed to approximately 300 members of the public and private and public organizations that expressed interest in the project. The comment period extended from October 21, 1999, to December 27, 1999. Reclamation received 22 letters of comment.

Response to Letter 1: Eileen Adee

Thank you for your comment.

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Response to Letter 2: Jim Sims

This use will be allowed at Agate Lake, along with other uses as included in the Resource Management Plan (RMP), the “preferred alternative.” However, organized events will be allowed only through a permit process. See chapter 2 of this document for a detailed description of the preferred alternative.

Response to Letter 3: Pat Wolfe Bensen

The RMP (the “preferred alternative”) will be implemented within stated criteria for development so that wildlife and other natural resources are minimally affected.

II-10

Response to Letter 4: Carole L. Mercer

The RMP (the “preferred alternative”) will accommodate multiple use. Equestrian use has been added as an authorized use to the multiple use trail. The multiple use trail will be confined to the upland area at least 200 feet from the lake shoreline, where possible; its exact location will be determined during the layout and design phase. In addition, the trail plan, which will be prepared before construction of any trails, will address the multiple use concept, including equestrian use. See chapter 2 for a detailed description of the preferred alternative.

Response to Letter 5: Tom Smith

5a.

The RMP (the “preferred alternative”) will accommodate multiple use. Equestrian use has been added to the multiple use trail. The multiple use trail will be confined to the upland area at least 200 feet from the lake shoreline, where possible; its specific location will be determined during the layout and design phase. In addition, the trail plan, which will be prepared before construction of any trails, will address the multiple use concept, including equestrian use. See chapter 2 of this document for a detailed description of the preferred alternative.

5b.

Upland game and waterfowl hunting will continue to be allowed, except on the dam. Hunting will be monitored to identify potential conflicts, and corrective measures will be implemented if conflicts occur. Hunting rules and regulations for Agate Lake will be posted. See chapter 2 of this document for a detailed description of the preferred alternative.

II-14

Response to Letter 6: Don Ferris

The RMP (the “preferred alternative”) will accommodate multiple use. Equestrian use has been added as an authorized use of the multiple use trail. The multiple use trail will be confined to the upland area at least 200 feet from the lake shoreline, where possible; its specific location will be determined during the layout and design phase. In addition, the trail plan, which will be prepared before construction of any trails, will address the multiple use concept, including equestrian use. See chapter 2 of this document for a detailed description of the preferred alternative.

Response to Letter 7: Maryanne Rovens

7a.

Upland game and waterfowl hunting will continue to be allowed, except on the dam. Hunting will be monitored to identify potential conflicts, and corrective measures will be implemented if conflicts occur. Hunting rules and regulations for Agate Lake will be posted. See chapter 2 of this document for a detailed description of the RMP, the “preferred alternative.”

Incidental model boating will continue to be allowed. Organized events will be allowed by permit only. Model boating may be restricted to certain times of the day to eliminate some conflicts with fishing and other uses.

7b.

The RMP will include revegetation in selected areas. See chapter 2 of this document for a detailed description of the preferred alternative.

7c.

The Jackson County ordinance will apply here. No dogs will be allowed in the park except on a leash. See chapter 3, “Recreation and Visual Resources,” of this document.

7d.

Information concerning shorebird use of mud flats has been incorporated into the EA and RMP. See chapter 3, “Birds,” in the EA, and chapter 2, “Birds” in the RMP. Additionally, the campgrounds and associated vehicle access originally planned for development on the southern peninsula have been moved farther away from the mudflats to prevent disturbance.

Response to Letter 8: Steven D. Steinkamp

8a.

The RMP (the “preferred alternative”) includes measures to prevent potential resource damage caused by off-highway vehicle (OHV) use. Appropriate physical barriers will be installed to prevent access to old OHV roads. Costs and material availability will determine the types of barriers installed. See chapter 2 of this document for a detailed description of the preferred alternative.

8b.

Incidental model boating will continue to be allowed. Organized events will be allowed by permit only, which will detail the specific constraints. Model boating may be restricted to certain times of the day to eliminate some conflicts with fishing and other uses. See chapter 2 of this document for a detailed description of the preferred alternative.

8c.

A screened spur trail will be developed through the center of the southern peninsula to the lake. See chapter 2 of this document for a detailed description of the preferred alternative.

8d.

Although there is no intent to require fees at this time, fees could possibly be charged in the future if additional funding is needed to operate and maintain park facilities. See chapter 2 of this document for a detailed description of the preferred alternative.

Response to Letter 9: Rod Boren

A 24-hour seasonal onsite manager will be provided initially, but the long-term goal will be to develop a site for a permanent residence at the lake. See chapter 2 of this document for a detailed description of the proposed RMP, the “preferred alternative.”

The RMP will include a long-term monitoring program to determine the water quality of Agate Lake in relationship to the designated uses allowed and to monitor possible negative effects to water quality from offsite land uses.

Response to Letter 10: Otis D. Swisher

10a.

The RMP (the “preferred alternative”) will include consideration for keeping trails away from riparian areas wherever possible, except for the west side of the lake or areas where trails will follow closed OHV roads. The RMP will include a long-term monitoring program to determine the water quality of Agate Lake in relationship to the designated uses allowed and to monitor possible negative effects to water quality from offsite land uses.

10b.

Trail bridges will be constructed across Dry Creek at the southern end of the lake and below the dam. The exact placement of the trail and bridges will be determined during the trail planning stage. An important goal is to strike a balance between meeting the safety and operations concerns of the Rogue River Valley Irrigation District (District) for the spillway area, and reducing habitat fragmentation. As noted in the EA, the Dry Creek corridor is shown as outstanding wildlife habitat. It is recognized that trails and other heavily used areas can adversely impact wildlife. The trail and associated bridge will be located as close to the already disturbed area around the spillway and dam as safety concerns will permit to prevent fragmenting riparian habitat.

10c.

This will be accomplished when the trail plan is developed. Riparian areas will be protected.

10d.

Trail bridges will be constructed across Dry Creek at the southern end of the lake and below the dam. The exact placement of the trail and bridges will be determined during the trail planning stage. An important goal is to strike a balance between meeting the safety and operations concerns of the District for the spillway area and reducing habitat fragmentation. As noted in the EA, the Dry Creek corridor is shown as outstanding wildlife habitat. It is recognized that trails and other heavily used areas can adversely impact wildlife. The trail and associated bridge will be located as close to the already disturbed area around the spillway and dam as safety concerns will permit to prevent fragmenting riparian habitat.

10e.

The irrigation storage features of Agate Lake are managed by the Rogue River Valley Irrigation District under contract with Reclamation and are not subject to this RMP.

10f.

The irrigation storage features of Agate Lake are managed by the Rogue River Valley Irrigation District under contract with Reclamation and are not subject to this RMP.

Response to Letter 11: Otto Kahnert

11a.

This is a management decision of the Oregon Department of Fish and Wildlife (ODFW) and, thus, outside the scope of this study.

11b.

Nonmotorized trails to the lake will not be closed; only roads currently being used by OHVs will be closed. See chapter 2 of this document for a detailed description of the proposed RMP, the “preferred alternative.”

11c.

Agate Lake will be designed as a multiple use facility to accommodate the diversified needs of the public. See chapter 2 of this document for a detailed description of the preferred alternative.

11d.

Catch limits are in place for two fish species found in Agate Lake: a five fish per day, 8-inch minimum length, catch limit for trout; and a five fish per day catch limit for largemouth bass, with no more than three bass over 15 inches long. The only species for which there is no catch limit are bluegill, crappie, catfish, and yellow perch.

11e.

Nonmotorized trails to the lake will not be closed; only roads currently being used by OHVs will be closed. See chapter 2 of this document for a detailed description of the proposed RMP, the “preferred alternative.”

Response to Letter 12: Tom Phillips

Existing wildlife habitat will be protected. A revegetation plan will be developed for disturbed areas. The RMP (the “preferred alternative”) will include a trail system around the lake.

Response to Letter 13: Larry Slessler

Agate Lake must be designed as a multiple use facility to accommodate the needs of the public. In addition, some development is needed to protect the natural resources of the study area.

Response to Letter 14: Randy Hutton

14a.

The RMP (the “preferred alternative”) will accommodate multiple use. Equestrian use has been added as an authorized use of the multiple use trail. The multiple use trail will be confined to the upland area at least 200 feet from the lake shoreline, where possible; its exact location will be determined during the layout and design phase. In addition, the trail plan, which will be prepared before construction of any trails, will address the multiple use concept, including equestrian use. See chapter 2 of this document for a detailed description of the preferred alternative.

14b.

The Bureau of Reclamation and Jackson County Parks met with the ODFW on March 15, 2000, about concerns with hunting at Agate Lake. ODFW is interested in preserving hunting opportunities on public land as much as possible, since hunting opportunities on private land are increasingly being lost. ODFW does not believe there will be major conflicts between hunters and fall day users at Agate Lake, because the activity already occurs and public use in the fall is traditionally low. The chance of hunting accidents appears to be low. The State reports only an average of 15-20 accidents statewide per year over the last 4 years. The three agencies agreed to continue to allow upland and waterfowl hunting to occur at Agate Lake and will monitor events. If conflicts and concerns arise in the future, the three agencies agreed to revisit the need to adjust the hunting season. The surrounding park will be adequately signed to inform the public of the hunting seasons for upland game and waterfowl and to exercise caution when using the park at these times. These agreed-upon actions are reflected in the RMP.

14c.

Because of the concern for shore birds, the decision was made to move the proposed development from the end of the southern peninsula to a location closer to the highway. A screened spur trail will be constructed through the center of the southern peninsula to the lake.

14d.

Incidental model boating will continue to be allowed. Organized events will be allowed by permit only. Model boating may be restricted to certain times to eliminate some conflicts with fishing and other uses.

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Response to Letter 15: Deborah and Phillip Frazee

15a.

The RMP (the “preferred alternative”) will include measures to prevent potential resource damage caused by OHV use. Appropriate physical barriers will be installed to prevent access to old OHV roads. Costs and material availability will determine the types of barrier installed. See chapter 2 of this document for a detailed description of the preferred alternative.

15b.

The proposed interpretive trail and platform were eliminated from the RMP to reduce the risk of disturbance to this unique habitat. An appropriate regional interpretive site could be included in a vernal pool management plan, which would be developed following completion of a regional vernal pool survey. This planning effort will involve Jackson County Roads and Parks Service (JCP), ODFW, Oregon Natural Heritage Program (OHNP), and the U.S. Fish and Wildlife Service (Service) and will consider management from a regional perspective, not just Agate Lake.

15c.

Upland game hunting and waterfowl hunting will continue to be allowed, except on the dam. Hunting will be monitored to identify potential conflicts, and corrective measures will be implemented if conflicts occur. Hunting rules and regulations for Agate Lake will be posted. See chapter 2 of this document for a detailed description of the preferred alternative.

15d.

Bald eagles and peregrine falcons are protected by Federal law, and violators are subject to criminal prosecution. One of the major areas of emphasis is improvement in law enforcement, which would reduce or eliminate illegal shooting.

15e.

If Hunting Access Habitat Funds are not available, attempts will be made to acquire other funding sources. Alternate opportunities are addressed in the RMP. See chapter 2 of this document for a detailed description of the preferred alternative.

15f.

A 24-hour onsite manager will be provided initially, but the long-term goal will be to develop a site for a permanent residence at the lake. See chapter 2 of this document for a detailed description of the preferred alternative.

15g.

Visitors may bring their own wheelchairs and use them on accessible portions of the trail.

15h.

The irrigation storage features of Agate Lake are managed by the Rogue River Valley Irrigation District under contract with Reclamation and are not subject to this RMP.

15i.

The American Bald Cypress is not a native species and, therefore, would not be used in revegetation and habitat improvement plans. However, suitable native species, adapted for the climate and soil at Agate Lake, can provide suitable nesting and roosting habitat.

15j.

The RMP (the “preferred alternative”) will consider duck boxes and blinds, as well as appropriate restricted access.

15k.

The RMP will consider visual screening methods for areas within the Lake Area Boundary. However, the Rogue Aggregate Gravel Quarry lies outside the Lake Area Boundary. Planting conifers to provide a visual, sound and dust screen would be an extremely expensive and long-term undertaking and would not screen the quarry from visitors to the east side of the lake.

15l.

The RMP will include a prescribed burning plan. See chapter 2 of this document for a detailed description of the preferred alternative.

15m.

The RMP will include a long-term monitoring program to determine the water quality of Agate Lake in relationship to the designated uses allowed and to monitor possible negative effects to water quality from offsite land uses.

15n.

The headwater area is not within the Lake Area Boundary and, thus, is not within the control of Reclamation. However, no specific problems have been identified in the headwaters. (See chapter 3, “Water Quality” of this document.)

The RMP will include a long-term monitoring program to determine the water quality of Agate Lake in relationship to the designated uses allowed and to monitor possible negative effects to water quality from offsite land uses.

15o.

The Oregon Department of Fish and Wildlife is responsible for monitoring fish tissue samples to ensure species health.

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Response to Letter 16: Alan and Myra Erwin

16a.

Thank you for your comment.

16b.

The RMP (the “preferred alternative”) will include closing and revegetating specific tracks and areas to OHV use.

16c.

Before Phase II development, visitor use studies will be conducted to determine carrying capacity of the lake and future recreation need. Additionally, this development has been relocated. See chapter 2 in this document, “Alternative B” map for new location.

16d.

If grills are not provided, visitors will build fires in the open, creating fire danger and refuse problems.

16e.

Trails will be located at least 200 feet away from the lake shoreline, where possible, to reduce disturbance of wildlife.

16f.

Thank you for your comment. The RMP will include closing and revegetating specific tracks and areas to OHV use and the closure of existing and unimproved primitive boat launch sites.

16g.

Motorized boats with electric motors with no more than 25 pounds of thrust are currently permitted on the lake, and this use will continue. Model boating may be restricted to certain times of the day to eliminate some conflicts with fishing and other uses.

16h.

The RMP will include a long-term monitoring program to determine the water quality of Agate Lake in relationship to the designated uses allowed and to monitor possible negative effects to water quality from offsite land uses.

16i.

The peninsula area was not considered outstanding wildlife habitat because it is highly fragmented, which negatively affects neotropical migrant birds as well as other wildlife species, although there is value to the habitat that does exist on the peninsula. However, we recognize the outstanding value of the adjacent seasonal mudflats. The proposed campground, originally planned for the peninsula, has been relocated away from the edge of the peninsula to protect this habitat. Vehicle access also has been eliminated. These measures will protect the seasonal shorebird use of the mudflats, as well as protect the wildlife value of the peninsula itself.

16j.

Reclamation and Jackson County Parks met with ODFW March 15, 2000, about concerns with hunting at Agate Lake. ODFW is interested in preserving hunting opportunities on public land as much as possible, since hunting opportunities on private land are increasingly being lost. ODFW does not believe there will be major conflicts between hunters and fall day users at Agate Lake, since the activity already occurs and public use in the fall is traditionally low. The chance of hunting accidents appears to be low. The State reports only an average of 15-20 accidents statewide per year over the last 4 years. The three agencies agreed to continue to allow upland and waterfowl hunting to occur at Agate Lake and will monitor events. If conflicts and concerns arise in the future, the three agencies agreed to revisit the need to adjust the hunting season. The surrounding park will be adequately signed to inform the public of the hunting seasons for upland game and waterfowl and to exercise caution when using the park at these times. These agreed-upon actions are reflected in the proposed RMP, the “preferred alternative.”

16k.

A horse trail is included in the RMP, the “preferred alternative,” but will be designed and located in an area that will minimize impacts to wildlife and water quality.

16l.

The proposed interpretive trail and platform were eliminated from the RMP to reduce the risk of disturbance to this unique habitat. An appropriate regional interpretive site could be included in a vernal pool management plan, which would be developed following completion of a regional vernal pool survey. This planning effort will involve JCP, ODFW, OHNP, and the Service and will consider management from a regional perspective, not just Agate Lake.

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Response to Letter 17: Ron and Sally Greb**17a.**

The RMP (the “preferred alternative”) will accommodate multiple use. Equestrian use has been added as an authorized use of the multiple use trail. The multiple use trail will be confined to the upland area at least 200 feet from the lake shoreline, where possible; its exact location will be determined during the layout and design phase. In addition, the trail plan, which will be prepared before construction of any trails, will address the multiple use concept, including equestrian use. See chapter 2 for a detailed description of the preferred alternative.

17b.

Reclamation and Jackson County Parks met with the ODFW on March 15, 2000, about concerns with hunting at Agate Lake. ODFW is interested in preserving hunting opportunities on public land as much as possible since hunting opportunities on private land are increasingly being lost. ODFW does not believe there will be major conflicts between hunters and fall day users at Agate Lake, since the activity already occurs and public use in the fall is traditionally low. The chance of hunting accidents appears to be low. The State reports only an average of 15-20 accidents statewide per year over the last 4 years. The three agencies agreed to continue to allow upland and waterfowl hunting to occur at Agate Lake and will monitor events. If conflicts and concerns arise in the future, the three agencies agreed to revisit the need to adjust the hunting season. The surrounding park will be adequately signed to inform the public of the hunting seasons for upland game and waterfowl and to exercise caution when using the park at these times. These agreed-upon actions are reflected in the preferred alternative.

Response to Letter 18: Charlotte Holzkamper

18a.

The RMP (the “preferred alternative”) includes provisions for revegetation and development of day use sites, boat ramps, and trails.

18b.

The RMP will include measures to prevent potential resource damage caused by OHV use. Appropriate physical barriers will be installed to prevent access to old OHV roads. Costs and material availability will determine the types of barriers installed. The RMP will include closure and revegetation of specific tracks and areas to OHV use.

18c.

Although the RMP planning process is essentially complete, technical specialists from other organizations will be welcome to become involved in the developing strategies to implement specific management actions. JCP will continually seek public and private partnerships to support management of the area.

Response to Letter 19: Jeanette Eliason

19a.

Although no officially designated automobile fishing access sites will be provided at Agate Lake, the west and east side day use areas, as identified in the proposed RMP (the “preferred alternative”), will provide reasonable walk-in fishing opportunities for the public. Excessive OHV use, habitat fragmentation, potential damage to shoreline habitats, and protection of Rogue River Basin Project facilities were the primary reasons for closing the many shoreline and other roads within the Lake Area Boundary.

19b.

The Bureau of Reclamation and Jackson County Parks met with the ODFW on March 15, 2000, about concerns with hunting at Agate Lake. ODFW is interested in preserving hunting opportunities on public land as much as possible, since hunting opportunities on private land are increasingly being lost. ODFW does not believe there will be major conflicts between hunters and fall day users at Agate Lake, since the activity already occurs and public use in the fall is traditionally low. The chance of hunting accidents appears to be low. The State reports only an average of 15-20 accidents statewide per year over the last 4 years. The three agencies agreed to continue to allow upland and waterfowl hunting to occur at Agate Lake and will monitor events. If conflicts and concerns arise in the future, the three agencies agreed to revisit the need to adjust the hunting season. The surrounding park will be adequately signed to inform the public of the hunting seasons for upland game and waterfowl, and to exercise caution when using the park at these times. These agreed-upon actions are reflected in the preferred alternative.

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Response to Letter 20: Otis D. Swisher

20a.

This information has been incorporated into chapter 3, "Wildlife," in this document. A list of bird species, including mudflat specialists, has been prepared from your information, Attachment E, Checklist of Bird Species and Other Wildlife Species Found at Agate Lake. Additionally, information concerning the importance of the mudflats to migrating shorebirds led to the decision to move the location of the campground and associated vehicle access from the peninsula away from the mudflats to prevent disturbance.

20b.

Because of the concern for shore birds, the decision was made to move the proposed development from the end of the southern peninsula to a location closer to the highway. A screened spur trail will be constructed through the center of the southern peninsula to the lake.

20c.

The east and west side boat ramps will be the only ramps designated for public use. All other primitive boat launch sites will be closed. Closure of the "haul road" will protect shoreline resources and wildlife in that area, discourage OHV use, and eliminate the need to construct sanitary facilities for public health reasons. As you have stated, this will help minimize the impacts to the mudflats.

20d.

Since the primitive boat launch site ("haul road") will be closed to public use, parking facilities will not be provided in this area.

Response to Letter 21: Michael D. Evenson and John A. Thiebes

21a.

Restrictions on motorized boats will continue and are detailed in the proposed RMP (the “preferred alternative”).

21b.

Appropriate changes were made to the proposed RMP.

21c.

A 24-hour seasonal manager will be provided initially, but the long-term goal will be to develop a site for a permanent residence at the lake. See chapter 2 in this document for a detailed description of the preferred alternative.

21d.

The development of low cost maintenance strategies is precisely the direction that the proposed RMP presents and will be one of the development criteria for all constructed facilities.

21e.

The development of low cost maintenance strategies is precisely the direction that the proposed RMP presents and will be one of the development criteria for all constructed facilities. Although there is no intent to require fees at this time, fees could possibly be charged in the future if additional funding is needed to operate and maintain park facilities. See chapter 2 of this document for a detailed description of the preferred alternative.

21f.

The RMP (the “preferred alternative”) will include measures to prevent potential resource damage caused by OHV use. Appropriate physical barriers will be installed to prevent access to old OHV roads. Costs and material availability will determine the types of barriers installed. See chapter 2 of this document for a detailed description of the preferred alternative.

21g.

This will be included in the fish habitat improvement plan.

21h.

This change has been made.

21i.

This change has been made.

21j.

This change has been made.

21k.

The proposed RMP will include a prescribed burning plan.

21l.

Upland game and waterfowl hunting will continue to be allowed, except on the dam. Hunting will be monitored to identify potential conflicts, and corrective measures will be implemented if conflicts occur. Hunting rules and regulations for Agate Lake will be posted. See chapter 2 in this document for a detailed description of the preferred alternative.

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Response to Letter 22: Jim Pendleton

22a.

The dam will be closed to public access for safety reasons and to avoid interference with the original Rogue River Basin Project purpose of providing irrigation water to the Rogue River Valley Irrigation District. This is reflected in the final EA and RMP. See chapter 2 in this document for a detailed description of the proposed RMP, the “preferred alternative.”

Rules and regulations regarding proper use of Agate Lake will be posted at visitor contact points that inform visitors of potential hazards and decrease Reclamation’s, JCP’S, and the District’s public safety liability.

22b.

In addition, physical barriers will be installed at certain locations around the dam, spillway, and feeder canal to control access to these constructed facilities.

