

**Prineville Reservoir
Resource Management Plan and Master Plan:
Finding of No Significant Impact and
Final Environmental Assessment**



**U.S. Bureau of Reclamation
Pacific Northwest Region
Lower Columbia Area Office**



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FINDING OF NO SIGNIFICANT IMPACT PN FONSI – 03-04

ENVIRONMENTAL ASSESSMENT FOR PRINEVILLE RESERVOIR RESOURCE MANAGEMENT PLAN & MASTER PLAN

Introduction

The U.S. Bureau of Reclamation (Reclamation) has completed a multi-year planning and public involvement program to prepare a Resource Management Plan and Master Plan (RMP/MP) for Prineville Reservoir and the surrounding Reclamation lands. The RMP program is authorized under Title 28 of Public Law 102-575. Reclamation has prepared an Environmental Assessment (EA) of the plan in compliance with the National Environmental Policy Act of 1969.

The purpose of the RMP is to manage natural and cultural resources, facilities, and access on Reclamation's lands at Prineville Reservoir, including the Prineville Reservoir State Wildlife Area (SWA), for the next 10 years. This RMP will also serve as the Prineville State Park Master Plan which will guide development and management of the recreation facilities and services for the next 25 years.

Alternatives Considered

The National Environmental Policy Act requires Reclamation to explore a reasonable range of alternative management approaches and to evaluate the environmental effects of these alternatives. Three alternatives are evaluated and compared in this document, including a No Action Alternative and a Preferred Alternative.

Alternative A – No Action: Continuation of Existing Management Practices. Management would be conducted according to the priorities and projects identified in the 1992 RMP. Reclamation would continue to adhere to all applicable Federal laws, regulations, and executive orders, including those enacted since the 1992 RMP was adopted.

Alternative B – Natural Resource/Dispersed Recreation Balance. This alternative would allow for a balance between natural resource protection and dispersed recreation through formalization of camping areas with provisions for some continued dispersed camping. Several selected natural and cultural resource protection and management efforts would be increased on Reclamation lands; other such efforts would be maintained.

Alternative C – Preferred Alternative: Natural Resource Protection/Formal Recreation Emphasis. In this alternative, emphasis is placed on formalizing camping and water access, particularly on the south shore of the reservoir, to reduce the continued widespread disturbance of vegetation by dense dispersed camping and an informal road network.

Although the alternatives differ in many ways, several features are common to all:

- Continue to operate and maintain Reclamation lands and facilities.
- Improve enforcement regarding Federal regulation and County Ordinance 101 on driving vehicles off designated roads on Reclamation lands.
- Continue to adhere to existing and future Federal, State, and County laws and regulations.

- Authorize special recreation events on a case-by case basis.
- Implement restrictions on vehicle use of the shore and drawdown zone.
- Prior to any major ground-disturbing activities, the appropriate level of site-specific NEPA analysis and public involvement would be done. Required cultural resource surveys, archeological site evaluations, and necessary inventories for Traditional Cultural Properties would be completed.
- For recreation development and management aspects, follow the principles in Public Law 89-72, Federal Water Projects Recreation Act of 1965, as amended by Title 28 of Public Law 102-575. If a non-Federal public entity has agreed to manage recreation on Reclamation lands, Reclamation may share development costs for up to 50 percent of the total cost.
- Oregon Parks and Recreation Department (OPRD) continues to manage Reclamation lands for recreation under an agreement with Reclamation.
- Oregon Department of Fish and Wildlife (ODFW) continues to manage the SWA for fish and wildlife under an agreement with Reclamation. OPRD continues to manage recreation use in the SWA.
- Manage weeds through completion and implementation of the Prineville Reservoir Integrated Pest Management Plan.
- Coordinate with law enforcement regarding HR 2925, which authorizes Reclamation to enter into agreements with State, tribal, and local law enforcement agencies to carry out law enforcement on Reclamation land.
- Coordinate with tribes/agencies regarding cultural resources.
- Off-road vehicle (ORV) travel below the high water line would be permitted within 500 feet of developed boat launches or other areas designated for boat launching or angling access.
- Compliance with current accessibility regulations and standards will be required at all new facilities and on retrofits of existing facilities. "Accessibility" is defined as providing participation in programs and use of facilities to persons with a disability.
- All actions are dependent upon the availability of funding and must be within the authority of the applicable agency.

Recommended Alternative

Reclamation proposes to implement Alternative C, the Preferred Alternative, which would allow for the highest level of protection and enhancement for natural and cultural resources while proposing the most formalized development scenario for recreation, often as a measure to focus recreation use areas to protect natural resources.

This alternative would maintain, and in most cases increase, current levels of protection and enhancement for native fish and wildlife and their habitat (vegetation, wetlands, riparian areas, and water quality). Generally, this would entail the continued implementation of the strategies set forth in the 1992 RMP. In some cases, however, it would go beyond this level of effort. For example, shoreline and wetland restoration efforts are proposed to decrease erosion, improve water quality, and thus enhance wildlife habitat. Several areas would become designated-site camping only, with finite use limits. A Habitat and Wildlife Management Plan would be completed for the entire RMP study area.

Developed camping facilities would greatly increase at several locations around the reservoir. A new campground would be built near the existing State Park Campground on the north side. Camping would be formalized at Roberts Bay East with designated sites, rental cabins, and group camping sites. Juniper Point would have primitive-designated campsites. Camping in the SWA would be limited to 4 existing areas, with defined perimeters and camper registration required.

Day use facilities would be built at Antelope Creek on the north shore, at Roberts Bay East, and at Combs Flat in the SWA. A new boat ramp would be built at Powder House Cove and at Roberts Bay West, and boat ramp improvements would be made at the County Boat Ramp. Facility construction depends upon Reclamation's ability to determine or acquire legal access to Roberts Bay.

Environmental Commitments

Reclamation will implement the following environmental commitments as part of the preferred alternative.

- Complete ESA threatened and endangered species consultation with USFWS before initiating any action that would result in irretrievable and irreversible commitment of resources. This includes consultation at both a programmatic level and for site specific projects.
- Follow the best management practices (BMPs) found in Chapter 5.0 of the EA. The management actions identified in the Preferred Alternative as needed for proper stewardship of resources are also considered to be environmental commitments.
- Conduct cultural resource surveys to determine the presence of resources eligible for listing on the National Register of Historic Places (NRHP) in locations that may be affected by construction or operation of the proposed Plan.
- Complete consultation with the State Historic Preservation Officer (SHPO) if NRHP-eligible resources are found.
- Conduct surveys for listed or proposed threatened or endangered species, as needed.
- Obtain permits under Section 404 of the Clean Water Act.
- Obtain State of Oregon permits for instream work.
- Initiate additional NEPA analysis as needed and for any projects that exceed the scope of the EA.

Consultation and Coordination

Public Involvement

Reclamation developed a dialogue with local stakeholder groups and agencies. The goal of the public involvement process was to make sure that all stakeholders, including the general public, had opportunities to express their interests, concerns, and viewpoints, and to comment on the plan as it was developed. By fostering two-way communication, Reclamation was also able to use the talents and perspectives of local user groups and agencies during the alternatives development process.

Reclamation's public involvement process involved four key components:

- **Newsbriefs** – A mailed newsletter was initially sent to more than 350 user groups, nearby residents, and agencies. The mailing list was continuously expanded as more stakeholders were identified.

- **Public Meetings/Workshops** – Three public meetings were included in the process, two of which were held prior to the release of the Draft EA. The final public meeting was held during the public review period of the Draft EA.

- **Ad Hoc Work Group** – This group consisted of approximately 18 representatives from interested groups, agencies, and a tribal representative. They met throughout the development process to identify issues, and assist with RMP and alternatives development.

- **Project Web Site** – The newsbriefs, draft materials, and meeting announcements were regularly updated at www.pn.usbr.gov.

Prior to the release of the draft EA, Reclamation provided five newsbriefs, held two public meetings, and held five Ad Hoc Work Group meetings. A newsletter announcing the availability of the Draft EA was sent to over 350 people. The Draft EA was mailed to 57 individuals. Thirty three responses were received; one of these responses included 192 identical form letters.

Fish and Wildlife Service Coordination

Coordination on fish and wildlife issues to meet the requirements of the Fish and Wildlife Coordination Act (FWCA) and Section 7 of the Endangered Species Act (ESA) was accomplished through informal consultation with the U.S. Fish and Wildlife Service (FWS). Information about this consultation is provided in Appendix I. FWS concurs with the following conclusions:

Little information is known about the two bald eagle nests located near the reservoir and whether human activities may, or may not, be affecting them. The Preferred Alternative provides for a comprehensive monitoring program of bald eagle nests and winter roost areas. The Habitat and Wildlife Management Plan would include a component for a bald and golden eagle management plan. The Preferred Alternative would also define and limit areas for overnight camping in the State Wildlife Area and at Roberts Bay. We have determined that the proposed action may affect, but is not likely to adversely affect, the bald eagle.

Canada lynx is not likely to occur on Reclamation or adjacent land and implementation of the RMP would have no affect to this species. It is our finding that the proposed action will have no affect on the Oregon spotted frog.

Improved fencing would benefit riparian and wetland habitats. Additional efforts to control vehicle access would benefit all habitat types on Reclamation land, and therefore could potentially benefit Threatened & Endangered species.

National Historic Preservation Act

To date, approximately 2,945 acres of land around Prineville Reservoir have been inventoried for archaeological resources, and 126 archaeological sites and one human burial have been recorded. No traditional cultural properties (TCPs) have been recorded, but the Confederate Tribes of the Warm Springs Reservation (Warm Springs Tribe), has indicated that culturally important resources are present. This information will facilitate subsequent compliance with the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR 800). Coordination with the Oregon SHPO and the Warm Springs Tribe over cultural resources and sacred sites aspects of the RMP have occurred in conjunction with public review of the draft Environmental Assessment. It is understood that specific, future undertakings in response to RMP prescriptions will require specific consultations with the SHPO and Tribes pursuant to the 36 CFR 800 regulations.

Coordination with Tribes

Reclamation sent letters to representatives of the Warm Springs Tribe, the Burns Paiute Tribes, and the Klamath Tribes explaining the EA process during the scoping phase. Reclamation met with staff of the Warm Springs Tribe to discuss the preparation of the RMP and to identify Indian trust assets, TCPs, and Indian sacred sites. Several meetings and field trips were held and correspondence was exchanged between Reclamation and the Warm Springs Tribe. No known ITAs are present in the RMP study area and no sacred sites have been reported at the reservoir at this time. There will be no known affect to Indian trust assets or Indian sacred sites from implementation of the RMP.

A representative from the Warm Springs Tribe participated in the Ad Hoc Work Group, which facilitated close coordination with the Government and helped assure that Tribal interests were integrated with the RMP. Reclamation will continue to work with the Warm Springs Tribe in the implementation of the RMP through meetings and other specific communications.

Coordination with Oregon Parks and Recreation Department

Reclamation worked closely with OPRD in development of this RMP as this document will also serve as the State Park Master Plan for the next 25 years. The Prineville State Park Manager was an active participant in the Ad Hoc Work Group. OPRD area managers and master planners participated in all of RMP planning team meetings and attended the Ad Hoc Work Group Meetings.

Public Comment Summary & Changes to the Final Environmental Assessment

The comment period for the Prineville Reservoir RMP/MP Draft Environmental Assessment extended 60 days, from November 12, 2002 to January 10, 2003. The majority of comments focused on four main subject areas: camping at Roberts Bay, juniper management, recreation use, and grazing management.

Roberts Bay - Comments on Roberts Bay ranged from those who want a continuation of no restrictions and undesignated camping to those who feel there are major problems with resource damage, safety, sanitation, and law enforcement. Many expressed a desire for group camping opportunities. Some felt there were too many campsites proposed and some felt the proposed developments were too developed and formalized. Crook County felt that this development would not financially benefit Prineville and may add additional costs for emergency services. The County also cannot determine the legal status of the Salt Creek Road from Roberts to the reservoir without a court proceeding. The Friends at Roberts Cove have expressed their desire to not be regulated and to be able to continue to camp as they have been for many years with their very large group at Roberts Bay East.

The Preferred Alternative was modified to allow for over 50 campsites to be available and reservable for group camping. Camping will be regulated to designated locations in the interest of resource protection, and avoiding recreation conflicts among users. The meeting hall has been changed to a picnic shelter, and a two-phased development approach will be used. The number of proposed sites remains the same to allow for an economically viable campground, but the level of development has been reduced for a more primitive camping experience. The Preferred Alternative calls for continued enforcement-related funding for OPRD and Crook County and expanding resources as necessary and available based on annual appropriations.

All facility construction is dependent upon Reclamation's ability to determine or acquire legal access to Roberts Bay. If legal access can be determined or acquired, Reclamation, in cooperation with OPRD, will take responsibility for maintaining the road to Roberts Bay commensurate with the level of facility development. If legal access cannot be determined or obtained, and Reclamation cannot responsibly manage these lands, then it may be necessary to close this recreation area.

Juniper Management - Comments on juniper management ranged from those who were concerned with the effects of past juniper management activities on adjacent lands to those who felt some juniper management is critical to watershed health and maintaining wildlife habitat.

Reclamation considers juniper management, such as cutting, a management tool that has some limited applications, but will not be commonly employed or used on a large scale. The Preferred Alternative was modified to read as follows: As part of the Habitat and Wildlife Management Plan, perform limited juniper management on specific areas within the RMP study area. Public notice would be provided for implementation of management on areas greater than 1 acre. Best Management Practices (BMPs) would be followed for all habitat management activities. Actions would be consistent with maintaining the existing visual quality of the area.

Recreation Use – Comments were received on a range of topics related to recreation use. There was general support for the use of campground hosts, a new boat ramp at Powder House Cove, continued law enforcement support, campground full signs prior to Roberts Bay, Off-road-vehicle control, and accessible facilities. Most commenters wanted to keep camping areas small in the SWA and did not support moorage docks in this area.

All of the above supported items remain in the Plan. Moorage docks were not supported and were removed from the Plan.

Grazing Management - Comments on grazing management ranged from those who wanted solid rationale for livestock restrictions and/or no further restrictions on livestock grazing, to those who felt that livestock needed to be removed from sensitive areas. Several requested more information on cryptobiotic crust locations and encouraged ground truthing of these areas.

The Preferred Alternative was modified to read as follows: Livestock grazing would be eliminated from areas where it is not compatible with natural resource or recreation resources including wetlands, riparian areas, recreation sites, and proximity to threatened, endangered, or sensitive species. Control or eliminate livestock grazing in areas where it may not be compatible with resources such as cultural resources sites and high occurrence of cryptobiotic soils. Reclamation would assess impacts and determine appropriate resource protection measures. Work with BLM to revise allotment management plans affecting Reclamation lands. Additionally, changes were made to the soils section to read as follows: "Areas of high occurrence of cryptobiotic soils will be more precisely identified and mapped through field verification of existing preliminary map data. Appropriate protection measures would be developed in areas where recreation or livestock grazing is causing adverse effects."

In addition to the changes discussed above, the following changes were made in the Final EA:

Threatened & Endangered Species – An eagle management plan will be developed as a component to the Habitat and Wildlife Management Plan.

Habitat & Wildlife Management Plan – A Habitat and Wildlife Management Plan will be developed and implemented for the entire RMP study area in cooperation with ODFW, OPRD, and the Bureau of Land Management (BLM).

Prineville Resort – Clarification was added to provide vehicle access to Social Security Beach for the elderly, people with disabilities, and their companions.

Dispersed Boat-in Use (north and south shore outside of SWA) – Text was changed to allow for monitoring and potential closures of some sites for cultural and natural resource degradation, if necessary.

Powder House Cove – Old boat ramp will be closed and an additional maximum of 45 parking spaces will be built, as needed, in phase 2. This makes for a new maximum total of 120 parking spaces vs. 75 in the Draft EA.

Juniper Point - Providing toilets at this location was added.

Roberts Bay, West – Amenities were changed to the following: boat ramp and parking area, non-motorized trailhead and trail to island (some facilities open year-round, depending on water level and use), maintenance yard, employee housing, entrance gate, and host sites. Twenty primitive-designated campsites were removed from Roberts Bay West as they were incorporated into the Roberts Bay East area design.

Finding

Reclamation's analysis showed that the implementation of the RMP may affect, but is not likely to adversely affect bald eagles. Reclamation will work with ODFW, BLM, and OPRD to determine the status of a new bald eagle nest and an existing bald eagle nest near the reservoir, and will develop a bald and golden eagle management plan as part of the Wildlife Management Plan. Reclamation will also participate in a comprehensive monitoring program of bald eagle nests and winter roost areas. Implementation of the RMP will not affect any other threatened or endangered species listed under the ESA.

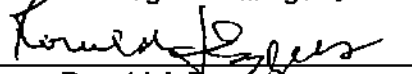
Implementation of the RMP will cause minimal short term impacts on existing resources and in the long term will enhance natural and recreation resources. Reclamation and its contractors and management partners will use best management practices as described in Chapter 5 when constructing recreation facilities or managing vegetation and habitat and all environmental commitments identified in the final EA will be implemented.

CONCLUSION

Based on thorough review of the comments received, analysis of the environmental impacts as presented in the final EA, ESA Section 7 consultation, coordination with the various agencies, and implementation of all environmental commitments identified in the final EA, Reclamation has concluded that implementation of the preferred alternative would have no significant impacts on the quality of the human environment or the natural resources of the area. Therefore, this FONSI has been prepared and is submitted to document environmental review and evaluation in compliance with the National Environmental Policy Act of 1969 and an environmental impact statement will not be prepared.

Recommended: 
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Date: May 19, 2003

Approved: 
Ronald J. Eggers
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Date: May 19, 2003

CONTENTS

FONSI

1.0 Introduction and Background	1-1
1.1 Introduction.....	1-1
1.2 Authority	1-1
1.3 Purpose and Need	1-1
1.4 Proposed Federal Action.....	1-2
1.5 Location and General Description of Affected Area	1-2
1.5.1 Prineville Reservoir Overview.....	1-2
1.5.2 River and Reservoir System Operations	1-6
1.5.3 Land Management Categories at Prineville Reservoir	1-7
1.6 Related Activities.....	1-8
1.6.1 Bureau of Land Management Upper Deschutes RMP.....	1-8
1.6.2 Oregon Parks and Recreation Department Master Plan	1-9
1.6.3 Dam Safety Study	1-9
1.6.4 Prineville Reservoir Reallocation Study (PRRS)	1-9
1.7 Scoping and Issues	1-10
2.0 Alternatives	2-1
2.1 Introduction.....	2-1
2.2 Alternatives Development	2-1
2.2.1 Similarities Among Alternatives	2-2
2.3 Alternatives Considered in Detail.....	2-3
2.3.1 Alternative A - No Action Alternative	2-16
2.3.2 Alternative B - Natural Resource/Dispersed Recreation Balance	2-29
2.3.3 Alternative C - Natural Resource Protection/Formal Recreation Emphasis..	2-37
2.4 Alternative Elements Eliminated from Consideration.....	2-46
2.5 Summary of Impacts	2-46
3.0 Affected Environment and Environmental Consequences	3-1
3.1 Introduction.....	3-1
3.1.1 Cumulative Impacts	3-2
3.2 Soils	3-3
3.2.1 Affected Environment.....	3-3
3.2.2 Environmental Consequences.....	3-4
3.3 Hydrology and Water Quality.....	3-11
3.3.1 Affected Environment.....	3-11
3.3.2 Environmental Consequences.....	3-13
3.4 Vegetation.....	3-17
3.4.1 Affected Environment.....	3-17
3.4.2 Environmental Consequences.....	3-23

CONTENTS (CONTINUED)

3.5 Fish and Wildlife.....	3-28
3.5.1 Affected Environment.....	3-28
3.5.2 Environmental Consequences.....	3-38
3.6 Threatened, Endangered, and Sensitive (TES) Species	3-45
3.6.1 Affected Environment.....	3-45
3.6.2 Environmental Consequences.....	3-49
3.7 Recreation	3-53
3.7.1 Affected Environment.....	3-53
3.7.2 Environmental Consequences.....	3-59
3.8 Visual Resources.....	3-65
3.8.1 Affected Environment.....	3-65
3.8.2 Environmental Consequences.....	3-69
3.9 Land Use and Management	3-73
3.9.1 Affected Environment.....	3-73
3.9.2 Environmental Consequences.....	3-82
3.10 Socioeconomics	3-87
3.10.1 Affected Environment.....	3-87
3.10.2 Environmental Consequences.....	3-89
3.11 Public Services and Utilities	3-91
3.11.1 Affected Environment.....	3-91
3.11.2 Environmental Consequences.....	3-94
3.12 Environmental Justice.....	3-97
3.12.1 Affected Environment.....	3-97
3.12.2 Environmental Consequences.....	3-97
3.13 Cultural Resources.....	3-99
3.13.1 Affected Environment.....	3-99
3.13.2 Environmental Consequences.....	3-102
3.14 Indian Sacred Sites.....	3-110
3.14.1 Affected Environment.....	3-110
3.14.2 Environmental Consequences.....	3-110
3.15 Indian Trust Assets	3-111
3.15.1 Affected Environment.....	3-111
3.15.2 Environmental Consequences.....	3-112
3.16 Paleontological Resources	3-113
3.16.1 Affected Environment.....	3-113
3.16.2 Environmental Consequences.....	3-113
3.17 Transportation and Access.....	3-115
3.17.1 Affected Environment.....	3-115
3.17.2 Environmental Consequences.....	3-116

CONTENTS (CONTINUED)

4.0 Consultation and Coordination	4-1
4.1 Public Involvement	4-1
4.2 Agency Consultation and Coordination.....	4-2
4.2.1 Fish and Wildlife Coordination Act.....	4-2
4.2.2 Endangered Species Act	4-2
4.2.3 National Historic Preservation Act.....	4-3
4.3 Tribal Consultation and Coordination	4-3
4.3.1 Government-to-Government Consultation with Tribes	4-3
4.3.2 Indian Sacred Sites (Executive Order 13007).....	4-3
4.3.3 Indian Trust Assets	4-4
4.3.4 Other Laws and Regulations.....	4-4
5.0 Environmental Commitments	5-1
5.1 Best Management Practices	5-1
5.1.1 Landscape Preservation and Impact Avoidance	5-1
5.1.2 Erosion and Sediment Control.....	5-2
5.1.3 Biological Resources	5-2
5.1.4 Site Restoration and Revegetation.....	5-3
5.1.5 Pollution Prevention	5-3
5.1.6 Noise and Air Pollution Prevention	5-4
5.1.7 Cultural Resource Site Protection.....	5-4
5.1.8 Miscellaneous Comments	5-5
5.2 Mitigation Measures	5-5
5.2.1 Soils	5-5
5.2.2 Vegetation.....	5-5
5.2.3 Wildlife	5-5
5.2.4 Cultural Resources.....	5-6
5.2.5 Transportation and Access.....	5-6
6.0 Preparers.....	6-1
7.0 Distribution List	7-1
7.1 Overview.....	7-1
7.2 Tribes	7-1
7.3 Government Officials.....	7-1
7.4 Agencies.....	7-2
7.5 Organizations and Businesses.....	7-3
7.6 News Media	7-4
7.7 Libraries	7-4
7.8 Grazing Permittees.....	7-4
7.9 Individuals	7-4

CONTENTS (CONTINUED)

8.0 Glossary	8-1
9.0 Bibliography	9-1
9.1 Literature Cited	9-1
9.2 Personal Communications	9-7
9.3 Internet Sources	9-8

Appendices

- A. Prineville Reservoir RMP Goals and Objectives
- B. Alternative A Conceptual Plan
- C. Alternative B Conceptual Plan
- D. Alternative C Conceptual Plan
- E. Management Objectives for the Habitat and Wildlife Management Plan
- F. U.S. Fish and Wildlife Service Coordination and Consultation
- G. County Ordinance 101
- H. Tribal Correspondence
- I. U.S. Fish and Wildlife Service Planning Aid Memorandum
- J. Comments/Responses on the Draft EA
- K. Reclamation Correspondence with Crook County

TABLES

Table 1.5-1	Project specifications	1-6
Table 2.3-1	Prineville Reservoir Resource Management Plan – Final EA Alternatives	2-4
Table 2.5-1	Impacts of alternatives comparison summary.....	2-47
Table 3.2-1	Soil types adjacent to Prineville Reservoir.....	3-3
Table 3.2-2	Area of disturbance for selected facilities under the Prineville RMP alternatives	3-7
Table 3.3-1	Water quality (1973, 1978, 1979, 1984, 1991, and 1995) Prineville Reservoir and Crooked River below Bowman Dam.....	3-12
Table 3.4-1	Acreage of cover types in the Prineville Reservoir study area	3-18
Table 3.4-2	Noxious weeds documented at Prineville Reservoir	3-21
Table 3.5-1	Estimated harvest of game fish at Prineville Reservoir from April through October 1994	3-29
Table 3.5-2	Rare and sensitive species occurring or potentially occurring in the Prineville Reservoir vicinity	3-35
Table 3.6-1	Threatened, endangered, and sensitive species that are known to or potentially occur in the Prineville Reservoir vicinity	3-46
Table 3.7.1	Prineville Reservoir visitation, 1993-2000	3-54
Table 3.7-2	Prineville Reservoir visitation, September 1999-August 2000	3-54
Table 3.7-3	Prineville Reservoir visitation, May 2000 to August 2000	3-54
Table 3.7-4	Facility locations at Prineville Reservoir.....	3-55
Table 3.9-1	BLM grazing allotments that overlap Reclamation lands at Prineville Reservoir	3-81
Table 3.10-1	Five largest employers, public and private, as of September 2000	3-87
Table 3.10-2	Crook County economic indicators	3-88
Table 3.10-3	Local and regional population growth	3-88
Table 3.10-4	Long-term Crook County population and non-agricultural employment forecast ..	3-88
Table 3.10-5	2000 Crook County population by race.....	3-89
Table 3.17-1	County and State roads in vicinity of Prineville Reservoir	3-119
Table 4.1-1	Ad Hoc Work Group.....	4-2

FIGURES AND MAPS

Figure 1.5-1	Prineville Reservoir area.....	1-3
Figure 2.3-1	Alternative A – No Action.....	2-17
Figure 2.3-2	Alternative B.....	2-31
Figure 2.3-3	Alternative C – Preferred Alternative.....	2-39
Figure 3.2-1	Soil types adjacent to Prineville Reservoir.....	3-5
Figure 3.8-1	Crooked River Canyon’s dramatic scenery as seen from Bowman Dam near Big Bend Campground	3-65
Figure 3.8-2	The upper Crooked River and surrounding wetlands near Old Field at low pool...	3-66
Figure 3.8-3	Prominent rock outcrop provides a dramatic visual feature	3-67
Figure 3.8-4	Panoramic overlook of Prineville Reservoir as seen from Juniper Canyon Road...	3-68
Figure 3.9-1	Existing land use.....	3-75
Figure 3.9-2	BLM grazing allotments adjacent to Prineville Reservoir	3-79
Figure 3.9-3	Land ownership in Prineville Reservoir area.....	3-83
Figure 3.17-1	Road access.....	3-117

ABBREVIATIONS AND ACRONYMS

af	acre-feet
AMP	Allotment Management Plan
ARPA	Archeological Resources Protection Act
AUM	Animal Unit Month
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	Best Management Practice
CFR	Code of Federal Regulations
cfs	cubic feet per second
CRMP	Cultural Resources Management Plan
DOI	Department of Interior
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FLPMA	Federal Land Policy Management Act
FONSI	Finding of No Significant Impact
FR	Federal Register
FWCA	Fish and Wildlife Coordination Act
FWS	U.S. Fish and Wildlife Service
HUD	Housing and Urban Development
IPM	Integrated Pest Management
ITAs	Indian Trust Assets
KOP	Key Observation Point
kV	kilovolt
MOU	Memorandum of Understanding
MP	Master Plan
MSA	Magnuson-Stevens Act
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
ODA	Oregon Department of Agriculture
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
OPRD	Oregon Parks and Recreation Department
OID	Ochoco Irrigation District
ONHP	Oregon Natural Heritage Program
ORV	Off-road Vehicle
OSMB	Oregon State Marine Board

ABBREVIATIONS AND ACRONYMS (continued)

OSU	Oregon State University
PAM	Planning Aid Memorandum
ppm	parts per million
PRRS	Prineville Reservoir Reallocation Study
PWC	Personal Water Craft
RBS	River Basin Survey
Reclamation	U.S. Bureau of Reclamation
Register	National Register of Historic Places
RM	river mile
RMP	Resource Management Plan
RV	Recreational Vehicle
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SHPO	State Historic Preservation Officer
SOD	Safety of Dams
SR	State Route
SWA	State Wildlife Area
TCPs	Traditional Cultural Properties
TES	Threatened, Endangered, and Sensitive
TMDL	Total Maximum Daily Load
U.S.C.	United States Code
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
VRMS	Visual Resource Management System
WMU	Wildlife Management Unit

1.0 Introduction and Background

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

This Final Environmental Assessment (EA) evaluates alternatives for the proposed Prineville Reservoir Resource Management Plan (RMP) and the State Park Master Plan (MP). The RMP was developed by the U.S. Bureau of Reclamation (Reclamation) and its managing partner, the Oregon Parks and Recreation Department (OPRD), to manage resources, facilities, and access on Reclamation lands and waters. The RMP evaluated in this Final EA is an update of the September 1992 Prineville Reservoir RMP (Reclamation 1992). This combined Resource Management Plan and Master Plan will be collectively referred to as the RMP in this document.

1.2 Authority

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

1.3 Purpose and Need

The purpose of this Federal action is to update the RMP prepared by Reclamation in 1992. The (1992) document is out of date and changes are necessary to protect natural resources and provide facilities for the increased recreation demand. This Final EA on the RMP alternatives has been used to determine whether to issue a Finding of No Significant Impact (FONSI) or a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act of 1969 (NEPA). An EA is required by NEPA for any Federal action that may have a significant impact on the environment. It has been determined that the RMP would not cause any significant impacts; therefore, a FONSI is provided as part of this document.

NEPA requires Reclamation to explore a range of possible alternative management approaches and assess the potential environmental effects of these actions. Three alternatives are evaluated and compared in this document, including a no action alternative and a preferred alternative. The impacts of each alternative were evaluated for the following affected resource topics: hydrology and water quality; soils; vegetation; fish and wildlife; threatened, endangered, and sensitive species; recreation; land use; socioeconomics; public services and utilities; environmental justice; cultural resources; paleontology; Indian sacred sites; Indian Trust Assets (ITAs); visual resources; and transportation and access. Project scoping and preliminary analyses of air quality, noise, topography, and geology indicated that there are no potential impacts to these resources; therefore, these resource topics are not further evaluated in this Final EA.

The existing RMP was completed in 1992 and was designed as a 10-year plan (Reclamation 1992). It has served as a valuable planning tool for Reclamation's management of the lands and resources around the reservoir. The RMP update reviews the results of the 1992 RMP, provides updated information on recreation and other uses of Reclamation lands and resources, and provides updated management direction. The RMP update will be used as the basis for directing activities on Reclamation lands and the reservoir in a way that maximizes overall public and resource benefits consistent with Reclamation goals. The RMP will be reviewed, reevaluated, and revised to reflect changing conditions and

management objectives on an as-needed basis. Opportunities for public involvement will be provided on changes that affect resources or public use.

1.4 Proposed Federal Action

For this Final EA, the proposed Federal action is implementation of the new RMP and MP. The intent of the RMP is to serve as a blueprint for the future use, management, and site development of Reclamation lands at Prineville Reservoir and the associated State Wildlife Area (SWA) for the next 10 years. While the RMP planning period is for the next 10 years, the Master Plan projects needs for the next 25 years, allowing for a phased approach to recreation site development. Reservoir operations are not part of the RMP and are not considered in this Final EA. The RMP identifies goals and objectives for resource management, specifies desired land and resource use patterns, and explains the policies and actions that would be implemented during the 10-year life of the plan to achieve these goals and objectives. Goals and objectives for the Prineville Reservoir RMP are included as Appendix A.

1.5 Location and General Description of Affected Area

The study area is located on the Crooked River in Crook County, Oregon about 20 miles upstream from Prineville, Oregon (Figure 1.5-1). The City of Bend is about 25 miles to the southwest. The Congressional Act of August 6, 1956 (Chapter 980, 70 Stat. 1058) authorized construction by the Secretary of the Interior of the Crooked River Federal Reclamation Project to provide water for irrigation of arid and semi-arid lands, flood control, basic minimum recreation facilities, and minimum stream flows for fish and wildlife enhancement. Bowman Dam was constructed between 1958 and 1961 as part of the Crooked River Project. Under this Congressional authorization, the Secretary of the Interior was authorized to construct minimal basic public recreational facilities and to arrange for the operation and maintenance of these facilities by an appropriate agency or organization.

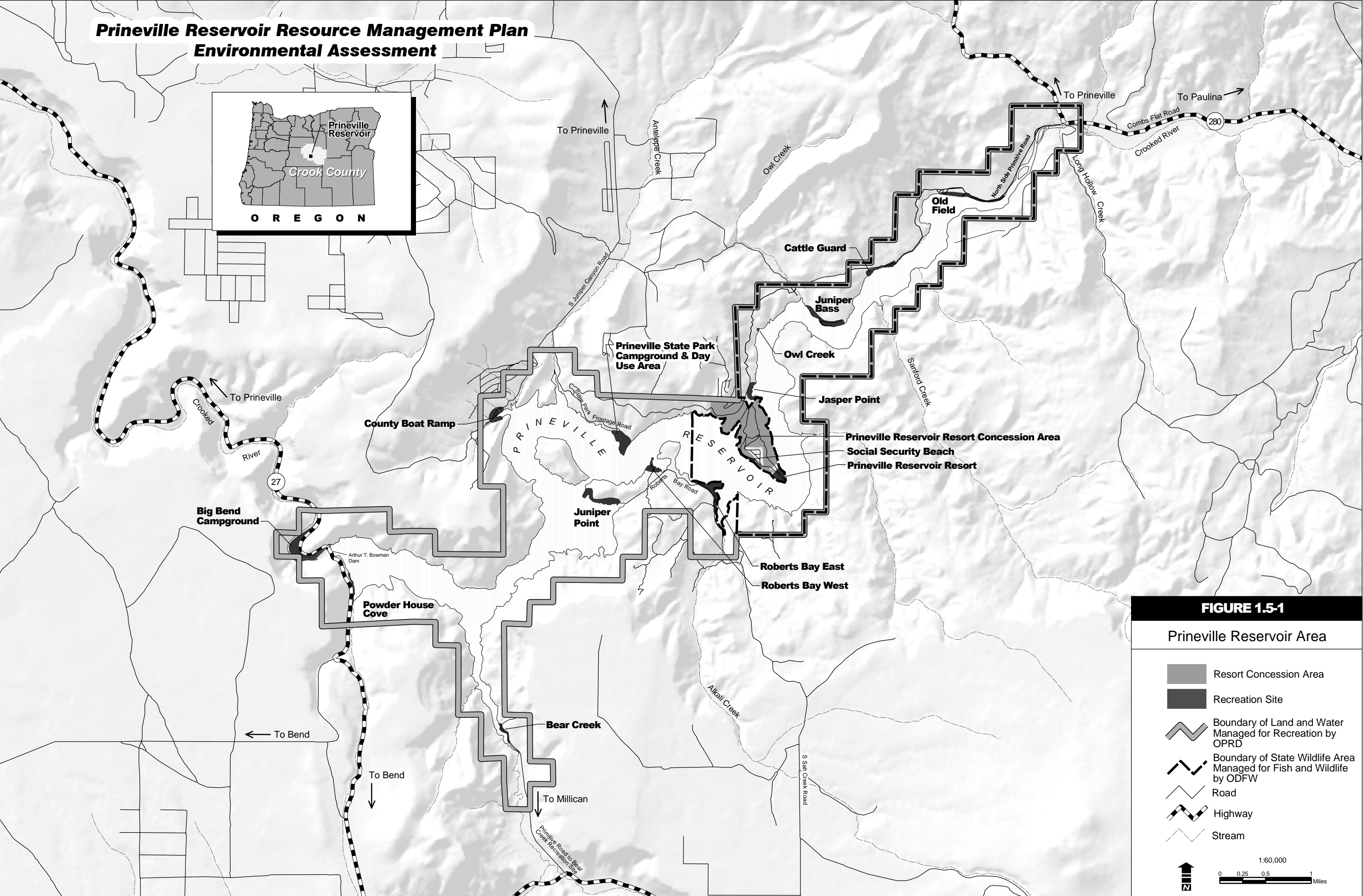
The study area, which includes Reclamation lands at Prineville Reservoir, Big Bend Campground immediately downstream of Bowman Dam, Prineville SWA, Prineville State Park, and the Prineville Reservoir Resort, is shown in Figure 1.5-1.

1.5.1 Prineville Reservoir Overview

Prineville Reservoir is the major storage reservoir facility of the Crooked River Project and has a total storage capacity of 150,216 acre-feet (af) and a water surface area of 3,030 acres at normal full pool elevation. The dam facilities are operated by the Ochoco Irrigation District (OID) under the general supervision of the Area Manager of Reclamation's Lower Columbia Area Office in Portland, Oregon. Reclamation's Bend Field Office provides the day-to-day contact/coordination with OID on operational and maintenance issues associated with the project. The project authorizes a 10 cubic feet-per-second (cfs) minimum flow below the dam.

Reclamation lands generally consist of a strip of land around the reservoir (including 43 miles of shoreline), lands under the reservoir, and Big Bend Campground located below the dam. Most lands surrounding the Reclamation lands are managed by the U.S. Bureau of Land Management (BLM). A small portion of surrounding land is privately owned. OPRD is the non-Federal recreation managing partner on all lands under Reclamation jurisdiction surrounding the reservoir, with the exception of the Prineville Reservoir Resort, which is operated by a private party. In addition, Oregon Department of

**Prineville Reservoir Resource Management Plan
Environmental Assessment**



Fish and Wildlife (ODFW) manages the upper reservoir area for wildlife as the Prineville SWA. BLM, through an interagency agreement with Reclamation, manages grazing, timber, and mineral rights on Reclamation lands. Bottero Park is a privately owned inholding of 11 acres that consists of 15 homes or recreation vehicle (RV) sites.

The study area consists of lands under Reclamation jurisdiction including: Prineville Reservoir (3,030 acres) and adjacent lands (5,460 acres); the Prineville SWA located at the eastern end of the reservoir; Big Bend Campground immediately downstream of Bowman Dam; Prineville State Park on the north side of the reservoir near Antelope Creek; Jasper Point State Park east of Prineville State Park; and Prineville Reservoir Resort, which is under a concession agreement with Reclamation, located on the north shore of the reservoir adjacent to Jasper Point State Park (Figure 1.5-1). Collectively, these lands and waters associated with Prineville Reservoir under Reclamation jurisdiction are called “Reclamation lands” throughout this Final EA.

Reclamation, through its cost share program and partnerships, has developed public recreation facilities on the north shore of the reservoir, including Prineville State Park, which includes a day use area and campground, and Jasper Point boat ramp and campground. These developed sites provide campgrounds and RV hook-ups, boat access and parking, day use recreation opportunities, and fully equipped shower and sanitation facilities. Several other undeveloped, primitive, or dispersed recreation sites, also managed by OPRD, are distributed around the reservoir. Big Bend Campground, located below the dam on the Crooked River, was originally a staging area for the construction of Bowman Dam and is also under Reclamation’s jurisdiction. Big Bend is cooperatively managed by BLM under agreement with OPRD due to its proximity to other BLM sites along the Crooked River, below the dam. Prineville Reservoir Resort is a 190-acre resort that offers a campground with hook-ups, a café and convenience store, a 7-unit motel, and a boat ramp with moorage and associated services.

The Prineville SWA extends along the north and south shore of the reservoir and occupies approximately 2,230 acres of land. Wildlife management goals of the SWA include habitat protection; wintering deer, elk, and waterfowl management; control of recreation activity; maintenance of boundary fencing for natural resource protection; and management of hunting. A primary goal of the SWA is the maintenance and improvement of the area as winter range for deer and elk.

The reservoir and adjacent lands have become increasingly important recreation sites since completion of the 1992 RMP. The City of Prineville is the primary gateway to the reservoir, but access from the City of Bend has been greatly improved from the recent Crook County upgrade of the Alfalfa/Market Road. An increasing population in Central Oregon and the Willamette Valley is largely responsible for the increased recreation use of Prineville Reservoir. Central Oregon’s three counties (Crook, Deschutes, and Jefferson) were among the fastest growing in the state during the past decade. Deschutes led the state with a 54 percent growth rate while Jefferson ranked fourth (38 percent) and Crook ranked fifth (34 percent increase) (U.S. Census 2001). For the year 2000, there were 102,694 overnight visits at the Prineville State Park and 85,432 for Jasper Point Campground. Visits for 2001 were slightly lower because of the drought and low reservoir levels (pers. comm., Perkins 2002).

State Highway 27 (or State Route [SR] 27) provides paved access to the reservoir from both Prineville and Bend. The reservoir can also be accessed from Prineville on S. Juniper Canyon Road, and from Prineville or Paulina on the Combs Flat Road (State Highway 280). Road access to the north shore is good to Jasper Point. A 6.3-mile long primitive road provides access between Jasper Point and Combs

Flat Road. This North Side Primitive Road traverses the Prineville SWA, which has seasonal closures to prevent disturbance of wintering deer and other wildlife.

Access to the south side of the reservoir is extremely limited as most of the south shoreline is roadless and accessible only by boat. Roberts Bay, a popular dispersed camping area on the south shoreline, is accessed via Salt Creek Road, a two-lane gravel road from State Route 27. Access to the Bear Creek Arm requires some travel on a single-lane primitive road adjacent to Bear Creek. The potential damage by recreation users to natural resources with increasing recreation use of Reclamation lands is an important reason for revising the RMP.

1.5.2 River and Reservoir System Operations

As stated earlier, the RMP does not address reservoir operations; however, system operations are summarized below to provide context. Except for flood control operations and fish and wildlife releases, all inflow is stored in the reservoir and released as required for irrigation purposes. The Ochoco Irrigation District manager coordinates reservoir releases to meet the water supply needs of the irrigation district and individual water users. A Congressionally mandated minimum flow of 10 cfs downstream of Bowman Dam is required when releases are not being made for irrigation or flood control, for the benefit of fish and wildlife. In recognition of the Crooked River's regionally outstanding natural and recreational resources under the Federal Wild and Scenic Rivers Act, Reclamation has administratively increased the minimum reservoir release to 75 cfs to further protect and improve the river's attributes. The 75 cfs target streamflow is met provided sufficient water supplies are available and contractual obligations are met. This 75 cfs is passed after the irrigation season, which usually extends from April 16 through October 15. These changes in reservoir operations were initiated in February 1990 and will continue unless modified by the Prineville Reservoir Reallocation Study (PRRS) recommendations.

Table 1.5-1 lists some specifications of Prineville Reservoir. The Crooked River Project generally experiences two peaks in irrigation use, one in late May and the other in mid-July.

Table 1.5-1: Project specifications.

Normal Maximum Water Surface	
Elevation	3,234.8 ft
Storage	150,216 af
Surface Area	3,030 ac
Shoreline	43 miles
Inactive (Minimum) Pool	
Elevation	3,114 ft
Storage	260 af
Surface Area	124 ac
Allocation of Capacity	
Total Storage	150,216 af (100%)
Active Storage	148,633 af (99%)
Dead Pool & Inactive Storage	1,583 af (1%)
Total Contracted Space	68,273 af (45%)
Total Uncontracted Space	80,360 af (53%)
Joint Use Storage (Flood Control)	60,021 af
Bowman Dam	
Structural Height	245 ft
Crest Elevation	3,264 ft
Crest Length	800 ft
Spillway Crest Elevation	3,234.8 ft
Spillway Capacity at Elevation 3257.9 ft	8,120 cfs
Source: Reclamation 1999	

Irrigation releases from Prineville Reservoir vary with storage capacity, rainfall, temperature, and crop needs. Flood control storage governs filling the reservoir and requires that 60,000 af of vacant space be available each year from November 15 to February 15. The minimum requirement of vacant space is reduced to 10,000 af on March 15, with full pool reached on about March 31. The goal of the flood control operation is to limit outflow from the reservoir to below 3,000 cfs. Release from Prineville Reservoir, as measured at the gaging station approximately 0.4 mile downstream from the dam, is reduced to 1,000 cfs whenever runoff would result in excessive or damaging overbank flows downstream from the mouth of Ochoco Creek. At all other times, a release of 3,000 cfs is not exceeded if flood control storage is available.

A Reclamation study on the sedimentation rate of the reservoir (Reclamation 1999) indicates that the difference in volume between the original (1960 survey) and the 1998 measured reservoir capacity for Prineville Reservoir was 4,586 af below spillway crest elevation at 3,234.8 feet. The estimated average annual rate of lost capacity from sedimentation was 122.3 af/year.

1.5.3 Land Management Categories at Prineville Reservoir

The 1992 RMP addressed Reclamation lands at Prineville Reservoir in terms of the following management categories, which have been retained in development of alternatives for the updated RMP:

- Recreation
- Prineville Reservoir Resort
- State Wildlife Area (SWA)

To ensure that wildlife values are preserved as recreation use, residential use, and commercial development increase near the reservoir, the policies and habitat improvement programs contained in the 1992 RMP will be continued by Reclamation under all alternatives of this updated RMP.

1.5.3.1 Recreation and Prineville Reservoir Resort

After the completion of Bowman Dam, Reclamation issued two 50-year license agreements for administration and management of Reclamation lands. The first agreement gave Crook County the responsibility to manage recreation outside the SWA. In December 1985, Crook County terminated their license agreement with Reclamation. In 1987, Reclamation entered into a 20-year agreement with OPRD to manage recreation at Prineville State Park. In 1995 this agreement was amended to include all land and water at Prineville Reservoir with a 50-year lease to expire in 2037. Developed recreation facilities are located at Prineville State Park and at Jasper Point, located on the north shore of the reservoir.

Reclamation currently has a concession agreement with a private party to operate the 190-acre Prineville Reservoir Resort. The resort includes facilities for camping with water and electrical hookups, a 7-unit hotel, a convenience store and café, moorage, and a boat launch. This agreement expires in 2005 and will be renewed if desired by both parties and if the terms and conditions are mutually acceptable.

1.5.3.2 State Wildlife Area (SWA)

An important responsibility for Reclamation as a managing agency is to protect wildlife and enhance habitat. At Prineville Reservoir, this is an important function because the reservoir and adjacent Reclamation lands provide habitat for many wildlife species, particularly in but not limited to the SWA.

In 1962, ODFW entered into a license with Reclamation to manage the upper end of the reservoir as the SWA. ODFW manages this 3,160-acre (2,230 acres of land and 930 acres of water) area for wildlife habitat protection and enhancement purposes. Outside of the SWA, Reclamation (in cooperation with ODFW) manages habitat on Reclamation lands. ODFW regulates hunting and fishing according to Oregon regulations. Recreation is permitted in the SWA in defined areas and is managed by OPRD. To protect wildlife resources, the south shore of the SWA from Roberts Bay to Long Hollow Creek is a boat-in day use area only. In addition, the Primitive North Side Road that extends through the SWA is closed between Jasper Point and Old Field from November 15 through April 15, and between Old Field and the Paulina Highway from December 15 through March 15 (Reclamation 1992). Recent changes to the road closure timing are discussed in Chapter 3. ODFW identified the following objectives for wildlife management at Prineville Reservoir as part of the 1992 RMP:

- Protect and enhance mule deer winter range
- Protect and enhance riparian vegetation for wildlife and bass fishery
- Improve waterfowl nesting habitat
- Protect winter feeding grounds for bald eagles
- Improve the availability and quality of wetland habitat
- Protect and enhance habitat for nongame wildlife
- Promote and create opportunities for wildlife viewing/enjoyment
- Promote a wildlife ethic/stewardship for the SWA

A Habitat and Wildlife Management Plan for the Prineville Reservoir lands is currently being prepared by Reclamation and ODFW in consultation with other agencies. A preliminary list of goals and objectives is included in Appendix E. Additional NEPA documentation would be necessary upon completion of the Habitat and Wildlife Management Plan.

1.6 Related Activities

1.6.1 Bureau of Land Management Upper Deschutes RMP

The U.S. Bureau of Land Management (BLM) is currently in a planning process for the Upper Deschutes RMP, which includes lands adjacent to Reclamation lands at Prineville Reservoir. A draft EIS for the Upper Deschutes RMP is scheduled for release in summer 2003.

1.6.2 Oregon Parks and Recreation Department Master Plan

OPRD is working with Reclamation to develop a combined RMP/MP for the management of Prineville Reservoir recreation lands. While the RMP planning period is for the next 10 years, the OPRD Master Plan period is for the next 25 years. This allows for an efficient approach to developing recreation sites in a phased manner with a desired future condition clearly identified. OPRD also provides recreation management, protection, administration, and maintenance on those lands currently under a wildlife management agreement with ODFW. OPRD's lease agreement with Reclamation expires in 2037 and will be renewed if desired by both parties and if terms and conditions are mutually agreeable.

1.6.3 Dam Safety Study

Reclamation is investigating the safety of Arthur R. Bowman Dam at Prineville Reservoir regarding the potential for flood waters overtopping the dam. Reclamation is evaluating the flood hydrology and risk assessment to develop a range of alternatives that offer an appropriate level of protection. A hydraulic model study is planned for the summer and fall of 2003, with safety of dams modification work planned for 2005 or 2006 based on the availability of funding.

1.6.4 Prineville Reservoir Reallocation Study (PRRS)

Congress authorized the Crooked River Project in 1956 to provide irrigation, flood control, basic minimum health and safety facilities, and fish and wildlife enhancement, requiring a minimum 10 cfs release from the dam when releases for irrigation or flood control are not occurring. Prineville Reservoir has an active storage capacity of 148,633 af; of this amount, 80,360 af remains uncontracted.

Reclamation received requests in the 1970s for formal reassignment of uncontracted space for reservoir recreation, fish, wildlife, and domestic, municipal, and industrial water supplies. Reclamation also received requests for additional irrigation contracts. Reclamation placed a moratorium on the sale of the uncontracted storage space to conduct comprehensive analyses of alternative uses of uncontracted space. Irrigation is the only use of uncontracted storage that is within the intent of the original Act; other uses require Congressional re-authorization.

Public meetings and Reclamation studies resulted in a 1980 Special Report recommending a reallocation plan to include irrigation, fish, reservoir recreation, and domestic, municipal, and industrial uses. The hearing proved contentious, Reclamation did not pursue reauthorization, and the moratorium remains in effect. Irrigators' concerns about their share of safety of dam costs at Bowman Dam rekindled the PRRS in the late 1980s. Reclamation attempted to negotiate a consensus solution among interested parties based on the information in the 1980 report, but it was unsuccessful in obtaining consensus on a reallocation plan.

Additional contract requests in the mid-1990s prompted Reclamation to pursue the most recent investigation in 1997. Cooperating agencies were convened and scoping meetings were conducted. Potential uses of uncontracted space identified included irrigation, reservoir recreation, instream flows, and domestic, municipal, and industrial uses. Reclamation has suspended further study because of funding constraints. When funding becomes available, Reclamation intends to pursue analyses and resolution of the issue.

The PRRS is not part of the RMP process, and operations of the reservoir are not under the scope of the RMP.

1.7 Scoping and Issues

To ensure that a full range of alternatives would be considered during the NEPA process, Reclamation held three public meetings prior to the development of this Final EA. Initial scoping meetings were held on March 14, 2001 in Prineville and March 15, 2001 in Portland. The meetings were advertised through media announcements sent to local media outlets and a public information newsbrief sent to approximately 350 people. The purpose of the initial meetings and the newsbrief was to collect public input on the issues that should be addressed in the alternatives for the RMP and EA. Following these meetings, an Ad Hoc Work Group was formed to assist with alternatives development and participation throughout the process. This group consists of tribal, agency, and interest group representatives, and is more thoroughly described in Chapter 4, Consultation and Coordination. A third public meeting was held on November 28, 2001 in Prineville and was also announced through local media and an expanded newsbrief mailing list. The primary purpose of the third public meeting was to refine the RMP alternatives. A fourth public meeting was held in the fall of 2002 in Prineville, preceded by local media announcements and newsbrief mailings. The purpose of this meeting was to gather comments on the Draft EA. The public involvement process is described fully in Chapter 4, Consultation and Coordination.

The RMP addresses all activities occurring on Reclamation lands surrounding the reservoir and at Big Bend Campground, located below the dam. Reclamation water operations are based on contractual and flood control requirements and are not part of the RMP.

Reclamation has identified several issues that need to be addressed by the RMP. These issues were presented to the public, and the list was expanded through this process. A summary list of issues follows:

- Quantity and quality of recreation use to provide at Prineville Reservoir to meet increasing demand.
- Conflicts between recreation use and wildlife habitat.
- Conflicts among recreation users, especially motorized versus non-motorized.
- Grazing management.
- Juniper management.
- Protection and conservation of important or sensitive resources, such as wildlife, fisheries, wetlands, riparian vegetation, and cultural resources.
- Vegetation management and weed control.
- Coordination with ODFW regarding management of the Prineville SWA.
- Protection of winter range for deer and elk management.

- Avoidance of recreation conflicts with wintering deer.
- Additional or expanded boat ramps, docks, and associated facilities.
- Improved access to reservoir/recreation sites.
- Trespass and requests for private land access.
- Impacts of motorized vehicles, such as off-road vehicles (ORVs).
- Hunting and fishing opportunities.
- Water quality and erosion control.
- Cultural resource protection.
- Scenic viewshed quality.
- Health and sanitation.
- Law enforcement.

2.0 Alternatives

2.0 ALTERNATIVES

2.1 Introduction

This chapter presents the alternatives being considered for implementation as the updated Prineville Reservoir RMP. It describes the No Action Alternative and two Action Alternatives in detail and provides a summary comparison. For each of the alternatives, recreation area improvements are described, such as trails, formal campsites, signage, boat launching facilities, maintenance facilities, employee housing, and parking improvements. Reclamation does not intend to build all of these facilities independently. Rather, Reclamation would allow these developments to occur if its managing partner (OPRD) is involved, cost-share conditions are met, and Reclamation funds are available or other funding sources become available. For comparison of the alternatives, it is assumed that all of the facilities would be built. The more expansive improvements at Roberts Bay would be phased over a 25-year-period, which is the planning timeframe for the OPRD Master Plan. Adequate and safe access to the south shore via Roberts Bay (Salt Creek) Road would be provided commensurate with the level of recreation development. Phased projects would be implemented within this 25-year period dependent on Reclamation and OPRD funding. Other actions, such as increased noxious weed control, do not require managing partners or cost-sharing agreements and would be implemented as described in the alternatives and according to the guidelines of the Draft Integrated Pest Management (IPM) Plan. The IPM Plan prescribes specific technical measures and strategies for weed control. A separate NEPA process is being conducted for this plan.

2.2 Alternatives Development

NEPA requires Federal agencies to evaluate a range of reasonable alternatives to a proposed Federal action that meet the purpose and need of the proposed action. The NEPA alternatives development process allows Reclamation to work with interested agencies, tribes, the public, and other stakeholders to develop alternative management plans that respond to identified issues. This Final EA documents Reclamation's planning and decision-making process for the RMP.

Reclamation began the public involvement process for the updated Prineville RMP in January 2001. The purpose of this scoping process was to identify issues at Prineville Reservoir that needed to be included in the RMP alternatives and addressed in the Final EA. After the first public meeting, held in March 2001, an Ad Hoc Work Group was formed to address issues and develop alternatives. The public involvement process is fully described in Chapter 4, Consultation and Coordination. Reclamation developed the alternatives based on issues identified during the public involvement process, and refined alternatives with assistance from the Ad Hoc Work Group and in a November 2001 public meeting. The Preferred Alternative was identified during this process for evaluation in this Final EA.

This process resulted in the development of two Action Alternatives that prescribe a range of natural, cultural, and recreation resource management actions. A third alternative analyzed in this Final EA is the No Action Alternative, as required by NEPA. Each alternative would result in different future conditions at the reservoir. The three alternatives are summarized below.

- **Alternative A: No Action - Continuation of Existing Management Practices.** Management would be conducted according to the priorities and projects proposed in the 1992 RMP.

Reclamation would continue to adhere to all applicable Federal laws, regulations, and executive orders, including those enacted since the 1992 RMP was adopted.

- **Alternative B: Natural Resource/Dispersed Recreation Balance.** This alternative would allow for a balance between natural resource protection and dispersed recreation through formalization of camping areas with provisions for some continued dispersed camping. Several selected natural and cultural resource protection and management efforts would be increased on Reclamation lands, and other such efforts would be maintained.
- **Alternative C (Preferred Alternative): Natural Resource Protection/Formal Recreation Emphasis.** In this alternative, emphasis is placed on formalizing camping and water access, particularly on the south shore of the reservoir, to reduce the continued widespread disturbance of vegetation by dense dispersed camping and an informal road network.

2.2.1 Similarities Among Alternatives

Although the alternatives differ in many ways, several features are common to all three alternatives:

- Continue to operate and maintain Reclamation lands and facilities.
- Improve enforcement regarding Reclamation's policy, Federal regulation, and County Ordinance 101 on driving vehicles off designated roads on Reclamation lands.
- Continue to adhere to existing and future Federal, State, and County laws and regulations.
- Authorize special recreation events on a case-by-case basis.
- Implement restrictions on vehicle use of the shore and drawdown zone.
- Prior to any major ground-disturbing activities, the appropriate level of site-specific NEPA analysis and public involvement would be done. Required cultural resource surveys, archeological site evaluations, and necessary inventories for Traditional Cultural Properties would be completed.
- For recreation development and management aspects, follow the principles in Public Law 89-72, Federal Water Projects Recreation Act of 1965, as amended by Title 28 of Public Law 102-575. Basically, if a non-Federal public entity has agreed to manage recreation on Reclamation lands, Reclamation may share development costs for up to 50 percent of the total cost.
- OPRD continues to manage Reclamation lands for recreation under an agreement with Reclamation.
- ODFW continues to manage the SWA for fish and wildlife under an agreement with Reclamation. OPRD continues to manage recreation use in the SWA.
- Manage weeds through completion and implementation of the Prineville Reservoir Integrated Pest Management Plan.

- Coordinate with law enforcement entities regarding HR 2925, which authorizes Reclamation to enter agreements with State, tribal, and local law enforcement agencies to carry out law enforcement on Reclamation land.
- Coordinate with tribes/agencies regarding cultural resources.
- Off-road vehicle (ORV) travel below the high water line would be permitted within 500 feet of developed boat launches or other areas designated for boat launching.
- Compliance with current accessibility regulations and standards will be required at all new facilities and on retrofits of existing facilities (“Accessibility” is defined as providing participation in programs and use of facilities to persons with a disability).
- All actions are dependent upon the availability of funding and must be within the authority of the applicable agency.

Elements common to the two Action Alternatives include:

- Recommendations to address scenic values and the measures to be taken to monitor and manage future planning and development.
- Tightened enforcement of standards for erosion control structures (affects design, permitting, construction, and types of materials used to control erosion).
- Coordination among agencies and tribes to take proactive measures for the protection and enhancement of cultural resources.
- Restoration efforts in the SWA to enhance wildlife habitat.

2.3 Alternatives Considered in Detail

Three alternatives were selected for detailed analysis. A narrative highlights the primary elements of each alternative, and Table 2.3-1 summarizes each alternative. The impacts of each alternative are described in Chapter 3, Affected Environment and Environmental Consequences.

Alternative plans are defined by different choices to address future management of the study area. These alternatives are an important part of the planning process because they allow for a thorough exploration of a range of different options and an analysis of the potential environmental impacts that may result from their implementation.

Analysis of the No Action Alternative is required under NEPA. For the purposes of managing this area and analysis in the EA, the No Action Alternative (Alternative A) represents the continuation of the goals, objectives, and actions set forth in the 1992 RMP. Two action alternatives have been built around the following themes: (1) Alternative B - Natural Resource/Dispersed Recreation Balance; and (2)

Table 2.3-1: Prineville Reservoir Resource Management Plan – Final EA Alternatives.

Resource Topic	Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative		
	Alternative A: No Action: Continuation of Existing Management Practices ^{/1/}	Alternative B: Natural Resource/Dispersed Recreation Balance ^{/2/}	Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative
TOPICS APPLICABLE TO THE ENTIRE AREA			
Vehicle Access	<p>Increase enforcement of off-road vehicle use.</p> <p>Develop a travel management plan using a "Green Dot" system to signify roads open for vehicle travel. Those roads not marked are closed. [Note: not yet implemented]</p> <p>Road closed between Jasper Point and Old Field from Nov. 15 – April 15.</p> <p>Road closed between Old Field and Combs Flat Road from Dec. 15 – March 15.</p> <p>Improve 0.7-mile-long Roberts Bay Road including culverts, widening, and directional and traffic signs. [Note: not yet implemented]</p>	<p>Improve enforcement of "Off-Highway Vehicle Regulations" for all areas not designated as roads or open areas including reservoir drawdown zone and unplanned roads.</p> <p>Maintain current seasonal closure of North Side Primitive Road.</p> <p>If legal access can be determined or acquired, Reclamation in cooperation with OPRD will take responsibility for maintaining the road to Roberts Bay commensurate with the level of facility development. If legal access cannot be determined or obtained, and Reclamation cannot responsibly manage these lands, then it may be necessary to close this recreation area.</p> <p>Install traffic and directional signs.</p>	<p>Improve enforcement of "Off-Highway Vehicle Regulations" for all areas not designated as roads or open areas including reservoir drawdown zone and unplanned roads.</p> <p>Place warning signs on both ends of North Side Primitive Road to indicate "rough road ahead – large vehicles not recommended".</p> <p>Provide a visitor brochure that identifies roads open to vehicle use and trails and their designated uses (e.g., hiking, horseback riding, and/or mountain biking).</p> <p>Develop a reservoir-wide sign program (e.g., such as a green dot system) to inform public of vehicle use restrictions.</p> <p>Allow no new private access roads across the SWA.</p> <p>Limit new private access roads across Reclamation land to maintain existing character of area and visual quality.</p> <p>Close road between Jasper Point and Combs Flat Road consistent with ODFW and BLM closure dates. Dates would be from Nov. 15 through April 15 to increase protection for wildlife and for consistency with managing agencies. Dates may vary with changing conditions.</p> <p>If legal access can be determined or acquired, Reclamation in cooperation with OPRD will take responsibility for maintaining the road to Roberts Bay commensurate with the level of facility development. If legal access cannot be determined or obtained, and Reclamation cannot responsibly manage these lands, then it may be necessary to close this recreation area.</p> <p>Install "Park Full" indicator sign at one of the intersections prior to accessing the Roberts Bay Road.</p>
Sanitation	<p>See site-specific recommendations for recreation sites.</p> <p>Provide information regarding garbage pack-in/pack-out policy for dispersed use areas. [Note: not yet implemented]</p>	<p>Continue to provide sanitation at areas of heavy use.</p> <p>Provide information signs regarding garbage pack-in/pack-out policy for dispersed use areas.</p>	<p>Continue to provide sanitation at areas of heavy use and provide additional boat-in and/or floating sanitation facilities.</p> <p>Provide information signs and update park brochure regarding garbage pack-in/pack-out policy for dispersed use areas.</p>

Table 2.3-1: Prineville Reservoir Resource Management Plan – Final EA Alternatives.

Resource Topic	TOPICS APPLICABLE TO THE ENTIRE AREA (continued)			Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative
	Alternative A: No Action: Continuation of Existing Management Practices ^{/1/}	Alternative B: Natural Resource/Dispersed Recreation Balance ^{/2/}	Alternative B plus: Implement best management practices for operations and construction projects. Continue to block informal roads to prevent additional erosion of soils.	
Soils	Site-specific recommendations are provided in recreation and access.			<ul style="list-style-type: none"> Implement best management practices for projects and site-specific restoration of trails, road crossings of swales/drainages (e.g., Owl Creek drainage). Areas of high occurrence of cryptobiotic soils will be more precisely identified and mapped through field verification of existing preliminary map data. Appropriate protection measures would be developed in areas where recreation or livestock grazing is causing adverse effects.
Rare, Threatened, and Endangered Species	Comply with Federal Endangered Species Act regarding all RMP actions.	<ul style="list-style-type: none"> Protect <i>Artemisia ludoviciana</i> (a State-listed sensitive species) on all Reclamation lands. 	Same as Alternative A plus:	<p>Same as Alternative B plus:</p> <ul style="list-style-type: none"> Participate in the annual monitoring of bald eagle nests and winter roost areas, golden eagle nests, prairie falcon nests, and <i>Artemisia ludoviciana</i> sites; and manage accordingly. An eagle management plan would be developed as a component to the Habitat and Wildlife Management Plan.
Habitat and Wildlife Management	Develop a long range Habitat and Wildlife Management Plan with special attention to SWA. [not completed]	Continue to implement enhancements without a comprehensive Habitat and Wildlife Management Plan. Efforts would continue to be concentrated in the SWA. Finalize and implement the Prineville Reservoir Integrated Pest Management Plan, which covers noxious weed control.	Continue to implement enhancements without a comprehensive Habitat and Wildlife Management Plan. Efforts would continue to be concentrated in the SWA.	In cooperation with OPRD, ODFW, and BLM, develop and implement a Habitat and Wildlife Management Plan for the entire RMP study area. Finalize and implement Integrated Pest Management Plan.
Fisheries Management	Continue cooperation with ODFW and the U.S. Fish and Wildlife Service (FWS) in developing and implementing a Fisheries Management Plan. [Note: not yet implemented] Modify the stilling basin below the dam to reduce gas supersaturation. [Note: not implemented]	Continue to cooperate with ODFW and other partners on aquatic habitat enhancement projects. Conduct periodic monitoring of fish populations. Continue to have recreation and fisheries representatives participate in	Continue cooperation with ODFW and FWS in developing and implementing a Fisheries Management Plan. Fisheries Management Plan would include aquatic habitat enhancement projects and periodic monitoring of fish populations. Continue to have recreation and fisheries representatives participate in Prineville Reservoir Reallocation Study.	

Table 2.3-1: Prineville Reservoir Resource Management Plan – Final EA Alternatives.

Resource Topic	Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative		
	Alternative A: No Action: Continuation of Existing Management Practices ^{/1/}	Alternative B: Natural Resource/Dispersed Recreation Balance ^{/2/}	Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative
TOPICS APPLICABLE TO THE ENTIRE AREA (continued)			
Fisheries Management (continued)	Install, maintain, and monitor a dissolved gas sensor below the dam. [Note: not implemented] Pursue formal reallocation of the unassigned water in Prineville Reservoir to achieve adequate winter streamflows in the Crooked River.	Prineville Reservoir Reallocation Study.	
Juniper Management	No specific direction given.	Strive to maintain existing visual quality with any juniper management actions.	As part of the Habitat and Wildlife Management Plan, perform limited juniper management on specific areas within the RMP study area. Public notice would be provided for implementation of management on areas greater than 1 acre. Best Management Practices (BMPs) would be followed for all habitat management activities. Maintain existing visual quality of the area. Improve coordination and communication with BLM on juniper management on adjacent BLM lands within the Prineville Reservoir viewshed.
Scenic Values	No specific recommendations but related issues covered in other topics.	Any new roads should be routed to minimize cut/fill and visual intrusion. Utilize components of BLM Visual Resource Management System to assess proposed projects (i.e., manage to maintain existing visual quality). Coordinate with BLM approval process for issuing road permits and minimizing visual impacts on projects affecting Reclamation lands. Implement OPRD typical design standards for any new structures.	Same as Alternative B plus: <ul style="list-style-type: none"> Minimize effects of projects and activities on visual quality. Reclamation to participate with County Planning & Zoning in adjoining land use approval processes where possible. Bury new utility lines where feasible and work with adjoining jurisdictions to recommend underground utility lines. Improve coordination with BLM on management of adjacent BLM land in relation to scenic values.

Table 2.3-1: Prineville Reservoir Resource Management Plan – Final EA Alternatives.

Resource Topic	TOPICS APPLICABLE TO THE ENTIRE AREA (continued)			Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative
	Alternative A: No Action: Continuation of Existing Management Practices ^{/1/}	Alternative B: Natural Resource/Dispersed Recreation Balance ^{/2/}		
Safety and Emergency Services	No specific recommendations under 1992 RMP.	Continue to contract with BLM for wildland fire suppression. OPRD to develop agreement with County Fire District for structural fire protection.	Same as Alternative B plus: <ul style="list-style-type: none">• Cooperate with Crook and Deschutes counties on a Wildland Fire Prevention Program.• Post fire prevention and closure information at recreation sites.• Cooperate with other interested agencies and parties to improve emergency communications ability.	
Enforcement	Continue enforcement by Crook County Sheriff's office and expand resources as needed.	Same as Alternative A plus: <ul style="list-style-type: none">• Increase enforcement of ORV access rules.	Same as Alternative B plus: <ul style="list-style-type: none">• Continue enforcement-related funding for OPRD and Crook County. Expand resources as needed, dependent upon annual appropriations.• Cooperate with Crook County to establish additional County ordinances to improve enforcement capability on Reclamation lands.	
Fencing	Improve fencing to eliminate livestock use of developed recreation areas and shoreline, riparian, and wetland habitat. [Note: not yet implemented]	Construct boundary fence where there are conflicts with adjacent land use and recreation or resource protection needs (e.g., Roberts Bay, County boat ramp, and Bear Creek). Maintain existing fencing and install new fencing with wildlife passage design as funding allows.	Same as Alternative B plus: <ul style="list-style-type: none">• Install fencing based on a prioritized plan tied to resource and conflict management needs.• Add fence crossings as appropriate.• Improve fencing to conform to recommended wildlife passage design.• Install and maintain boundary markers where fencing is not essential.	
Livestock Grazing	Grazing eliminated from designated recreation areas by fencing. [Note: not yet implemented] Non-BLM administered grazing within SWA determined annually by ODFW and Reclamation. Emphasize keeping livestock away from developed recreation sites and	Same as Alternative A.	Work with BLM to revise allotment management plans affecting Reclamation lands. Control or eliminate livestock grazing in areas where it may not be compatible with resources such as cultural resource sites and areas with a high occurrence of cryptobiotic soils. Reclamation would assess impacts and determine appropriate resource protection measures (also see Soils and Cultural Resource sections).	

Table 2.3-1: Prineville Reservoir Resource Management Plan – Final EA Alternatives.

Resource Topic	TOPICS APPLICABLE TO THE ENTIRE AREA (continued)		
	Alternative A: No Action: Continuation of Existing Management Practices ^{/1/}	Alternative B: Natural Resource/Dispersed Recreation Balance ^{/2/}	Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative
Livestock Grazing (continued)	shoreline, riparian, and wetland habitat during development of Habitat and Wildlife Management Plan. [Note: not yet implemented]		Livestock grazing would be eliminated from areas where it is not compatible with natural resource or recreation resources including wetlands, riparian areas, recreation sites, and proximity to threatened, endangered, or sensitive species.
Cultural Resources			
General	Comply with Sections 106 and 110 of NHPA, ARPA, and NAGPRA. Prepare a Cultural Resources Management Plan. [not yet completed]	Same as Alternative A. Prepare a Cultural Resources Management Plan, as needed.	Same as Alternative A. Prepare a Cultural Resources Management Plan, as needed.
Identification & Evaluation	Conduct Class III cultural resources survey. [in progress] Continue archeological survey and test excavations of highest priority areas. Continue tribal consultations to determine if Traditional Cultural Properties (TCPs) might be present. Consult with SHPO and tribes about sites' eligibility.	Same as Alternative A, plus: <ul style="list-style-type: none"> • Survey areas impacted by dispersed use that have resource potential. • Test sites impacted by North Side Primitive Road use and in impact zone around focused use areas. • If needed, complete TCP inventory of focused use locations with tribes. 	Same as Alternative B plus: <ul style="list-style-type: none"> • If needed, complete TCP inventory of additional areas impacted by land use. • Test all sites with potential for user impacts.
Protection	Unless justified, no new features would be developed within the boundaries within a Register-eligible site. Design new construction to avoid impacting Register-eligible sites or TCPs, or mitigate unavoidable impacts. Additionally: Provide public information about ARPA requirements. Implement protection or mitigation actions at most important Register-eligible sites in the drawdown zone or in focused use areas.	Same as Alternative A, plus: <ul style="list-style-type: none"> • Monitor sites near focused use areas and along the North Side Primitive Road to allow early detection of damage. • Implement management strategies to protect the most important Register-eligible TCPs in or near focused use areas and authorized roads. 	Same as Alternative B, plus: <ul style="list-style-type: none"> • Implement protection or mitigation actions at Register-eligible sites or TCPs that may be endangered by dispersed uses. • Prepare public interpretation materials informing visitors about area history and resource significance. • Determine if grazing impacts sites and address identified impacts.

Table 2.3-1: Prineville Reservoir Resource Management Plan – Final EA Alternatives.

Resource Topic		Alternative A: No Action: Continuation of Existing Management Practices ^{/1/}	Alternative B: Natural Resource/Dispersed Recreation Balance ^{/2/}	Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative
TOPICS APPLICABLE TO THE ENTIRE AREA (continued)				
Indian Sacred Sites	Comply with Executive Order 13007 for any new undertaking at the reservoir. Consult for new actions and seek to design actions so they do not damage identified sacred sites.	Same as Alternative A, plus: <ul style="list-style-type: none"> Consult with tribes to determine if Indian sacred sites are present on Reclamation lands. If present, determine if there are impacts from existing land use. Seek to avoid damages, when consistent with accomplishing agency mission and law. 	Same as Alternative B.	
Indian Trust Assets	Would consult on actions that may affect ITAs and seek to avoid impacts.	Consult on actions that may affect ITAs and seek to avoid impacts.	Same as Alternative B.	
Paleontological Resources	Incorporate into archeological survey where potential exists. If found, activity would be modified to avoid or recovery would be done prior to disturbance.	Same as Alternative A.	Same as Alternative A.	
STATE WILDLIFE AREA				
Habitat and Wildlife Management	Develop a Habitat and Wildlife Management Plan in cooperation with ODFW, BLM, and adjacent land owners with specific actions regarding the SWA (also see Management in Topics Applicable to the Entire Area, above). [Note: not yet implemented] Emphasis on habitat improvement, diversity, and abundance of wildlife. Restrict livestock from shoreline, riparian, and wetland areas. [Note: not yet implemented]	Continue to enhance habitats and initiate specific projects as funding allows without a comprehensive Habitat and Wildlife Management Plan. Focus natural resource management funding for restoration efforts in SWA such as Old Field and Owl Creek. Prevent illegal ORV use by increased enforcement, signage, and physical barriers.	A Habitat and Wildlife Management Plan would be developed and implemented for the entire RMP study area in cooperation with ODFW, OPRD, and BLM. Prevent illegal ORV use by increased enforcement, signage, and physical barriers.	

Table 2.3-1: Prineville Reservoir Resource Management Plan – Final EA Alternatives.

Resource Topic	Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative		
	Alternative A: No Action: Continuation of Existing Management Practices ^{/1/}	Alternative B: Natural Resource/Dispersed Recreation Balance ^{/2/}	Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative
STATE WILDLIFE AREA (continued)			
Land-Based Recreation in the State Wildlife Area (SWA)	Manage the reservoir's southern shoreline from Roberts Bay to Long Hollow Creek as a boat-in day use area only. To optimize wildlife management efforts, no overnight use would be allowed. Dispersed camping allowed in all other areas.	Same as Alternative A.	Manage the reservoir's southern shoreline from Roberts Bay to Long Hollow Creek as a boat-in day use area only. To optimize wildlife management efforts, no overnight use would be allowed. Camping in the SWA would be allowed only on the north shore of the reservoir and only in designated camping areas.
Designated Recreation Areas within the SWA			
Owl Creek	Construct up to 15 primitive-designated walk-in or boat-in sites. Construct 1 moorage/courtesy dock. [Note: not yet implemented]	Maintain in existing condition and use patterns.	Same as Alternative A, without courtesy dock plus: <ul style="list-style-type: none"> Construct non-motorized trail (hiking, biking, equestrian) connections to North Side Primitive Road and BLM property Camper registration required Define perimeter of camping area and 15 primitive sites
Juniper Bass	Construct 15 primitive-designated sites. [Note: not yet implemented]	Maintain existing condition and use patterns.	Same as Alternative A, plus: <ul style="list-style-type: none"> Camper registration required Define perimeter of camping area and 15 primitive sites Coordinate with BLM to review the potential for trail connections to adjacent BLM land
Cattle Guard	Construct 8 primitive-designated sites. [Note: not yet implemented]	Maintain existing condition and use patterns.	Same as Alternative A, plus: <ul style="list-style-type: none"> Camper registration required Define perimeter of camping area and 8 primitive sites Coordinate with BLM to review the potential for trail connections to adjacent BLM land

Table 2.3-1: Prineville Reservoir Resource Management Plan – Final EA Alternatives.

Alternative A: No Action: Continuation of Existing Management Practices ^{/1/}		Alternative B: Natural Resource/Dispersed Recreation Balance ^{/2/}		Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative	
Resource Topic		STATE WILDLIFE AREA (continued)			
Old Field	Construct 25 primitive-designated sites. [Note: not yet implemented]	Maintain existing condition and use patterns.	Same as Alternative A, plus: <ul style="list-style-type: none">Camper registration requiredDefine perimeter of camping area and 25 primitive sitesCoordinate with BLM to review the potential for trail connections to adjacent BLM land Day use only. Non-motorized trailhead and trail (hiking, biking, equestrian) connections to North Side Primitive Road and adjacent BLM property Define perimeter		
Combs Flat (proposed - near Combs Flat Rd. at eastern end of the SWA)	No activities planned as part of 1992 RMP; maintain existing condition and use patterns.	Maintain existing conditions and use patterns.			
State Park North Expansion Area - Proposed (area just north and upslope of State Park)	High amenity campground (100 new units). [Note: not yet implemented]	Cabin cluster (10 max.) Group camp (20 sites max.) Trails - hiking and biking	Full hook-up campground (80 sites max.) Cabin cluster (10 max.) Group camp (20 sites max.) Trails- hiking and biking Dump station		
NORTH SHORE (Outside of the SWA)					
State Park Campground	Maintain existing condition and use patterns.	Expand existing maintenance yard. Relocate registration booth. Improve trail to Jasper Point. Expand overnight moorage (20 max.). Infrastructure improvements. Construct a dump station. Provide seasonal employee housing (2 houses for 4 seasonals). Construct a new park office.	Expand existing maintenance yard. Relocate registration booth. Improve trail to Jasper Point. Expand overnight moorage (20 max.). Infrastructure improvements. Provide employee housing (2 houses for 4 seasonals). Concession store for rentals (bikes, kayaks). Construct an accessible fishing pier. Add 3 cabins. Construct a new park office.		

Table 2.3-1: Prineville Reservoir Resource Management Plan – Final EA Alternatives.

Alternative A: No Action: Continuation of Existing Management Practices ^{/1/}		Alternative B: Natural Resource/Dispersed Recreation Balance ^{/2/}		Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative	
Resource Topic		NORTH SHORE (Outside of the SWA) (continued)			
Jasper Point Boat Ramp and Campground	Existing as outlined in the 1992 RMP. Dump station being constructed now. Loop roads now being paved.	Construct small maintenance yard area.		Same as Alternative B.	
Antelope Creek Day Use Area (currently undeveloped proposed new site located west of existing State Park and east of Antelope Creek)	Developed day use area with swimming and picnicking. Boat ramp and parking. [Note: not yet implemented].	Developed day use area with swimming and picnicking. Group day use area with shelter. Non-motorized trailhead and trail connections. Parking (50 maximum).		Same as Alternative B plus: <ul style="list-style-type: none">Construct an accessible fishing pierProvide overflow parking	
County Boat Ramp	Improve existing boat ramp. Improve parking/traffic. Retain as day use only area. [Note: not yet implemented]	Same as Alternative A.		Same as Alternative A plus: <ul style="list-style-type: none">Work with BLM to explore option of Reclamation/OPRD/BLM parking area for boat ramp parking and/or non-motorized trailhead.	
Prineville Resort*	Build new low water boat ramp east of existing boat ramp.	Same as Alternative A plus: <ul style="list-style-type: none">Provide additional cabins (10 max.).Provide additional developed campsites.Provide additional moorage		Same as Alternative B plus: <ul style="list-style-type: none">Develop group campsitesConstruct one designated day use area (swimming, fishing, picnicking at Social Security Beach)Develop loop trail and trailheadImprove maintenance facilitiesContinue to provide vehicle access to Social Security Beach for elderly, people with disabilities, and their companions.	
Dispersed Boat-in Use (day use and camping)	No guidance or restrictions.	Same as Alternative A.		Provide some basic amenities (e.g., picnic tables, boat tie-ups, portable toilet, fire rings) at a few select dispersed locations to concentrate use. A few specific sites to be identified. Selective sites would be monitored for cultural and natural resources degradation and closed if necessary.	

* Implementation of improvements dependent upon the results of a financial feasibility study scheduled for 2004.

Table 2.3-1: Prineville Reservoir Resource Management Plan – Final EA Alternatives.

Resource Topic		Alternative A: No Action: Continuation of Existing Management Practices ^{/1/}	Alternative B: Natural Resource/Dispersed Recreation Balance ^{/2/}	Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative
AREA BELOW THE DAM				
Big Bend Campground		Not included in 1992 RMP- no development proposed. Included in Lower Crooked River Wild & Scenic River Management Plan. Campground constructed after 1992 RMP.	No changes to existing campground configuration.	Same as Alternative B.
SOUTH SHORE (outside the SWA)				
Dispersed Boat-in Use (day use and camping)		No guidance or restrictions.	Same as Alternative A.	Provide some basic amenities (e.g., picnic tables, boat tie-ups, portable toilet, fire rings) at a few select dispersed locations to concentrate use. A few specific sites to be identified. Selective sites would be monitored for cultural and natural resources degradation and closed if necessary.
Powder House Cove		Construct day use area with: <ul style="list-style-type: none"> Improved, two-lane boat ramp with turnarounds Gravel parking lot with spaces for 25 cars/trailers Courtesy boat dock 4-unit concrete vault restroom New gravel access road from Hwy 27 [Appendix B, Conceptual Plan]	Same as Alternative A, except: <ul style="list-style-type: none"> 75 max. additional parking stalls. [Note: See Appendix C, Conceptual Plan]	<p>Phase 1:</p> <ul style="list-style-type: none"> Build new entrance and boat ramp access road. Construct new boat ramp east of existing ramp. Provide additional truck and trailer parking (75 max.). Close old boat ramp. Construct day use area with separate parking area (20 max.) and trailhead. Construct non-motorized trail - interpretive loop trail to old Powder House and Taylor Butte. New vault toilet(s). Manage for day use only. Work with appropriate agencies to eliminate parking on Hwy 27. <p>Phase 2:</p> <ul style="list-style-type: none"> Add additional parking for trucks and trailers (45 max). <p>[Note: See Appendix D, Conceptual Plan].</p>

Table 2.3-1: Prineville Reservoir Resource Management Plan – Final EA Alternatives.

Resource Topic	Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative		
	Alternative A: No Action: Continuation of Existing Management Practices ^{/1/}	Alternative B: Natural Resource/Dispersed Recreation Balance ^{/2/}	Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative
SOUTH SHORE (outside the SWA) (continued)			
Bear Creek	Maintain existing condition and use patterns.	Same as Alternative A.	Same as Alternative A, plus: <ul style="list-style-type: none"> Construct a turn-around at the end of the road.
Juniper Point	Maintain existing condition and use patterns.	Up to 20 Primitive-designated campsites Gravel roads.	**Same as Alternative B plus. <ul style="list-style-type: none"> Provide adequate toilet facilities.
Roberts Bay East	Desired facilities include: <ul style="list-style-type: none"> Primitive-designated campsites (35 max.) 2-lane concrete boat ramp with parking area Minimal amenities - Potable water and vault toilets [Note: not yet implemented]	Facilities include: <ul style="list-style-type: none"> Medium density primitive fee campground, up to 50 primitive- designated campsites Self-registration and fee assessed Group camp 1 camp host site with solar-generated electricity Minimal amenities - potable water and vault toilets (no showers) Day use area- picnicking, swimming area Parking (50 max) Trails 	**Phased development as follows: Phase I: <ul style="list-style-type: none"> Create designated use areas for the entire site including designated camping areas. Develop group camps as part of designated use areas. Institute camp host(s). Develop a day use area for picnicking and swimming with parking for up to 50 vehicles. Develop trails. Begin Roberts Bay Road improvements, pending determining or acquiring legal access, and begin road realignment within the Roberts Bay recreation site area. Phase II <ul style="list-style-type: none"> Designated campsites (50 max.) with water, electricity, and toilet buildings with showers. Primitive group camps (5 with 10 sites each) with only centralized water and toilets. Two group camps with group picnic shelter with water and power. Cabin cluster (15 max.). RV dump station. Trails and trail connections. Host sites. Accessible fishing pier.

Table 2.3-1: Prineville Reservoir Resource Management Plan – Final EA Alternatives.

Resource Topic	Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative		
	Alternative A: No Action: Continuation of Existing Management Practices ^{/1/}	Alternative B: Natural Resource/Dispersed Recreation Balance ^{/2/}	Alternative C: Natural Resource Protection/ Formal Recreation Emphasis ^{/3/} Preferred Alternative
SOUTH SHORE (outside the SWA) (continued)			
Roberts Bay East (continued)			<ul style="list-style-type: none"> • Camp talk area. • Registration building. • Walk-in tent camp area with 20 sites. • Overflow parking lot.
Roberts Bay - West	Maintain existing condition and use patterns - no development.	<p>Facilities include:</p> <ul style="list-style-type: none"> • Up to 20 primitive-designated campsites • Boat ramp and parking area • Non-motorized trailhead and trail to island (some facilities open year-round, depending on water level and use) • Maintenance yard 	<p>Facilities include:</p> <ul style="list-style-type: none"> • Boat ramp and parking area, non-motorized trailhead and trail to island, maintenance yard, employee housing, entrance gate, and host sites.

^{/1/}Alternative A is the No Action Alternative as required under NEPA. In this case, if implemented, it would mean continuing to manage the RMP study area under the 1992 RMP. It is important to note that Alternative A is not necessarily a "status quo" situation. Rather, Alternative A would be a continuation of the existing 1992 RMP whereby actions called for in that plan would continue to be implemented, dependent on funding, coordination, and willing partners.

^{/2/}Alternative B represents an effort at striking a balance between an increased level of natural resource protection and increased recreational development, but generally less focused than under Alternative C.

^{/3/}Alternative C (the Preferred Alternative) offers the highest level of protection and enhancement measures for natural resources. It also would allow for the most focused and formalized development scenario for recreation (often as a measure to protect natural resources).

** All facility construction is dependent upon Reclamation's ability to determine or acquire legal access to Roberts Bay. If legal access can be determined or acquired, Reclamation in cooperation with OPRD will take responsibility for maintaining the road to Roberts Bay commensurate with the level of facility development. If legal access cannot be determined or obtained, and Reclamation cannot responsibly manage these lands, then it may be necessary to close this recreation area. The road would be improved to Crook County standards prior to any major recreation development.

Several recreation area improvements are described for each of the alternatives, including campgrounds, boat launches, trails, and signage. Reclamation does not intend to build all of these facilities independently. Rather, Reclamation would allow these developments to occur if a managing partner is involved, cost share conditions are met, and Reclamation funds are available. For the purpose of comparing the alternatives, it is assumed that all of the facilities would be built. Other actions, such as increased noxious weed control, do not require managing partners or cost-share agreements and would be implemented as described in the alternatives. Recreation developments would be conducted in cooperation with OPRD.

Note: All new facilities will be designed in accordance with current standards for accessibility for persons with disabilities.

Alternative C—Natural Resource Protection/Formal Recreation Emphasis. Alternative C has been identified as the Preferred Alternative.

2.3.1 Alternative A - No Action Alternative

Under the No Action Alternative, management would be implemented according to the priorities and projects proposed in the 1992 RMP (Figure 2.3-1). The land classification system and all applicable policies now in place at Prineville Reservoir would remain unchanged (i.e., no change in management area designations or uses). Reclamation's support and funding would continue to be directed by the guidelines set forth in the 1992 RMP, which may or may not meet current and future demand or facility needs. Issues and concerns not previously addressed or included in the 1992 RMP would be dealt with on an ad hoc basis. For example, in this alternative no specific recommendations are made with regard to scenic values, although related issues are covered in other topics. All 1992 RMP actions comply with the Endangered Species Act, but protection of certain State-listed sensitive species and the monitoring of species such as the bald eagle, golden eagle, and prairie falcon are not addressed. Recreation development in many cases would be more intense in this alternative than in Alternative B. For example, several selected recreation areas, such as Owl Creek, Juniper Bass, and Old Field, are scheduled to have designated sites added in the No Action Alternative, while Alternative B proposes maintaining them in their current condition. Under the No Action Alternative, it is assumed that portions of the 1992 RMP that have not been implemented, such as the development of a Habitat and Wildlife Management Plan or the above-mentioned designated campsites, would be completed. Specifics of Alternative A are discussed below. Conceptual designs for selected sites are displayed in Appendix B.

2.3.1.1 Topics Applicable to the Entire Area

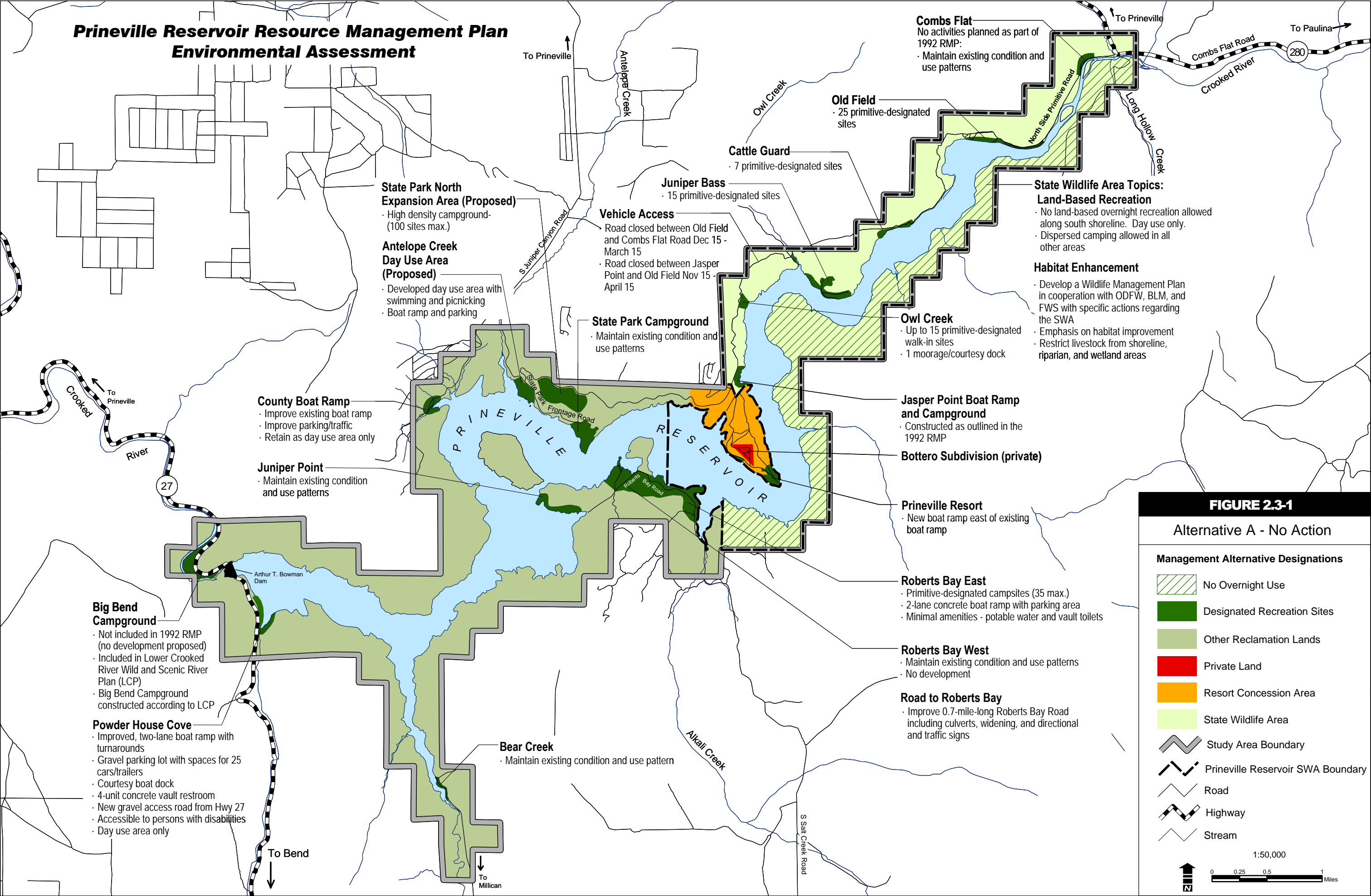
Vehicle Access

In conformance with Reclamation policy, all Reclamation lands would remain closed to motorized travel, except for those roads or areas specifically designated open for such use. Reclamation would use the "Green Dot" travel management system to identify which roads and areas at Prineville Reservoir are "open to motorized travel." Enforcement of ORV use prohibitions would be increased. The "Green Dot" system would not apply within the Prineville State Park and Resort areas. The primary responsibility for motor vehicle travel restrictions within these management areas would remain with the managing partners. Unsurfaced roads and primitive recreation areas would receive "Green Dot" signing priority.

The existing road closure for the 3.5-mile road section between Jasper Point and Old Field would be extended. The seasonal road closure would extend from November 15 through April 15.

A road gate would be installed at the juncture of the North Side Primitive Road with the Paulina Highway (Combs Flat Road). The new gate would implement an additional road closure between the Paulina Highway and Old Field. This 2.6-mile road section would be closed from December 15 through March 15 to further protect wintering mule deer and other wildlife species within the SWA.

Additional fencing, road barriers, and signage would be installed and law enforcement efforts increased to further reduce indiscriminate motor vehicle use in areas closed to motorized travel. Motorized travel would be allowed only on those roads and within those areas specifically designated "open to motorized



Source: USBR, 2001; OPRD, 2001; EDAW, 2001.

travel.” Unless designated “open” and signed accordingly, all other roads and land areas would be considered closed to motor vehicle use and subject to enforcement citations if violations occur.

To facilitate boat launching and angling opportunities affected by reservoir drawdown, ORV travel below the high water line would be permitted within 500 feet of a developed boat launch ramp or area specifically designated for boat launching and/or angling access. The lower 0.7-mile portion of Roberts Bay Road, the primary access route leading from State Highway 27 to Roberts Bay, would be reconstructed to provide a safe access route to the Roberts Bay East campground. Road improvements include widening narrow stretches, graveling the road surface, constructing four low-water stream crossings and one culvert crossing, and installing traffic and directional signs.

Implementation Status: The “Green Dot” travel system has not been implemented, but other actions referred to above have been implemented or are underway.

Sanitation

Information would be provided regarding the garbage pack-in/pack-out policy for dispersed use areas. Additional recommendations regarding sanitation are included in discussion of site-specific recreation and camping areas.

Implementation Status: These actions have not been implemented.

Soils

Management for soils was not collectively addressed in the 1992 RMP. Management actions to protect soils were addressed for various sites and activities, focusing on ORV management and revegetation of disturbed areas.

Rare, Threatened, and Endangered Species

Comply with the Federal Endangered Species Act (ESA) and NEPA regarding all RMP actions, including inspection of construction sites prior to any ground-disturbing activity.

Implementation Status: Reclamation has implemented ESA compliance.

Habitat and Wildlife Management

Reclamation, in cooperation and coordination with ODFW, OPRD, BLM, and adjacent landowners, would prepare a Habitat and Wildlife Management Plan for Reclamation lands. The management plan would identify specific wildlife habitat improvement measures and management actions to protect, improve, and enhance the diversity and abundance of wildlife populations and habitats within Reclamation lands. Livestock grazing on Reclamation-administered lands would be reviewed and evaluated during development of the Habitat and Wildlife Management Plan. Emphasis would be placed in keeping livestock away from reservoir shoreline, wetland, and riparian areas. Methods to accomplish this, including the development of watering locations in upland areas, would be considered.

Other specific management provisions/actions that would improve wildlife habitat conditions at Prineville Reservoir include:

- Close and reclaim unwanted roads and trails throughout Reclamation lands.
- Restrict motorized travel to designated roads and areas only.
- Manage the southeast portion of Prineville Reservoir from Roberts Bay to Long Hollow Creek as a boat-in day use area. Overnight use would not be permitted to optimize wildlife management efforts within this portion of the SWA.
- Extend the ODFW North Side Primitive Road closure between Jasper Point and Old Field to November 15 through April 15.
- Close the North Side Primitive Road between Old Field and the Paulina Highway from December 15 through March 15.
- Control motor vehicle access to northeast shoreline areas within the SWA.
- Fence wetland areas located between Roberts Bay East and West to prevent motorized access and travel.

Implementation Status: A Habitat and Wildlife Management Plan has not been completed. Other actions described above have been implemented.

Fisheries Management

Appropriate engineering modifications to the stilling basin would be made through the Safety of Dams program to alleviate the gas supersaturation problem. If dissolved gas levels in the Crooked River below Bowman Dam need to be monitored on a continuous basis, Reclamation would install and maintain a dissolved gas sensor in the hydromet gaging station located 0.4 mile below Bowman Dam. Reclamation would cooperate with the ODFW to develop Fish Management Plans for the basin. Reclamation also would pursue formal reallocation of unassigned water in Prineville Reservoir to achieve adequate winter streamflows in the Crooked River.

Implementation Status: After determining that supersaturation was a problem only at extreme flows, Reclamation decided that modifications to the stilling basin and dissolved gas monitoring were not necessary. Reclamation has cooperated with ODFW in developing a basin-wide plan and will continue to explore reallocation of unassigned water.

Juniper Management

Juniper control on Reclamation-administered lands would not be implemented until monitoring of juniper control projects proposed in BLM's activity plan, other studies, and detailed site analyses on Reclamation lands demonstrate that a juniper control prescription is clearly the proper land management treatment.

Implementation Status: These actions have not been implemented.

Scenic Values

No specific recommendations are provided in the 1992 RMP.

Safety and Emergency Services

No specific recommendations are provided in the 1992 RMP.

Enforcement

Continue to enforce Crook County Ordinance No. 34 and Reclamation's regulations prohibiting vehicle use off designated roads. Reclamation would continue contracting with Crook County for primary law enforcement services at Prineville Reservoir. As in the past, special provisions for increased enforcement on weekends and holidays would continue.

Implementation Status: Reclamation continues to cooperate with Crook County law enforcement. On April 12, 1995, Ordinance 34 was amended to more closely fit the management of Prineville Reservoir.

Fencing

Grazing would be eliminated from all developed/designated recreation areas by fencing. Emphasis would be placed in keeping livestock use away from reservoir shoreline, wetland, and riparian areas.

Implementation Status: These actions have not been implemented.

Livestock Grazing

Grazing would be eliminated from all developed/designated recreation areas by fencing. Grazing use within the northeast and southeast portions of the SWA not administered by BLM would continue to be determined annually by ODFW and Reclamation. Grazing on Reclamation lands would be evaluated during development of the Prineville Reservoir Habitat and Wildlife Management Plan. Any changes in grazing use would be made in close coordination among Reclamation, BLM, ODFW, and affected parties. Emphasis would be placed in keeping livestock use away from reservoir shoreline, wetland, and riparian areas. Methods to accomplish this, including the development of watering locations in upland areas, would be considered.

Reclamation would actively participate in the revision of BLM allotment management plans (AMPs) affecting Reclamation lands at Prineville Reservoir. Reclamation's guideline during these efforts would be to preserve, protect, and enhance the natural resource values at Prineville Reservoir.

Implementation Status: The SWA has been fenced to eliminate trespass grazing, and Reclamation continues to cooperate with BLM on grazing issues.

Cultural Resources

General

Reclamation would comply with requirements of Sections 106 and 110 of the National Historic Preservation Act (NHPA), the Archaeological Resources Protection Act (ARPA), and the Native American Graves Protection and Repatriation Act (NAGPRA). Reclamation would use consultative processes defined in 36 CFR 800 to determine if sites are eligible to the National Register of Historic Places (Register), project effects, and mitigation actions. Reclamation would also use processes defined in 45 CFR 10 if human remains are discovered that are of Indian origin.

In addition, a Cultural Resource Management Plan (CRMP) would be prepared for the Prineville Reservoir area.

Implementation Status: Section 106 actions have been implemented on a case-by-case basis and Section 110 actions are in progress. See Section 3.13 for further description of Section 106 and 110 status. A Cultural Resources Management Plan has not been prepared.

Identification & Evaluation

Prior to new development, Reclamation would complete any necessary cultural resource inventory and site evaluation actions, and determine if traditional cultural properties (TCPs) are present. To begin to address Section 110 requirements, Reclamation would complete archeological surveys, tribal consultations to identify TCPs, and site evaluation in high priority areas (i.e., areas with high site probability and most subject to erosion or damaging land use). Reclamation would consult with the State Historic Preservation Office (SHPO) and tribes to determine site eligibility to the Register.

Implementation Status: These actions are in progress.

Protection

If Register-eligible sites or TCPs are present in a new development area, and if adverse effects cannot be avoided, then Reclamation would complete mitigation actions. As part of Section 110 programmatic management, facilities would be designed to avoid or minimize resource damage. Reclamation would mitigate unavoidable impacts.

Implementation Status: These actions have not yet been implemented.

Unless justified, build no new features or implement no new ground-disturbing actions within the boundaries of a Register-eligible site. If a decision were made to proceed with a damaging action, the facilities should be designed to avoid or minimize resource damage. Mitigate unavoidable impacts.

Implementation Status: Complete for specific actions.

All new and renewed leases or management agreements shall contain explicit stipulations regarding avoidance of significant cultural resources.

Implementation Status: These actions are in progress.

Inform the public of ARPA regulations at key locations in compliance with the law.

Implementation Status: These actions have not yet been implemented.

In the event of discovery of human remains of Indian origin, complete protective actions, tribal notification, and consultation procedures as required by 45 CFR 10. Potentially affiliated tribes would be consulted about procedures for protection, treatment, and disposition. Human remains would be left in place, unless it were determined they could not be protected from harm.

Archeological collections would be curated using processes consistent with 36 CFR 79 and 411 DM, which define Federal requirements.

Implementation Status: These are new commitments needed to comply with Federal requirements.

Indian Sacred Sites

Reclamation would comply with Executive Order 13007 for any new undertaking at the reservoir and consult regarding new actions and seek to design actions so they do not damage identified sacred sites.

Indian Trust Assets

No specific recommendations are provided in the 1992 RMP.

Paleontological Resources

Paleontological surveys would be incorporated into archeological surveys, where the potential exists for their presence. If found in new development areas or areas subject to ongoing damage, they would be assessed by a qualified person to determine if they have scientific value. If scientifically valuable fossils are present, Reclamation would seek to avoid damaging the fossils, or would recover the fossils prior to new disturbance.

Implementation Status: Reclamation has completed surveys of most high priority areas and completed test excavation of most sites in designated recreation areas. See Section 3.16 for further description of status.

2.3.1.2 State Wildlife Area

Habitat and Wildlife Management

Reclamation, in cooperation and coordination with the ODFW, BLM, and adjacent landowners, would prepare a Habitat and Wildlife Management Plan for Reclamation lands. The management plan would identify specific wildlife habitat improvement measures and management actions to protect, improve, and enhance the diversity and abundance of wildlife populations and habitats within Reclamation lands. Livestock would be restricted from shoreline, riparian, and wetland areas.

Implementation Status: Reclamation has completed several wildlife and habitat enhancement projects, has worked with cooperating agencies on a draft outline for the Habitat and Wildlife Management Plan, but has not completed a Habitat and Wildlife Management Plan for this area.

Land-Based Recreation in the State Wildlife Area

The reservoir's southern shoreline from Roberts Bay to Long Hollow Creek would be managed as a boat-in day use area only. To optimize wildlife management efforts, no overnight use would be allowed on the south shoreline, but dispersed camping would be allowed in all other areas.

Implementation Status: Reclamation has implemented these actions.

Designated Recreation Areas in the SWA

Owl Creek

Owl Creek would be developed and managed as a boat-in/walk-in site. Up to 15 campsites, each consisting of a cleared area, fire ring, and grill, would be linked by a gravel path system leading from a courtesy boat dock. One accessible campsite with asphalt surfacing would also be developed.

Juniper Bass

Approximately 15 campsites would be constructed. Each campsite would consist of a cleared area, fire ring, and grill. As in the past, portable vault toilet and garbage pick-up services would be provided on a seasonal basis to ensure public sanitation needs are met.

Cattle Guard

Eight campsites would be developed with each including a cleared area, fire ring, and grill. Portable toilets and garbage pickup would be provided on a seasonal basis.

Old Field

Up to 25 campsites would be developed. Each campsite would consist of a cleared area, fire ring, and grill. As in the past, single-unit vault toilets and trash receptacles would be provided and serviced on a regular maintenance schedule to ensure that public sanitation needs are met. Initial campsite development would be limited to approximately 15 units at the west site. The east site would remain undeveloped until future recreation use levels clearly warrant the development of additional campsites at this location.

Combs Flat

No actions are planned for this area. Existing dispersed camping and day use patterns would be maintained.

Implementation Status: No actions have been implemented; all sites are undeveloped and accommodate dispersed camping and recreation.

2.3.1.3 North Shore (outside the SWA)

State Park North Expansion Area – Proposed (area just north and upslope of State Park)

The existing campground would be expanded by up to 100 units. Campsite development would occur on a bench above the existing campground. The expansion area would include tent sites, potable water, pedestal grills, and garbage pickup. In accordance with current standards, a percentage of existing facilities will be made 100 percent accessible to persons with disabilities.

Under the lease agreement between Reclamation and OPRD for the administration of Prineville State Park, plans to develop additional park facilities would be prepared by OPRD. Such plans would be mutually satisfactory to OPRD and Reclamation before implementation was able to proceed. Additional facility development within the State Park is the responsibility of OPRD with Reclamation cost-sharing where appropriate and as funding allows.

Implementation Status: These actions have not been implemented.

State Park Campground

Existing facilities at the 365-acre park would be maintained, including: 70 campsites (22 full hookups, 23 with electricity and water, and 25 sites for tents), restroom with flush toilets and hot showers, 5 cabins, a 32-space boat moorage facility, and an amphitheater. Day use facilities include picnic tables,

BBQs, a playground, a shelter, a designated swimming area, concession area, restrooms, showers, fish cleaning station, a boat ramp, and parking area.

Implementation Status: These actions have been implemented.

Jasper Point Boat Ramp and Campground

Jasper Point would be developed as a medium density “fee-use” campground for recreation vehicles and tents. Approximately 30 campsites would be provided.

Campground facility improvements and services would include two 4-unit concrete vault restrooms, a pressurized potable water supply system, trash receptacles and pick-up, and asphalt surfaced roads, spurs, and loops. The roads, spurs, and loops would be constructed to minimize cut and fill. Information, traffic, and directional signs would be provided. Each campsite would include a tent pad, a pedestal campstove and grill, and picnic table. A portion of these facilities would be designed for use by disabled persons and groups.

The existing boat ramp would be replaced with a two-lane concrete ramp. The concrete ramp would be slightly longer than the existing ramp to increase its operability. A gentle shoreline slope limits the extent that season-of-use can be lengthened. Other facilities and services associated with the boat launch would include a vehicle turnaround and courtesy dock system, an accessible 4-unit concrete vault restroom, a potable water supply, and trash receptacles and pick-up. The existing parking area would be redesigned and surfaced with asphalt for efficient parking and traffic control. Approximately 40 parking spaces would be provided at the boat ramp.

Implementation Status: Jasper Point has been developed as described above.

Antelope Creek Day Use Area

A day use area would be developed at the Antelope Creek site and would include a boat ramp, restrooms, potable water, picnic tables, and garbage pick-up. Overnight parking would be provided for vehicles and boat trailers. All new facilities would be designed in accordance with current standards for accessibility to persons with disabilities.

Implementation Status: These actions have not been implemented.

County Boat Ramp

Reclamation would construct a two-lane concrete boat ramp with turnaround, a 4-unit concrete vault restroom, a courtesy dock system, and graveled parking areas for vehicles and boat trailers at the existing County site. All new facilities would be designed in accordance with current standards for accessibility to persons with disabilities.

One gravel parking area would be constructed on a small bench located east and immediately above the existing boat launch. The bench site is now used for overflow parking and dispersed camping. The boat launch area would be designated and signed for day use only; camping would not be permitted at the launch site.

An alternate gravel overflow parking area west of the County site would be developed at a later date. At full development, the County boat launch facility would occupy approximately 5 acres.

Other recreation facility improvements and services would include regravelling the existing parking area and installing traffic barriers, excavating sediment and installing riprap banks on either side of the boat ramp, installing traffic and information signs, installing road barriers or fencing to prevent motorized travel in nearby environmentally sensitive areas, and providing trash receptacles and garbage pick-up services as in the past.

Implementation Status: Construction of new facilities has not been implemented.

Prineville Resort

Additional recreation facility development within the Prineville Reservoir Resort concession area is the responsibility of the concessionaire. No major construction can be initiated at the Resort until plans, specifications, and drawings are approved by Reclamation.

The need for a new low water boat ramp east of the Resort's existing boat ramp has been identified by the concessionaire. Reclamation would assist the concessionaire with project review and approval. An economic analysis will be completed prior to contract renewal per Reclamation policy. Implementation schedules will be negotiated at time of contract renewals.

Implementation Status: One primitive cabin and a new water tank have been added since the 1992 RMP was completed.

Dispersed Boat-in Use

There would be no restrictions on dispersed day use or camping.

Implementation Status: The above conditions remain in effect.

2.3.1.4 Area Below the Dam

Big Bend Campground

No recommendations were included in the 1992 RMP. The existing 15-site campground with two toilets and a fee station was included in the Lower Crooked River Wild and Scenic River Management Plan (BLM 1992).

Implementation Status: In 2001, BLM, Reclamation, and OPRD constructed the features included in the Lower Crooked River Wild and Scenic Management Plan as described above.

2.1.3.5 South Shore (outside the SWA)

Dispersed Boat-in Use

There would be no restrictions on dispersed day use or camping.

Implementation Status: The above conditions remain in effect.

Powder House Cove

Reclamation would construct a day use area consisting of a two-lane concrete boat ramp with turnarounds, a courtesy boat dock system, a gravel parking area with approximately 25 car/trailer spaces, a 4-unit concrete vault restroom, and a new gravel access road leading from State Highway 27 to the boat ramp parking area. Reclamation would construct a day use area consisting of a 2-lane concrete boat ramp with turnarounds, a courtesy boat dock system, a gravel parking area with approximately 25 car/trailer spaces, a 4-unit concrete vault restroom, and a new gravel access road leading from State Highway 27 to the boat ramp parking area.

Space for this parking area would come from a Safety of Dams action at Bowman Dam. Under the Safety of Dams program, modifications to Bowman Dam would be made to safely pass the probable maximum flood. The preferred Safety of Dams alternative would provide overtopping protection by placing a reinforced concrete slab on the downstream face of the dam. To prepare for placement of the concrete overlay, up to 350,000 cubic yards of talus material would be excavated from the left abutment of the dam and deposited on the reservoir shoreline at Powder House Cove. These deposited materials would be compacted to provide the 4 acres needed to develop the recreation facilities described above. These facilities would be accessible and constructed in conjunction with Reclamation's ongoing Safety of Dams (SOD) Program for Arthur R. Bowman Dam. No water facilities are proposed. See Appendix B for a conceptual plan.

Implementation Status: These actions have not been implemented. The safety of dams study has not been finalized.

Bear Creek

The Bear Creek area would remain undeveloped and open for dispersed day and overnight use. The road leading into the area would be "open for motorized travel" and signed "pack-in/pack-out" to encourage public responsibility for area maintenance. If future recreation use and needs should change, the Bear Creek site could be considered for limited recreation development.

Implementation Status: The Bear Creek area remains undeveloped.

Juniper Point

No changes to the existing dispersed camping patterns were recommended in the 1992 RMP. Revegetation to restore unauthorized roads, trails, and other damaged areas would be revegetated as funding and staff timing allow.

Implementation Status: Juniper Point remains a dispersed campsite, but no revegetation efforts have been implemented.

Roberts Bay East

Roberts Bay East would be developed as a medium density "fee-use" campground for recreation vehicles and tents. Approximately 35 campsites would be provided to accommodate a portion of the demand for improved recreation facilities and services at Prineville Reservoir. A portion of these campsites (5-10) would be designed for individual/group use. An area at the campground would be designated for group use but if not occupied, could be used by individuals.

Facility improvements and services associated with the campground would include one 2-unit concrete vault restroom, a tent camping area, two 4-unit concrete vault restrooms, a potable water supply, trash receptacles and pick-up, and graveled roads, spurs, and loops. Gravel surfaced access roads would be constructed to improve and replace the existing roads and trails at the site. To prevent alteration of the natural landform, the roads, spurs, and loops would be designed and constructed to minimize cut and fill. Information and traffic signs would be provided.

Each campsite would include a tent pad, a pedestal campstove and grill, fire ring, and picnic table. Each group use area would also include a centrally located fire ring. In accordance with current standards, a percentage of facilities will be 100 percent accessible to persons with disabilities.

Other facilities at Roberts Bay East would include: a two-lane concrete boat launch ramp with turnaround, a courtesy boat dock, a parking area, and a 4-unit concrete vault restroom. The location of the boat ramp would minimize to the greatest possible extent impacts to bass spawning areas located below the high water line.

Lastly, a short interpretive trail with signs would be constructed. Considerations for interpretation include educating the public about the surrounding natural environment and resource management problems in the area. Although no final location has been chosen, the trail alignment would incorporate overlooks and stopping points that offer opportunities to interpret surrounding natural features.

Implementation Status: These actions have not been implemented.

Roberts Bay West

Roberts Bay West would remain undeveloped and available for primitive day and overnight use. Portable vault toilet and garbage pick-up services would continue on a seasonal basis as in the past. Vehicular access to the site would remain “open to motorized travel,” but those roads and ways leading to the area that are environmentally unsuited for motorized travel (i.e., that cross wetlands) would be permanently closed by fencing and rehabilitated. Minor road improvements (i.e., blading and gravelling) between Roberts Bay East and West would be conducted as needed.

Implementation Status: Wetlands in the area have been blocked to vehicle access, but no restoration efforts have been implemented. The site remains undeveloped.

2.3.2 Alternative B - Natural Resource/Dispersed Recreation Balance

Alternative B allows for a balance between a moderate amount of expansion and development of recreation sites and facilities, while continuing efforts to protect and manage natural and cultural resources on Reclamation lands. This alternative proposes to maintain all designated recreation facilities in the SWA (Figure 2.3-2), including Owl Creek, Juniper Bass, Cattle Guard, Old Field, and Combs Flat, in their existing condition and use patterns. On the other hand, most existing recreation sites in the north shore area outside of the SWA would be modified to accommodate current and future demand and use. This includes creating cabin clusters, group campsites, and safe swimming areas; developing trails; adding parking; enhancing park landscaping; constructing dump stations; and expanding maintenance yards, as well as establishing new day use areas and shelters at locations such as Antelope Creek (near the State Park Campground). It would also include support for the expansion of boat moorage areas and the improvement of existing boat ramps at the State Park Campground and Prineville Reservoir Resort. Alternative B also proposes to maintain existing recreation sites in the South Shore area outside of the SWA in their existing condition while improving the boat ramp and providing additional parking at Powder House Cove. Alternative B would implement management actions that focus on increasing the protection and enhancement of native fish and wildlife and their habitat (vegetation, wetlands, riparian areas, water quality), although not to the level proposed under Alternative C. This would entail implementing strategies to better control noxious weeds, monitor and address erosion concerns, enhance buffers and control access within riparian areas and wetlands, and continue to protect both Federal Threatened & Endangered (T&E) and State designated species of special concern (including State-listed sensitive species).

Within the SWA, restoration efforts at Old Field and Owl Creek would be addressed, as well as increased effort at eliminating ORV use. Scenic values would also be addressed under this alternative through utilization of the BLM Visual Resource Management System (VRMS) to assess proposed projects and implementation of OPRD design standards for new and upgraded structures, among other measures. Specific actions associated with Alternative B are discussed below; conceptual designs for specific sites are displayed in Appendix C.

2.3.2.1 Topics Applicable to the Entire Area

Vehicle Access

Enforcement of ORV regulations would be improved for all areas not designated as roads or open areas, including reservoir drawdown zone and informal roads. Reclamation lands are closed to off-road vehicle use, except for areas or trails specifically open for such use. Current seasonal closure of the North Side Primitive Road would be maintained. To facilitate boat launching and angling opportunities affected by reservoir drawdown, ORV travel below the high water line would be permitted within 500 feet of a developed boat launch ramp or area specifically designated for boat launching and/or angling access.

If legal access can be determined or acquired, Reclamation in cooperation with OPRD will take responsibility for maintaining the road to Roberts Bay commensurate with the level of facility development. If legal access cannot be determined or obtained, and Reclamation cannot responsibly manage these lands, then it may be necessary to close this recreation area.

Sanitation

Sanitation services would continue to be provided at areas of heavy use, as well as information signs regarding garbage pack-in/pack-out policy for dispersed use areas.

Soils

Best management practices would be implemented for operations and construction projects, and informal roads would remain blocked to prevent additional erosion of soils.

Rare, Threatened, and Endangered Species

Same as described under Alternative A but also protect *Artemisia ludoviciana* (a State-listed sensitive plant species) on Reclamation lands.

Habitat and Wildlife Management

Enhancement measures would continue to be implemented, although without a comprehensive Habitat and Wildlife Management Plan. Efforts would continue to be concentrated in the SWA as opportunities are identified and as funding allows. The Prineville Reservoir Integrated Pest Management Plan, which covers noxious weed control, would be finalized and implemented.

Fisheries Management

Reclamation would continue to cooperate with ODFW and other partners on aquatic habitat enhancement projects, conducting periodic monitoring of fish populations at regular intervals. Recreation and fisheries representatives would continue to participate in the Prineville Reservoir Reallocation Study.

Juniper Management

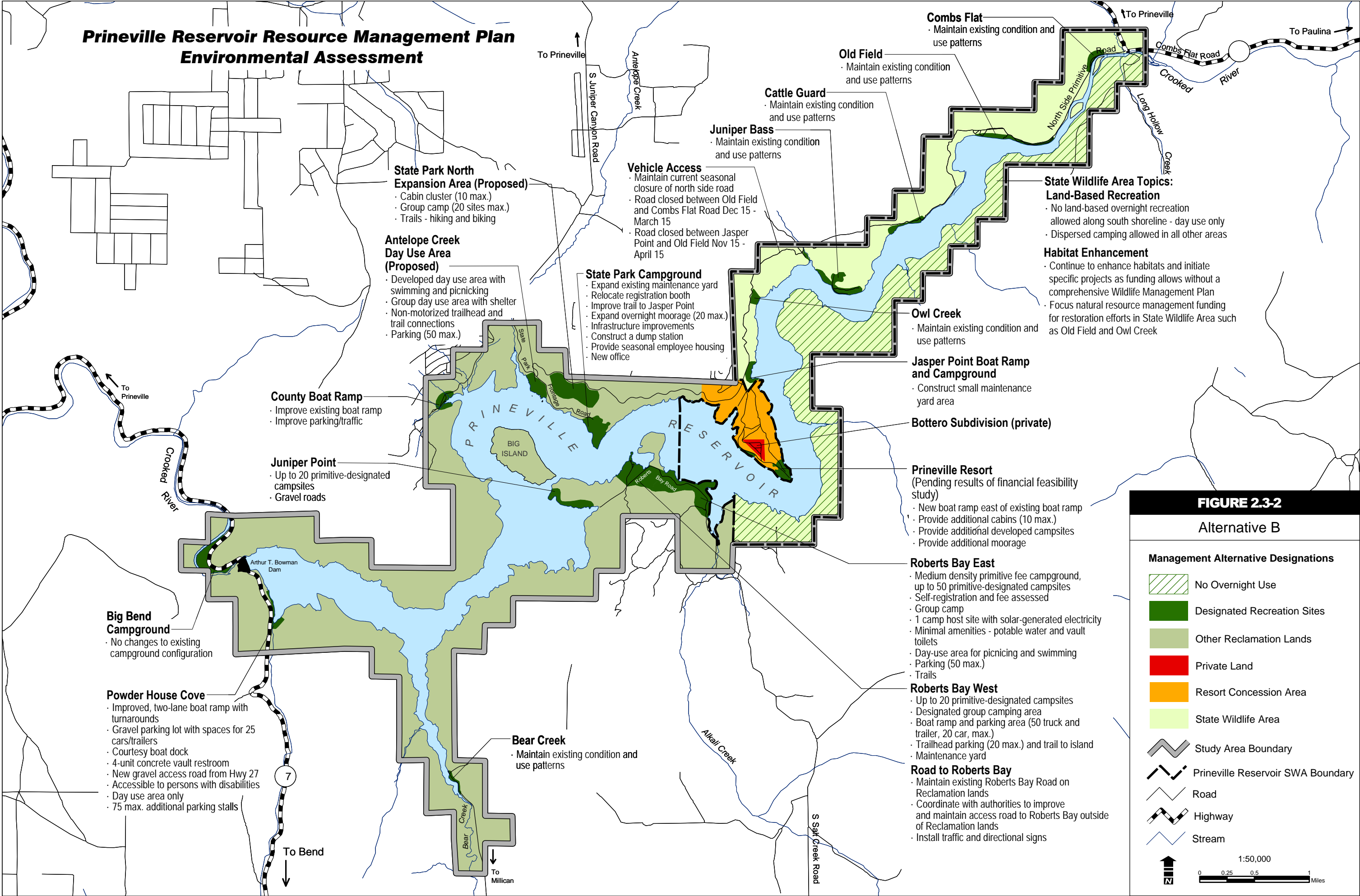
Reclamation would strive to maintain existing visual quality with any juniper management actions.

Scenic Values

Any new roads should be routed to minimize cut/fill and visual intrusion. Components of the BLM's Visual Resource Management System would be used to assess proposed projects (i.e., visual contrast rating system). Reclamation would coordinate with the BLM approval process for issuing road permits and minimizing visual impacts on projects affecting Reclamation lands, as well as implement OPRD design standards for any new structures.

Safety and Emergency Services

Reclamation would continue its agreement with BLM for wildland fire suppression. OPRD would develop an agreement with the County Fire District for structural fire protection on Reclamation lands. Emergency services access would be commensurate with the level of recreation improvements.



Enforcement

Same as Alternative A, plus increase enforcement of vehicle access rules.

Fencing

Reclamation would construct a boundary fence where there are conflicts with adjacent land use and recreation or resource protection needs (e.g., Roberts Bay and Bear Creek). Existing fencing would be maintained and new fencing installed that incorporates wildlife passage design as funding allows.

Livestock Grazing

Same as described under Alternative A.

Cultural Resources

General

Same as described under Alternative A, except a Cultural Resource Management Plan would be prepared only if necessary to define long-term resource management goals and processes. It may be a single reservoir-wide plan, or a prioritized number of plans by locality (example, north shore of SWA) or for specific sites. Multiple plans would be prepared on a priority basis.

Identification & Evaluation

Same as described under Alternative A, plus: also survey areas impacted by dispersed use, and test sites being damaged along the North Side Primitive Road or around focused use areas. If needed, complete TCP inventories of focused use areas.

Protection

Same as Alternative A, plus: monitor Register-eligible or unevaluated sites near focused use areas and along the North Side Primitive Road to allow early detection of damage. Implement management strategies to protect the most important TCPs in or near focused use areas and authorized roads. Work with BLM to define a process to protect cultural resources during fire suppression actions. Provide BLM with site information to aid in avoiding impacts.

Indian Sacred Sites

Same as Alternative A, but also consult with tribes to determine if Indian sacred sites are present on Reclamation lands. If present, determine if there are impacts from existing land use. Seek to avoid damages, when consistent with accomplishing agency mission and law.

Indian Trust Assets

Reclamation would consult on actions that may affect ITAs and seek to avoid impacts.

Paleontological Resources

Same as described under Alternative A.

2.3.2.2 State Wildlife Area

Habitat and Wildlife Management

Reclamation would continue to enhance habitats and initiate specific projects as funding allows without a comprehensive Habitat and Wildlife Management Plan. Natural resource management funding would focus on restoration efforts in the SWA, such as Old Field and Owl Creek. Funding for identified wildlife needs in other areas of the reservoir would also be pursued. Illegal ORV use would be prevented by increased enforcement, signage, and physical barriers.

Land-Based Recreation in the State Wildlife Area (SWA)

Same as described under Alternative A.

Designated Recreation Areas within the SWA

Owl Creek

The Owl Creek site would be maintained as it is currently used (i.e., uncontrolled dispersed camping and day use).

Juniper Bass

The Juniper Bass site would be maintained as it is currently used (i.e., uncontrolled dispersed camping and day use).

Cattle Guard

The Cattle Guard site would be maintained as it is currently used (i.e., uncontrolled dispersed camping and day use).

Old Field

The Old Field site would be maintained as it is currently used (i.e., uncontrolled dispersed camping and day use).

Combs Flat

The Combs Flat site would be maintained as it is currently used (i.e., uncontrolled dispersed camping and day use).

2.3.2.3 North Shore (outside of the SWA)

State Park North Expansion Area - Proposed (area just north and upslope of State Park)

New facilities would include a cabin cluster (10 maximum), a group camp (20 sites maximum), and new trails to accommodate hiking and biking.

State Park Campground

Changes in the existing State Park Campground would include the following: expand existing maintenance yard, relocate registration booth, improve trail to Jasper Point, expand overnight moorage (20 maximum), improve existing infrastructure, construct a new office, construct a dump station, and construct seasonal employee housing (2 houses for 4 seasonals). Seasonal housing may be rented to the public in the off-season.

Jasper Point Boat Ramp and Campground

A small maintenance yard would be constructed.

Antelope Creek Day Use Area

This is a currently undeveloped, proposed new site located west of the State Park and east of Antelope Creek. New facilities would include the following: developed day use area with swimming area, picnic sites, group day use area with shelter, parking (50 maximum), and a non-motorized trailhead and trail connections. See conceptual designs in Appendix C.

County Boat Ramp

Same as Alternative A.

Prineville Resort

The following facilities would be proposed at the time of a concession agreement renewal, in the event of a new Request For Proposal for commercial services at Prineville Reservoir Resort, or if proposed at any time by the current concessionaire: build new boat ramp, provide additional cabins (10 maximum), provide additional developed campsites, and provide additional boat moorage. Reclamation would not be authorized to commit any Federal funds to the improvements. Reclamation will review and approve project designs for new recreation facilities. An economic feasibility study will be completed prior to contract renewal per Reclamation policy. Implementation schedules will be negotiated at time of contract renewals.

Dispersed Boat-in Use (day use and camping)

Same as Alternative A.

2.3.2.4 Area Below the Dam

Big Bend Campground

No changes would be made to the existing campground configuration.

2.3.2.5 South Shore (outside the SWA)

Dispersed Boat-in Use (day use and camping)

Same as described under Alternative A.

Powder House Cove

Same as described under Alternative A, except develop additional parking stalls (75 maximum). See conceptual designs in Appendix C.

Bear Creek

Existing condition and use patterns would be maintained.

Juniper Point

Primitive-designated campsites would be developed, with defined use boundaries and gravel roads installed.

Roberts Bay East

A medium density primitive campground would be constructed, with up to 50 campsites and one group camp overflow parking (20 spaces maximum), a day use area and parking (50 spaces maximum) that accommodates picnicking, swimming, and trails.

Camping would require self-registration and a fee. A camp host site with solar-generated electricity would be stationed among the campsites. Only minimal amenities (e.g., potable water and vault toilets [no showers]) would be provided.

Roberts Bay West

Up to 20 primitive-designated campsites would be constructed, with a designated group camping area, boat ramp and parking area (maximum of 50 truck and trailer spaces, and 20 car spaces), a non-motorized trailhead (20 spaces maximum) and trail to island, and a maintenance yard. See conceptual designs in Appendix C. Some facilities would be open year-round depending on water levels and use. These would likely include 1 camp loop, the cabins, day use area, trailhead, and boat ramp.

2.3.3 Alternative C - Natural Resource Protection/Formal Recreation Emphasis

The focus of Alternative C (the Preferred Alternative) allows for the highest level of protection and enhancement for natural and cultural resources while proposing the most formalized development scenario for recreation, often as a measure to focus recreation use areas to protect natural resources (Figure 2.3-3). This alternative would maintain, and in most cases increase, current levels of protection and enhancement for native fish and wildlife and their habitat (vegetation, wetlands, riparian areas, and water quality). Generally, this would entail the continued implementation of the strategies set forth in the 1992 RMP. In some cases, however, it would go beyond this level of effort. For example, shoreline and wetland restoration efforts are proposed to decrease erosion, improve water quality, and thus enhance wildlife habitat. The scenic values addressed by this alternative are similar to Alternative B, with the addition of measures to prohibit new private access roads across Reclamation land and to maintain the roadless nature of specific areas on Reclamation lands.

In addition to the recreation site and facility improvements summarized under Alternative B, Alternative C would also greatly increase the amount of developed camping at several locations around the reservoir. This alternative proposes improving all recreation facilities in the SWA by providing trailheads and trail connections, boat moorage, as well as requiring camper registration. Existing recreation sites in the north shore area outside of the SWA would be modified to a greater extent than in Alternative B to better accommodate current and future demand and use.

In general, the level of infrastructure improvement is higher and the number of recreational amenities is greater under Alternative C. Additional trailheads and trail connections, cabin clusters, infrastructure improvements, group campsites, and day use areas are proposed in addition to the expansion proposals in Alternative B. This is also the case for the South Shore area sites. At Powder House Cove, for example, the addition of a new boat ramp, additional parking, a new day use area, and interpretive trail loop are proposed under Alternative C. The specific actions associated with Alternative C are discussed below. Site-specific conceptual designs are displayed in Appendix D.

2.3.3.1 Topics Applicable to the Entire Area

Vehicle Access

Reclamation would improve enforcement of “Off-Highway Vehicle Regulations” for all areas not designated as roads or open areas, including the reservoir drawdown zone and informal roads and would institute a system to indicate designated roads (e.g., such as a “green dot” system). Visitor brochures would be provided that identify open roads and trails, and a reservoir-wide sign program would be developed to inform the public of road use requirements. No new private access roads would be allowed across the SWA, and new private access roads across Reclamation land would be limited to maintain the area’s existing character and visual quality. The North Side Primitive Road would be closed between Jasper Point and Combs Flat Road, consistent with ODFW and BLM closure dates. Dates would be from November 15 through April 15 to increase protection for wildlife and for consistency with managing agencies. However, dates may need to vary with changing conditions. Warnings regarding road conditions would be placed on signs at either end of the North Side Primitive Road.

If legal access can be determined or acquired, Reclamation in cooperation with OPRD will take responsibility for maintaining the road to Roberts Bay commensurate with the level of facility

development. If legal access cannot be determined or obtained, and Reclamation cannot responsibly manage these lands, then it may be necessary to close this recreation area.

To facilitate boat launching and angling opportunities affected by reservoir drawdown, ORV travel below the high water line will be permitted within 500 feet of a developed boat launch ramp or area specifically designated for boat launching and/or angling access.

Sanitation

Reclamation would continue to provide sanitation services at areas of heavy use and provide additional boat-in and/or floating sanitation facilities. Information signs would be provided and the park brochure updated regarding garbage pack-in/pack-out policy for dispersed use areas.

Soils

In addition to the actions under Alternative B, Reclamation would also implement best management practices for projects and site-specific restoration of trails and road crossings of swales/drainages (e.g., Owl Creek drainage). Areas of high occurrence of cryptobiotic soils will be more precisely identified and mapped through field verification of existing preliminary map data. Appropriate protection measures would be developed in areas where recreation or livestock grazing is causing adverse effects.

Rare, Threatened, and Endangered Species

Same as Alternative B plus:

Reclamation would participate in the annual monitoring of bald eagle nests and winter roost areas, golden eagle nests, prairie falcon nests, and *Artemisia ludoviciana* sites to collect data for improved management. An eagle management plan would be developed as a component to the Habitat and Wildlife Management Plan.

Habitat and Wildlife Management

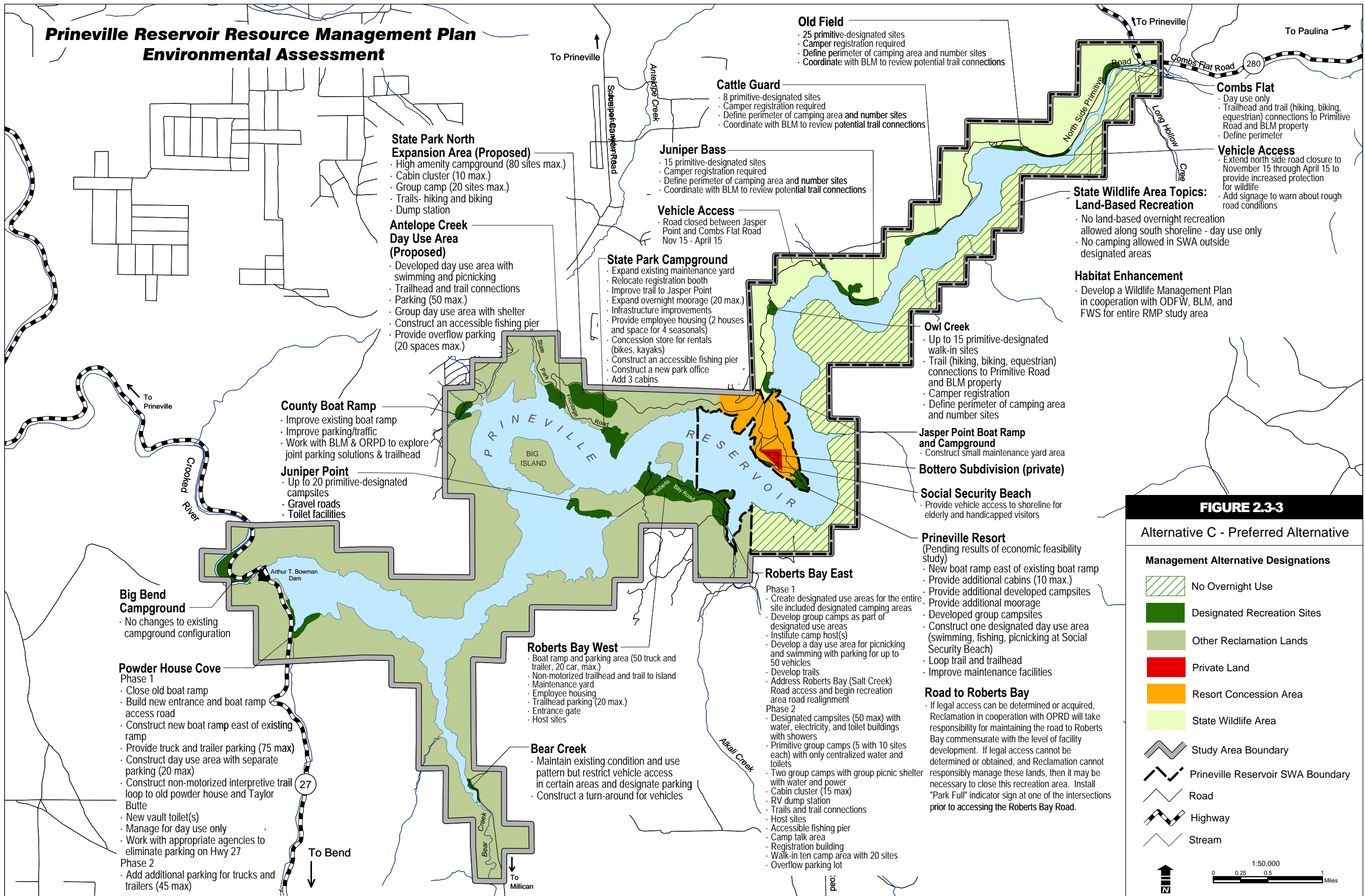
In cooperation with OPRD, ODFW, and BLM, develop and implement a Habitat and Wildlife Management Plan for the entire RMP study area. Finalize and implement the Draft Integrated Pest Management (IPM) Plan.

Fisheries Management

Reclamation would continue cooperation with ODFW and FWS in developing and implementing a Fisheries Management Plan specific to Prineville Reservoir. Also, recreation and fisheries representatives would continue to participate in the Prineville Reservoir Reallocation Study.

Juniper Management

As part of Habitat and Wildlife Management Plan, perform limited juniper management on specific areas within the RMP study area. Public notice would be provided for implementation of management on areas greater than one acre. BMPs would be followed for all habitat management activities. Reclamation would maintain existing visual quality of the area. Reclamation would improve



coordination and communication with BLM on juniper management on adjacent BLM lands within the Prineville Reservoir viewshed.

Scenic Values

Same as described under Alternative B plus:

Minimize effects of Reclamation activities on visual quality and implement OPRD design standards for any new structures. Retrofit existing OPRD structures to meet typical OPRD design guidelines when remodels are completed. Reclamation would participate with County Planning & Zoning in adjoining land use approval processes where possible.

New utility lines would be buried where feasible, and Reclamation would work with adjoining jurisdictions to recommend underground utility lines. Efforts would be made to improve coordination with BLM on management of adjacent BLM land in relation to scenic values.

Safety and Emergency Services

Same as described under Alternative B, plus:

Cooperate with Crook and Deschutes counties on a Wildland Fire Prevention Program and post fire prevention and closure information at recreation sites. Cooperate with other interested agencies and parties to improve emergency communications ability.

Enforcement

Same as Alternative B, plus:

Continue enforcement-related funding for OPRD and Crook County and expand resources as necessary and based on annual appropriations. Cooperate with Crook County to establish additional County ordinances to improve enforcement capability on Reclamation lands and enforce Reclamation regulations as established.

Fencing

Same as Alternative B, plus:

Work with BLM and others on a prioritized plan to install fencing based on resource and conflict management needs. Install fence crossings as appropriate. Improve fencing to conform to recommended wildlife passage design. Install and maintain boundary markers where fencing is not essential.

Livestock Grazing

Reclamation would work with BLM to revise allotment management plans affecting Reclamation lands.

Control or eliminate livestock grazing in areas where it may not be compatible with resources such as cultural resources sites and high occurrence of cryptobiotic soils. Reclamation would assess impacts and determine appropriate resource protection measures (also see Soils and Cultural Resource sections).

Livestock grazing would be eliminated from areas where it is not compatible with natural resource or recreation resources including wetlands, riparian areas, recreation sites, and proximity to threatened, endangered, or sensitive species.

Cultural Resources

General

Same as Alternative B.

Identification & Evaluation

Same as Alternative B, plus: if needed, complete TCP inventory of additional areas impacted by land use. Test all sites with potential for user impacts.

Protection

Same as Alternative B, plus:

Implement protection or mitigation actions at the most important Register-eligible sites or TCPs that are being impacted by dispersed use. Prepare public interpretation materials informing visitors about area history and resource significance. Within grazing leases, assess if use is damaging sites. If damage is identified, define and implement actions needed to halt damage. Integrate these actions with the grazing management and habitat management programs.

Indian Sacred Sites

Same as Alternative B.

Indian Trust Assets

Same as Alternative B.

Paleontological Resources

Same as Alternative A.

2.3.3.2 State Wildlife Area

Habitat and Wildlife Management

A Habitat and Wildlife Management Plan would be developed and implemented for the entire RMP study area in cooperation with ODFW, OPRD, and BLM. Prevent illegal ORV use by increased enforcement, signage, and physical barriers.

Land-Based Recreation in the State Wildlife Area (SWA)

The reservoir's southern shoreline from Roberts Bay to Long Hollow Creek would be managed as a day-use area only. Most use comes from boat-in users and that would continue to be allowed. To optimize wildlife management efforts, no overnight use would be allowed. For the entire SWA, only day use would be allowed outside of the designated camping areas.

Designated Recreation Areas within the SWA

Owl Creek

Same as Alternative A, without a courtesy dock, plus: Develop non-motorized trail (hiking, biking, equestrian) connections to North Side Primitive Road and adjacent BLM property. The perimeter of the entire camping area would be defined and 15 primitive sites would be established and numbered. Camper registration would be required.

Juniper Bass

Same as Alternative A, plus: required camper registration, and defined perimeter of the entire camping area with 15 primitive, numbered sites. Reclamation would coordinate with BLM to review the potential for trail connections to adjacent BLM land.

Cattle Guard

Same as Alternative A, plus: required camper registration, and defined perimeter of the entire camping area with eight primitive, numbered sites. Reclamation would coordinate with BLM to review the potential for trail connections to adjacent BLM land.

Old Field

Same as Alternative A, plus: required camper registration, and defined perimeter of the entire camping area with 25 primitive, numbered sites. Reclamation would coordinate with BLM to review the potential for trail connections to adjacent BLM land

Combs Flat (proposed near Combs Flat Rd. at eastern end of SWA)

Combs Flat would be used as a day use only area with a non-motorized trailhead and trail (hiking, biking, equestrian) connections to the North Side Primitive Road and adjacent BLM property.

2.3.3.3 North Shore (outside of the SWA)

State Park North Expansion Area - Proposed (area just north and upslope of State Park)

Features under this alternative would include a full hookup campground (80 sites maximum), a cabin cluster (10 maximum), a group camp (20 sites maximum), and a dump station. Trails for hiking and biking would be developed in the vicinity. See conceptual design, Appendix D.

State Park Campground

Features under this alternative would include: expand the existing maintenance yard, construct new park office, relocate the existing registration booth to a more strategic position, improve the trail to Jasper Point, expand overnight moorage (20 maximum), and general infrastructure improvements. OPRD would also construct employee housing (2 houses and space for 4 seasonals), a concession store for recreation equipment rentals (e.g., bikes, kayaks), an accessible fishing pier, and 3 additional cabins. Seasonal housing may be rented to the public in the off-season.

Jasper Point Boat Ramp and Campground

Same as described under Alternative B.

Antelope Creek Day Use Area (currently undeveloped proposed new site located west of existing State Park and east of Antelope Creek)

Same as described under Alternative B, plus: construct an accessible fishing pier and construct an area for overflow parking (20 spaces maximum).

County Boat Ramp

Same as Alternative A, plus:

Work with BLM to explore option of Reclamation/OPRD/BLM parking area for boat ramp parking and/or non-motorized trailhead.

Prineville Resort

The following facilities would be proposed at time of a concession agreement renewal, in the event of a new Request For Proposal for commercial services at Prineville Reservoir Resort, or if proposed at any time by current concessionaire - same as described under Alternative B, plus: consider allowing developed group campsites, construction of a designated day use area (swimming, fishing, picnicking at Social Security Beach), development of a loop trail and trailhead, and improvements to existing maintenance facilities. Vehicle access to the reservoir shoreline would be permitted in a limited area (Social Security Beach) for the elderly, people with disabilities, and their companions. Reclamation would not be authorized to commit any Federal funds to the improvements. Reclamation would review and approve project designs for new recreation facilities. An economic analysis would be completed prior to contract renewal per Reclamation policy. Implementation schedules would be negotiated at time of contract renewals.

Dispersed Boat-in Use (day use and camping)

Some basic amenities (e.g., picnic tables, boat tie-ups, portable toilet, fire rings) would be provided at a few select dispersed locations to concentrate use. A few specific sites would be identified, but there would be no use limitations elsewhere.

2.3.3.4 Area Below the Dam

Big Bend Campground

Same as described under Alternative B.

2.3.3.5 South Shore (outside the SWA)

Dispersed Boat-in Use (day use and camping)

Provide some basic amenities (e.g. picnic tables, boat tie-ups, portable toilet, fire rings) at a few selected dispersed locations to concentrate use. A few specific sites to be identified. Selective sites would be monitored for cultural and natural resources degradation and closed if necessary.

Powder House Cove

The existing boat ramp would be closed, and a new one would be constructed east of the existing ramp. A new entrance and boat ramp access road would be constructed. Phase 1 of the project would include parking for up to 75 trucks and trailers, while Phase 2 would expand parking with 45 additional truck and trailer spaces. Other features include a day use area and trailhead with separate parking for up to 20 cars, a non-motorized trail and interpretive loop to the old Powder House and Taylor Butte, and new vault toilets. The site would be managed for day use only. Reclamation would work with the appropriate agencies to eliminate parking on Highway 27.

Bear Creek

Same as described under Alternative A, plus: construct a turn-around at the end of the road.

Juniper Point

Same as described under Alternative B, plus provide adequate toilet facilities.

Roberts Bay East

The site would be developed in two phases, Phase 1 would include designated use areas for the entire site, including designated camping areas, group camps as part of designated use areas, camp host(s), a day use area for picnicking and swimming with parking for up to 50 vehicles, and trails. If legal access can be determined or acquired, Reclamation in cooperation with OPRD will take responsibility for maintaining the road to Roberts Bay commensurate with the level of facility development. If legal access cannot be determined or obtained, and Reclamation cannot responsibly manage these lands, then it may be necessary to close this recreation area.

Phase 2 would include designated campsites (50 max.) with water, electricity, and toilet buildings with showers; primitive group camps (5 with 10 sites each) with only centralized water and toilets; two group camps with group picnic shelter with water and power a cabin cluster (15 max.); an RV dump station; trails and trail connections; host sites; an accessible fishing pier; a camp interpretive presentation area; a registration building; walk-in tent camping area with 20 sites; and an overflow parking lot.

Roberts Bay West

Several items would be added including a boat ramp and parking area, a non-motorized trailhead and trail to the island, maintenance yard, employee housing, and entrance gate, and host sites.

Road to Roberts Bay

If legal access can be determined or acquired, Reclamation (in cooperation with OPRD) will take responsibility for maintaining the road to Roberts Bay commensurate with the level of facility development. If legal access cannot be determined or obtained and Reclamation cannot responsibly manage these lands, then it may be necessary to close this recreation area. Reclamation also would install "Park Full" indicator sign at one of the intersections prior to accessing the Roberts Bay Road.

2.4 Alternative Elements Eliminated from Consideration

Most of the elements suggested by the public were included in one or more of the alternatives. Some elements that were suggested included the paving of the North Side Primitive Road through the SWA, providing use areas for ORVs, and elimination of all livestock grazing on Reclamation land. These elements were reviewed, discussed, and analyzed among the Ad Hoc Work Group members and the Reclamation RMP team members but were eliminated from consideration because of the high potential for conflict with natural resources and standard Reclamation policies, as described below.

The suggestion to pave and/or open the North Side Primitive Road was dropped due to conflict with the purposes of the State Wildlife Area.

Reclamation considered the possibility of an ORV trailhead and trail on Reclamation lands that would provide a link to existing ORV trails located on nearby BLM lands. Several sites were considered and ruled out in consultation with BLM for the following reasons: All of the logical sites for connecting to BLM lands would have conflicts with adjacent landowners, cultural resources, wildlife needs, fragile soils, steep topography, or a limited developable land area. It was decided that water-based recreation opportunities were the highest and best use of the area immediately around Prineville Reservoir as other public lands provide extensive riding opportunities close to the reservoir. Restricting vehicles to designated roads and trails in this area is also consistent with established County and Federal regulations and is consistent with Reclamation policy.

Reclamation considered the possibility of removing all grazing from Reclamation lands around Prineville Reservoir. After receiving input from the BLM, Crook County, the grazing community, and the public, Alternative C was modified to eliminate grazing where there were conflicts with recreation sites or natural resources. Details of this issue are discussed under the sections of Chapter 3 dealing with vegetation and land use.

2.5 Summary of Impacts

The impact analysis is presented in Chapter 3. A summary of these impacts is provided in Table 2.5-1.

Table 2.5-1: Impacts of alternatives comparison summary.*

Resource Area	Alternative A – No Action	Alternative B	Alternative C Preferred Alternative
Soils	<p>Increased enforcement of ORV use would improve soil conditions in closed areas.</p> <p>Designated campsites in most of the SWA and Roberts Bay East would improve erosion problems. Erosion from uncontrolled recreation would continue at Roberts Bay East and at Combs Flat in SWA.</p> <p>Cryptobiotic soils could be adversely affected due to a lack of management focus.</p> <p>Increased fencing would provide benefits to shorelines and wetlands and would improve soil conditions.</p>	<p>ORV restrictions, especially the blocking of informal roads, would provide more benefit than under Alternative A.</p> <p>Maintaining current use patterns in the SWA would cause continued soil compaction and erosion problems. Designated use sites at Roberts Bay would improve soil conditions.</p> <p>Cryptobiotic soils could be negatively impacted due to a lack of management focus.</p> <p>Improved fencing would result in the same benefits as Alternative A.</p>	<p>ORV limitations would provide the most benefit to soils, especially in terms of prohibition of private road access in the SWA and public education.</p> <p>Defined recreation sites in the SWA and Roberts Bay and designation of Combs Flat as a day use area would reduce soil compaction and erosion problems.</p> <p>Cryptobiotic soil protection actions would improve viability of these sensitive soils.</p> <p>Improved fencing would provide the most benefits under Alternative C, due to increased enforcement and types of habitats protected.</p>
Hydrology and Water Quality	<p>Actions that reduce the disturbance of soil by vehicle, recreation use, and livestock would provide beneficial effects. Actions that increase these disturbance factors would increase runoff and reduce water quality.</p> <p>Effects to water quality would be similar to those described under the Soils heading.</p> <p>Surface water runoff would increase from the development of recreation sites and the increase in impervious surfaces, which would adversely affect water quality.</p>	Same as Alternative A.	Same as Alternative A.
Vegetation	<p>Actions related to increased enforcement, designation of campsites, reduction of random use patterns, and increased fencing would have similar effects as those on soils.</p> <p>Maintenance of existing recreation use patterns at Combs Flat in the SWA and at Juniper Point</p>	<p>Same as Alternative A.</p> <p>Uncontrolled recreation use of the SWA would adversely affect vegetation.</p>	<p>Same as Alternative A.</p> <p>Vehicle access limitations would be more expansive and have increased beneficial impacts on vegetation.</p>

*Note: Only impacts that vary from those described for the No Action Alternative are described for other alternatives.

Table 2.5-1: Impacts of alternatives comparison summary.*

Resource Area	Alternative A – No Action	Alternative B	Alternative C Preferred Alternative
Vegetation (continued)	<p>would continue to have adverse effects to vegetation.</p> <p>Development of new facilities may affect vegetation where sites have not been previously disturbed such as Antelope Creek.</p> <p>Implementing a Habitat and Wildlife Management Plan would provide benefits to vegetation.</p>	<p>Same as Alternative A.</p> <p>A lack of a comprehensive Habitat and Wildlife Management Plan would not provide the benefits provided by Alternatives A and B.</p>	<p>Same as Alternative A.</p> <p>Carefully planned juniper management would benefit native grasses and forbs.</p> <p>Development of a comprehensive Habitat and Wildlife Management Plan would provide better management of vegetation on Reclamation lands. Fencing of sensitive habitats would provide the greatest benefits to vegetation among the alternatives.</p>
Fish and Wildlife	<p>Development of a comprehensive Fish Management Plan, improved fencing, and restrictions on dispersed camping would provide benefits to fish and Essential Fish Habitat.</p> <p>Increased enforcement of ORV use would reduce habitat damage and disturbance to wildlife.</p> <p>Control of recreation use in the SWA and at Roberts Bay and improved fencing would have beneficial effects to fish and wildlife, including migratory birds.</p> <p>Development of new facilities would have similar effect to those described under the Vegetation heading.</p> <p>Development and implementation of the Habitat and Wildlife Management Plan would improve management of natural resources and would benefit wildlife.</p>	<p>Same as Alternative A.</p> <p>Same as Alternative A.</p> <p>Continued dispersed camping in the SWA would adversely affect vegetation with corresponding negative impacts on wildlife, including migratory birds.</p> <p>Same as Alternative A.</p> <p>Lack of a Habitat and Wildlife Management Plan would not provide the benefits provided by Alternatives A and C.</p>	<p>Same as Alternative A.</p> <p>Enforcement and limitations to ORV would be the greatest under this alternative and would have beneficial impacts on wildlife.</p> <p>Controlled recreation use in the SWA would benefit fish and wildlife resources, including migratory birds.</p> <p>Same as Alternative A.</p> <p>Same as Alternative A.</p>

Table 2.5-1: Impacts of alternatives comparison summary.*

Resource Area	Alternative A – No Action	Alternative B	Alternative C Preferred Alternative
Fish and Wildlife (continued)			Monitoring of golden eagles and prairie falcon nests would benefit these species through contributing to an understanding of existing conditions and adaptive management. Juniper habitat reduction would negatively impact species such as mountain bluebird and loggerhead shrike. However, positive impacts could result for mountain quail, deer, elk, and other species that use open habitats.
Threatened, Endangered and Sensitive Species	<u>Plants</u> Improvements in vehicle restriction enforcement and improved fencing would benefit TES plants that may occur on Reclamation land. Reduction of dispersed camping in the SWA would benefit TES plants that may occur here. The lack of focus on Estes' artemisia protection may lead to negative impacts to this species. New facility construction would require pre-construction surveys for rare plants to avoid impacts.	<u>Plants</u> Same as Alternative A. Maintenance of random use patterns in SWA could potentially affect TES plants. Monitoring of Estes' artemisia would provide benefits through better management. Same as Alternative A.	<u>Plants</u> Same as Alternative A. Elimination of dispersed camping in the SWA would benefit TES plants that may occur here. Same as Alternative B. Same as Alternative A.
	<u>Wildlife</u> Development of a Habitat and Wildlife Management Plan, improved fencing, and control of camping in the SWA and Roberts Bay would improve habitat for tricolored blackbird and spotted frogs that may occur in the area.	<u>Wildlife</u> Lack of a Habitat and Wildlife Management Plan and continued dispersed recreation use in the SWA could affect TES species if they occur there.	<u>Wildlife</u> Same as Alternative A, plus: Eagle monitoring would benefit this TES species through providing existing conditions information for adaptive management efforts.

*Note: Only impacts that vary from those described for the No Action Alternative are described for other alternatives.

Table 2.5-1: Impacts of alternatives comparison summary.*

Resource Area	Alternative A – No Action	Alternative B	Alternative C Preferred Alternative
Threatened, Endangered and Sensitive Species (continued)	<u>Fish</u> Effects to redband trout would be the same as identified for general fisheries described under Fish and Wildlife.	<u>Fish</u> Same as Alternative A.	<u>Fish</u> Same as Alternative A.
Recreation	Positive impacts from new recreation development and improvements to existing recreation facilities are expected.	Same as Alternative A.	A change in the character of the recreation experience currently available in the area is expected by providing substantial new formal recreation development and limiting more primitive, dispersed recreation opportunities.
Visual Resources	Minor positive impacts anticipated including reduced litter and reduced visible grazing impacts; however, the proposed State Park expansion would greatly alter the views of the north side of the reservoir.	Proactive measures would prevent visual degradation including improvements to livestock management, implementation of Best Management Practices, closure of informal roads, measures to address the spread of noxious weeds, and improved juniper management. In addition, new roads would be routed to minimize the visual intrusion of cut and fill activities. Components of the BLM Visual Resource Management System would be implemented to maintain existing visual quality. Reclamation would also coordinate with BLM on the road permit approval process on project sites visible from Reclamation lands. Finally, new structures would be designed to OPRD design standards. The visual character of the south side would change to a moderate degree.	Similar to Alternative B, plus greater attention to juniper management practices along with close coordination on this issue with BLM, involvement in Crook County's land use process on adjoining private land, installation of underground utility lines rather than overhead, enhanced fire prevention focus, and stricter limits on livestock grazing. New road accessing new boat ramp at Powder House Cove would alter existing visual character as would new State Park facilities at Roberts.

Table 2.5-1: Impacts of alternatives comparison summary.*

Resource Area	Alternative A – No Action	Alternative B	Preferred Alternative
Land Use	Minor positive impacts anticipated. For example, improved fencing would eliminate livestock grazing in developed recreation areas, shoreline, riparian, and wetland habitat.	Same as Alternative A.	Mostly positive land use benefits by concentrating recreational activity in developed and managed recreation sites and by adding new facilities. Potential minor secondary adverse land use impacts resulting from increased public visibility of the Prineville area, especially if OPRD promotes the expanded facilities. The installation of electricity along Roberts Bay Road could stimulate potential residential and second home development on private land outside Reclamation property.
Socioeconomics	Would result in minor benefits to local community through increased recreation use.	Same as Alternative A, plus lack of camping control could lead to increased need for law enforcement.	Same as Alternative A.
Public Services and Utilities	Increased control of camping could reduce litter and cleanup costs. New water well would need to be monitored during high use and low water years.	Lack of organized camping sites would likely contribute to increased costs of maintenance and cleanup. New water well at Roberts Bay would need to be monitored during high use and low water years.	Increased amenities at Roberts Bay could increase demands on new water well. Organized camping would likely reduce clean-up costs.
Environmental Justice	No impacts were identified.	Same as Alternative A.	Same as Alternative A.
Cultural Resources	<u>ORV Management</u> Continued minor beneficial effect from increased enforcement of ORV restrictions and camping limitation on south shore of SWA reducing soil disturbances.	<u>ORV Management</u> Slightly greater beneficial effect than Alternative A due to greater ORV control.	<u>ORV Management</u> Greatest beneficial effect due to ORV enforcement, sign program, visitor education, limitations of new private primitive access roads, and extension of North Side Primitive Road closure.

*Note: Only impacts that vary from those described for the No Action Alternative are described for other alternatives.

Table 2.5-1: Impacts of alternatives comparison summary.*

Resource Area	Alternative A – No Action	Alternative B	Alternative C Preferred Alternative
Cultural Resources (continued)	<p><u>Wildlife Management</u></p> <p>Possible benefit due to opportunity to incorporate cultural resource concerns into Habitat and Wildlife Management Plan.</p> <p><u>SWA Recreation Sites</u></p> <p>Some unavoidable impacts expected from development of Antelope Creek Site. This site is already being impacted by use.</p> <p><u>Compliance with Sections 106 and 110</u></p> <p>Full compliance with Section 106 and compliance over time with Section 110 at focused use areas and in the reservoir operating zone.</p>	<p><u>Wildlife Management</u></p> <p>Possible loss of benefits as no Habitat and Wildlife Management Plan would be prepared. Possible benefits from habitat restoration efforts that reduce soil erosion.</p> <p><u>Recreation Sites</u></p> <p>Possible impacts from developments at Prineville Reservoir due to increased use of the area. Additional unavoidable impacts expected from development of Antelope Creek Site. This site is already being impacted by use. Beneficial effects expected from additional designated camping sites and presence of camp host at Roberts Bay.</p> <p><u>Compliance with Sections 106 and 110</u></p> <p>Section 110 compliance extended to authorized use areas where no development would occur. If needed, TCP inventories would be initiated on high priority areas.</p>	<p><u>Wildlife Management</u></p> <p>Same as Alternative A.</p> <p><u>Recreation Sites</u></p> <p>Some beneficial effects from defining campsites in SWA. Greater beneficial effects are expected at Roberts Bay from more designated sites and increased number of camp hosts.</p> <p><u>Compliance with Sections 106 and 110</u></p> <p>Section 110 compliance would extend to all areas with potential user impacts. Public education would enhance compliance with NHPA and ARPA requirements.</p>
Sacred Sites	No impacts have been identified.	Same as Alternative A.	Same as Alternative A.
Indian Trust Assets	No impacts have been identified.	Same as Alternative A.	Same as Alternative A.
Paleontological Resources	No impacts have been identified.	Same as Alternative A.	Same as Alternative A.
Transportation and Access	In general, positive effects include safety, wayfinding, and road maintenance. Location-specific positive impacts include parking relief at Powder House Cove, improved access to and through the Roberts Bay area.	Positive benefits similar to Alternative A though some benefits such as Powder House Cove parking and Roberts Bay Road improvements lacking.	Most positive benefits of the three alternatives including new day use/boat ramp area at Powder House Cove to eliminate shoulder parking, dramatically improving lake access for Bend area visitors while reducing parking-related impacts on State Route 27. Access and transportation improvements at Roberts Bay would also be beneficial.

3.0 Affected Environment and Environmental Consequences

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

Chapter 3 is organized by resource topic. Resource topics analyzed in detail include soils, hydrology and water quality, vegetation, fish and wildlife, threatened and endangered species, recreation, visual resources, land use, socioeconomics, public services and utilities, environmental justice, cultural resources, Indian sacred sites, Indian Trust Assets (ITAs), and transportation and access. Climate, air quality, geology, and topography are not discussed because early in the scoping and analysis process, no potential impacts were identified regarding these resources.

The affected environment is addressed first and describes the current conditions for each resource within Reclamation lands. This is not a comprehensive discussion of every resource within the RMP study area, but rather focuses on those aspects of the environment that were identified as issues during scoping or would be affected by the alternatives.

The effects of the alternatives are described next in the environmental consequences section for each resource topic. Under the alternatives subheading, the specific impacts of each of the alternatives are discussed in terms of the actions that would occur and specific information about the impact. Only impacts that cannot be fully avoided through the application of best management practices (BMPs), listed in Chapter 5, are described.

In the environmental consequences section, the depth of analysis of the alternatives corresponds to the scope and magnitude of the potential environmental impact. This chapter compares the effects of the three alternatives described in Chapter 2:

- Alternative A – No Action Alternative: Continuation of Existing Management Practices
- Alternative B – Natural Resource/Dispersed Recreation Balance
- Alternative C (Preferred Alternative) – Natural Resource Protection/Formal Recreation Emphasis

Alternatives B and C (Preferred Alternative) are Action Alternatives. Alternative A, the No Action Alternative, describes the future under the 1992 RMP – i.e., if the updated RMP were not implemented. Under this scenario, management of Prineville Reservoir lands would continue under the 1992 RMP. Impacts from the Action Alternatives are compared to the No Action Alternative. A description of the affected environment and environmental consequences is presented for each of the alternatives. Mitigation measures and residual impacts remaining after implementation of mitigation measures are described only for the Preferred Alternative. Cumulative impacts are presented for each of the alternatives and are described in Section 3.1.1. A summary of impacts for each alternative is provided at the end of Chapter 2.

3.1.1 Cumulative Impacts

Reasonably foreseeable cumulative impacts were identified for the continued population increase in the vicinity and the resulting potential increase in recreation use at Prineville Reservoir.

There has been a large increase in population in the vicinity of Prineville Reservoir in the 10 years since the last RMP was prepared, with a corresponding increase in recreation use at the reservoir. Central Oregon's three counties (Crook, Deschutes, and Jefferson) were among the fastest growing in the state during the past decade. Deschutes led the state with a 54 percent growth rate, while Jefferson ranked fourth in the state (38 percent) and Crook ranked fifth (34 percent) (U.S. Census 2001). For the year 2000, there were 102,694 overnight visits at the Prineville State Park and 85,432 overnight visits in 2001. Visits for 2001 were slightly lower because of the drought and low reservoir levels (pers. comm., Perkins, 2002). See Section 3.7 (Recreation) for details regarding recreation use.

Recreation demand is likely to continue to increase under all alternatives and would have effects on a number of resources without appropriate management actions. While it is difficult to estimate the rate of increase in future recreation demand, the effects on resources can be limited and managed by the type and amount of capacity allowed on the Reclamation lands. The alternatives include provisions for controlling recreation use that will reduce but not eliminate cumulative effects from increased recreation use at Prineville Reservoir.

3.2 Soils

3.2.1 Affected Environment

Soils in the vicinity are derived from ancient lake-deposited sediments, with profiles consisting of a clay loam surface horizon over a clay-textured subsoil. These soils are notoriously slick and sticky when wet. Erosion-prone soils occur on more than 90 percent of the reservoir shoreline (BLM 1980), and combined with the steep slopes surrounding the reservoir pose an erosion potential if disturbed by excess human activity.

The dry climate of the Prineville area has led to the formation of poorly developed, loamy/stony sandy loam, erosion-prone soils. The ten soil types that occur in the vicinity of the Prineville Reservoir are shown in Table 3.2-1 and Figure 3.2-1.

Erodible soils are present along more than 90 percent of the reservoir shoreline (Reclamation 2002). The Stukel-Lorella soil association occurs over most of the study area. Stukel soils are shallow and well-drained with a slow permeability, rapid runoff, and a high erosion potential. The surface layer is a

Table 3.2-1: Soil types adjacent to Prineville Reservoir.

U.S. Soil Conservation Service Map Unit*	Soil Type	Slope	Depth to Bedrock	Erosion Hazard	Soil Characteristics
172E	Stukel-Lorella	3-30%	10-20 in	moderate to high	shallow, well-drained; moderate permeability; loam/stony sandy loam
151-172E	Stukel-Simas	3-30%	10-20 in	high	shallow (Stukel) deep (Simas) well-drained; moderate to slow permeability; loam/sandy loam
46-48D	Choptie-Madeline	1-30%	10-20 in	moderate	shallow, well-drained, moderate to slow permeability; loam/stony sandy loam
133F	Redcliff-Rock Outcrop Complex	30-65%	20-40 in	high	deep, well-drained; moderate permeability; stony/cobbley loam
118E	Redcliff Rock Outcrop Complex	5-30%	20-40 in	moderate	deep, well-drained; slow permeability; loam/clay/clay loam
151F	Simas Loam	30-70%	> 60 in	high	deep, well-drained; moderate permeability; stony loam/very gravelly loam/gravelly clay loam
152F	Searless Stony Loam	30-65%	20-40 in	moderate	deep, well-drained; moderate permeability; stony loam/very gravelly loam/gravelly clay loam.
175E	Willowdale	0-2%	> 74 in	slight	deep, well-drained; moderate permeability; loam; calcareous below 18 in.
151E	Simas Sandy Loam	5-30%	> 60 in	high	deep, well-drained; slow permeability; sandy loam/clay/clay loam
33F	Fren Sandy Loam	30-60%	> 65 in	moderate	deep, well-drained; moderate permeability, sandy loam/gravelly loam/gravelly clay loam

* Original soil map units.

grayish brown loam about 7 inches deep. The Lorella series is a shallow, well-drained soil with a slow permeability, rapid runoff, and a moderate erosion potential. The soil is typified by grayish brown, very stony loam about 3 inches deep, with stones about 3 to 15 feet apart on the surface.

The soils of the Prineville Reservoir watershed area have formed from three basic kinds of parent material: (1) material from weathered bedrock and local movement on slopes; (2) pumice from geologically recent volcanic activity; and (3) alluvium deposited on floodplains, alluvial fans, and low benches. Bedrock of the vicinity is dominated by volcanic flows, tuffs, breccias, and tuffaceous sedimentary rock. Tuff is a rock consisting of cemented and hardened volcanic ash.

Potential soil erosion from lands surrounding Prineville Reservoir is a long-standing concern of land managers (BLM 1975; BLM 1980; OSU 1976) because of the predominance of erosion-prone soils in the watershed and continuing soil loss. Recent data indicate that the reservoir loses about 123 af in capacity per year from sedimentation from the contributing 2,700 square mile drainage area (Reclamation 1999).

Cryptobiotic crusts are soil crusts formed by living organisms and their byproducts, creating a crust of soil particles bound together by organic materials. Crusts are predominantly composed of cyanobacteria, green and brown algae, mosses, and lichens. These crusts affect processes that occur at the land surface or soil-air interface and include soil stability, nitrogen fixation, nutrient contributions to plants, infiltration, seedling germination, and plant growth (BLM et al. 2001). Soil crusts were once widespread in eastern Oregon deserts but have been disturbed by human use, off-road vehicles, and livestock. Much of Reclamation's lands around Prineville Reservoir have a long history of disturbance from a variety of factors and no longer include a high occurrence of soil crusts. Vegetation surveys indicate that areas in the downstream half of the reservoir where access is difficult have a high occurrence of soil crusts on Reclamation lands at Prineville Reservoir. It should be noted, however, that the occurrence of soil crusts was estimated from aerial photo interpretation and vegetation mapping with limited field verification.

3.2.2 Environmental Consequences

A primary concern for all alternatives is the occurrence of erosion-prone soils around the reservoir. Land-disturbing activities such as vegetation disturbance or removal, off-road vehicle use, and livestock grazing are potential disturbance factors that could lead to excess erosion. The following narrative describes the effects of the three alternatives on soil resources around Prineville Reservoir. Under all alternatives the operation of the reservoir and the ensuing erosion of soils in the drawdown zone would continue. Improvement to soil erosion conditions would occur for all alternatives, where current dispersed camping patterns would be changed to mostly designated campsites, but this assumes that enforcement and improved signage would accompany facility improvements. In addition, it is assumed that planting of native or transition vegetation would be implemented in conjunction with any recreation site improvements, as outlined in the BMPs listed in Chapter 5.

Table 3.2-2 summarizes the approximate area of disturbance for improved, expanded, or new facilities under the various alternatives. The effects of these activities are discussed under the appropriate alternative below.

**Prineville Reservoir Resource Management Plan
Environmental Assessment**

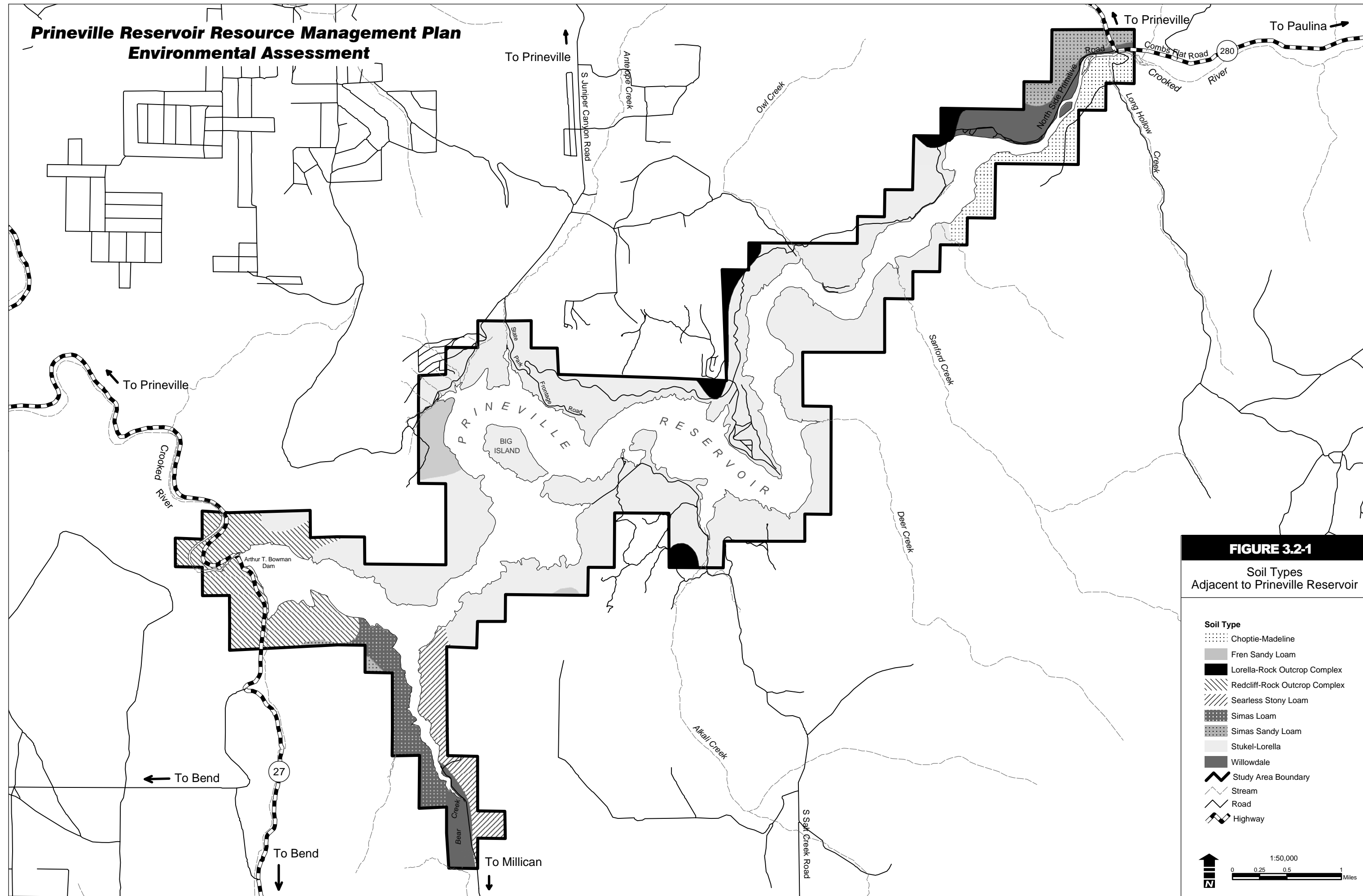


FIGURE 3.2-1

**Soil Types
Adjacent to Prineville Reservoir**

Table 3.2-2: Area of disturbance for selected facilities under the Prineville RMP alternatives.

Development Area	Alternative	Approximate Area of Disturbance (acres)
County Boat Ramp	A	7.4
	B	7.4
	C	7.4
State Park North and Antelope Creek	A	N/A
	B	13.1
	C	26.0
Roberts Bay	A	19.8
	B	22.6
	C	37.5
Powder House Cove	A	4.8
	B	7.0
	C	6.9

N/A – not applicable

3.2.2.1 Alternative A - No Action, Continuation of Existing Management Practices

Continued efforts to increase enforcement of off-road vehicle use on Reclamation lands would reduce the disturbance of soils and the subsequent increased runoff into the reservoir. Restrictions on vehicles driving along the reservoir shoreline and drawdown zone would also reduce erosion sources. The continued application of barriers to vehicles in strategic areas would continue to improve soil conditions, allow for restoration, and reduce the potential for excess erosion. While the continued seasonal closure of the North Side Primitive Road through the SWA is primarily for wildlife management purposes, it has some marginal beneficial effect for soil resources by eliminating traffic at the time of the year when soils are saturated and prone to disturbance and rutting.

Development and implementation of a Habitat and Wildlife Management Plan would include restoration of disturbed vegetation zones, which would likely reduce erosion and sedimentation. Improved fencing and the elimination of livestock grazing along riparian zones, shorelines, and wetlands would improve the integrity of these plant associations. Disturbing soil crusts by livestock grazing can increase erosion that leads to range deterioration (USGS et al. 2001; Johansen 1986). Implementation of improved fencing and limiting recreation use (i.e., no formal facilities) in areas of high occurrence of cryptobiotic crusts (Bear Creek drainage) would reduce disturbance and aid in maintaining integrity of soil crusts.

Maintaining the south shoreline of the SWA as a day use area only would limit human-caused impacts to vegetation and shoreline soils, which would maintain the integrity of these resources and assist in stabilizing the shoreline and reducing soil erosion. Dispersed day use and camping in other areas of the reservoir would continue to have minor effects to soil erosion from soil compaction and vegetation disturbance.

Designating camping or day use only sites at Owl Creek, Juniper Bass, Cattle Guard, and Old Field would eliminate the random pattern of camper use in the vicinity, which would lead to a more limited area of vegetation disturbance and soil compaction. In addition, vegetation restoration efforts of disturbed areas around the designated campsites would aid in reducing soil erosion. The continued random pattern of camping and road use along the upper northside shoreline in the SWA around Combs Flat would be a continual source of widespread soil disturbance and erosion.

Construction would disturb about 7.4 acres of soil related to improvements at the County Boat Ramp (same for all alternatives). Expansion of the State Park Campground on the north shore has the potential for short-term increases in soil erosion, particularly during vegetation removal and earth-moving.

Approximately 26 acres of ground would be disturbed. This risk would be minimized by implementing standard construction BMPs identified in Chapter 5. Site selection and timing of construction also would aid in minimizing the potential for excess erosion and sedimentation. Similar precautions would be implemented for the development of the Antelope Creek Day Use Area. While implementation of BMPs would minimize adverse effects, the increase in developed facilities and the continued increase in recreation use would result in increased soil compaction and vegetation removal in the expansion areas. However, irrigated lawns, fencing and designated trails to contain recreationists within designated areas are tools to reduce significant erosion impacts within the expansion areas. While fencing and designated trails would minimize recreation impacts following construction, recreation use impacts would not be eliminated.

Improvement of the boat ramp access and parking at Powder House Cove would provide minor benefits to soil erosion by providing proper road widths and turn-around area, which would reduce traffic impacts off the road shoulder. These revisions would disturb about 4.8 acres during construction. Similarly, designating a parking area at Bear Creek would limit the area of soil compaction and disturbance. Maintaining the current dispersed recreation use pattern at Juniper Point would have continued soil disturbance and continue to provide a sedimentation source. Designating campsites at Roberts Bay East would aid in reducing the random pattern of camping and road networks under current conditions and would reduce erosion if accompanied by revegetation. Construction would disturb about 19.8 acres of land. Maintaining existing dispersed recreation use patterns at Roberts Bay West would represent a continued degradation of soil and vegetation and a continued source runoff and sedimentation. Improvements to the Roberts Bay Road would provide minor benefits in improving soil stabilization.

Mitigation and Residual Impacts [Alternative A]

No mitigation measures are proposed for Alternative A because the actions under this alternative do not have substantial adverse impacts on soils in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative A]

Under all alternatives, it is likely that increased boating use of the reservoir would occur, which would increase wave action and erosion of the shoreline. These actions are negligible in comparison to the effects of reservoir fluctuation on shoreline erosion, however. Continued increases in recreation use of Reclamation lands, especially in undesignated areas, would increase vegetation and soil disturbance, soil compaction, and erosion. While provisions for controlling recreation use would reduce these impacts, they would not be eliminated.

3.2.2.2 Alternative B - Natural Resource/Dispersed Recreation Balance

Effects on soil and erosion under Alternative B would generally be similar to those described under Alternative A, with a few exceptions. Increased juniper management may increase the density of native grasses and forbs if it is conducted in a proven approach, and is completed by crews with chainsaws rather than operations with tracked vehicles. Improvement of native species through implementation of the Integrated Pest Management Plan and habitat restoration efforts under Alternative B also would reduce soil erosion, although these efforts would be concentrated in the SWA.

Continuing the existing recreation use patterns in the SWA will have adverse effects to soil resources from uncontrolled camping patterns, informal road networks, and general vegetation and soil disturbance. These uncontrolled use patterns would have a greater negative impact than the control measures identified under Alternative A. Construction of improved recreation facilities at the Prineville Reservoir Resort have the potential to increase short-term soil erosion; with the implementation of BMPs, however, this would be negligible. Construction would disturb about 26 acres at the Expanded State Park North and Antelope Creek Day Use Area, 22.6 acres at Roberts Bay, and about 7 acres at Powder House Cove. Use of BMPs is expected to control excess erosion during construction.

Conditions would improve at Juniper Point under Alternative B by providing designated campsites, which would reduce random use patterns and the subsequent disturbance to vegetation and soils. The addition of gravel roads also would reduce soil erosion at Juniper Point. While the improvements to Roberts Bay East and West would increase the amenities, it also would reduce the sprawl of camping use and road networks under the current conditions and would thus improve conditions by reducing soil compaction, erosion, and vegetation loss.

Mitigation and Residual Impacts [Alternative B]

No mitigation measures are proposed for Alternative B because the actions under this alternative do not have substantial adverse impacts on soils in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative B]

Cumulative impacts would be slightly less than those described under Alternative A. While Alternative B provides for more controlled camping on the south shore of the reservoir, dispersed camping would continue in the SWA. Vegetation loss and a corresponding increase in soil compaction and erosion would be associated with increased visitor use.

3.2.2.3 Alternative C - Natural Resource Protection/Formal Recreation Emphasis (Preferred Alternative)

Alternative C would have similar effects as those described under Alternative B except where noted in the following discussion. The provisions for increased visitor education and reduced vehicle access to the North Side Primitive Road would likely result in a reduction of off-road vehicle use, which would reduce soil erosion. The increased emphasis on road rehabilitation and restoration of disturbed sites and off-road vehicle tracks would provide benefits to soil resources. Provisions to more precisely define the occurrence of cryptobiotic soils and impacts to these areas will result in benefits to the resource. In addition, the emphasis of protecting areas with a high occurrence of cryptobiotic crusts from disturbing factors such as off-road vehicle use, off-trail exploration by hikers, and livestock grazing would aid in maintaining these relatively undisturbed soil complexes and reduce excessive soil erosion.

Improved coordination with BLM juniper management efforts would provide minor benefits to soil resources by improving native grass and forb cover, if completed in conjunction with livestock control.

Construction of the new entrance and boat ramp at Powder House Cove has the potential to increase short-term erosion during the construction phase, and would disturb about 6.9 acres. Implementation of BMPs (identified in Chapter 5) would substantially reduce this risk. The large development of a new boat ramp, parking and day use facilities would increase the area of the site that is unvegetated and

would likely increase damage to surrounding vegetation and soil without long-term mitigation strategy such as fencing and storm water drainage management. Even with the implementation of BMPs, some adverse effects to the soil from compaction and increased run-off would be expected, although at a minor level. Construction also would disturb about 26 acres at the Expanded State Park North and Antelope Creek Day Use Area and 37.5 acres at Roberts Bay. While the construction areas are larger than under other alternatives, the resulting controlled camping would reduce dispersed use that is currently causing vegetation loss, soil compaction, and erosion.

Implementation of designated campsites at the SWA including Combs Flat would substantially improve the current use patterns and reduce the area of shoreland and upland erosion. Under the proposed development of recreation facilities at Roberts Bay East, parking and day use facilities would eliminate the random pattern of camping and day use under the current conditions. The improvements to the site conditions would be greater than those described under Alternative B due to complete conversion of the road-accessed recreation sites to designated use only.

Mitigation and Residual Impacts [Alternative C]

No mitigation measures are proposed for Alternative C because the actions under this alternative do not have substantial adverse impacts on soils in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative C]

Cumulative impacts would be slightly less than those under Alternative A or B because developing formal camp sites at Roberts Bay and in the SWA would reduce the long-term impacts associated with greater recreation use. The use of designated campsites in the SWA and at Roberts Bay would reduce, but not eliminate, effects to soil from increased recreation use of Prineville Reservoir.

3.3 Hydrology and Water Quality

3.3.1 Affected Environment

3.3.1.1 Surface and Groundwater

The Crooked River basin above Bowman Dam drains about 2,700 square miles. Annual runoff from the basin is about 270,000 af, but this is variable and has ranged from a high of 687,834 af in 1984 to a low of 38,853 af in 1961. Peak inflow has been recorded at 267,500 cfs. The highest recorded flow in the Crooked River was 8,410 cfs in March 1952. Flows are typically 200 to 250 cfs during the summer irrigation season and 30 to 75 cfs during the winter storage season (ODFW 1996).

Two primary tributaries flow into Prineville Reservoir—Bear Creek and Sanford Creek. Bear Creek is located on the south side of the reservoir and on the western end. Bear Creek originates above Antelope Flat Reservoir on the south side of the Maury Mountains. Bear Creek and its many tributaries drain about 260 square miles, or about 10 percent of the basin upstream of Prineville Reservoir. Eroded cutbanks are evident along much of the stream, which is characterized by high summer temperatures, low flows, and high turbidity. The ratio of sediment load to water volume is high for Bear Creek, which flows through highly erodible soils. Sanford Creek originates in the northwest corner of the Maury Mountains, and its basin consists of about 20 square miles. Most of Sanford Creek flows through sagebrush and juniper stands (ODFW 1996). Secondary tributaries to Prineville Reservoir include Alkali Creek, Deer Creek, Long Hollow Creek, Eagle Creek, and Antelope Creek.

Under the Congressional authorization for the Crooked River Project, Reclamation is required to release a minimum flow of 10 cfs from Bowman Dam. In February 1990, Reclamation administratively increased the minimum flow to 75 cfs in recognition of the regionally outstanding natural and recreational resources provided by the downstream reach of the Crooked River under the Federal Wild and Scenic River Act. The 75 cfs is dependent on water availability, but Reclamation's goal is to release at least 30 cfs even in low water years.

Groundwater is readily available along the reservoir margin, but on ridges and plateaus above the reservoir water wells must be drilled to between 200 and 800 feet to encounter the aquifer. A 400-foot deep well that was drilled in 1975 for the Jasper Point Recreation site yields 20 to 30 gallons per minute (Reclamation 1992).

3.3.1.2 Water Quality

Water quality is generally good and is suitable for all beneficial uses in Prineville Reservoir and in the Crooked River below Bowman Dam. The water quality of Prineville Reservoir and Crooked River downstream of Bowman Dam is suitable for the beneficial uses as defined by the State of Oregon's Department of Environmental Quality (ODEQ 2001). Data collected by the Bureau of Reclamation, summarized in Table 3.3-1, indicate that the water quality standards and beneficial uses identified by ODEQ for the Deschutes River basin (which includes the Crooked River subbasin) are being met in most instances. The statewide standard for dissolved oxygen for warm water is 5.5 parts per million (ppm) (30-day mean minimum) and 126 units/ml for fecal coliform. Other specific standards for the Crooked River basin have not been developed.

Table 3.3-1: Water quality (1973, 1978, 1979, 1984, 1991, and 1995) Prineville Reservoir and Crooked River below Bowman Dam (mg/L except where noted).

Measured Parameter	Location									
	Prineville Reservoir ¹					Crooked River				
	July ² (1984, 1995)	Aug (1984)	Sept (1979)	Oct (1979)	Nov (1978)	July ² (1984, 1995)	Aug ² (1984, 1991)	Sept (1973)	Nov (1978)	
Temperature (°C)	23.2	20.9	17.8	17.2	6.4	10.7	11.7	---	5.6	
Dissolved Oxygen	8.1	7.0	9.0	8.5	9.4	11.6	10.5	12.1	13.0	
pH (Standard Units)	8.30	8.70	8.10	7.80	8.10	8.00	7.95	7.68	7.90	
Total Phosphorus	0.031	0.018	0.022	0.055	0.050	0.076	0.091	0.12	0.057	
Ortho Phosphorus	0.010	0.005	0.004	0.005	0.032	0.062	0.063	0.08	0.041	
Nitrate + Nitrite as Nitrogen	<0.10	<0.10	0.06	0.04	0.10	<0.10	0.15	---	0.10	
Fecal Coliform (Counts/100mL)	<2	<2	---	---	<2	4	<2	---	---	
Turbidity (NTU)	2.0	3.0	2.0	1.0	3.0	12.5	12.5	9.0	4.0	
Transparency Secchi (meters)	2.2	4.0	---	---	1.8	---	---	---	---	
Chlorophyll A	0.002	---	---	---	---	---	---	---	---	

Source: Reclamation undated.

¹ Surface data used for reservoir.

² Average data presented for months with multiple years of data.

Prineville Reservoir surface water temperatures during July and August often exceed the temperature standard for cold water aquatic life (17.8°C). Profile data collected at Prineville Reservoir during July and August of 1985 and 1995 indicate that there are temperatures less than 17.8°C in the bottom 50 percent of the reservoir. Dissolved oxygen levels in the reservoir decrease somewhat during July and August but not to a level that would be indicative of eutrophication conditions.

Nutrients (nitrogen and phosphorus) were detected in sufficient quantities to support plant growth in the reservoir. Nutrient concentrations indicate a potential for algal blooms and eutrophic conditions. Because reservoir inflow and discharge into the Crooked River are turbid during most times of the year, it is suspected that the turbid conditions reduce light penetration to the extent that photosynthetic activity and plant growth are limited. This is supported by the low concentrations of chlorophyll A and dissolved oxygen depletion in the lower levels of the reservoir during the summer months (ODFW 1996).

According to Section 303(d) of the Federal Clean Water Act, ODEQ lists water bodies where one or more water quality standards are not being met. This 303(d) list includes the mainstem Crooked River from its mouth to Baldwin Dam (about 8 miles upstream of Prineville Reservoir) due to flow modification and pH. The section of the Crooked River from Baldwin Dam to Prineville Reservoir is listed because of problems with total dissolved gas levels. The Lower Crooked River subbasin (which includes Prineville Reservoir) is listed as a Priority 2 watershed by ODEQ for development of Total Maximum Daily Load (TMDL) for water quality parameters, with Level 1 being the highest priority and Level 4 the lowest priority. The criteria for a Priority 2 water body applicable to the Lower Crooked River are candidate fish species and water contact recreation. Wild and Scenic River status is considered a second tier criterion when prioritizing water bodies. There is no current TMDL process for the Crooked River, but it is scheduled for 2004 to 2010 (ODEQ 2002).

Turbidity is caused by suspended particles that block the passage of light. Turbidity is considered a negative visual effect due to its cloudy appearance. From the standpoint of recreational waters, appearance and clarity are often used by the general public to judge water quality. Soils, vegetation,

geologic formations, reservoir fluctuation, and resource management practices influence the sediment loads and turbidity levels in Prineville Reservoir.

Prineville Reservoir is moderately nutrient rich in phosphorous and nitrogen, which can favor algal blooms. The turbidity of the reservoir limits sunlight penetration, however, which limits photosynthetic activity and reduces the likelihood of algal blooms. Orthophosphate phosphorous was measured at 0.047 mg/l in May 1982, and 0.025 mg/l in July 1982. These levels would usually indicate a eutrophic system, but corresponding chlorophyll A levels are low (an indicator of phytoplankton production), indicating an ultraoligotrophic, or unproductive, system.

High turbidity is the primary water quality problem in Prineville Reservoir and in the Crooked River below Bowman Dam. High turbidity in the reservoir is primarily a result from erosion that occurs along the mainstem Crooked River, Camp Creek, Eagle Creek, and Bear Creek, and from shoreline erosion along the reservoir edge from wind and boat-generated waves. The reservoir shoreline and adjacent and upstream watersheds are dominated by highly erodible soils including montmorillonite clays. Upstream land use practices including logging, road building, and heavy livestock grazing have contributed to erosion in the watershed (OSU 1976). In addition, erosion from uncontrolled recreational use has contributed to sedimentation of the lake and related high levels of turbidity. When washed into the reservoir, the fine montmorillonite clay particles can stay in suspension for several years, increasing turbidity and blocking sunlight penetration in the water column (ODFW 1996).

The temperature cycle of Prineville Reservoir is representative of reservoirs in Oregon. During the spring, the reservoir has a relatively uniform vertical temperature profile. Warming of surface waters combined with wave action cause convective currents and a mixing of surface waters. The upper region of the reservoir is generally uniformly warm, turbulent, and well mixed. The lower region is cold and relatively undisturbed. The thermocline is the point where these two layers meet during the summer and early fall. As surface waters cool through the fall, the reservoir turns over, returning to a uniform temperature profile. The thermocline descends in response to drawdown.

3.3.2 Environmental Consequences

The three alternatives would have the potential to have some effect on surface water and groundwater hydrology where new developments are planned, and there are implications to water quality across the three alternatives. Generally, the primary concern is the disturbance of soil and vegetation from increased or continuing dispersed recreation, off-road vehicle use, and livestock grazing. Increasing the amount of impervious surface would increase surface water runoff without the use of stormwater management measures and has the potential to increase soil erosion and affect water quality. Under all alternatives, it is assumed that siting, design, and construction of new recreation facilities would include the BMPs described in Chapter 5, which include measures to minimize the effects of construction erosion. These measures also include the design and implementation of the appropriate stormwater collection and treatment facilities associated with the addition of impervious surfaces, roads, and new structures. Even with these BMPs, there would likely be some increase in stormwater runoff that would contribute to water quality degradation. Implementation of BMPs would minimize these effects, however. In addition, the trend of increased recreation use on land and on the reservoir is likely to reduce water quality under all alternatives from oil and gasoline spillage from boats, increased soil compaction, and vegetation disturbance from increased recreation use. The effects of the alternatives to water resources are described below.

3.3.2.1 Alternative A – No Action, Continuation of Existing Management Practices

As described above, the reduction of disturbance factors along the reservoir shorelines, wetlands, riparian areas, and other sensitive sites would reduce soil erosion. This in turn would improve water quality of the reservoir. These measures would not substantially improve the water quality of Prineville Reservoir because of the large amount of sediment that enters the reservoir from outside Reclamation lands (OSU 1976).

Implementation of vegetation restoration efforts would improve water quality by reducing and filtering surface water runoff. Reduction of livestock use of wetlands, riparian areas, and areas with cryptobiotic crusts would improve density and quality of vegetation, reduce erosion, and provide subsequent benefits to water quality. Development of a Habitat and Wildlife Management Plan would benefit surface water hydrology and water quality by restoring damaged vegetation and reducing surface water runoff and the resulting sedimentation of the reservoir.

Designating camping sites in the SWA would help retain native vegetation, reduce runoff, and maintain water quality. Under Alternative A uncontrolled camping and recreation use of the Combs Flat area would continue to degrade vegetation and soil, which would negatively affect surface water hydrology and water quality from continued upland and shoreline erosion.

Proposed expansion at the State Park could negatively affect surface water hydrology and water quality if stormwater facilities were not correctly designed. Even with proper stormwater design, it is likely that water quality impacts would not improve at the new or improved boat ramps where vehicle and boat oils, grease, and gasoline would drip onto the ramp or directly into the reservoir during the unloading and loading of boats. This would be an inevitable impact for all alternatives and would increase with increasing recreation use of the reservoir. Design of limited parking for vehicles and trailers and enforcement of no parking zones may provide an upper limit to the number of boaters that can be accommodated at Prineville Reservoir. This may stabilize the introduction of pollutants into the reservoir from recreational boating. Dispersed boat-in use of areas outside of the SWA would continue to affect water quality from the lack of toilet facilities and the ensuing dispersed human waste.

The addition of designated campsites at Roberts Bay East would provide beneficial effects to water quality by reducing soil erosion and sedimentation. Conversely, the continued random recreation use patterns at Juniper Point and Roberts Bay West would continue to adversely affect water quality from erosion and sedimentation. There would be minor adverse effects on groundwater from the development of a potable water source at Roberts Bay East. The Crooked River region is growing and water supply is of continued concern, but the amount of water that would be needed for seasonal use is relatively minor and there are no nearby residential wells.

Mitigation and Residual Impacts [Alternative A]

No mitigation measures are proposed for Alternative A because the actions under this alternative do not have substantial adverse impacts on hydrology or water quality in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative A]

The continued increase of recreational use of the land and water at Prineville Reservoir will likely increase soil erosion and sedimentation, and increase water quality impacts from increased boat traffic.

3.3.2.2 Alternative B – Natural Resource/Dispersed Recreation Balance

Alternative B would have similar effects to surface and groundwater and to water quality as described under Alternative A, with some minor differences. The increased emphasis on recreation user education regarding the “pack-in and pack-out” garbage policy would reduce adverse effects to water quality by reducing litter and garbage accumulation and subsequent contaminated runoff.

As described above, the increased efforts at vegetation restoration would reduce soil erosion and sedimentation and would aid in improving water quality. Maintenance of existing use patterns at the SWA campsites would continue to adversely affect surface water hydrology and water quality. Continued degradation of vegetation, soil compaction, and random road patterns in the SWA provide sources of erosion that reduce water quality.

Increasing the amount of available boat moorage facilities at Prineville Reservoir Resort would have minor adverse effects on the local water quality from the addition of oil and gas drippings from moored boats. These effects are negligible when compared to the oil and gas contributions from increasing boat use on the reservoir that would likely occur across all alternatives.

Implementing designated campsites at Juniper Point and Roberts Bay would aid in improving surface water hydrology and water quality conditions by reducing soils and vegetation impacts and the resulting impacts to water quality. The higher level of amenities at the State Park area and at Roberts Bay would lead to greater use of groundwater. Because of the distance of the site from residential, municipal, or industrial water users, this would not cause any adverse impact. Depending on the depth of groundwater during a dry year, the amenity level offered may need to be adjusted.

Mitigation and Residual Impacts [Alternative B]

No mitigation measures are proposed for Alternative B because the actions under this alternative do not have substantial adverse impacts on hydrology or water quality in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative B]

Cumulative impacts under Alternative B would be similar to those described under Alternative A.

3.3.2.3 Alternative C - Natural Resource Protection/Formal Recreation Emphasis

Impacts to hydrology and water quality under Alternative C would be similar to those described under Alternative B, with some exceptions. Under Alternative C, there would be an increase in restoration efforts and protection of cryptobiotic crusts areas, which would further reduce soil erosion and the resulting sedimentation and reduction of water quality. Improved fencing of livestock grazing from shoreline, wetland, and riparian areas would reduce the amount of livestock waste that enters the reservoir and aid maintaining vegetation within these plant associations.

The increased use of designated campsites in the SWA and the elimination of undesignated dispersed camping would reduce vegetation disturbance and the resulting soil erosion and negative effects to water quality. The increased placement of toilet facilities at boat-in sites around the reservoir and the proposed increase in capacity of toilet facilities at the primary camping and day use areas would provide additional protection for water quality of Prineville Reservoir.

The increased use of designated campsites, increased toilet facilities, and formalized setting at Roberts Bay would consolidate use and reduce the recreation sprawl that has damaged vegetation, compacted soils, and increased sediment runoff into the reservoir.

Mitigation and Residual Impacts [Alternative C]

No mitigation measures are proposed for Alternative C because the actions under this alternative do not have substantial adverse impacts on hydrology or water quality in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative C]

Cumulative impacts under Alternative C would be slightly less than those described under Alternative A because of the increase in formal camping facilities and the increase in number and efficiency of sanitation facilities. Increased recreation use of the reservoir would likely have a corresponding adverse effect on water quality.

3.4 Vegetation

3.4.1 Affected Environment

3.4.1.1 Cover Types

Vegetation communities in the study area were characterized by W&H Pacific (2000). The following major vegetation cover types are found near Prineville Reservoir: (1) woodland communities, (2) shrub communities, (3) herbaceous communities, (4) rock outcrop and talus, (5) developed areas, and (6) wetland communities. The following sections describe the individual plant communities within each of the major groups.

Woodland Communities

Juniper woodland communities occupy 4,674 acres, or 79 percent of Reclamation's land (Table 3.4-1). Most of the forested vegetation cover types near Prineville Reservoir are dominated by western juniper (*Juniperus occidentalis*). Western juniper is the only native tree species near the reservoir except for an occasional ponderosa pine (*Pinus ponderosa*) in sheltered areas. All of the juniper woodland areas are composed primarily of juniper/big sagebrush (*Artemisia tridentata*)/bluebunch wheatgrass (*Pseudoregeria spicata* ssp. *spicata*) but are further divided into communities based on soils, current conditions, and species composition (W&H Pacific 2000).

In addition to big sagebrush, other shrub species associated with juniper woodlands include gray and green rabbitbrush (*Chrysothamnus nauseosus* and *C. viscidiflorus*) and bitterbrush (*Purshia tridentata*). The two rabbitbrush species are most common in disturbed areas while bitterbrush is limited to areas near the County boat ramp.

The juniper-dominated woodlands have varying herbaceous layers depending on the past level of grazing. Stands not heavily grazed are dominated by native bunchgrasses such as bluebunch wheatgrass, Sandberg's bluegrass (*Poa sandbergii*), Thurber's needlegrass (*Stipa thurberiana*), and bottlebrush squirreltail (*Sitanion hystrix*). On north slopes, Idaho fescue (*Festuca idahoensis*) is numerous. More well-drained soils support needle-and-thread grass (*Hesperostipa comata* ssp. *comata*) and Indian ricegrass (*Oryzopsis hymenoides*). Forbs include: Douglas phlox (*Phlox douglasii*), gray groundsel (*Senecio canus*), and locoweed (*Astragalus* spp.). Undisturbed areas support well-developed cryptobiotic crusts. The coverage of non-native cheatgrass increases as the severity of grazing and/or recreational disturbance increases.

Within the study area, juniper reaches a density of 100 trees per acre (Reclamation 2002). Prior to European settlement, juniper was much less prevalent; however, suppression of the natural wildfires has resulted in substantial expansion in juniper coverage. The causes and effects of juniper expansion are variable (Bedell et al. 1993, Belsky 1996). The dense juniper coverage can result in high bare soil coverage and poor sagebrush and grass cover (Reclamation 2002). If not managed, western juniper is expected to substantially increase within the watershed.

Since the 1980s, BLM has conducted juniper removal on lands adjacent to Reclamation lands at Prineville Reservoir, however, no such management has occurred on the Reclamation lands. In some cases,

Table 3.4-1: Acreage of cover types in the Prineville Reservoir study area.

Cover Type	Acres	Percent
Western Juniper Woodlands		
Western juniper/big sagebrush/bluebunch wheatgrass woodland with dense understory	353.4	6.0
Western juniper/big sagebrush/bluebunch wheatgrass woodland with moderate to light understory	2,192.6	37.1
Western juniper/big sagebrush/bluebunch wheatgrass woodland with rock outcrops	61.0	1.0
Western juniper/big sagebrush/bluebunch wheatgrass woodland with stony red clay soils	182.9	3.1
Western juniper/big sagebrush/Thurber's needlegrass-bottlebrush squirreltail woodland with sandier substrate	176.5	3.0
Western juniper/big sagebrush/Thurber's needlegrass-bottlebrush squirreltail woodland with sandier substrate	86.7	1.5
Western juniper/big sagebrush/cheatgrass woodland	367.6	6.2
Western juniper/bluebunch wheatgrass savanna, with dense bunchgrass understory	306.9	5.2
Western juniper/bluebunch wheatgrass savanna, with light bunchgrass understory	778.9	13.2
Western juniper/bluebunch wheatgrass savanna, with light bunchgrass understory on red clay substrate	167.8	2.8
Western Juniper Woodland Total	4,674.3	79.2
Shrub-steppe Communities		
Big sagebrush/bluebunch wheatgrass shrub-steppe	93.0	1.6
Big sagebrush/bluebunch wheatgrass shrub-steppe, with red substrate	18.9	0.3
Big sagebrush/Thurber's needlegrass shrub-steppe	4.1	0.1
Big sagebrush/cheatgrass shrub-steppe, on stony silt-loam substrate	346.5	5.9
Big sagebrush/cheatgrass shrub-steppe, on red clay substrate	19.8	0.3
Shrub-steppe Communities Total	482.4	8.2
Grass-Forb Communities		
Native grass communities	4.3	0.1
Non-native grass/forb communities	87.6	1.5
Grass/Forb Communities Total	91.8	1.6
Rimrock and canyon shrubland, with sagebrush Total	240.8	4.1
Wetland and Riparian Communities		
Shoreline Palustrine Emergent Communities		
Matted muhly-Arctic rush-slenderbeak sedge-Douglas sedge	18.2	0.3
Creeping spike rush-matted muhly-Arctic rush-slenderbeak sedge-Douglas sedge	23.7	0.4
Quackgrass-saltgrass-meadow foxtail alkaline wet meadow	26.2	0.4
Shallow Water/Shoreline Palustrine/Shrub Community		
Water smartweed-Creeping spikerush-American water plantain/Pacific willow-coyote willow/matted muhly-Arctic rush	95.7	1.6
Riparian Shrub/Emergent Marsh Community		
Pacific willow/creeping spikerush/matted muhly	6.1	0.1
Sandbar Shrub Community		
Pacific willow-coyote willow/creeping spikerush-Arctic rush	42.3	0.7
Other Riparian Communities		
Creek riparian willow community	26.2	0.4
Riverine gravel bar community	11.1	0.2
	6.0	0.1
Wetland and Riparian Communities Total	229.3	3.9
Developed/Disturbed Cover Types		
Developed forested areas	73.8	1.3
Developed non-forested areas	19.7	0.3
Proximate disturbed areas	92.7	1.6
Developed/Disturbed Cover Total	186.2	3.2
Grand Total	5,904.8	100.0

Source: W&H Pacific (2000).

Note: The total acreage does not match Reclamation's estimate of the total acreage of their land at Prineville Reservoir (5,460 ac). The vegetation analysis was complete at a less than full pool level and includes habitats such as riverine gravel bar acreage.

juniper removal has been shown to increase herbaceous plant production and decrease bare soil coverage, but this does not always result in an improvement in range condition (Vaitkus and Eddleman 1987).

Shrub Communities

Shrub communities are dominated by big sagebrush and either bluebunch wheatgrass, Thurber's needlegrass, or cheatgrass (*Bromus tectorum*). Together, the shrub communities occupy 482 acres, or 8 percent of the lands near the reservoir (Table 3.4-1). Other herbaceous plant species found in the shrub communities include Sandberg's bluegrass, bottlebrush squirreltail, needle-and-thread grass (*Stipa* spp.), Idaho fescue, yarrow (*Achillea millefolium*), buckwheat (*Eriogonum* spp.), and locoweed.

Herbaceous Communities

Upland communities that lack shrubs and juniper are limited to 92 acres, or less than 2 percent, mostly in sandy openings. These sites are dominated by Thurber's needlegrass and/or bottlebrush squirreltail. As disturbance level increases, the coverage of cheatgrass, Canadian thistle (*Cirsium arvense*), and spotted knapweed (*Centaurea maculosa*) increases. About half of the upland herbaceous communities are dominated by non-native species.

Rock Outcrop and Talus

Rimrock and canyon shrubland dominated by big sagebrush, mountain mahogany (*Cercocarpus* spp.), serviceberry (*Amelanchier alnifolia*), bitterbrush (*Purshia tridentata*), currant (*Ribes* spp.), and rose (*Rosa* spp.) occupy 241 acres (Table 3.4-1). Talus slopes occur below Bowman Dam.

Developed Areas

Developed areas include: (1) developed non-forested areas with buildings, parking lots, landscaped plantings, irrigated grass, paved and unpaved roads and parking pull-offs, and housing developments; (2) developed forest areas associated with developed campgrounds and primitive campsites; and (3) proximate disturbed areas that include the highly disturbed areas adjacent to roads, campsites, boat ramp facilities, and areas impacted by ORV use (W&H Pacific 2000). Combined, these areas cover 186 acres (Table 3.4-1). Although non-native plant species dominate most of the herbaceous vegetation, remnant patches of native vegetation also persist in some areas.

Wetland Communities

Five groups of wetland communities were mapped in the study area: (1) shoreline palustrine emergent communities, (2) shallow water/shoreline palustrine emergent/shrub community, (3) riparian shrub/emergent marsh community, (4) sandbar shrub community, and (5) riparian channels and gravel bars (W&H Pacific 2000). Together, these communities occupy 229 acres, or 4 percent of the study area (Table 3.4-1). The following sections discuss each of these communities.

Shoreline Palustrine Emergent Communities

The shoreline palustrine emergent communities occur below the normal high water line. Shorelines and inlets with gradual slopes support narrow zones of matted muhly (*Muhlenbergia richardsonis*)/arctic rush (*Juncus balticus* var. *balticus*)/slenderbeak sedge (*Carex athrostachya*)/Douglas sedge (*C. douglasii*) emergent marsh. Other areas of the shoreline, particularly near Roberts Bay, Antelope Creek

inlet, Jasper Point boat ramp, Powder House Cove, and Juniper Point inlet, support communities dominated by creeping spikerush (*Leaheies macrostachya*)/matted muhly/arctic rush/slenderbeak sedge/Douglas sedge. These two communities cover 18 and 24 acres, respectively (Table 3.4-1).

A Natural Resources Conservation Service (NRCS) Wetland Conservation Determination conducted in 1999 documented approximately 60 acres of wetland along the reservoir (NRCS 1999). The largest contiguous wetlands are located in the cutoff oxbow near Old Field and along the lower portion of Bear Creek. The drawdown area at Roberts Bay is currently being managed for wetland restoration by prohibiting vehicular traffic off of designated roads. A reconnaissance of the area indicated a mixture of wetland and upland vegetation and a general lack of hydric soils. However, approximately 10 percent of the area likely meets the technical wetland criteria (pers. comm., A. Moore, 2000). These wetlands would be difficult to specifically identify as they are scattered in a mosaic pattern among upland areas. The lowermost portions of the drawdown zone are dominated by the non-native foxtail pricklegrass (*Crypsis alopecuroides* [= *Heleochoa alopecuroides*]). There was evidence of past vehicular traffic creating extensive rutting in the drawdown area.

Shallow Water/Shoreline Palustrine Emergent/Shrub Community

The one community of this type was a water smartweed (*Polygonum amphibium*)/creeping spikerush/American water plantain (*Macaerocarpus californica*)/Pacific willow (*Salix exigua*)/coyote willow/matted muhly/arctic rush. This community is located at the eastern portion of the reservoir near Old Field and occupies 96 acres (Table 3.4-1). Some of this community has been removed by recreational activity (angling and camping) along the river.

Riparian Shrub/Emergent Marsh Community

Areas near the mouth of Owl Creek, Juniper Bass campsite, and upstream on the north shore of the river support plant communities dominated by Pacific willow (*Salix lasiandra*)/creeping spikerush/matted muhly. Approximately 6 acres of this community were mapped in the study area (Table 3.4-1). In some of these areas, the willows extend into the water.

Sandbar Shrub Community

Pacific willow/coyote willow/creeping spikerush/arctic rush shrub community occurs in 42 acres on several sandbars in the riverine section upstream of the reservoir (W&H Pacific 2000). Although willow dominates these areas, recently disturbed areas have many weeds.

Riparian vegetation represents a minor proportion of the overall study area acreage but is critical for biological biomass and species diversity (Reclamation 2002). Riparian habitats are characterized by willow, wheatgrass, alder (*Alnus rhomifolia*), dogwood (*Cornus stolonifera*), and scattered cottonwood (*Populus trichocarpa*) (Reclamation 2002). Riparian vegetation provides shade for water temperature control, hiding cover for fish, and bank stability through root systems. Riparian plants are especially important in holding soils and reducing bank erosion. Several of the streams in the study area are greatly affected by grazing and ORV activity. For example, the Bear Creek channel is incised 2 to 6 feet.

Other Riparian Communities

Creek riparian channels and gravel bars represent 11 and 6 acres, respectively (Table 3.4-1). The former community which is dominated by willow, needle-leaf spikerush (*Eleocharis acicularis*), and creeping spikerush occurs along Eagle, Sanford, Deer, Black Canyon, and Antelope creeks (W&H Pacific 2000). The latter community is limited to areas along the northwest side of Big Bend Recreation Site downstream of Bowman Dam.

3.4.1.2 Vegetation Management

Vegetation management issues at Prineville Reservoir include: (1) control of noxious weeds, (2) revegetation of disturbed areas, and (3) juniper management. The following sections discuss these issues.

Noxious Weeds

Department of Interior (DOI) directives 609 DM 1 (June 26, 1995), Secretarial Order No. 3190 (June 22, 1995), and Reclamation Manual Directive ENV 01-01 require development and approval of programs for the control of undesirable plants on DOI lands. Reclamation has developed a Draft Integrated Pest Management (IPM) Plan for controlling noxious weeds and unwanted non-native plant species (Reclamation 2002). This plan calls for noxious weed control primarily by application of chemical herbicides (pers. comm., B. Pieratt, April 11, 2001). In 1998 Reclamation began contracting with the U.S. Forest Service (USFS) and Crook County to conduct noxious weed management programs. These activities had significant impacts on the perennial pepperweed, spotted knapweed, Russian knapweed, and whitetop populations.

Six noxious weed species recognized as “A” listed by the Oregon Department of Agriculture (ODA) have been documented at Prineville Reservoir (Table 3-4-2). Species that are “A” listed are weeds of known economic importance which occur in the state in small enough infestations to make eradication/containment possible; or are not known to occur, but the presence in neighboring states make future occurrence in Oregon seem imminent (ODA 2001). Intensive control is the recommended action for infestations. Russian knapweed (*Centaurea repens*) is by far the most common of these species. In addition to those species listed in Table 3.4-2, cheatgrass—a very widespread non-native annual grass that dominates disturbed areas and that is almost impossible to control—also occurs on Reclamation land.

Table 3.4-2: Noxious weeds documented at Prineville Reservoir.¹

Species	Acres
Perennial pepperweed (<i>Lepidium latifolium</i>)	20
Russian knapweed	200
Whitetop (<i>Cardaria draba</i>)	20
Canada thistle	75
Puncture vine (<i>Tribulus terrestris</i>)	2
Spotted knapweed	2

Source: Draft Integrated Pest Management Plan for Prineville Reservoir – Crooked River Project – Oregon 2/19/2002.

¹ Species on the Draft Crook County Noxious Weed Control “A” list.

Revegetation of Disturbed Areas

The condition of the native vegetation varies greatly in the study area. Damage to native vegetation is often severe in locations where recreationists drive and camp along the shoreline (BLM 1980a).

There are several BLM grazing allotments that include Reclamation land (see Section 3.9, Land Use). Evidence of grazing was noted near Roberts Bay during a 2000 site visit (compacted and grazed vegetation, cow tracks and scat in wetland).

ORV use on the lands surrounding Prineville Reservoir is a recreational activity that has occurred for more than 20 years. Extensive ORV traffic off of designated roadways has resulted in substantial damage to upland, riparian, and wetland vegetation communities. The relatively open terrain results in many unauthorized “jeep” trails. These trails increase erosion and do not easily revegetate. BLM generally considers areas with slopes >30 percent to be unacceptable for ORV use (BLM 1980b). OPRD, Reclamation, and BLM have been active in closing the unauthorized trails and attempting revegetation in selected areas near the reservoir on Bureau of Reclamation and BLM administered lands.

Juniper Management

Historically, the uplands near the reservoir were dominated by big sagebrush, Idaho fescue, and bluebunch wheatgrass and supported only widely scattered juniper trees. However, during the last 50 years, a pattern of fire suppression and livestock grazing has resulted in a substantial expansion of juniper woodland. A number of publications suggest that juniper encroachment has altered microclimates, water cycles, nutrient cycles, and plant and animal species (Bedell et al. 1993). The effect of junipers on soil, water, and grass and forbs is complex, however. Juniper control has been conducted on private and public land under the premise that it is an invading weed that dries up springs and streams, increases erosion, and reduces biodiversity and forage for wildlife and livestock (Bedell et al. 1993). Scientific evidence to support these claims is lacking (Belsky 1996). BLM documents (BLM 1993) indicate that juniper control would improve capture and storage of water, streamflow, forage and cover for big game, and fish habitat among other natural resources. An Oregon State University (OSU) Extension publication notes that “If not managed, western juniper would come to dominate a majority of eastern Oregon range sites” (Bedell et al. 1993). But this assertion is contradicted by a USFS, BLM, and FWS survey indicating that only 5 percent of eastern Oregon currently is or would potentially be affected by juniper encroachment (ODFW 1993).

There is a lack of data regarding the effects of juniper removal, no longitudinal studies measuring changes in ecosystem properties during succession of grasslands to woodlands, and only a few studies on the effects of juniper removal, often with conflicting results (Belsky 1996). While ranchers and range managers often claim that junipers dry up springs and streams, there is little substantial evidence to support this (Belsky 1996). These popular assumptions ignore the complexities of ecosystem interactions. An example is that in arid climates, most snow/rain water recharges the soil column and leaves little available for downslope movement into drainages (Hibbert 1983; West 1984). Thus, removing juniper often has no effect on stream recharge.

In addition, studies in eastern Oregon note that while herbaceous production can double after juniper removal, much of this increase comes from annual forbs such as fireweed. This study concluded “...an increase in herbage production after tree removal does not necessarily result in an improvement in range condition” (Vaitkus and Eddleman 1987). Purported effects of juniper on water infiltration and erosion

are fewer than the effects caused by livestock, which reduce cover and disturb soil with hooves (Wilcox 1994). And because much of the intermountain west has been significantly affected from grazing impacts, interactions of grazing and juniper encroachment are difficult to separate. Evans (1988) concludes that excessive rates of runoff and sediment in pinyon-juniper woodlands were due to grazing and other human-related activities. Therefore, the effects of juniper control are not clear, often varied, and difficult to separate from grazing impacts. This does not mean that juniper control has no place in vegetation management, but that it should be done judiciously, with clear goals and objectives, and be based on a thorough scientific understanding of the complexities of site-specific conditions.

Currently, there are very few areas that do not have at least some juniper at Prineville Reservoir. The draft Prineville Reservoir IPM Plan (Reclamation 2002) indicates that there are 400 acres of land in the SWA with an 80 percent increase in juniper, but the time period of this increase is not identified. The IPM Plan says this increase "...is currently threatening the viability of the diverse grassland ecosystem." No data are cited for this assertion. BLM has been conducting manual juniper thinning on BLM land near Reclamation land, and BLM states that juniper thinning activities have been effective in stopping erosion and increasing sagebrush and perennial herbaceous vegetation cover (pers. comm., J. Swanson, BLM, 2002).

3.4.2 Environmental Consequences

For all alternatives, the primary potential impact to vegetation is disturbance from developing new facilities and increasing human use, ORV use, and livestock grazing. Actions that increase or do not deter these disturbance factors would cause vegetation loss and damage, increases in weed species distribution, and loss of habitat for wildlife. All of the alternatives and their effects to vegetation in relation to specific disturbance factors are discussed below. A related factor is soil disturbance, as described under Section 3.1. The factors that can adversely affect soil are ones that also cause detrimental effects to vegetation. Consequently, actions that reduce the potential for soil disturbance and erosion also benefit vegetation.

Each of the alternatives has provisions for controlling recreation use, such as designating campsites and reducing or eliminating dispersed camping. While these provisions would reduce impacts from human use, they would not eliminate human-caused impacts to natural resources. There is a general correlation between increasing numbers of outdoor recreationists and impacts to vegetation and wildlife (Ramey 2000). Habitat modification includes disturbance to vegetation, soils, or local microclimate. Trampling of vegetation from people wandering outside defined boundaries is common around campsites (Cole and Landres 1995). Vegetation changes affect local species composition, nutrient uptake of trees, and often lead to invasion of invasive species (Benninger-Traux et al. 1992).

3.4.2.1 Alternative A – No Action: Continuation of Existing Management Practices

Continuance of seasonal road closures in the SWA and development of an improved road signage program would reduce effects to vegetation from using this road during wet weather when drivers tend to expand the width of road by avoiding puddles and ruts. The increased signage would be part of the continued program to enforce the off-road restrictions and educate those using Reclamation lands.

Development and implementation of a Habitat and Wildlife Management Plan as defined under the 1992 RMP would improve vegetation and habitat conditions within the SWA by restoring damaged vegetation, improving weed control, and blocking ORV paths.

There were no specific recommendations regarding juniper management under the 1992 RMP. It is likely that a Habitat and Wildlife Management Plan for the SWA would include provisions for some juniper management, but management of juniper outside the SWA is not part of Alternative A. Therefore, the density of juniper would likely increase under this alternative, which may affect the cover of native grasses and forbs.

Improving fencing and elimination of livestock grazing from shorelines, riparian zones, and wetlands would aid in the recovery of these sites from disturbance. This action also would comply with Presidential Order 11990 directing Federal agencies to minimize adverse effects to wetlands.

In many areas of the reservoir, the primary disturbance factor is not livestock grazing but human disturbance from vehicular use and foot traffic. Continued management of the south shore of the SWA as a boat-in day use area would continue to provide protection for the area's vegetation. In addition, the use of designated campsites in the SWA at Owl Creek, Juniper Bass, Cattle Guard, and Old Field would reduce the current pattern of vegetation disturbance caused by random camping. Informal camping of the Combs Flat area would continue to cause disturbance and removal of native plants and encourage conditions favorable to noxious weeds. Continued unregulated dispersed camping along the north shore of the SWA also would cause adverse effects to vegetation in this area.

Expansion of the State Park Campground and the Antelope Creek Day Use Area would require the removal of about 26 acres of juniper woodland habitat for roads, campsites, and associated facilities. BMPs outlined in Chapter 5 would include the requirement to minimize effects to native vegetation when constructing new facilities. Disturbed areas would be restored with the use of native plants and the implementation of weed control measures.

Improvements at the County boat ramp, as described under the 1992 RMP, are likely to have some construction effects from removal of native vegetation, but the improved traffic flow and parking would likely reduce the disturbance of vegetation outside areas of intended use. The specific ratio of vegetation removed from construction vs. reduced disturbance factors from the improved facility is unknown and difficult to predict. About 7.4 acres of land would be disturbed during construction. The improvement of the boat ramp at Powder House Cove would have similar effects to native plants. About 4.8 acres of land would be disturbed from construction. Improvement of the boat ramp at Prineville Reservoir Resort would not have adverse construction effects to vegetation because of the disturbed nature of the facility and the adjacent land.

Continued dispersed boat-in day use and camping around the reservoir would have adverse effects from human use. This is likely to increase as the number of boats using the reservoir increases. Increasing boating on the reservoir increases the risk that noxious aquatic weeds could be introduced to the reservoir. This threat is somewhat reduced because of the fluctuation of the reservoir water level, which substantially reduces permanent shallow water habitat that most weed species would invade. Maintaining the current use patterns at Juniper Point would have adverse effects to native vegetation by random camping patterns and vehicle use.

About 20 acres of land would be disturbed during improvements at Roberts Bay. A primary concern of all construction activities is the potential for weed infestations from ground-disturbing activity. Implementation of BMPs should minimize this risk. Much of the habitat at Roberts Bay has been disturbed from current recreation use patterns. Implementation of these improvements at Roberts Bay East should reduce these disturbances for the long-term.

Designating campsites at Roberts Bay East would provide a more structured recreation use pattern, which would reduce damage to vegetation from trampling, camping, and vehicle use. Continued blockage of vehicle use of the Roberts Bay wetlands would greatly improve this habitat. In contrast, maintaining the current, unmanaged recreation use at Roberts Bay West would continue to adversely affect native plants.

Mitigation and Residual Impacts [Alternative A]

No mitigation measures are proposed for Alternative A because the actions under this alternative do not have substantial adverse impacts on vegetation in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative A]

Increased recreation use over the 10-year RMP period would have increasing cumulative effects to vegetation from trampling of vegetation, increased use of informal paths, riparian vegetation impacts, and gathering of firewood. These impacts would be reduced but not eliminated by provisions in Alternative A to control recreation use.

3.4.2.2 Alternative B – Natural Resources/Dispersed Recreation Balance

Impacts from developing new facilities, improving or expanding existing facilities, or continuing current recreation use patterns would be the same as described under Alternative A, where similar actions are proposed.

Under Alternative B, Reclamation would finalize the draft IPM Plan, which if implemented, would benefit native plant associations by reducing noxious weed populations. The IPM Plan includes provisions for management of juniper on Reclamation lands and identifies this as a priority but provides no specific management plan or actions. Under this vague description, it can be assumed that some level of juniper management would occur, but this cannot be quantified at this time. The IPM Plan also would address juniper management with an emphasis on maintaining visual quality. Any juniper management should be conducted with clear goals and a monitoring plan to measure results.

Fencing improvements would reduce disturbance by livestock to sensitive resources such as shorelines, riparian areas, wetlands, and the cryptobiotic soils that occur in the Bear Creek vicinity. Restoration of disturbed habitats would be emphasized in the SWA. This would benefit the vegetation resources of the SWA, but disturbed areas outside the SWA would not improve without intervention. Increased enforcement of the prohibition of ORV use would likely reduce the effects from this activity.

Continuation of existing camping patterns on the north shore of the SWA would lead to ongoing degradation of vegetation and habitat from unrestricted camping, expansion of informal trails and roads, and general disturbance.

Expansion of the State Park Campground and construction of the Antelope Creek Day Use Area would result in the removal of about 13 acres of native juniper woodland and sagebrush habitat. Construction at Powder House Cove would disturb about 7 acres of land, but most of this has been previously disturbed. Some removal of existing vegetation would be required. Roberts Bay improvements would disturb about 23 acres of land, about 3 acres more than under Alternative A. Much of the vegetation

around Roberts Bay has been disturbed from current recreation use patterns. Improvements in the camping and day use patterns should reduce impacts to vegetation in the long-term. Implementation of BMPs during construction would minimize the risk of weed infestations following ground-disturbing activities. Improvements at the Prineville Reservoir Resort are not likely to affect native plants because of the disturbed nature of the site. Improved efforts at weed control would limit the spread of noxious weeds from this disturbed area.

Designating campsites at Juniper Point would reduce the effects of random use patterns of camping, hiking, and vehicle use that lead to vegetation disturbance. With all new designated campsites, increased enforcement would be required to ensure that measures are effective.

Mitigation and Residual Impacts [Alternative B]

No mitigation measures are proposed for Alternative B because the actions under this alternative do not have substantial adverse impacts on vegetation in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative B]

Cumulative impacts from increased recreation use would be slightly less than those described under Alternative A. While Alternative B provides for more controlled camping on the south shore of the reservoir, dispersed camping would continue in the SWA. Effects from trampling of vegetation outside designated use areas are expected to increase with increased visitor use of Prineville Reservoir.

3.4.2.3 Alternative C – Natural Resource Protection/Formal Recreation Emphasis

In general, benefits to vegetation would be greater than Alternative A or B. Improved education of recreationists would likely reduce the amount of off-road driving that disturbs native vegetation. The longer seasonal closure of the north side road through the SWA would reduce vegetation disturbance during times when the ODFW determines that travel on the road is not desirable to prevent impacts to vegetation and wildlife.

Expansion of habitat management and restoration efforts throughout the entire RMP study area under the Habitat and Wildlife Management Plan would provide beneficial effects to native plant populations. These actions, coupled with improved enforcement of illegal ORV use, would reduce adverse disturbance impacts. Improved fencing would provide additional protection for wetlands and riparian areas. Areas around Antelope Creek and Small Mouth Bay have been identified as priority sites for fencing by FWS.

Coordination of juniper management efforts would provide a more comprehensive management of the species on a landscape level under Alternative C, which would provide beneficial effects for native grass, forb, and shrub species. Measurable goals and a monitoring plan would be developed prior to implementation of juniper control measures.

Designating camping sites in the SWA would reduce disturbance to native vegetation from random camping and vehicle use. Implementation of a program of day use only at Combs Flat would greatly improve this area that currently exhibits a wide array of plant disturbance effects. This measure, combined with increased enforcement and restoration efforts in the SWA, would lead to habitat

improvements for upland and riparian areas. Expansion of the State Park would have similar effects to those described under Alternative B.

The increased amenities proposed for Powder House Cove (9 acres total disturbance) would increase the amount of native vegetation that would need to be removed for the development of these facilities and would contribute to the general loss of habitat. Similar to the effects described under Alternative B, development of formal camping and roads at Roberts Bay would reduce the amount of vegetation disturbance from the uncontrolled pattern of recreation use under current conditions. Vegetation removal at the State Park Expansion Area and Antelope Creek Day Use Area would be about twice that described for Alternative B. Under Alternative C, about 26 acres of land would be disturbed during construction. In addition to the removal of vegetation, cryptobiotic crusts in less disturbed sites would be altered or removed. About 40 acres of land would be disturbed during the construction of facilities at Roberts Bay. This is less of a concern at Roberts Bay, however, because dispersed driving, camping, and day use have severely altered vegetation over much of the area. Over the long-term, the resulting controlled use patterns should promote vegetation recovery for this area. No State-listed plant species, other than those with Federal status discussed in Section 3.6, occur on Reclamation lands.

Mitigation and Residual Impacts [Alternative C]

No mitigation measures are proposed for Alternative C because the actions under this alternative do not have substantial adverse impacts on vegetation in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative C]

Cumulative impacts from increased recreation visits to Prineville Reservoir would be slightly less than those described under Alternative B because of the increased provisions for designated camping.

3.5 Fish and Wildlife

3.5.1 Affected Environment

3.5.1.1 Fish

A number of fish species have historically occurred in the Lower Crooked River including spring chinook (*Oncorhynchus tshawytscha*), summer steelhead (*O. mykiss*), redband trout (*O. mykiss*), cutthroat trout (*O. clarkii*), and mountain whitefish (*Prosopium williamsoni*). Nongame species included northern pikeminnow (*Ptychocheilus oregonensis*), chiselmouth (*Acrocheilus alutaceus*), longnose (*Rhinichthys cataractae*) and speckled dace (*R. falcatus*), redband shiner (*Richardsonius balteatus*), largescale (*Catostomus macrocheilus*) and bridgelip sucker (*C. columbianus*), and a variety of sculpin (*Cottus* spp.). Introduced hatchery rainbow trout (*O. mykiss*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*M. salmoides*), brown bullhead (*Ictalurus nebulosus*), and black crappie (*Pomoxis nigromaculatus*) are gamefish present in the reservoir. The Crooked River and Prineville Reservoir are managed by ODFW under the 1996 Crooked River Basin Plan (ODFW 1996).

Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Act (MSA), the Federal law that governs U.S. marine fish management, require heightened consideration of fish habitat in resource management decisions. EFH is defined in Section 3 of the MSA as “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity.” NOAA (National Oceanic and Atmospheric Administration) Fisheries interprets EFH to include aquatic areas and their associated physical, chemical, and biological properties used by fish that are necessary to support a sustainable fishery and the contribution of the managed species to a healthy ecosystem. The MSA and its implementing regulations at 50 CFR 600.92(j) require that before a Federal agency may authorize, fund, or carry out any action that may adversely affect EFH, it must consult with NOAA Fisheries and, if requested, the appropriate Regional Fishery Management Council. The purpose of consultation is to develop a conservation recommendation that addresses all reasonably foreseeable adverse effects to EFH. EFH applies to anadromous and marine fish. While no anadromous species reach Bowman Dam because of downstream barriers, the Crooked River could be considered potential EFH for anadromous species.

Reservoir

Hatchery rainbow trout are stocked in the reservoir in early to mid-May and are the primary game fish in the reservoir. These hatchery rainbow trout sometimes emigrate from the reservoir into the Crooked River below the dam. High emigration rates appear to correspond with severe drawdown of the reservoir or when the reservoir is high enough that water flows over the spillway (ODFW 1996). Rainbow trout may also migrate upriver during the spring and fall. It is unlikely that these fish are able to reproduce because of the poor habitat conditions in the river.

Several incidences of disease outbreaks have been reported in trout populations in the reservoir. During September 1984, 91 percent of rainbow trout and 96 percent of cutthroat trout from the upper reservoir were infected with *Lernaea*, a parasitic copepod. About 68 percent of rainbow trout and 57 percent of cutthroat trout from the lower reservoir were infected. Strawberry disease, a rickettsial or bacterial disease that causes red sores, has been observed over the past 10 years (ODFW 1996).

Largemouth and smallmouth bass were stocked in the reservoir in 1960 and 1961 soon after completion of the project. Natural reproduction has sustained the population since these initial stockings. Largemouth bass are generally found in the upper half of the reservoir while smallmouth bass are common throughout the reservoir. Largemouth bass prefer shallow mudflats, creek mouths, natural coves with stumps, and other underwater structure (ODFW 1996). Winter survival of juvenile largemouth bass is highly dependent on conditions during the summer and early fall. Because weather conditions are variable there is a corresponding variation in juvenile bass survival and later cohort survival and spawning. Abundance of largemouth and smallmouth bass is relatively low compared to other Oregon water bodies (ODFW 1996); the slow growth and general poor condition of largemouth and smallmouth bass in the reservoir indicate an insufficient prey base. FWS has expressed a concern that bass production is likely limited by reservoir drawdowns in the early spring (pers. comm., Rasmussen, 2002).

An abundant brown bullhead population occurs in the reservoir, with an average size of 8 to 10 inches and some examples up to 18 inches. While this species occurs throughout the reservoir, most of the population occurs in the shallow upper end of the reservoir and in the Bear Creek Arm. The population of brown bullhead appears to be overpopulated and stunted (ODFW 1996).

Black crappies were illegally introduced into the Prineville Reservoir in the late 1980s and surveys indicate that they are successfully breeding. Black crappies grow slowly in the reservoir and rarely exceed 8 inches. Over 7,000 black crappies were harvested from the reservoir during 1994. Table 3.5-1 indicates the harvest of gamefish in Prineville Reservoir from April through October 1994.

Table 3.5-1: Estimated harvest of game fish at Prineville Reservoir from April through October 1994.

	Brown Bullhead	Largemouth Bass	Smallmouth Bass	Rainbow Trout	Black Crappie
April	1,038	0	0	3,881	0
May	4,713	20	159	4,701	278
June	6,250	26	53	2,295	868
July	7,371	109	267	1,790	3,553
August	8,258	0	812	1,942	1,248
September	4,475	87	394	2,414	1,221
October	17	0	3	627	16
Total	32,122	242	1,688	17,650	7,184

Source: ODFW 1996.

Nongame species dominate the fish population in Prineville Reservoir. Gillnet sampling indicates that 90-95 percent of the population is nongame species. The numbers of nongame species are likely to exert a major influence on food resources and the viability of game species. Suckers and chiselmouth are the most abundant species, comprising over 70 percent of samples from 1962 through 1980 (ODFW 1996).

Zooplankton densities are relatively low in the reservoir due to the poor phytoplankton production. Zooplankton, which feed upon phytoplankton, are the major food item for juvenile fish, rainbow trout during the spring, and black crappie. Low levels of zooplankton in the reservoir suggest that there is intense competition for limited food by rainbow trout, black crappie, and juvenile bass. As the black crappie population increases, competition for food would likely increase (ODFW 1996). In 2001, ODFW noted a spring die-off of a wide size range of crappie that they attributed to Chronic Wasting Disease or starvation.

ODFW and Reclamation have cooperated on some projects to improve bass habitat in the reservoir, including the placement of about 225 juniper trees in the cove at Sanford Creek and along the shore upstream of the cove. Follow-up electroshock surveys indicated that crappie and bass used the site.

For the past 3 years (1999-2001), ODFW and the Oregon Bass and Panfish Club have cooperated to capture and transport black crappie from Prineville Reservoir to Haystack Reservoir over the Memorial Day weekend. The result has been an average of about 4,000 5- to 8-inch crappie removed from Prineville Reservoir. ODFW monitors fish populations using gill nets in Prineville Reservoir about every 3 to 4 years, mostly to evaluate the trout stocking program. Electrofishing is used to sample the warm water fishery more sporadically (pers. comm., B. Hodgson, 2002).

Downstream Crooked River

The cold water discharge from Bowman Dam has created a tailrace fishery through the Chimney Rock section (to river mile [RM] 57). Summer water temperatures in this section average 47° F to 50° F with a maximum 54° F while winter temperatures average 37° F to 40° F with a minimum of 32° F. Water released from the dam rarely exceeds 54° F (ODFW 1996). Cold water releases maintain good trout populations for a 12-mile reach below the dam to about the Crooked River Feed Canal diversion. Irrigation withdraws and increased water temperatures provide substantially less productive trout habitat from the Crooked River Feed Canal diversion (RM 57) to Highway 97 (RM 18). Because of high turbidity in the reservoir, the Crooked River below the dam is turbid until about RM 18 at Highway 97 where spring inflow contributes clearer water. High volume spill events can cause nitrogen supersaturation downstream of Bowman Dam. In April 1989, 85 percent of rainbow trout sampled between Bowman Dam to Prineville exhibited gas bubble disease. Nitrogen supersaturation below the dam was as high as 109 percent; one month later, saturation levels were still 108 percent at 0.5, 3, and 5 miles below Bowman Dam. ODFW testing and analysis in 1993 concluded that supersaturation was only a problem at flows above 3,000 cfs that extended for long periods. ODFW considers supersaturation below the dam to be an infrequent, localized, and short-term problem (pers. comm., B. Hodgson, 2001).

The Crooked River Chimney Rock section supports a mix of native redband trout, hatchery rainbow trout, and mountain whitefish. Hatchery fish have not been stocked below the dam since 1975, but they emigrate from the reservoir through an unscreened outlet. Small amounts of smallmouth and largemouth bass, brown bullhead, and nongame fish also occur in the river below the dam. Current angling regulations from Bowman Dam to Lake Billy Chinook are a 5 trout per day limit, 6-inch minimum with no more than one fish over 20 inches, with bait and barbed hooks allowed during the regular trout season from late April to the end of October. Since 1988, the lower Crooked River has been open to fishing in winter from November 1 to late April for catch-and-release only with barbless flies and no lures or bait.

Rainbow trout abundance has seen healthy increases since 1989. Abundance was estimated at 826 trout per mile in 1989, 2,289 trout per mile in 1993, 8,228 trout per mile in 1994, and 6,098 trout per mile in 1995. The increase may be a response to increased winter flows from 10 cfs in 1989 to flows from 30 to 75 cfs from 1989 to 1995 (ODFW 1996).

3.5.1.2 Wildlife

When Prineville Reservoir was established, wildlife habitat quality was considered poor due to overgrazing of the region (Reclamation 1992). Gamebird populations were at low to moderate levels and were comprised of a few migrating duck species, California and mountain quail (*Callipepla californica* and *Oreortyx pictus*), and a remnant population of Great Basin Canada Geese (*Branta canadensis*). Duck and geese use Prineville Reservoir as a wintering site. Nongame birds included songbirds, shorebirds, and raptors, many of which still occur along the reservoir. Mule deer (*Odocoileus hemionus*) populations were also small but increased slightly around the reservoir during winter months.

After the reservoir was built, Reclamation entered into an agreement in 1962 with ODFW for management of the upper reservoir area. ODFW manages this area as the Prineville Reservoir SWA. When the reservoir is full, the SWA spans 2,230 acres of terrestrial land and 930 acres of aquatic habitats.

The SWA is managed primarily for waterfowl, upland game, and big game populations (Reclamation 1992). Land management in this area has focused on increasing habitat for these game species. A few species introductions have been carried out under these management goals. Chukar (*Alectoris chukar*) and ring-necked pheasant (*Phasianus colchicus*) have been introduced with limited success due to marginal habitat quantity and quality (Reclamation 1992). Nesting and foraging habitat improvements for game species have been successful, as indicated by population increases for many game species (pers. comm., Ferry, 2001).

Birds

Waterfowl have benefited from the establishment of Prineville Reservoir through an increase in available aquatic habitat (Reclamation 1992). Ducks and geese use the reservoir and SWA for nesting, brooding, and feeding. The upper end of the SWA has become an important nesting area for local waterfowl (pers. comm., Ferry, 2000). Canada goose nesting platforms have been maintained by the ODFW and have led to an increase in nesting populations (Reclamation 1992). Juniper Bass, located along the northern shoreline, has become an important grazing area for geese (pers. comm., Ferry, 2001). Canada goose brood counts performed by ODFW estimated that 69 young were reared on Prineville Reservoir during the 2000 season. Crook County waterfowl surveys estimated over 5,700 birds in the county during the winter of 2001 (pers. comm., Ferry, 2001). Other waterfowl species observed or likely include western grebe (*Aechmophorus occidentalis*), mallard (*Anas platyrhynchos*), northern pintail (*Anas acuta*), American wigeon (*Anas americana*), northern shoveler (*Anas clypeata*), blue-winged teal (*Anas discors*), green-winged teal (*Anas crecca*), cinnamon teal (*Anas cyanoptera*), canvasback (*Aythya valisineria*), redhead (*Aythya americana*), ring-necked duck (*Aythya collaris*), greater scaup (*Aythya marila*), lesser scaup (*Aythya affinis*), common goldeneye (*Bucephala clangula*), bufflehead (*Bucephala albeola*), common merganser (*Mergus merganser*), hooded merganser (*Lophodytes cucullatus*), ruddy duck (*Oxyura jamaicensis*), and American coot (*Fulica americana*).

Shorebirds and wading birds are known to use the RMP study area, especially during migration periods.

Due to concerns over declining shorebirds and available habitat, especially during migration, FWS has recently developed an Intermountain West Regional Shorebird Management Plan (Oring et al. 2001). As throughout the Intermountain West, shorebird migration sites in eastern Oregon are becoming increasingly concentrated and important as habitat is lost or degraded. High quality, freshwater sites are identified in the plan as important and as a declining habitat type utilized by migrating shorebirds in this

region (Oring et al. 2001). Shorebirds and wading birds known or likely to use the RMP study area include great blue heron (*Ardea herodias*), greater sandhill crane (*Grus canadensis tabida*), long-billed curlew (*Numenius americanus*), and killdeer (*Charadrius vociferus*).

Gamebird species are a priority for management in the SWA. Chukar, mourning dove (*Zenaida macroura*), ring-necked pheasant, grouse (order *Galliformes*), and quail (order *Galliformes*) are among the species present in the RMP study area.

California quail (*Callipepla californica*), known locally as valley quail, have been observed in the RMP study area (pers. comm., Soules, 2000). This species uses a variety of habitats including open sagebrush areas (Csuti et al. 1997). It is rarely found farther than 1,200 feet from a water source (Csuti et al. 1997). ODFW reports that California quail are common at the eastern end of Prineville Reservoir, especially in high quality riparian habitats (pers. comm., Ferry, 2001). Current populations of this species appear to be stable compared to 1990 population levels (pers. comm., Ferry, 2001).

Osprey (*Pandion haliaetus*) utilize the reservoir for foraging during the spring and summer (Reclamation 1992). This species is a fish eater and forages in the reservoir and Crooked River. ODFW expects that this species could be nesting in the area but have not confirmed any nest sites. Suitable nesting habitat may occur along the free-flowing sections of the Crooked River, where large trees are located in riparian areas and fish populations are higher.

Golden eagles (*Aquila chrysaetos*) and prairie falcons have been observed nesting around the reservoir (pers. comm., Ferry, 2000). Golden eagles use open habitats for foraging and use cliff ledges for nesting (Csuti et al. 1997). Prey species are mostly small mammals, though eagles are also known to eat larger game animals, birds, and reptiles (Csuti et al. 1997). Golden eagles are granted special protection under the Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668-668d, 54 Stat. 250), under which they are protected from persecution and disturbances.

Many other types of birds utilize the RMP study area. The most likely common species include belted kingfisher (*Ceryle alcyon*), downy woodpecker (*Picoides pubescens*), hairy woodpecker (*Picoides villosus*), northern flicker (*Colaptes auratus*), northern shrike (*Lanius excubitor*), Steller's jay (*Cyanocitta stelleri*), western scrub-jay (*Aphelocoma californica*), black-billed magpie (*Pica hudsonia*), tree swallow (*Tachycineta bicolor*), bank swallow (*Riparia riparia*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), horned lark (*Eremophila alpestris*), red-breasted nuthatch (*Sitta canadensis*), canyon wren (*Catherpes mexicanus*), mountain bluebird (*Sialia sialis*), American robin (*Turdus migratorius*), European starling (*Sturnus vulgaris*), song sparrow (*Melospiza melodia*), white-crowned sparrow (*Zonotrichia leucophrys*), dark-eyed junco (*Junco hyemalis*), red-winged blackbird (*Agelaius phoeniceus*), western meadowlark (*Sturnella neglecta*), Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Carpodacus mexicanus*), American goldfinch (*Carduelis tristis*), and house sparrow (*Passer domesticus*). Rare songbirds, such as tricolored blackbirds (*Agelaius tricolor*), willow flycatchers (*Empidonax trailii*), and loggerhead shrikes (*Lanius ludovicianus*), as well as woodpeckers (Family: *Picidae*), such as the Lewis's woodpecker (*Melanerpes lewis*), use the habitats of the RMP study area. Ravens also nest in the RMP study area (pers. comm., Ferry, 2001). Tricolored blackbirds are discussed in Section 3.6 due to their conservation status. The remaining rare songbirds are discussed under the rare and sensitive species section below (Section 3.5.1.3).

Migratory Birds

On January 10, 2001, President Bill Clinton signed an Executive Order mandating that all Federal agencies cooperate with the FWS to increase awareness and protection of the nation's migratory bird resources. Each agency is supposed to have developed a Memorandum of Understanding (MOU) with FWS stating how it intends to cooperate. Reclamation has recently finalized an MOU with FWS, which includes provisions for analyzing Reclamation's effect to migratory birds. Most birds in North America are considered migratory under the Federal Migratory Bird Treaty Act. The general bird species of the Prineville RMP study area are described in the above narrative.

Amphibians and Reptiles

Many amphibians and reptiles use the RMP study area, but the presence of these species has not been well documented. Species suspected to occur in the vicinity include the northern sagebrush lizard (*Sceloporus graciosus*) and western toad (*Bufo boreas*), which are discussed in the rare and sensitive species section (Section 3.5.1.3), and the Oregon spotted frog (*Rana pretiosa*), which is treated in Section 3.6 due to its Federal and State status. Common amphibians and reptiles found in the area include gopher snake (*Pituophis catenifer*), common garter snake (*Thamnophis sirtalis*), rattlesnake (*Crotalis viridis*), and fence lizard (*Sceloporus occidentalis*).

Mammals

The RMP study area may provide habitat for a number of bat species: Townsend's big-eared bat (*Corynorhinus townsendi*), small-footed myotis (*Myotis cilolabrum*), long-eared myotis (*Myotis evotis*), and yuma myotis (*Myotis yumanensis*) (FWS 2000a). These species are discussed under rare and sensitive species in Section 3.5.1.3.

Deer population management is a priority for the SWA, especially during winter when deer concentrate in the area. Mule deer are mainly confined to open woodlands and isolated mountain ranges on the east side of the Cascades (Csuti et al. 1997). In the winter, mule deer descend to lower valleys, which are often occupied by human development. In the SWA, winter management includes closing the western end of the North Side Primitive Road from November 15 through April 15, and the eastern end from December 15 through March 15. This staggered road closure was established to allow for recreational access to the eastern end for a longer period and is not optimal for deer management, as this area gets heavy ORV use (pers. comm., Ferry, 2002). Year-round management for deer incorporates maintaining fencing around the entire SWA, which aids in regulating hunting and grazing impacts, and habitat management, such as vegetation restoration and noxious weed control. Neighboring BLM land is managed for deer through juniper thinning, which increases winter forage (pers. comm., Ferry, 2000). The SWA is designated as critical deer winter range by the ODFW, with seasonal use increasing significantly depending on winter severity. Winter mule deer numbers for the SWA have increased from between 50 to 75 animals in the 1960s to between 300 and 500 animals in 1990 (Reclamation 1992). While deer population estimates are not currently estimated for the RMP study area directly, they are kept for the Maury and Ochoco Wildlife Management Units (WMUs), which lie to either side of the SWA. Both WMUs combined held over 24,000 deer in year 2000 (pers. comm., Ferry, 2000). Within the RMP study area, the Bear Creek and Roberts Bay areas are known to be important deer wintering sites that are outside of the SWA (pers. comm., Ferry, 2000). According to SWA biologists, population numbers for deer in the SWA are currently below their general expectations (pers. comm., Ferry, 2000). Deer numbers have increased, but seasonal use patterns remain similar to when the 1992 RMP was

developed (pers. comm., Ferry, 2001). Development of the surrounding area has reduced forage and shelter for resident and migratory deer using the RMP study area (pers. comm., Ferry 2001). Livestock grazing has reduced the value of some mule deer winter habitat on lands outside the SWA (pers. comm., Rasmussen, 2002).

Elk (*Cervus elaphus*) are not a formal ODFW managed species at Prineville Reservoir, but their winter use of the RMP study area has been increasing (pers. comm., Ferry, 2000). It is estimated that 100 to 300 elk use the SWA and adjacent lands, a steady increase since 1990 (pers. comm., Ferry, 2001). ODFW estimates that 6,500 elk use the Ochoco and Maury WMUs outside of the SWA. Prineville SWA herd numbers vary, with regular movement along and between the north and south sides of the reservoir (pers. comm., Ferry, 2001). Cross-reservoir movement does occur, primarily during late fall and winter when the reservoir waters are low (pers. comm., Ferry, 2001). Use of lands around the reservoir decreases during spring and summer months, especially on the north side of the reservoir. Winter habitat use by elk is of primary concern because this is when they concentrate for foraging (Csuti et al. 1997). In addition, there is concern over habitat loss from development and recreation use in the area (pers. comm., Ferry, 2001). In cooperation with the BLM and in reaction to increased use of the SWA by elk, ODFW is in the process of designating the eastern portion of the SWA on both sides of the reservoir as an elk travel corridor and winter range.

Pronghorn antelope (*Antilocapra americana*) have been observed within the RMP study area by ODFW staff (pers. comm., Ferry, 2000). This species uses open to woodland habitats and tends to range within 5 miles of water (Csuti et al. 1997; Ingles 1965). Pronghorn forage includes sagebrush and a variety of grasses (Ingles 1965).

Cougar (*Felis concolor*) have been observed within the area by ODFW staff and others. Cougar reports in the area have increased over the last decade. Over the past 3 years, ODFW has had an increasing number of sighting reports by landowners along the south side of the reservoir, as well as along the north shore between the dam and the State Park Campground (pers. comm., Ferry, 2001). ODFW estimates that between two and eight cougars reside in the RMP study area, depending on season and reproductive status (pers. comm., Ferry, 2001). The cougar population is likely to fluctuate with deer and elk populations, with the largest number using the area in the winter when prey populations peak.

Nongame furbearers observed at Prineville Reservoir include bobcat (*Lynx rufus*), beaver (*Castor canadensis*), mink (*Mustela vison*), and coyote (*Canis latrans*) (Reclamation 1992; pers. comm., Ferry, 2001). These species are more commonly observed in the SWA in recent years than in the 1960s (Reclamation 1992). Additional nongame mammals observed in the RMP study area include badger (*Taxidea taxus*), muskrat (*Ondatra zibethica*), raccoon (*Procyon lotor*), porcupine (*Erethizon dorsatum*), striped and spotted skunk (*Mephitis mephitis* and *Spilogale gracilis*, respectively), weasel (*Mustela* sp.), and river otter (*Lutra canadensis*) (Reclamation 1992; pers. comm., Ferry, 2001). Pygmy rabbit (*Sylvilagus idahoensis*) and Canada lynx (*Lynx canadensis*) are, due to their Federal sensitive status rankings, described in Section 3.6.

3.5.1.3 Rare and Sensitive Species

There are a number of sensitive and rare species that potentially occur in the reservoir area (see Table 3.5-2). Rare and sensitive species include those listed as Federal Species of Concern that also have Oregon State status or that have an Oregon Natural Heritage Program (ONHP) rank of 3 or 4.

Table 3.5-2: Rare and sensitive species occurring or potentially occurring in the Prineville Reservoir vicinity.

Species	FWS ¹	ODFW ²	ONHP ³
Birds (11)			
Mountain bluebird (<i>Sialia mexicana</i>)	--	SV	4
Mountain quail (<i>Oreotyx pictus</i>)	SoC	SU	4
Greater sandhill crane (<i>Grus canadensis tabida</i>)		SV	4
Western burrowing owl (<i>Athene cunicularia hypugea</i>)	SoC	SC	3
Ferruginous hawk (<i>Buteo regalis</i>)	SoC	SC	3
Swainson's hawk (<i>Buteo swainsoni</i>)	--	SV	4
Willow flycatcher (<i>Empidonax traillii adastus</i>)	SoC	SV	4
Long-billed curlew (<i>Numenius americanus</i>)	SoC	SV	4
Lewis's woodpecker (<i>Melanerpes lewis</i>)	SoC	SC	3
Loggerhead shrike (<i>Lanius boreas</i>)	--	SV	4
Amphibians and Reptiles (2)			
Western toad (<i>Bufo boreas</i>)	--	SV	3
Northern sagebrush lizard (<i>Sceloporus glacios glaciosus</i>)	SoC	--	4
Mammals (7)			
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	SoC	--	3
Small-footed myotis (<i>Myotis ciliolabrum</i>)	SoC	--	3
Long-eared myotis (<i>Myotis evotis</i>)	SoC	SU	4
Yuma Myotis (<i>Myotis yumanensis</i>)	SoC	--	4
Pallid Bat (<i>Antrozous pallidus pallidus</i>)	--	SV	3
Silver-haired Bat (<i>Lasionycteris noctivagans</i>)	SoC	SU	4

Source: FWS 2000a; ODFW 2000; ONHP 2001.

Footnotes:

¹ FWS Classification: SoC= Federal species of concern.

² ODFW Status: E= endangered; T= threatened; SC= Sensitive Critical- species for which listing as threatened or endangered is not imminent and can be avoided through protective measures; SP/R= Sensitive Peripheral/Rare- species that are on the edge of their range or that are naturally rare; SU= Sensitive Undetermined- species for which status is unclear; SV= Sensitive Vulnerable- species not believed to be threatened or endangered and listing as such can be avoided by continued or expanded protective measures.

³ ONHP Status: 1= taxa that are threatened with extinction or presumed to be extinct throughout their entire range; 2= taxa that are threatened with extirpation or presumed to be extirpated in the state of Oregon; 3= List 3- taxa for which more information is needed before status can be determined, but which may be threatened or endangered in Oregon or throughout their range; 4= List 4- taxa which are of conservation concern but are not currently threatened or endangered.

Birds

Mountain bluebird (*Sialia mexicana*) is a species of open forests and woodlands. They are found in coniferous juniper woodlands, as well as along meadow edges, clearcuts, and recently burned areas in higher elevations (Csuti et al. 1997). This cavity-nesting species eats mostly insects and covers territories between 5 to 15 acres around nest sites (Csuti et al. 1997). Though there is a mix of estimates for this species across different regions and habitats, they are thought to be increasing in Oregon (Sauer et al. 2001). This species has been observed in the Bear Creek drainage and in the SWA (pers. comm., Jennifer Seavey, Wildlife Biologist, EDAW Inc. October 17, 2000).

Mountain quail (*Oreotyx pictus*) are generally found in open woodlands at high elevations (Csuti et al. 1997). This species has shown a decline in Oregon, especially in the eastern mountains (Csuti et al.

1997). Mountain quail are known to be present in the RMP study area, though the population status of this rare species at Prineville Reservoir is not well known (pers. comm., Ferry, 2001). This species has been sighted along Sanford Creek on the south side of Prineville Reservoir (pers. comm., Ferry, 2001). Owl Creek has been identified as potential habitat for this species. (pers. comm., Ferry, 2001). It is possible that the elevation range of mountain quail extends low enough to utilize the shoreline of the reservoir (pers. comm., Ferry, 2001). ODFW estimates that mountain quail are likely found in low number on both sides of the reservoir (pers. comm., Ferry, 2001).

Sandhill cranes are thought to have declined by over 3 percent from 1966 to 1999 in Oregon (Sauer et al. 2001). This species breeds in wet meadows and drier grasslands throughout central and southeastern Oregon (Csuti et al. 1997; Gough et al. 1998). However, the species does not breed in agricultural lands in Oregon (FWS 2000b). Nesting territories in Oregon range from 3 to 168 acres (Csuti et al. 1997). Although adequate habitat may exist, this species is not known to breed in the Prineville area.

The range for the western burrowing owl (*Athene cunicularia hypugea*) encompasses the RMP study area (Csuti et al. 1997). Burrowing owls are dependent on burrowing mammals, such as ground squirrels, for their nest sites. Many populations of these burrowing mammals are known to be declining (Partners in Flight, in press). Habitat preferences include areas of open grasslands and shrub-steppe habitat (Dechant et al. 1999a). Studies in north-central Oregon show that, while this species utilizes observation perches in habitats where vegetation is over 5 cm tall, it did not use habitats dominated by rabbitbrush (*Crysothamnus nauseosus*) or bunchgrass (Green and Anthony 1989 as cited in Dechant et al. 1999a). This species has been documented on the Crooked River National Grasslands, northwest of the town of Prineville (Marshall et al. 1996). There are no ONHP records for this species within the RMP study area.

Ferruginous hawks (*Buteo regalis*) potentially occur within the RMP study area, as their range overlaps with Prineville Reservoir (Csuti et al. 1997). However, there are no ONHP records for this species in the area. This species is known to be sensitive to prey abundance declines and nest site disturbances (Dechant et al. 1999b). The shrub-steppe and open juniper woodlands surrounding the reservoir offer suitable habitat for this species (Csuti et al. 1997). Generally, quality habitat consists of minimally grazed prairie or sagebrush shrublands with nesting shrubs and trees at least 1 meter high (Gilmer and Stewart 1983; Partners in Flight in press). Sagebrush has been highlighted by the Partners in Flight Landbird Conservation Plan as target habitat for the ferruginous hawk (Partners in Flight, in press).

According to the ONHP database, Swainson's hawks (*Buteo swainsoni*) may utilize the RMP study area. The occurrence of this species in the area has been confirmed by ODFW (pers. comm., Ferry, 2001). This species is closely associated with riparian systems in arid regions (Schlorff and Bloom 1984). Habitat management for this species includes providing open grasslands with tree patches for nesting and perching that are near cultivated areas (Dechant et al. 2001a). Prey species include insects and small mammals (Dechant et al. 2001a).

Long-billed curlew (*Numenius americanus*) may potentially occur in the RMP study area, but Prineville Reservoir is on the edge of the range of this species (Dechant et al. 2001b). They breed in open grasslands and meadows, often with interspersed shrubs (Csuti et al. 1997). This species forages on insects and vegetation in grasslands and agricultural areas (Csuti et al. 1997).

Willow flycatchers (*Empidonax traillii adastus*) are fairly abundant in willows at the edge of wetlands and riparian areas (Csuti et al. 1997). Habitat requirements of this species in eastern Oregon are dense

shrubby riparian areas interspersed with open areas (Partners in Flight, in press). This habitat exists at the upper end of the SWA, where Pacific willow (*Salix lucida* var. *caudata*) dominates the riparian area (W&H Pacific 2000).

Lewis's woodpeckers (*Melanerpes lewis*) are commonly found in oak and ponderosa pine woodlands (Csuti et al. 1997; Galen 1989). The RMP study area does not contain oak or pine woodlands, and published distribution maps show that this species does not occur in the Prineville area (W&H Pacific 2000, Csuti et al. 1997). However, this species is thought to breed in scattered locations in central Oregon (Marshall et al. 1996) and is occasionally observed around Prineville Reservoir (pers. comm., Ferry 2001). Therefore, it is uncertain if this species is breeding in the area or just foraging. This woodpecker species is very erratic and moves as forage opportunities change (Paige 1999a). Prey species consist of flying insects, fruits, and seeds (Paige 1999a).

Loggerhead shrikes (*Lanius ludovicianus*) are found throughout the late-seral sagebrush community, as large sagebrush is among its preferred nesting habitat (Poole 1992); it also nests in juniper habitat (Bartgis 1992). Both these habitats are available in the Prineville Reservoir area (W&H Pacific 2000). This shrike is known to be present year round in the RMP study area (pers. comm., Ferry 2001). Loggerhead shrike prey species can include insects, reptiles, amphibians, and small birds (Dechant et al. 1998).

Amphibians and Reptiles

The western toad (*Bufo boreas*) is a State-listed vulnerable species and a conservation concern species listed with the ONHP. The habitat requirements are broad for this species and include deserts, chaparral, grasslands, and woodlands (Csuti et al. 1997). This species has been disappearing in many areas for reasons not yet determined (Csuti et al. 1997). This species was observed in 1995 along Sanford Creek, a tributary to Prineville Reservoir (ONHP 2001). This was a breeding observation with one adult and one egg mass observed (ONHP 2001).

One reptile species of concern, the northern sagebrush lizard (*Sceloporus graciosus graciosus*), potentially occurs in the Prineville Reservoir area. This lizard is common in sagebrush habitat and juniper woodlands, such as those that surround the reservoir (Csuti et al. 1997). Therefore, although the presence of this species at Prineville Reservoir is currently unknown, they probably occur due to the presence of available habitat. This species is sensitive to the presence of western fence lizards and are not found where fence lizards have established populations (Storm and Leonard 1995). Sagebrush lizards are very wary, thus difficult to observe, so it is possible that this species occurs in areas around Prineville Reservoir where fence lizards are absent.

Mammals

The Townsend's big-eared bat (*Corynorhinus townsendi*), small-footed myotis (*Myotis cilolabrum*), long-eared myotis (*Myotis evotis*), yuma myotis (*Myotis yumanensis*), pallid bat (*Antrozous pallidus pallidus*), and silver-haired bat (*Lasionycteris noctivagans*) are all species of concern that may be found in the RMP study area. Based on published distribution accounts, the long-eared myotis, small-footed myotis, and pallid bat are the three most likely bats to occur near Prineville Reservoir (Csuti et al. 1997).

All of the above listed bats were observed near the Pelton Round Butte Hydroelectric Project northwest of Prineville (Perkins 1998). In addition, there are bat populations at Chimney Rock along the Crooked

River below Prineville Reservoir (pers. comm., Soules, 2000). Based on the regional observances of these species, it is likely that they occur around Prineville Reservoir.

3.5.2 Environmental Consequences

Wildlife may be affected from actions under all of the alternatives. These effects can be placed in two major categories – effects to habitat and disturbance to wildlife. Habitat effects include a wide array of activities that can cause vegetation removal from construction or off-road vehicle use, vegetation damage, soil compaction by humans, vehicles, or livestock, and overgrazing from livestock. Degradation or loss of vegetation would have a corresponding effect to wildlife that rely on this habitat for different functions, such as food or cover.

Disturbance effects may include any recreation activity that results in changes to wildlife behavior. An example would be increased human use of vehicle traffic in wintering big game habitat that would cause deer and elk to avoid preferred habitat and expend valuable energy during a critical life stage. Ultimately, this could lead to reduced vigor and affect deer and elk mortality and productivity. Development of new facilities and human interactions with wildlife often combine effects for a number of actions under the alternatives. The implications of actions under each alternative to wildlife are discussed below.

3.5.2.1 Alternative A - No Action: Continuation of Existing Management Practices

The limitations on vehicle access under Alternative A would reduce fish and wildlife impacts, although to a lesser degree than the Action Alternatives. In addition, Alternative A could potentially allow for new private access roads across the SWA and Reclamation lands. This would increase disturbances to wildlife, increase ORV use enforcement problems, and reduce the SWA's ability to function as a refuge for wintering deer, elk, and other wildlife. Seasonal closures on the North Side Primitive Road would continue under the existing parameters.

Habitat quality improvements due to Alternative A's sanitation actions would be the most limited compared to Alternatives B and C. Areas of heavy recreational use could experience habitat degradation, especially near such popular sites a Roberts Bay and Juniper Point, which are areas used by deer and elk.

Habitat and wildlife management across the entire study area under Alternative A would incorporate the development of a Habitat and Wildlife Management Plan. While ODFW has not developed a plan, they have developed some primary objectives that would be used to develop a plan (Appendix E). The emphasis of these objectives include:

- Protect and maintain mule deer winter range.
- Protect and enhance riparian vegetation for wildlife.
- Improve waterfowl nesting habitat
- Protect and enhance nesting and wintering habitat for threatened, endangered, and sensitive species.
- Improve quality and quantity of wetland habitat.

- Protect and enhance non-game wildlife habitat.
- Maintain and enhance native vegetation.
- Promote opportunities for wildlife viewing/enjoyment.
- Promote wildlife ethic and stewardship values.

Actions under this plan would focus on the SWA; however, they would extend when appropriate to the entire RMP study area. The development of this plan would benefit wildlife and habitats, especially those with specific management strategies outlined in the plan. The plan would be developed by ODFW in coordination with Reclamation, BLM, and OPRD. Implementation of the plan would provide for a variety of benefits to natural resources in the SWA.

Fisheries would be enhanced under Alternative A, primarily through the development of a Fisheries Management Plan. While there is a general ODFW Crooked River Basin Plan (1996) for fisheries management, there is not a specific fish/aquatic habitat management plan for Prineville Reservoir. Development of such a plan under Alternative A would provide for a consistent strategy and implementation process for fisheries management. The implementation of Alternative A would benefit EFH by development and implementation of a Fisheries Management Plan.

Fencing would be improved under Alternative A to limit livestock use of wetland, riparian, and shoreline habitats. This would be beneficial for both wildlife and habitats, evidence for which is presented below.

Livestock grazing under Alternative A would be eliminated in recreation areas, wetlands, riparian areas, and shorelines. These actions would reduce grazing impacts to sensitive habitats. It has been well established in the scientific literature that changes to the natural disturbance regime can have dramatic influences on native wildlife and habitat (Tilman 1996). Livestock grazing represents a change in the natural grazing regime that historically consisted of periodic grazing by widespread ungulate species (Milchunas et al. 1989). The scientific literature describes that livestock have negative impacts on native plant viability, cryptobiotic soil crusts, riparian corridors, mycorrhizae persistence, soil nitrogen, fire regimes, and weed invasions (Fleischner 1994; Belsky and Gelbard 2000; Belsky 1996). Recently, evidence has been published that grazing encourages the spread of Russian knapweed, the most common noxious weed in Crook County (Lejeune and Seastedt 2001) and other invasive plant species (Belsky 1996; Belsky and Gelbard 2000). In addition, grazing has been attributed with the expansion of juniper woodlands (Bedell et al. 1993). Changes in vegetation that come about through grazing are a result of contribution to the increase in nitrogen in the soil and soil disturbance. These changes in the soil allow exotic species to invade (Belsky and Gelbard 2000; Lejeune and Seastedt 2001), and limiting grazing on sensitive lands is an important step in maintaining healthy soils (Lejeune and Seastedt 2001). In addition, reducing grazing would decrease erosion and increase water infiltration on sensitive lands (Wilcox 1994). This is especially critical in riparian and wetland areas where water quality and flow are important to associated wildlife species, such as the SWA. Considering the importance of riparian habitats in arid ecosystems, livestock exclusion from these sensitive areas would be greatly beneficial (Belsky 1996).

SWA actions under Alternative A would continue the current management of the southern shoreline of Prineville Reservoir, from Roberts Bay to Long Hollow Creek, as boat-in day-use only. This would continue to minimize recreation impacts along this shoreline. These would have beneficial effects on

flora and fauna that use this area. Dispersed camping would continue to be allowed along the northern shoreline of the SWA, which would cause negative impacts on shoreline and riparian habitats from disturbance of vegetation and soil compaction.

Formalizing recreation sites under Alternative A would have generally positive effects with respect to wildlife and habitats; designating campsites is preferential over dispersed camping. Although human disturbances would still remain with designated campsites, the impacts would be more focused and contained with designated campsites. Maintaining use of the north shore for dispersed camping would continue the adverse effects to vegetation and wildlife habitat from trampling and vegetation loss. For instance, the existing camping at the confluence of the reservoir and Owl Creek would likely continue without some control. Mountain quail, a species of reported decline in eastern Oregon (Csuti et al. 1997), are suspected to occur in this area and may be impacted by recreational activity. Many species, like willow flycatcher and California quail, use the willow-dominated riparian habitats in the upper, north shore of the reservoir; dispersed camping along the northern shoreline could also impact these species. Designating campsite perimeters at Owl Creek, Juniper Bass, Cattle Guard, and Old Field would reduce some impacts of random recreation use, but undefined camping at Combs Flat would continue to affect upland, riparian, and shoreline habitat. Increased boating activity under all Alternatives may increase shoreline erosion, but this would be a relatively minor impact (see Section 3.2, Soils).

Expanding the State Park Campground and developing the Antelope Creek Day Use Area would remove about 25 acres of upland juniper and shrub-steppe habitat used by a variety of wildlife species. Continued loss of vegetation in the region outside of protected areas is the primary reason why much of Reclamation land at Prineville Reservoir has been classified as critical deer winter range. Removal of habitat, though minimized through BMPs, would reduce upland habitat and forage for wildlife. Migratory birds would benefit from all actions that reduce impacts to upland, wetland, and riparian habitat.

Improvements to the County boat ramp and the boat ramp at the Prineville Reservoir Resort would not affect vegetation or wildlife. Improvements of the Powder House Cove boat ramp would likely include the removal of some upland vegetation, which would be offset from the benefits of a more controlled parking facility. The BMPs listed in Chapter 5 include provisions for construction timing of boat ramps for the protection of aquatic resources. Maintaining the existing use patterns at Bear Creek would continue to provide benefits to the riparian corridor and wildlife that use this more remote part of Prineville Reservoir. Maintenance of existing camping and vehicle use at Juniper Point and Roberts Bay West would continue to degrade habitat and adversely affect wildlife. Formalizing recreation sites at Roberts Bay East would greatly reduce the effects of recreation-related disturbance factors to vegetation and wildlife. Construction would disturb about 20 acres of land at Roberts Bay. Most of this is disturbed from current recreation use patterns.

Mitigation and Residual Impacts [Alternative A]

No mitigation measures are proposed for Alternative A because the actions under this alternative do not have substantial adverse impacts on fish and wildlife in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative A]

The continued regional population growth and expected increases in recreation use of Prineville Reservoir would have adverse effects to vegetation from disturbance and trampling of vegetation, with corresponding effects on wildlife. While the formalization of campsites and efforts to control unauthorized use of Reclamation lands would reduce these impacts, cumulative adverse effects to vegetation and wildlife from increasing dispersed recreation use would not be eliminated.

3.5.2.2 Alternative B: Natural Resource/Dispersed Recreation Balance

Effects to wildlife from Alternative B would be similar to Alternative A, except where noted. Sanitation actions would be increased at heavily used recreation areas, which would improve habitat quality at recreational sites.

Habitat and wildlife management under Alternative B would be similar to Alternative A and may benefit wildlife species and their habitats. In addition, Alternative B includes finalizing the IPM Plan, which would provide for more comprehensive weed control that would benefit wildlife habitat.

Fisheries management under Alternative B would benefit fish populations through cooperative enhancement project actions undertaken with ODFW and other partners, but Alternative B does not include the provision of developing a Fisheries Management Plan for Prineville Reservoir, as included in both Alternatives A and C; the lack of such a plan would provide lesser benefits to fish and EFH than those provided by Alternatives A and C. Fish monitoring in the reservoir would be conducted at periodic intervals, which should provide useful management information for ODFW. Habitat enhancement projects would also benefit EFH.

Fencing would be improved under Alternative B and would enhance wildlife passage and resource conflicts as funding allows. This would be beneficial for wildlife, as fencing impedes habitat connectivity for many species, especially large and medium sized mammals. These actions would further reduce habitat impacts caused by livestock grazing and ORV use. Livestock grazing effects would be the same as described under Alternative A.

Under Alternative B, enhancement and restoration efforts in the SWA would continue on an ad hoc basis without the benefit of a comprehensive management plan. While periodic management actions in the SWA would provide benefits to habitat and wildlife, these resources would be better served with a management plan with clear objectives, goals, actions, and monitoring efforts. Continued dispersed camping on the north shore of the SWA would continue to adversely affect vegetation from trampling and general disturbance, with corresponding adverse effects to wildlife that use these habitats. Benefits to migratory birds would be less than those described under Alternative A.

About 13 acres of native vegetation would be removed for the State Park Expansion Area and the Antelope Creek Day Use Area. This is about half the disturbance area of either Alternative A or C. Removal of this vegetation would have a corresponding effect to wildlife such as songbirds, small mammals, and wintering deer. Construction of facilities at Roberts Bay would have minimal effects because of the current disturbed nature of the habitat.

Compared to Alternative A, which designates campsites in the SWA (except Combs Flat), Alternative B would continue the current uncontrolled use patterns, which would continue to degrade upland and riparian habitat and adversely affect fish and wildlife. Impacts from improvements to the north shore

recreation facilities under Alternative B would be the same as those described under Alternative A. On the south shore of the Reservoir more formal recreation facilities at Juniper Point, Roberts Bay East and Roberts Bay West would reduce the current level of habitat disturbance from uncontrolled camping and vehicle use.

Mitigation and Residual Impacts [Alternative B]

No mitigation measures are proposed for Alternative B because the actions under this alternative do not have substantial adverse impacts on fish and wildlife in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative B]

Cumulative impacts from Alternative B would be slightly less than those described under Alternative A. Formal campgrounds on the south shore would reduce effects of increased visitors while continued dispersed camping in the SWA would affect habitat and disturb wildlife. Dispersed recreation impacts would continue to increase in the SWA, however.

3.5.2.3 Alternative C: Natural Resource Protection/Formal Recreation Emphasis (Preferred Alternative)

Alternative C would provide for all the benefits of vehicle access limitations of Alternatives A and B. In addition, public awareness improvements and limitations on new road development would further reduce ORV impacts. Alternative C provides for actions that would likely result in the greatest reductions in ORV use.

Sanitation actions under Alternative C would improve habitat quality around recreational areas, including water-based activities. Water quality would benefit under this alternative, especially improving conditions for wetland and aquatic species. The implementation of Alternative C would benefit EFH by development and implementation of a Fisheries Management Plan with associated aquatic habitat enhancement projects and periodic monitoring of fish populations.

Alternative C would provide the greatest benefits for prairie falcons and golden eagles at the reservoir among the alternatives. Monitoring efforts under Alternative C would target golden eagle and prairie falcon nest sites and would provide benefits to these species from data collection efforts and would assist adaptive and proactive management. This monitoring plan would be developed in coordination with ODFW and BLM. Development of a Habitat and Wildlife Management Plan for the entire RMP study area would include components for raptors.

Habitat and wildlife management actions and their effects would be similar to those under Alternative B, with the added benefit of additional coordination on vegetation management with BLM and Crook County. Fisheries management actions proposed under Alternative C offer benefits similar to those described under Alternative A.

Fire prevention and pre-suppression would receive more focus under Alternative C than under other alternatives. Cooperation with local counties and BLM would address fire management and planning. In addition, fire prevention information would be posted at recreation sites.

Fencing actions under Alternative C would have the most positive impacts with regard to limiting livestock, ORV, and other activity impacts to wildlife and associated habitats. Wildlife passage design would enhance connectivity of habitat for wild ungulate species.

Alternative C would provide greater benefits to natural resources from a more thorough management of grazing compared to the other alternatives. Specific areas are recommended for eliminating livestock use that would benefit sensitive habitats including wetlands, riparian, and recreation areas. Cryptobiotic crusts would be more precisely mapped and managed. Native species viability, cryptobiotic soils, and native wildlife habitat have all been shown to be negatively affected by livestock grazing (Belsky and Gelbard 2000). Migratory birds would realize the greatest benefit under Alternative C resulting from reductions in human disturbance and increased habitat programs.

SWA management actions would be similar to those described under Alternative A, with an increased emphasis on restoration of areas disturbed by ORV use. A number of actions under Alternative C would reduce the amount of disturbance to vegetation from random patterns of recreation use. Dispersed camping has greater impacts than designated campsites, as dispersed sites are more spread over the landscape and cause more widespread disturbances (Cole and Knight 1991). Dispersed camping has been shown to cause negative impacts on vegetation and wildlife (Knight and Gutzwiller 1995). Camping is among the recreational uses that can impact wildlife habitat through tree damage and loss (McEwen et al. 1996), ground cover vegetation loss (Leung and Marion 2000), tree root exposure (Boyers et al. 2000), soil exposure (Cole 1986), and reduced woody debris (Boyers et al. 2000).

Camping in the SWA would be limited to designated sites only; no dispersed camping would be allowed. This would greatly reduce impacts to vegetation and wildlife from uncontrolled use in the SWA. Combs Flat would become a day use area under Alternative C, which has been heavily disturbed from current recreation use patterns. Restoration efforts in the SWA would have a better chance of success with this scenario of designated campsites.

Alternative C would have the greatest impact among the alternatives to vegetation and wildlife on the north shore of the reservoir. About 26 acres of native habitat would be removed from the State Park Expansion Area and construction of the Antelope Creek Day Use Area. Removal of this habitat and the use of the area by humans would have detrimental effects to songbirds, small mammals, wintering deer, and other wildlife that use this habitat.

Impacts from recreation development on the south shore would be similar to Alternative B, with some exceptions. The increased development at Powder House Cove would eliminate additional juniper woodland and shrub-steppe habitat, which would adversely affect wildlife that use these habitats. The increased level of development under Alternative C at Roberts Bay would formalize campsites and reduce the adverse effects of dispersed camping and driving under the present conditions. If winter use of Roberts Bay is increased because of the addition of cabins and other amenities, there may be additional disturbance to wintering deer.

Mitigation and Residual Impacts [Alternative C]

No mitigation measures are proposed for Alternative C because the actions under this alternative do not have substantial adverse impacts on fish and wildlife in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative C]

Cumulative impacts associated with Alternative C would be slightly less than those described under Alternative B because of the increased provisions for formal, designated campsites. These provisions would reduce but not eliminate impacts from increased recreation use.

3.6 Threatened, Endangered, and Sensitive (TES) Species

3.6.1 Affected Environment

There are several species of flora and fauna with Federal status designations occurring or potentially occurring within the region surrounding Prineville Reservoir (Table 3.6-1). Special status species included in this review are Federally endangered, threatened, candidate species, and those species with an Oregon Natural Heritage Program (ONHP) ranking of 1 or 2. While candidate species are not protected under the ESA, Reclamation assumes candidate species may be listed at a later date and manages them as if they were listed under the ESA. Species presence data from State and Federal sources, such as FWS, Reclamation, ODFW, ONHP, and OPRD, have been reviewed. A total of 12 TES species (eight wildlife, one fish, and three plant species) are known or likely to occur within the Prineville Reservoir area. Federal protection is afforded to those species listed or proposed as threatened or endangered by FWS under the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884). ESA-related correspondence is included in Appendix F.

3.6.1.1 Wildlife

Of the eight wildlife species, two are Federally listed as Threatened or Endangered (the bald eagle and Canada lynx); one species is a Federal Candidate species (Oregon spotted frog); one is state endangered, and the remaining species are Species of Concern (Table 3.6-1). Federal status, ONHP rank, and Oregon State status are presented in Table 3.6-1. ONHP ranks of 1 or 2 indicate that a species is threatened with extinction either throughout its entire range (rank 1) or within the state of Oregon only (rank 2). Candidate and Species of Concern with 1 and 2 ONHP rankings are included in this section due to the possibility of Federal listing of these species in the near future. Information on these species is presented below.

The lynx, a Federally threatened species, is not likely to reside in the area due to a lack of appropriate boreal forest habitat. However, it may utilize the RMP study area as corridor habitat for travel between more appropriate habitats (pers. comm., Ferry, 2000). Habitat for this species in the Pacific Northwest is generally restricted to higher elevations of the Cascade Range (Koehler and Aubry 1994). Lynx require a mixture of forest types: early successional forest for foraging and late successional forest for dwelling. FWS has concluded that a self-sustaining resident population does not exist in Oregon but that individual animals are present (63 Federal Register [FR] 36994-37013, July 8, 1998). Though recently rediscovered in the Northern Cascades of Oregon, the lynx is naturally a rare species in Oregon as this region is the southern extent of its distribution (Csuti et al. 1997; Roach 1999).

The ONHP database includes one observation of the Oregon spotted frog (1977) in Bear Creek, which is located at the southern tip of Prineville Reservoir (ONHP 2001). It is possible that this species does occur on other portions of Reclamation land at Prineville Reservoir, however. This species requires cool, permanent, quiet water, such as a spring, pond, lake, or slow stream with abundant associated vegetation and a bottom layer of decaying vegetation (Corkran and Thoms 1996; Leonard et al. 1993; Csuti et al. 1997). Spotted frogs do not occupy ponds with bullfrogs (*Rana catesbeiana*) or predatory fish, such as bass (*Micropterus* spp.) (Corkran and Thoms 1996). The presence of bass in Prineville Reservoir, especially near the mouths of tributaries (Reclamation 1992), would preclude the occurrence of spotted frogs in the reservoir itself; however, the frogs could exist farther up tributary creeks.

Table 3.6-1: Threatened, endangered, and sensitive species that are known to or potentially occur in the Prineville Reservoir vicinity.

Species	FWS ¹	ODFW ²	ONHP ³
Amphibians (1)			
Oregon spotted frog (<i>Rana pretiosa</i>) ⁴	C	SC	3
Birds (4)			
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	T	T	1
Tricolored Blackbird (<i>Agelaius tricolor</i>)	SoC	SP/R	2
Greater Sage Grouse (<i>Centrocercus urophasianus</i>)	SoC	--	2
Peregrine falcon (<i>Falco peregrinus anatum</i>)	--	E	1
Mammals (3)			
Canada Lynx (<i>Felis lynx Canadensis</i>)	T	--	2
Pygmy Rabbit (<i>Brachylagus idahoensis</i>)	SoC	SV	2
Spotted Bat (<i>Euderma maculatum</i>)	SoC	--	2
Fish (1)			
Interior Redband Trout (<i>Oncorhynchus mykiss</i>)	SoC	SV	2
Plants (3)			
Estes' artemisia (<i>Artemisia ludoviciana</i> ssp. <i>estesii</i>)	SoC	--	1
Peck's Long-bearded Mariposa-lily (<i>Calochortus longebarbatus</i> var. <i>peckii</i>)	SoC	--	1
Columbia Cress (<i>Rorippa columbiae</i>)	SoC	--	1

Source: FWS 2000a, ODFW 2000, ONHP 2001.

Footnotes:

- ¹ FWS Classification: E= Listed as Endangered; T= Listed as Threatened; P= Proposed for Federal listing; C= Candidate for Federal listing; SoC= Federal species of concern.
- ² ODFW Status: E= endangered; T= threatened; SC= Sensitive Critical- species for which listing as threatened or endangered is not imminent and can be avoided through protective measures; SP/R= Sensitive Peripheral/Rare- species that are on the edge of their range or that are naturally rare; SU= Sensitive Undetermined- species for which status is unclear; SV= State vulnerable- species for which listing as threatened or endangered is not believed to be imminent and can be avoided through continued or expanded use of adequate protection measures and monitoring.
- ³ ONHP Status: 1= List 1- taxa threatened with extinction or presumed extinct throughout their range; 3= species for which information is needed before status can be determined but which may be threatened or endangered in Oregon or throughout their range; 4= List 2- taxa threatened with extirpation or presumed extinct from the state of Oregon.
- ⁴ FWS lists the Oregon spotted frog as potentially occurring within Prineville Reservoir. The Oregon spotted frog, a Federal candidate species, was split into two species in 1996: the Oregon spotted frog (*R. pretiosa*) and the Columbia spotted frog (*R. luteiventris*) (Green et al. 1996). It is the Oregon spotted frog that could potentially occur near Prineville Reservoir (Csuti et al. 1997).

The bald eagle, a Federally threatened species, is the most easily observable TES wildlife species near Prineville reservoir. The RMP study area supports resident, migrant, and wintering bald eagles. The bald eagle has met recovery goals in many areas and is currently proposed for delisting (64 Federal Register 36453-36464, July 6, 1999). ODFW conducts a mid-winter count of bald eagles at Prineville Reservoir and Oregon State University, and OPRD staff cooperate to monitor the eagle nest on BLM property above Prineville Reservoir (pers. comm., Isaacs, 2002)

The bald eagle utilizes a variety of habitats over its life history stages, from fresh and saltwater shorelines to mature coniferous forest. Breeding habitat is predominately composed of mature

coniferous forest, with an uneven vertical structure and old-growth characteristics (Rodrick and Milner 1996). These breeding areas are located near large bodies of water, used for foraging, and have low human disturbance levels (Rodrick and Milner 1996). Like many raptor species, bald eagles utilize the same nest site over many years (Ehrlich et al. 1988). A pair of resident eagles has been documented to maintain a nesting territory to the south-southwest of Juniper Point, on BLM property adjacent to Reclamation-owned lands (ONHP 2001). This nest site is known to be a successful breeding site (ONHP 2001). The presence of this one breeding territory at Prineville Reservoir fulfills the Pacific states' recovery goal of one territory for this area. Current management needs have been identified as annual territory monitoring to ensure the persistence and success of this nest site (FWS 1986). A second bald eagle nest was located in 2002 on BLM property adjacent to the SWA. ODFW, BLM, and Reclamation are coordinating efforts to determine the status of the nest (i.e., is it an active nest?) and will develop a specific management plan as needed.

Winter roost sites represent another component of eagle habitat needs. During winter months, eagles concentrate in areas of high prey availability and low disturbance (Keister and Anthony 1983; Rodrick and Milner 1996). Winter nighttime roosts are composed of mature stands of trees, close to foraging sites (Keister and Anthony 1983). In the Prineville area, research has shown a strong preference for conifers that are isolated from human activities (Isaacs et al. 1993). Daytime roost sites are located along foraging areas in emergent trees and snags (Rodrick and Milner 1996). A large wintering population of bald eagles is located at the eastern edge of Prineville Reservoir (Isaacs et al. 1993). This wintering group, which extends from the eastern edge of Prineville Reservoir up the Crooked River to the Rager Ranger Station (a total of approximately 95 miles), has been estimated to be as large as 115 birds (Isaacs et al. 1993). This is a record number of eagles utilizing eastern Oregon habitats (Isaacs et al. 1993).

Nesting and wintering eagle populations forage on a variety of prey items. Regional research has shown that eagles in eastern Oregon rely on mammals, birds, reptiles, and especially on fish species for forage (McShane et al. 1998). Local research has shown that the main prey items for the Crooked River wintering population are large mammal (deer and livestock) carcasses and ground squirrels (*Spermophilus* spp.) (Isaacs et al. 1993).

Twelve species designated as species of concern or candidate species by FWS or species with an ONHP rank of 1 or 2 may occur in the RMP study area. Three species also have Oregon state status. Brief descriptions of potential habitat and occurrence of species of concern are presented below by taxonomic group.

The tricolored blackbird, a migrant in central and northern Oregon, has a patchy and unpredictable distribution in the state (Csuti et al. 1997). This species uses wetland areas for breeding and foraging (Csuti et al. 1997). It is a highly colonial species, and populations can grow into the thousands in some locations. The RMP study area is located at the northern extent of the range for this species, though breeding groups have been observed as far north as Portland, Oregon (USGS 2000; Csuti et al. 1997). Habitat for this species may exist at the northern end of the reservoir in the tall grassy/sedge areas in the wetland and riparian habitats (W&H Pacific 2000).

Sage grouse utilize sagebrush habitat, where big sagebrush covers 15 percent to 50 percent of the ground (Csuti et al. 1997). In addition to these densely vegetated areas, open habitat is used for leking behavior, which occurs in the early spring when male birds concentrate for breeding displays (Csuti et al. 1997). This habitat type is available around the reservoir (W&H Pacific 2000). This grouse species is known to

occur in the upper Bear Creek basin, within 3 miles of the southern extent of the reservoir (pers. comm., Ferry 2001). Local ODFW biologists believe that there are no lek sites in the RMP study area due to the high density of juniper woodlands (pers. comm., Ferry, 2000). Habitat loss and modification are blamed for the decline of sage grouse (Paige 1999b).

The peregrine falcon (*Falco peregrinus anatum*) was removed from the Federal list of endangered species in August 1999 (as published in the Federal Register, 64 FR 46541-46558) but remains listed as endangered in Oregon State. This is one of the world's most wide-ranging bird species, and thus would be expected to overlap with the RMP study area. Habitat limitations are most likely suitable nesting sites, which are commonly cliff sites within areas of open and abundant hunting opportunities (Csuti et al. 1997). Prey species are primarily small birds captured on the wing. Illegal collection of eggs and young for falconry trade is one of their greatest threats (Csuti et al. 1997). Peregrine falcons likely travel through the area but are not known to breed near Prineville Reservoir.

The pygmy rabbit is the only mammalian Federal species of concern with an ONHP rank of 2 that potentially occurs at the RMP study site. There are no occurrence data for this species in the RMP study area, but the range and habitat requirements for the pygmy rabbit do overlap with the RMP study area (Csuti et al. 1997). Pygmy rabbits potentially exist in the area but have yet to be documented. Habitat for this species is generally dense areas of sagebrush in areas of deep, loose soils that are easily moved for burrows (Johnson and Cassidy 1997). Sagebrush is also a main staple of the diet of this species (Johnson and Cassidy 1997). The spotted bat (*Euderma maculatum*) is listed as a species of concern and has an ONHP ranking of 2 and is likely found in the vicinity of Prineville Reservoir.

3.6.1.2 Fish

Native redband trout occur in many headwater tributaries of the Crooked River, primarily on USFS land. Many of these headwater streams are intermittent or ephemeral and provide extremely limited or seasonal habitat for redband trout. Downstream, on private lands and in the mainstem Crooked River, flows decline significantly due to irrigation withdrawal and water temperature increases. Populations of redband trout are depressed compared to historical abundance because the Crooked River and its tributaries have poor riparian and instream conditions. Native redband trout are found in headwater tributaries of Bear Creek and were reported below the confluence of Little Bear Creek in 1978, and in Sanford Creek in 1977 at RM 8.0 (ODFW 1996). The Chimney Rock section of the Crooked River below Bowman Dam also provides habitat for redband trout. Prineville Reservoir does not provide habitat for native redband trout (ODFW 1996).

3.6.1.3 Plants

Based on information provided by FWS and ONHP as well as surveys conducted by OPRD, three plant species considered Species of Concern with an ONHP rank potentially occur within the RMP study area. Estes' artemisia (*Artemisia ludoviciana* ssp. *estesii*) is typically found in sandy, gravelly, and moist riparian areas in central and south-central Oregon (W&H Pacific 2000; Massey undated). This plant requires open to partially shaded areas, and is believed to do poorly in areas of dense shading or steep slopes (W&H Pacific 2000). This species was collected in 1949 along Bear Creek, which feeds into the reservoir on the southwestern shore (ONHP 2001). Four additional populations of this plant have been documented in the reservoir area (W&H Pacific 2000). These populations were noted at Jasper Point boat ramp, Big Bend recreation site, Juniper Bass campsite, and on a gravel bar along the Crooked River, upstream of the reservoir. All four populations are located near the normal full pool shoreline.

Peck's long-bearded mariposa-lily (*Calochortus longebarbatus* var. *peckii*) is a species of seasonally wet meadows in regions of ponderosa pine forests (Massey undated). Soil types of preferred areas include cobble to stony clay loam soils, which are high in organic matter (Massey undated). This species is often associated with *Artemisia* species (W&H Pacific 2000). This species has not been documented in the RMP study area, but associated habitat may occur in the RMP study area (W&H Pacific 2000).

Columbia cress (*Rorippa columbiae*) is typically found in the wet soils of vernal pools, stream and lake margins, irrigation ditches, meadows, and in intermittent riparian areas (W&H Pacific 2000; Massey, undated). This species has not been documented in the RMP study area, but associated habitat may occur in the drawdown zones of the reservoir (W&H Pacific 2000). This species is thought to have evolved with systems that experienced occasional flooding and scouring (TNC 1999).

3.6.2 Environmental Consequences

Canada lynx does not occur on Reclamation or adjacent land, and implementation of the RMP would have no effect to this species. Greater sage grouse and pygmy rabbit could potentially occur in the RMP study area, but their occurrence has not been documented on Reclamation land or in the general vicinity. Activities that remove or disturb sagebrush habitat could affect these species, but because their occurrence in the RMP study area is doubtful, there would likely be no effect to these species. Two rare plants, Peck's long-bearded mariposa lily and Columbia cress, could potentially occur in the vicinity but have not been detected. Because no wide-ranging surveys have been conducted for these species, pre-construction surveys would have to be conducted under all alternatives to ensure that facility development would not affect these species.

The tricolored blackbird has not been documented at Prineville Reservoir, but it is possible the species uses wetland or riparian habitat in the area. The Oregon spotted frog, bald eagle, interior redband trout, and Estes' artemisia have been documented on or near Reclamation land at Prineville Reservoir, and the potential effects to these species are described below.

3.6.2.1 Alternative A-No Action: Continuation of Existing Management Practices

Enforcement of the ban on ORV use under Alternative A would decrease shoreline impacts, which would benefit species that may occur in the area including the spotted frog, bald eagle, tricolored blackbird, Estes' artemisia, and Columbia cress. These benefits would be less than the benefits provided under the Action Alternatives.

Alternative A does not include provisions for protection of species that have no Federal listing and are not protected under the Oregon Department of Agriculture's endangered species status. This could result in adverse effects to Estes' artemisia, which has no State or Federal protection.

Development and implementation of a Habitat and Wildlife Management Plan under Alternative A would focus on the SWA; however, this plan would extend when appropriate to the entire RMP study area. The development of this plan would benefit wildlife and habitats, especially those with specific management strategies outlined in the plan. Species of concern are proposed to be included in the Prineville Reservoir Habitat and Wildlife Management Plan.

Fisheries management actions under Alternative A would benefit redband trout by the development and implementation of a Fisheries Management Plan.

Fencing would be improved under Alternative A to limit livestock use of wetland, riparian, and shoreline habitats. This would benefit TES species that may occur in these habitats including spotted frogs, tricolored blackbirds, and Estes' artemisia. Continued designation of the southern shoreline of Prineville Reservoir, from Roberts Bay to Long Hollow Creek, as a day use area only would limit human disturbance and benefit TES species that may occur there.

Recreation actions taken under Alternative A would be generally positive with respect to TES species; designating campsites is preferred over dispersed camping. However, Estes' artemisia at the Juniper Bass site would not be well protected under this alternative and recreational development and activities may impact plants.

The provision of designated campsites for areas in the SWA (except Combs Flat) would reduce impacts to vegetation along the Crooked River and reservoir shoreline, which would be beneficial to rare species that may occur here. Unregulated use of the north shore of the SWA and at Combs Flat would contribute to habitat degradation and the potentially corresponding effects to TES species.

Development of north shore facilities outside the SWA would have no effect to TES species, but continued recreation use at Jasper Point and Big Bend may affect known populations of Artemisia that occur at these sites. Alternative A provides no monitoring of these populations to determine if current use is affecting these plants, which would aid in implementing adaptive management strategies.

The bald eagle nest on BLM property on the south side of the reservoir is outside the 2,600 foot-wide buffer recommended by the Pacific Bald Eagle Recovery Plan (FWS 1986) where the nest is in a direct line-of-sight of human activity. Roberts Bay recreation sites are the closest to the bald eagle nest on the ridge south of the reservoir on BLM land. Implementation of Alternative A would have no effect on bald eagles or other TES species in the vicinity of Roberts Bay. Designation of campsites would reduce vegetation disturbance and allow for increased growth of potential eagle perch sites. Recent nesting eagle activity on BLM land adjacent to the SWA could be affected by recreation use at Owl Creek.

Implementation of Alternative A would have no effect to Federally listed or proposed threatened or endangered species.

Mitigation and Residual Impacts [Alternative A]

No mitigation measures are proposed for Alternative A because the actions under this alternative do not have impacts on TES species in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative A]

Continued increases in recreation use could affect TES species. Increased use of shoreline, wetland, and riparian habitat could potentially affect unknown occurrences of Columbia cress, Artemisia, and redband trout that use the upper river or the reservoir. Disturbance of upland habitat from recreation could affect unknown occurrences of Peck's long-bearded mariposa lily.

3.6.2.2 Alternative B: Natural Resource/Dispersed Recreation Balance

Impacts to TES species under Alternative B would be the same as those described under Alternative A, except as noted. Alternative B includes the protection of Estes' artemisia on Reclamation land, which is not part of Alternative A. Clearly this would provide benefits to this species.

Alternative B does not include provisions for development of a Fisheries Management Plan at Prineville Reservoir that would address redband trout. Construction of additional fencing to restrict livestock use of sensitive habitats would provide benefits for the Oregon spotted frog, especially near Bear Creek where there is a documented occurrence of this species. Tricolored blackbird, interior redband trout, Estes' artemisia, and any occurrence of Columbia cress would benefit from this protection of riparian and wetland areas.

Continued uncontrolled recreation use of the north shore of the SWA and of upland campsites would further degrade upland, riparian, and shoreline habitat and could affect spotted frogs, redband trout, Artemisia, Columbia cress, and Peck's long-bearded mariposa lily.

Development of north shore recreation facilities are not expected to affect TES species, but pre-construction surveys would be conducted prior to earth-moving activity to ensure protection for upland species that occur in the vicinity of specific recreation developments. In addition, new boat ramps or expansion of existing boat ramp facilities would include pre-construction surveys. Impacts from the development of the south shore recreation sites would not affect TES species, but pre-construction surveys would also be conducted for these facilities.

Implementation of Alternative B would have no effect on Federally listed or proposed threatened or endangered species.

Mitigation and Residual Impacts [Alternative B]

No mitigation measures are proposed for Alternative B because the actions under this alternative do not have impacts on TES species in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative B]

While Alternative B provides some increased protection for Estes' artemisia, cumulative impacts under Alternative B would be similar to those described under Alternative A. Increased recreation use of reservoir lands corresponding to increased population in the vicinity would cause cumulative impacts to TES species. Measures to control recreation use would minimize but not eliminate these impacts.

3.6.2.3 Alternative C: Natural Resource Protection/Formal Recreation Emphasis (Preferred Alternative)

Additional efforts to control vehicle access under Alternative C would benefit all habitat types on Reclamation land and therefore could potentially benefit TES species. Little information is known about the two bald eagle nests located near the reservoir and whether human activities may, or may not, be affecting them. Alternative C provides for a comprehensive monitoring program of bald eagle nest and winter roost areas. The Habitat and Wildlife Management Plan would include a component for bald and golden eagle management. This plan would be developed in cooperation with OPRD, ODFW, FWS and

BLM. Alternative C would also define and limit areas for overnight camping in the SWA and at Roberts Bay. We have determined that Alternative C may affect, but is not likely to adversely affect, the bald eagle. Alternative C would have no effect to other listed, proposed, or candidate species. Terrestrial restoration efforts under Alternative C would provide similar benefits as under Alternative B. The development of a Fisheries management Plan and increased cooperative efforts with ODFW and FWS would benefit aquatic resources, including the redband trout.

Improved fencing would benefit riparian and wetland habitats that may provide habitat for Oregon spotted frog, especially near Bear Creek, tricolored blackbird, interior redband trout, Estes' artemisia, and possibly Columbia cress. Benefits from this action would be more substantial under Alternative C compared to the other alternatives. Monitoring of the known populations of Estes' Artemisia would provide information for management and would provide long-term benefits.

Designation of campsites in the SWA would provide similar benefits to TES species as described under Alternative A. In addition, designating Combs Flat as a day use area only and the prohibition of dispersed camping outside designated areas in the SWA would provide additional benefits to all habitats in the SWA and to TES species that may occur here.

Implementation of Alternative C recreation sites on the north shore outside the SWA would provide similar impacts as described under Alternative B. The development of recreation sites on the south shore of the reservoir outside the SWA would have no effect to TES species with the provision of pre-construction surveys for TES plants.

Mitigation and Residual Impacts [Alternative C]

No mitigation measures are proposed for Alternative C because the actions under this alternative do not have impacts on TES species in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative C]

Cumulative impacts resulting from Alternative C would be slightly less than those described under Alternative B. Efforts to monitor bald eagle nest and roost sites would help reduce potential cumulative effects of increased recreation use.

3.7 Recreation

3.7.1 Affected Environment

Recreation activities in the study area include both land- and water-based activities. Most of the recreational users of this area are from either the Central Oregon counties of Crook, Jefferson, and Deschutes, or the Portland metropolitan area counties of Multnomah, Washington, and Clackamas. The number of visitors approaching from south of Prineville Reservoir has increased markedly due to the improvements and paving of the Alfalfa Market Highway, which provides a connection to Bend, Oregon (pers. comm., Bill Crawford, OPRD, 2002).

Prineville Reservoir is located in Region 7 of the Oregon Statewide Comprehensive Outdoor Recreation Plan (SCORP). Region 7 includes Jefferson, Wheeler, Crook, and Deschutes Counties. Within or nearby Region 7 there are five reservoirs offering similar recreation opportunities to those found at Prineville Reservoir. These include: Haystack Reservoir, Ochoco Reservoir, Crane Prairie Reservoir, Wickiup Reservoir, and Lake Billy Chinook. There are four State Parks within 50 miles of Prineville Reservoir, including The Cove Palisades, Tumalo, Smith Rock, and La Pine State Parks. In addition, there are nearly 50 campgrounds provided by other land managers, such as USFS and BLM, within 50 miles of Prineville Reservoir. Given the demand for recreation and continuing population growth in central Oregon, all of these facilities will need to play a role in satisfying future recreation needs.

3.7.1.1 Recreation Activities and Use Levels

Recreation use at Prineville Reservoir includes many land- and water-based activities typical of the lakes and reservoirs in Central Oregon. Prineville Reservoir is a popular water body that is experiencing increasing levels of use. According to studies by the Oregon State Marine Board (OSMB), Prineville Reservoir is ranked 17th in Oregon in boater activity days, with 41,170 in 1998 (OSMB 1999). This represents nearly an 8 percent increase over the number of activity days in 1995 (OSMB 1996). Camping activity at Prineville Reservoir has also steadily increased. Table 3.7-1 shows the number of campsites sold as well as traffic counts at campgrounds for the period between 1993 and 2000. There were a total of 5,794 campsites sold in 1993 compared to 7,161 in 2000. While the 2000 figure does not reflect normal use due to extreme low water conditions, there was still a 19 percent increase in the number of campsites sold during this period. Overall visitation at the reservoir was estimated to be 422,788 in 1999, and has been steadily increasing for several years. Table 3.7-2 provides visitation figures for the period between September 1999 through August 2000. Table 3.7-3 provides visitation figures for several of the recreation facilities for the period between May 2000 and August 2000. These figures do not provide total visitation for Prineville Reservoir; however, the table provides the percent of total use each of these sites represents of all developed recreation sites.

3.7.1.2 Recreation Facilities

Developed recreation facilities are provided at numerous locations around Prineville Reservoir by OPRD and a private concessionaire. Both developed and undeveloped dispersed sites provide areas for visitors to engage in various recreation activities. The type and location of recreation facilities provided at Prineville Reservoir are listed in Table 3.7-4.

Table 3.7-1: Prineville Reservoir visitation, 1993-2000.

	1993	1994	1995	1996	1997	1998	1999	2000
Campground Sites Sold	5,794	5,550	6,731	6,716	7,174	7,842	8,599	7,161
Traffic Count	124,815	119,942	122,775	121,196	122,620	129,275	144,629	91,891

Source: OPRD 2002.

Note: OPRD uses a multiplier statewide of 4 occupants per vehicle and 3.3 persons per campsite. No multiplier has been used on above actual count numbers.

Table 3.7-2: Prineville Reservoir visitation, September 1999 to August 2000.

	Prineville State Park	Jasper Point	Powder House Cove	Roberts Bay	County Boat Ramp	Prineville Reservoir	SE Prineville Lake Access RD E	SE Prineville Lake Access RD W	Totals
SEP	31,326	na	na	na	na	na	na	na	31,326
OCT	10,012	na	na	na	na	na	na	na	10,012
NOV	3,444	na	na	na	na	na	na	na	3,444
DEC	2,332	na	na	na	na	na	na	na	2,332
JAN	2,101	na	na	na	na	na	na	na	2,101
FEB	1,753	na	2,072	624	604	na	na	na	5,053
MAR	3,654	2,492	4,292	1,392	na	na	na	na	11,830
APR	5,982	5,098	5,296	1,820	1,456	na	na	na	19,652
MAY	13,181	10,066	13,408	2,452	3,012	na	1,964	1,264	45,347
JUN	21,270	17,656	10,624	3,628	3,656	na	4,146	3,244	64,224
JUL	29,442	24,660	15,576	5,972	6,028	na	10,178	8,220	100,076
AUG	26,987	16,648	na	9,516	8,204	na	16,272	14,764	92,391
TOTAL	151,484	76,620	51,268	25,404	22,960	35,000	32,560	27,492	422,788

Source: OPRD 2002.

na = Not available

Table 3.7-3: Prineville Reservoir visitation, May 2000 to August 2000.

	Prineville State Park	Jasper Point	Powder House Cove	Prineville Reservoir	Roberts Bay	County Boat Ramp
MAY	13,181	10,066	13,408	8,750*	2,452	3,012
JUN	21,270	17,656	10,624	8,750*	3,628	3,656
JUL	29,442	24,660	15,576	8,750*	5,972	6,028
AUG	26,987	16,648	13,203*	8,750*	9,516	8,204
TOTAL	90,880	69,030	52,811	35,000	21,568	20,900
Percent of Total Use of All Developed Rec. Sites	31%	24%	18%	12%	7%	7%

Source: OPRD 2002.

*Estimated from total use numbers.

Note: Number total will not equal 100 due to rounding. Does not include boat-in sites.

Prineville State Park is the main public park development at Prineville Reservoir and is also the most popular use area on the reservoir. It is located on the northern shoreline of the reservoir at the end of the Juniper Canyon Road that leads to the City of Prineville. This site contains two distinct areas, the campground and a large day use area with a boat ramp. The campground contains 70 campsites with varying levels of amenities, including one accessible site. "Accessibility" is defined as providing participation in programs and use of facilities to persons with a disability. "Disability" is defined with respect to an individual as a physical or mental impairment that substantially limits one or more of the major life activities of such individual; a record of such an impairment; or being regarded as having such an impairment (Americans with Disabilities Act of 1990). Twenty-two of the sites have full hookups (water, sewer, and electricity), 23 sites have electricity and water, and 25 sites are designed for tent campers and have water faucets nearby. Most of the sites are shaded and have ample grassy areas. The

Table 3.7-4: Facility locations at Prineville Reservoir.

	Boat Ramp	Picnic Area	Cabins	Developed Camping	Dispersed Camping	Swimming Area	Trails	Fishing Access
Prineville State Park	x	x	x	x		x	x	x
County Boat Ramp	x							
Big Bend				x				
Powder House Cove	x							
Roberts Bay West	x	x			x			
Roberts Bay East		x			x			
Prineville Reservoir Resort	x		x	x				
Jasper Point	x			x				
Owl Creek		x			x			
Juniper Bass					x			
Old Field					x			x
Cattle Guard					x			
Bear Creek					x			x
Antelope Creek								x
Combs Flat					x			x

Source: Provided by EDAW.

campground also has a modern restroom facility with flush toilets and hot showers. In addition to these facilities, the campground also has 5 cabins available for visitor use. Three of these are larger deluxe cabins that sleep 6 and have kitchen and restroom facilities. The remaining two cabins are one room rustic cabins that sleep 4 and do not have kitchen or restroom facilities. All of the cabins and campsites are able to be reserved in advance through Reservations Northwest, who administer reservations for OPRD. There is also a boat moorage facility with 32 spaces for use by visitors staying in the park. The cabins and a portion of the campsites are open year-round. A 1.75-mile shoreline trail leads from the campground to Jasper Point. An amphitheater is also located nearby that is used for educational programs.

The day use area and boat launch are located directly adjacent to the campground on the shoreline of Prineville Reservoir. The day use area facilities include picnic tables, BBQs, playground, picnic shelter/kitchen, large shaded grassy areas, a beach with a designated swimming area, concession stand, restrooms, showers, fish cleaning station, volleyball net, and a large parking area (shared with the boat launch). Facilities at the boat launch include 2 ramp lanes, a boarding float, and a parking area (shared with the day use area). In total, the site has 45 single vehicle parking spaces and 60 boat trailer parking spaces. The boat launch is the deepest on the reservoir, and it is the only ramp that can be used as pool levels are lowered in the off-season. Recent renovations included the creation of additional boat trailer parking spaces. Both the boat launch and the day use area are popular with campers and other visitors to the reservoir.

Prineville Reservoir Resort is located on the northern shoreline of the reservoir at the tip of a peninsula. The resort is run as a concession through an agreement with Reclamation and is the only privately managed recreation facility on the reservoir. The resort consists of a campground, motel, and boat launch, all of which are popular and heavily utilized during the peak use season. The campground

consists of 69 campsites, all of which have hookups for water and electricity, many of which are directly on the water. In addition, the campground also features restrooms/showers, a volleyball court, horseshoe pits, an RV dump station, and a rustic cabin available for nightly rental. The boat launch is adjacent to the campground and features boat ramp lanes, marina slips, a gas dock, and boat rentals. Other facilities at the resort include a 7-unit motel, fish cleaning station, convenience store, and small restaurant. Enhancements or improvements for recreation facilities at Prineville Resort will be considered, subject to an economic feasibility study. Recreation enhancements or improvements would not be developed and/or funded by Reclamation, but would be negotiated as part of a lease renewal at any new business opportunity at the existing location of the resort. Social Security Beach is a reservoir shoreline area just south of the Bottero Subdivision that is a popular spot for elderly people to drive in the drawdown zone to gain access for fishing.

Jasper Point Campground is a relatively new facility developed by OPRD and is located on the northern shoreline of the reservoir. As recently as 1995, this was the most heavily used dispersed camping area on the reservoir and frequently would contain as many as 200 campsites. The current site consists of a small developed campground and a new boat launch facility. The 30-site campground is designed to be more primitive and rustic than the main State Park campground, thus offering a range of settings for visitors to the area. Water and electricity are provided at each site. Other facilities include two vault toilets and parking for 10 boat trailers. A boat launch adjacent to the campground features a 2-lane concrete boat ramp, a paved parking area with spaces for 22 vehicles and 40 vehicles with trailers, a vault toilet, and a dump station.

There are four designated dispersed recreation sites along the North Side Primitive Road within the SWA: Owl Creek, Juniper Bass, Cattle Guard, and Old Field. North Side Primitive Road runs from Jasper Point to the Paulina Highway and is mostly rough gravel, although it can be used by most passenger vehicles in dry weather.

Owl Creek is managed as a walk-in/boat-in use area and has parking for about 10 vehicles. Features at this site include 3 picnic tables, 2 portable toilets, and about 10 dispersed campsites, several of which appear to be heavily used. Most of these sites are spread throughout an area of junipers along the shoreline of the reservoir. Road access to this site is closed from November 15 to April 15.

Juniper Bass is a designated dispersed use area located along a spur road about a ½ mile south of the North Side Primitive Road. The ability for vehicles to access the shoreline at this site has created a long narrow area of about 10 scattered dispersed campsites. Day use appears to be more common at this site than overnight use, as the site is barren and lacks shade. At low pool levels, vehicle access along the shoreline extends far to the east and west of the site. Road access to this site is closed from November 15 to April 15.

Cattle Guard is a moderate-sized designated dispersed site just south of the North Side Primitive Road along the shoreline of the reservoir. Features at this site include one primary site with a picnic table and five smaller use areas nearby, each with a user-constructed fire ring. The main site is located on a small bluff overlooking the reservoir. Road access to this site is closed from November 15 to April 15.

Old Field is a large designated dispersed area consisting of three separate areas, all of which are heavily used by visitors. This site is the farthest east of the sites on the North Side Primitive Road and is nearest to the Paulina Highway. The three primary areas at this site include a forested area just west of the main entrance (6 dispersed sites and 1 portable toilet), a large barren area just east of the main entrance (1

dispersed site), and a long, wide area along the shoreline with a network of dirt roads that is primarily a fishing access point (5 dispersed sites). Each of these areas contains many more camps than indicated during peak season weekends. Road access to this site is closed from December 15 to March 15.

Roberts Bay East is the most heavily used recreation area on the south shore and is the most popular dispersed recreation area on the reservoir. Features of this site include 12 picnic tables, 4 vault toilets—as well as additional portable toilets during the peak use season—and as many as 50 distinct dispersed campsites with user-constructed fire rings. Trash cans are also provided during the peak use season. Twenty of the dispersed sites are on a small peninsula and have gravel parking spurs and some shade. The remaining sites are scattered throughout the main use area along the western shoreline of Roberts Bay which is interspersed with some juniper trees that provide limited shade. However, much of the use of this site occurs directly on the shoreline and in the areas below the full pool level that are exposed as the summer progresses. Although the area lacks a formal boat launch, the gentle slope of the shoreline and lack of rocks or trees allows visitors to launch from many portions of the site.

Roberts Bay West is a small designated dispersed site at the western end of the Roberts Bay area. Features of this site include an informal gravel/rock boat ramp, three picnic tables, and approximately ten dispersed campsites. Portable toilets are also provided at this site during the peak season and are highly visible from the water, resulting in heavy use from boaters in the area. The primary focus of users to this site is the boat launch, which is comparable to the facility at Powder House Cove in terms of the condition of the “ramp” (i.e., as it is long and straight). One picnic table and as many as eight dispersed campsites are located near the wetland area between this site and Roberts Bay East.

Juniper Point is a designated dispersed site located on a small bay on the southern shoreline of the reservoir. This designated dispersed site is more primitive and lightly used than the adjacent areas of Roberts Bay. Current access to the site is via the Salt Creek Road followed by a rough and unimproved gravel road also known as the Roberts Bay Road. There are an estimated 20 dispersed campsites at Juniper Point, most of which do not receive much use except on peak season weekends. There are three picnic tables at this site, and portable toilets and trash cans are provided during the peak use season.

Powder House Cove is a physically small day use area with high use at the western end of the local reservoir just south of Bowman Dam, near the old powder house used to store explosives during dam construction. Situated along Highway 27 that runs directly into Bend, this area is becoming increasingly popular among visitors from the south as it is the closest boat launch on Prineville Reservoir for most residents of Deschutes County and other points south, and the highway was recently paved. Features of this site include a 1-lane boat launch, two gravel parking areas, and two vault toilets. Portable toilets and trash cans are installed at the site during the peak use season. The existing boat launch is best characterized as primitive as it has a gravel surface only on the upper-most portions before becoming mostly dirt on the lower portions. Given the popularity of this site, overflow parking commonly occurs on the shoulder of Highway 27, creating a traffic hazard. Boats also launch from numerous locations along the shoreline in the cove.

Big Bend is a large Reclamation-owned site just below Bowman Dam along the banks of the Crooked River. Big Bend is cooperatively managed for Reclamation by BLM through agreement with OPRD. For many years, this site has been managed to allow for dispersed day use and camping and has typically represented an optional use area for visitors to the reservoir when conditions become too crowded at Powder House Cove. This area is also popular among anglers who use this site as an easy access point to the tailrace of the dam as well as other areas downstream. As many as 40 distinct dispersed sites have

been identified at this site in recent years, many of which were located in sensitive riparian areas along the river. Site improvements completed in 2001 were undertaken to formalize use at this site. Fifteen distinct campsites have been designated, all of which are located above the riparian zone of the river. Vehicle access to the shoreline and upstream areas below the dam has been blocked to reduce impacts and ensure visitor and dam safety. A self-service fee station, two toilets, and other tent camping and day use picnic areas have been added to the site.

The County boat ramp is one of five developed boat ramps on the reservoir, located on the northern shoreline a few miles west of the State Park. Due to its proximity to the city of Prineville, this is a popular boat launch for visitors arriving from the north. There are few facilities at this site, including a one-lane asphalt ramp, a gravel parking area, and portable toilets.

Aside from the designated dispersed sites around the reservoir, there are many other areas that visitors use for day use or overnight camping that are accessible by vehicle. Many of these areas can also be accessed by boat. One of these sites is Bear Creek, on the southern shore of the reservoir east of Powder House Cove. This area has approximately 5 dispersed campsites and is also a walk-in access point for anglers. It is only popular in the early season as this shallow arm of the reservoir dries up quickly as pool levels fall. Another popular dispersed area is Antelope Creek. This area is near the spot where the road to Jasper Point branches off from the main road. A small gravel parking area (7 vehicles) is located just off the main road. A large beach area in the western portion of the Prineville Reservoir Resort area, commonly known as Social Security Beach, is a popular day use area for visitors where vehicles have been gaining access to a 0.25-mile stretch of shoreline.

Another popular dispersed area is near the intersection of North Side Primitive Road and Paulina Highway. This relatively flat area is in a location where the reservoir becomes braided and more riverine. The flat, open terrain sees more extensive ORV use than other areas around the reservoir and is also a popular area for camping and shoreline fishing.

In addition to the sites mentioned above, as many as 40 boat-in dispersed sites have been identified along the shoreline of the reservoir. Most of these sites are located at the western end of the reservoir and have user-constructed fire rings. Many sites have small beach areas, which make these the most popular sites.

Overall, Prineville Reservoir is popular among many types of boaters who visit the area and had more boater activity days in 1998 than all but two reservoirs in Crook, Jefferson, and Deschutes counties. Estimates of this use indicate that 43 percent of these activity days were anglers, 33 percent water-skiers, 20 percent general boat use (cruising), and 4 percent personal watercraft (PWC) riding. Although not included in this estimate, there is some sailboat use of the reservoir as well as a limited amount of non-motorized boating use such as canoeing and kayaking. Due to the popularity of the boat launch at Powder House Cove, much of the boating use occurs in the western sections of the reservoir. Eastern sections of the reservoir have a boat speed limit of 5 mph, making angling popular in these areas. The Marine Patrol enforces the speed limit and other boating regulations during patrols in the peak season.

3.7.2 Environmental Consequences

This section discusses the expected positive and adverse impacts of the RMP alternatives on recreation resources. A detailed discussion of impacts under each of the three alternatives is provided.

3.7.2.1 Alternative A – No Action: Continuation of Existing Management Practices

This alternative would result in the continued management of the RMP study area under the 1992 RMP.

This alternative would allow for an increase in recreation development, principally near the existing Prineville State Park. This increase would include additional developed day use and overnight camping facilities, as well as designated dispersed campsites and a courtesy dock along the northern shoreline of the SWA. This alternative also calls for the elimination of livestock grazing from designated recreation areas by fencing.

The most considerable positive impacts on recreation under this alternative would be from the proposed developments at State Park North Expansion and Antelope Creek Day Use Area. Expanded recreation development at the State Park would more than double the capacity of the campground and would greatly increase the total acreage of the park devoted to active recreation. New recreation development at Antelope Creek Day Use Area would result in many new recreational opportunities and increase the capacity for visitors participating in picnicking, swimming, and boating.

Additional recreation development would also be allowed at several other areas. A new concrete boat ramp would be developed at Roberts Bay East, and boat ramp improvements would be undertaken at the County boat ramp, Prineville Reservoir Resort, and Powder House Cove. Improved or expanded parking would occur at Powder House Cove and the County boat ramp. Primitive designated campsites with minimal associated amenities would be developed at Roberts Bay East. In addition, a hiking/biking trail at Bear Creek would be permitted under this alternative.

Under this alternative, recreation use of the southern shore of the SWA would continue to be restricted to boat-in day use only; however, dispersed camping would be allowed in all other areas. Primitive designated campsites would be developed at each of the 4 designated recreation areas within the SWA, along with a courtesy dock at Owl Creek. These actions may reduce boat-in and/or general primitive camping opportunities at Prineville Reservoir.

In general, impacts associated with new development in Alternative A would have positive impacts on recreation by improving the experience available to visitors; however, the increased use concentrated near the State Park could potentially create a more crowded recreation experience, resulting in increased user conflicts and perceptions of crowding.

Some new recreation development has occurred at existing recreation sites since the 1992 RMP was completed. Examples include an increase in formal camping opportunities at Jasper Point and Big Bend Campgrounds. This trend is expected to continue under Alternative A. Examples of facility improvements include improved facilities at the SWA north shore recreation sites and a new day use area and boat ramp at Antelope Creek.

Under this alternative, there would be some impact on the type of visitor experience currently offered in the area. Primitive designated campsite development at the 4 designated recreation areas within the

SWA would impact these public recreation sites by eliminating the undeveloped and dispersed recreation experiences currently provided in these areas.

Overall, this alternative would have a positive impact on the recreational experience in the RMP study area, with a few exceptions for some user groups. Under this alternative, new and/or expanded facilities would increase the availability of camping, picnicking, swimming, and hiking facilities and opportunities. In addition, boating and fishing opportunities would increase substantially through several boat ramp improvements. Specific user groups, including boat-in and general primitive area campers, may be adversely affected under this alternative due to new restrictions and designated primitive campsite development.

Mitigation Measures and Residual Impacts [Alternative A]

No mitigation measures are proposed for Alternative A because the actions under this alternative do not have substantial adverse impacts on recreation in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative A]

Increased recreation use and regional population growth are likely to continue to put pressure on existing and proposed recreation facilities at Prineville Reservoir. Designated camp areas would likely be occupied and fill up earlier, and dispersed camping (such as Roberts Bay West) would be more densely occupied.

3.7.2.2 Alternative B – Natural Resource/Dispersed Recreation Balance

This alternative would allow for substantial additional recreation development beyond those actions allowed under Alternative A. In general, this alternative would have a positive effect on the recreation experience in the area, with a few exceptions discussed below. It is important to note, however, that while there would be many recreation actions under this alternative, many would primarily be related to less development-oriented opportunities, such as primitive campsites and trails.

As in Alternative A, Alternative B would allow for new development at the State Park North Expansion and Antelope Creek Day Use Area. Under Alternative B, the State Park North Expansion would include campsites, cabins, a group camp, and hiking trails. Alternative B also includes new recreation development at the existing State Park, such as expanded overnight moorage, infrastructure improvements, and a new dump station. Under Alternative B, the Antelope Creek Day Use Area would have a group day use area with a shelter and trail development. In addition, new development would occur at Juniper Point and Roberts Bay West.

One of the greatest differences between the No Action Alternative and Alternative B is the level of development allowed at Roberts Bay. At Roberts Bay East, Alternative B allows for a larger number of primitive campsites, a group camp, a camp host site, a day use area with swimming and picnicking, and trail development. Alternative B allows for primitive campsites, a boat launch and parking area, and trail development at Roberts Bay West. This is a higher level of development than allowed under the No Action Alternative.

Overall, Alternative B allows a higher level of recreation development at more sites, including infrastructure and maintenance facilities at several sites. Boat ramp improvements would be undertaken at the County boat ramp, Prineville Reservoir Resort, and Powder House Cove. Additional cabins, campsites, and moorage would be developed at Prineville Reservoir Resort, and primitive designated campsites and gravel roads would be developed at Juniper Point. The numbers of users of the Prineville Reservoir Resort would not appreciably differ from that of Alternatives A and C.

Recreation use of the south shore of the SWA would be restricted to boat-in day use only, with dispersed camping allowed in all other areas. Under Alternative B, no primitive designated campsites would be developed within the SWA; rather, existing conditions and use patterns would be continued. While this alternative may result in as many or more campsites, these campsites would not have any of the features or amenities of the designated primitive campsites under Alternative A.

Under this alternative, illegal ORV use would be reduced by increased enforcement, signage, road closures, and barriers. These actions would substantially reduce the activities carried out by ORV users, particularly in the reservoir drawdown zone and on informal roads. However, since ORV use is not allowed on Reclamation's land within the RMP study area no adverse effects to ORV use would occur.

Actions under Alternative B would have a positive impact on recreation. Overall, this alternative would have a positive impact on visitors seeking a less development-oriented recreation experience in the RMP study area, with a few exceptions for some user groups. Under this alternative, new and/or expanded facilities would increase the availability of developed camping, primitive camping, picnicking, boating, fishing, swimming, and hiking facilities and opportunities. Specific recreation activities, such as illegal ORV use, may be reduced under this alternative due to increased enforcement.

Mitigation Measures and Residual Impacts [Alternative B]

No mitigation measures are proposed for Alternative B because the actions under this alternative do not have substantial adverse impacts on recreation in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative B]

Increased recreation use and regional population growth are likely to continue to put pressure on existing and proposed recreation facilities at Prineville Reservoir. Dispersed campsites in the SWA would likely be used at a higher density than under Alternative A or C.

3.7.2.3 Alternative C – Natural Resource Protection/Formal Recreation Emphasis (Preferred Alternative)

This alternative would allow more substantial formal recreation development at several areas than either of the other 2 alternatives. Substantial new recreation development and opportunities would improve the developed recreation experience available to visitors.

Many actions under this alternative would apply to the entire reservoir area. Actions with a positive impact on recreation include providing a universally accessible fishing dock, visitor brochures and interpretive information, and a reservoir-wide sign program, as well as eliminating livestock grazing from recreation areas. These actions would positively affect those visitors seeking a more formal recreation experience and visitors with physical disabilities; however, visitors seeking less development-

oriented opportunities would likely be adversely affected. Other actions, such as increasing enforcement of illegal ORV use, issuing no new private access roads across the SWA, longer road closure dates between Old Field and Combs Flat Road, and restricted recreation use within the SWA, would similarly have both positive and adverse effects. These actions would be beneficial for visitors such as hikers and wildlife observers and would likely adversely affect primitive campers and ORV users (who are operating illegally).

This alternative differs somewhat from the other two alternatives in that recreation use of the entire SWA would be restricted to day use only outside of designated camping areas. As in Alternative A, primitive designated campsites would be developed at each of the 4 designated recreation areas within the SWA. In addition, the perimeter of the camping area and the number of sites would be defined, camper registration would be required at each of these areas. Additionally, non-motorized trail connections would be developed at Owl Creek, and trail connection potential would be explored at the other three areas. At the eastern end of the SWA, a non-motorized trail and trailhead would be developed at Combs Flat; in addition, the perimeter of this area would be defined. As noted above, these actions would likely have both positive and adverse impacts. Visitors seeking a more primitive camping experience would be adversely affected, while those wishing to participate in hiking and more formal camping activities would be positively affected. Development of more formal camping areas with a set number of designated campsites would be a benefit for those visitors who prefer a recreation area with a limited number of allowed visitors. This alternative also differs from the other two alternatives in its approach to dispersed boat-in use. In all three alternatives, the reservoir's southern shoreline from Roberts Bay to Long Hollow Creek would be managed as a boat-in day use area only with no overnight use allowed. In Alternatives A and B, dispersed camping would be allowed in all other areas of the SWA; however, in Alternative C, only day use is allowed outside of designated camping areas in the SWA.

Under Alternative C, both a campground, as proposed in Alternative A, and a cabin cluster, group camp, and trails, as proposed in Alternative B, would be developed at the State Park North Expansion. At the existing State Park, recreation elements and amenities developed would be the same as those under Alternative B, in addition to a concession store for rentals, an accessible fishing pier, and an additional 3 cabins. Recreation development under this alternative would be the same as under Alternative B at Juniper Point, Big Bend Campground, and Jasper Point.

Recreation development at Antelope Creek Day Use Area would be the same under Alternatives B and C; however, an accessible fishing pier and overflow parking would be developed at Antelope Creek Day Use Area under Alternative C. At the County boat ramp, recreation development would be the same as under Alternative A, with the addition of exploring the option of a new parking area and/or non-motorized trailhead. There could be substantial new development at Prineville Reservoir Resort under Alternative C, including the same recreation facilities as under Alternative B in addition to providing developed group campsites, a designated day use area, a loop trail and trailhead, and improved maintenance facilities. A defined area of the resort at Social Security Beach would permit vehicle access to the shoreline for the elderly and people with disabilities. Alternative C is designed to contain rather than expand existing use; consequently, little to no effect is expected on Prineville Reservoir Resort. Alternative C is designed to contain rather than expand existing use. Although numbers of camping and picnicking sites will increase, actual numbers of users are not expected to greatly increase as space will be limited largely to defined sites. There may be a shift from dispersed users to developed site users who will pay a fee for services.

Along the south shore of the reservoir, outside of the SWA, major recreation development would occur at Powder House Cove and Roberts Bay East. At Powder House Cove, new recreation development would include a boat ramp, access road and parking lot, additional truck and trailer parking, day use area, non-motorized interpretive loop trail, and vault toilets. At Roberts Bay East, recreation sites would be developed under a two-phase program. Upgrades include a full hookup campground, registration booth, group camps with picnic shelters, cabin cluster, RV dump station, overnight moorage area, additional host sites, and a fishing dock. Roberts Bay West would have a boat ramp and parking areas, non-motorized trailhead and trail to island, maintenance yard, employee housing, entrance gate, and host sites.

Reclamation would maintain safe access to recreation sites via the Roberts Bay (Salt Creek) Road commensurate with the level of recreation development. If legal access cannot be maintained, then the road may be closed. This action would be an adverse effect to campers and day users who access the south shore via this road.

In general, impacts under Alternative C would be beneficial to visitors seeking a more developed recreation experience. Substantial new recreation development would increase the recreation opportunities available to visitors and residents; however, this alternative would likely alter the character of the recreational experience currently available in the area by providing substantial new formal recreation development and limiting more primitive, dispersed recreation opportunities. Regardless of their desired type of recreational experience, visitors would benefit from the public health and safety improvements included in formal recreation development.

Relative to Alternative B, positive impacts on recreation would be even more pronounced under Alternative C. In general, the amount and extent of new recreation facilities and opportunities would be greater than under Alternative B. Examples include a high amenity campground with a cabin cluster and group camp at the State Park North Expansion Area, a concession store for rentals at the existing State Park, a potential day use area at Prineville Reservoir Resort, and a new boat ramp and day use area at Powder House Cove. Additional positive impacts of this alternative include the provision of visitor brochures and the development of a reservoir-wide sign program. These actions would better inform visitors about regulations as well as recreation opportunities. Increased enforcement of ORV restrictions would limit the level of this recreation activity in the area; however, no adverse impacts would occur since this is an unauthorized use of Reclamation lands.

Under this alternative, there would be some impact on the type of visitor experience currently offered in the area. Primitive designated campsite development at the 4 designated recreation areas within the SWA would be an adverse impact on those visitors seeking the undeveloped and dispersed recreation experiences currently provided. In addition, recreation use of the entire SWA would be restricted to day use only outside of designated camping areas. The alteration or elimination of this dispersed camping experience would potentially force visitors to use other existing sites as a substitute. Thus, increased visitation could occur in areas outside the SWA. The increased use outside the SWA would potentially create a more crowded recreation experience resulting in potential increased user conflicts, increased competition for available sites, and increased perceptions of crowding.

Mitigation Measures and Residual Impacts [Alternative C]

No mitigation measures are proposed for Alternative C because the actions under this alternative do not have substantial adverse impacts on recreation in the RMP study area. BMPs listed in Chapter 5

(Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative C]

Increased recreation use and regional population growth are likely to continue to put pressure on existing and proposed recreation facilities at Prineville Reservoir. Designating campsites would control camping density but would likely increase the inability to meet the demand for camping during high use periods.

3.8 Visual Resources

3.8.1 Affected Environment

This section addresses visual resources within the RMP study area and in the general vicinity of Prineville Reservoir.

3.8.1.1 Summary of Visual Resource Conditions

The study area is located in the high rimrock dessert of central Oregon, a region dominated by open grasslands, juniper stands, basalt outcrops, and brown and reddish soils. The landscape surrounding the reservoir is dominated by steeply sloping hills with occasional peaks and buttes in the distance. Prineville Reservoir itself is a long, meandering water body formed by an earthen dam at its west end approximately 245 feet high on the Crooked River. The reservoir is approximately 14.6 miles long and between approximately 50 and 4,700 feet wide. In addition to their primary purpose of providing irrigation water, Bowman Dam and Prineville Reservoir are designed for flood control; thus the surface of reservoir fluctuates seasonally as much as 97 vertical feet. At the higher operational range, the reservoir has 43 miles of shoreline that reduces to 6.4 miles at low pool.

The downstream portion of the reservoir lies within the Crooked River Canyon and is bounded on either shore by steeply sloping canyon walls. Near the dam, the canyon walls tower 800 feet above the reservoir at full pool (Figure 3.8-1), resulting in dramatic scenery. An 8-mile reach of the lower Crooked River between Bowman Dam and mile marker 12 of State Highway 27 (Chimney Rock



Figure 3.8-1: Crooked River Canyon's dramatic scenery as seen from Bowman Dam near Big Bend Campground.

segment) was designated by Congress in October 1988 as a National Wild and Scenic River and was classified as a recreational river area. Outstandingly remarkable values included scenic, recreation, and fishery values. This 8-mile reach was also designated as a component of the National Back Country Byway System in 1989 (BLM 1992). The Lower Crooked River Backcountry Byway covers 43 miles of paved and gravel roads from the City of Prineville south to the convergence with State Highway 20.

BLM administers most of the land adjacent to the Chimney Rock section and completed a Management Plan and Environmental Assessment for the Wild and Scenic portion of the river in 1992 (BLM 1992). BLM also designated this reach as an Area of Critical Environmental Concern (BLM 1988), and it is a State Scenic Highway.

At the upstream end, the reservoir itself is more riverine in character, flowing through the center of a wide, gently sloping valley (Figure 3.8-2). Notable natural visual features include vertical basalt outcroppings, a rocky island, and several side canyons.



Figure 3.8-2: The upper Crooked River and surrounding wetlands near Old Field at low pool.

The study area north of the reservoir is within the John Day formation, while combinations of the John Day and Clarno formations are south of the reservoir. These formations consist of gently warped beds of fine-grained volcanic tuff and dense lava flows (Reclamation 1992). These features manifest as sloping bands of striated outcrops and escarpments of vertically fractured, columnar basalt. The most visually dramatic rock formations line the steep walls of the Crooked River canyon near the Big Bend Campground (Figure 3.8-1). Another visually prominent feature is a ridge of tooth-like outcrops (Figure 3.8-3) protruding from a ridge visible on both sides of the reservoir from Antelope Creek.

The shores of Prineville Reservoir are vegetated with a variety of plant types typical of central Oregon. These include woodlands, savanna, and shrub-steppe areas. Dominant plant species include western

juniper and big sagebrush, interspersed with an understory of bluebunch wheatgrass, cheatgrass, and needlegrass-bottlebrush squirreltail. Plant cover is relatively uniform, except where disturbed by juniper management activities, rock outcroppings, talus slopes, roads, and recreational infrastructure. With the exception of old rectangular clearcuts on adjacent BLM land resulting from juniper management, the vegetation appears fairly natural.



Figure 3.8-3: Prominent rock outcrop provides a dramatic visual feature.

Due to the lack of road access, viewing opportunities of Prineville Reservoir from public roads are limited. The only segment of state highway with a view of the water is a short section of SR 27 between the Bowman Dam and Powder House Cove. Portions along Juniper Canyon Road provide panoramic views of the reservoir between Antelope Creek and the Prineville Reservoir Resort (Figure 3.8-4), but the North Side Primitive Road is out of view of the water between Jasper Point and Cattle Guard; however, there are dramatic views of ridgetop rock formations to the north from this road. Other than the road to Roberts Bay and the recreation sites it accesses, there are no public views of the reservoir from the south shore. Views of the water from private property on the north side of the reservoir are generally limited to Bottero Park, Jasper Knolls, and Lakeview Cove Estates. On the south side of the reservoir a few private residences have good views of the reservoir. Generally, the best viewing opportunities are from the surface of the reservoir itself.

The vast majority of the area surrounding the reservoir has a natural character that appears unaltered by human activity. In general, the only development visible from the reservoir includes the access points, recreation facilities, Bowman Dam, and a few private homes. With the exception of Prineville State Park and the Prineville Reservoir Resort, the recreation sites have a relatively undeveloped appearance characterized by gravel or unimproved road and parking surfaces, portable toilets, and other minimal facilities. During the summer, these are most visually discernable from their surroundings due to the large numbers of RVs parked between the juniper trees. By contrast, both the Prineville State Park and Prineville Reservoir Resort have large areas of irrigated and mowed lawn, paved roads and parking, and permanent buildings. In addition, the Resort also operates a small marina and store that are particularly visible from the reservoir due to the Resort's prominent location at the tip of Jasper Peninsula. The only notable concentrations of private development easily visible from the reservoir are Bottero Park and Jasper Knolls, both located near the middle of the reservoir. Bottero Park is a small cluster of cottages and trailer pads on a small rise north of the Prineville Reservoir Resort. Due to the topography of the



Figure 3.8-4: Panoramic overlook of Prineville Reservoir as seen from Juniper Canyon Road.

site, this subdivision is visible from most recreation sites on both shores of the reservoir. The dominant small scale of these homes is visually consistent with the nearby resort and appropriate to its rural, park-like surroundings. Jasper Knolls is sited on the plateau overlooking the reservoir, but it is so far from the reservoir that it does not intrude visually to a noticeable degree.

When the reservoir is drawn down during the late summer through spring, the high water mark on the shoreline surrounding the reservoir is clearly evident. This zone of former inundation varies in height from the water's surface, up to a maximum of 3,235 feet above sea level, according to the degree of drawdown. At low pool (3,114 feet above sea level), the former reservoir bottom is exposed, revealing mudflats in shallow areas, such as in the SWA and Roberts Bay, and steep cobble benches in the lower reservoir such as Powder House Cove. In some locations, tree stumps become exposed at low pool.

3.8.1.2 Changes in the Visual Environment Since the 1992 RMP

Because limited information is available on the visual resources at Prineville Reservoir at the time of the 1992 RMP, it is difficult to accurately assess subsequent changes. Changes to visual resources resulting from management practices and physical developments built since 1992 include the following:

- **Juniper Management:** Many of the large, visually prominent juniper clearcuts in the vicinity of the Prineville Reservoir pre-date the 1992 RMP. This is because the BLM's juniper management practices changed in response to the BLM's 1989 Brothers/La Pine Resources Management Plan that elevated concerns over visual impacts to a required consideration by range managers. Specifically, Prineville Reservoir was included in the plan as an "area having high or sensitive visual quality." Several recreation sites and the reservoir's surface were classified as "key observation points" (KOPs) for monitoring of future changes to visual resources. BLM has implemented a number of practices to accomplish this objective, such as leaving more larger diameter trees, making irregular cut boundaries, and leaving strips and patches of remaining forest. The overall intended result is a more naturalistic vegetation cover pattern and less viewer objection (pers. comm., Swanson, 2002).

- **Jasper Point:** Jasper Point was used as a dispersed recreation site prior to the 1992 RMP. At the time of the 1992 RMP, rutting, gullying, and vehicular tracks were prominent landscape features. In response to heavy recreation demand combined with ongoing resource management problems, this site was subsequently developed as a medium density “fee-use” campground for a limited number of recreational vehicles and tents (Reclamation 1992). As a result of this action, the Jasper Point site has a far more orderly appearance, with the re-growth of some ground vegetation, clearly defined campsites, and new boat ramp, restroom, and other recreation facilities. The gullies, ruts, and vehicular tracks are no longer visually prominent.
- **ORV Trails:** The 1992 RMP described notable scenic problems resulting from unauthorized ORV use: “heavy dispersed recreation and off-road vehicle trail use in undeveloped areas has resulted in visual scars that will be very difficult for nature to repair. Often the most scenic and accessible lands within the reservoir area are the most heavily disturbed. In many locations, the vegetation has been heavily damaged or destroyed and the soils loosened or compacted to the point that wind and water erosion is common. Some of the most severe damage and abuse occur on the steepest slopes leading down to the reservoir. Off-road vehicle trails are a visible landscape feature due to the open nature of the juniper canopy and the preponderance of steeply sloped hillsides” (Reclamation 1992).

While unauthorized ORV use has continued at Prineville since the 1992 RMP, Reclamation and its partners (OPRD and ODFW) have had some success in reducing its extent and its impacts. As a result of more effective management and law enforcement practices, the most severe damage has moved from more accessible areas to less accessible areas, such as near the North Side Primitive Road and other dispersed recreation areas.

3.8.2 Environmental Consequences

3.8.2.1 Alternative A – No Action: Continuation of Existing Management Practices

The provision of information regarding appropriate waste management practices at remote recreation sites proposed, but not yet implemented, under this alternative could reduce litter, resulting in visual resource improvements. Likewise, the proposed designation of primitive sites would enhance management of recreational resources, which would likely improve visual conditions by reducing vegetation disturbance.

Improved fencing would eliminate livestock grazing in developed recreation areas and shoreline, riparian, and wetland habitats that would eliminate unsightly cow pies and hoof marks in areas of high recreation activity.

The addition of a 100-campsite, high-density campground expansion of the State Park along with a developed day use site at Antelope Creek would greatly alter the views of the north side of the reservoir from the central part of the reservoir and from south shore recreation sites around Roberts Bay. The areas of proposed development are currently juniper woodlands. Recreational development on these sites would greatly increase the proportion of the State Park relative to more natural landscape. Surrounding visual resources would be changed from a natural landscape to a developed campground.

Overall, Alternative A would likely improve views of the reservoir’s shoreline and remedy the disturbed appearance of recreational areas and dispersed campsites to some degree as well. While Alternative A

does not go as far as other alternatives to address some issues, none of the actions associated with this alternative would be anticipated to result in adverse visual impacts.

Mitigation and Residual Impacts [Alternative A]

No mitigation measures are proposed for Alternative A because no recommendations associated with this alternative are anticipated to result in adverse aesthetic impacts on visual resources in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives.

Cumulative Impacts [Alternative A]

As discussed in Sections 3.9 (Land Use) and 3.10 (Socioeconomics) that follow, increased residential development around Prineville Reservoir is likely. The expanding population would likely increase development pressure on private lands near Prineville Reservoir, especially Lakeview Cove Estates that only recently acquired access and electricity. As new homes are constructed here, as well as on other developable lots within the Prineville Reservoir basin, the reservoir's visual character would change from nearly exclusively rural to rural with discernable suburban patches.

Increased recreation uses are likely to continue to put pressure on existing and proposed recreation facilities at Prineville Reservoir. This increasing activity would likely be visible from many parts of the RMP study area, potentially resulting in view degradation.

3.8.2.2 Alternative B – Natural Resources/Dispersed Recreation Balance

Alternative B includes a number of proactive measures to prevent visual degradation. These include improvements to livestock management, the implementation of BMPs while undertaking construction activities, and closure of informal roads to prevent soil erosion as well as to address the spread of noxious weeds, and improved juniper management. In addition, new roads would be routed to minimize the visual intrusion of cut-and-fill activities. Components of the BLM Visual Resource Management System would be implemented to maintain the area's existing visual quality under Alternative B. Reclamation would also coordinate with BLM on the road permit approval process to minimize visual impacts on BLM sites visible from Reclamation lands. Finally, new structures would be designed to OPRD design standards, improving the visual cohesiveness of the built environment. By proactively addressing these important visual resource concerns, Alternative B would likely result in positive visual resource impacts, benefiting visitors and adjacent residents.

The appearance of the recreation sites accessed from the North Side Primitive Road would remain visually the same as at present. Alternative B, however, proposes a number of modest developed improvements to recreation sites on the reservoir's south side. These include expanded parking at Powder House Cove, a new group day use area with shelter at Antelope Creek, and primitive campsites at Roberts Bay. As a result, the visual character of the south side would change to a moderate degree by the removal of vegetation and construction of parking lots and associated facilities. In general, these changes would be positive, similar to the improved conditions at Jasper Point since the 1992 RMP. Also, degradation of visual quality can be minimized through careful design and use of BLM's contrast rating evaluation system.

Mitigation and Residual Impacts [Alternative B]

No mitigation measures are proposed for Alternative B because the actions under this alternative do not have substantial adverse impacts on visual resources in the RMP study area. Also, degradation of visual quality can be minimized through careful design and use of BLM's contrast rating evaluation system. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives.

Cumulative Impacts [Alternative B]

The expanding population would likely increase development pressure on private lands near Prineville Reservoir, such as Lakeview Cove Estates. Construction of new homes on developable lots within the Prineville Reservoir basin would alter the reservoir's visual character from nearly exclusively rural to rural with discernable suburban patches.

Increased recreation uses are likely to continue to put pressure on existing and proposed recreation facilities at Prineville Reservoir. This increasing activity would likely be visible from many parts of the RMP study area, potentially resulting in degradation of certain views.

3.8.2.3 Alternative C – Natural Resource Protection/Formal Recreation Emphasis

In general, Alternative C includes the same or improved proactive measures to address and enhance visual resources as in Alternative B. Additional proactive measures include greater attention to juniper density management practices, along with close coordination with adjacent landowners and involvement in adjoining land use proposals where possible.

The proposed recreational development on the reservoir's south side under Alternative C would be substantially different than the other two alternatives, resulting in more noticeable changes to the appearance of Powder House Cove and Roberts Bay. Specifically, the proposed new Powder House Cove boat launch and associated parking would require a new road to be built parallel to the shore in a visually prominent location visible from SR 27 and the reservoir itself. This would likely require substantial grading work despite a provision to minimize the visual intrusion from cut/fill activities. However, potential visual impacts are likely to be offset by resolution of existing weekend parking along the shoulder of SR 27, which could eliminate the visual intrusion of vehicles along the roadway.

Proposed development at Roberts Bay, a site easily visible from the existing State Park, Prineville Reservoir Resort, and Juniper Canyon Road as well as virtually every private home near the reservoir, would greatly change the visual character of this site, especially during the latter phases of development. At that time, the largest single campground currently on the reservoir would be created. Visually prominent features would include a registration booth, picnic shelters, cabin cluster, overnight moorage, and employee housing. These features, especially if combined with paved roads, parking, and irrigated lawns, would convert this rustic but well-worn site to a large developed park. Whether this change would result in positive or negative visual impacts is largely subjective, depending on one's preference for naturalistic but cluttered appearance as currently exists, or more manicured but "designed" as proposed.

Mitigation and Residual Impacts [Alternative C]

No mitigation measures are proposed for Alternative C because the actions under this alternative do not have substantial adverse impacts on views and aesthetics in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives.

Cumulative Impacts [Alternative C]

Cumulative impacts under Alternative C would be similar to those under Alternative A. Specifically, additional residential development and increased recreation use will change the area's overall rural character at Prineville Reservoir.

3.9 Land Use and Management

3.9.1 Affected Environment

This section addresses land use and land management practices within the RMP study area and in the general vicinity of Prineville Reservoir.

3.9.1.1 Overview of Reclamation Lands

Reclamation acquired a total of approximately 8,700 acres of the Crooked River valley to construct the Arthur R. Bowman Dam in 1961, creating Prineville Reservoir. This property was withdrawn from BLM holdings or purchased primarily from Joseph Bottero, a local landowner. Reclamation's holdings include 8,489 acres of land and water surface within the reservoir area, 280 acres within the Reclamation Zone located in the vicinity of Bowman Dam, and 340 acres of flowage easement lands along the Crooked River immediately above the reservoir. At full pool, the reservoir surface of 3,030 acres provides 43 miles of shoreline at Prineville Reservoir.

As shown on Figure 3.9-1, the upper end of the reservoir consisting of 3,160 acres of land and water has been designated a SWA, managed by ODFW primarily to provide for big game winter habitat as well as habitat for a variety of other wildlife. Recreation uses dominate the lower end of the reservoir, which is the site of two State Park facilities, a leased privately run resort, and several other scattered recreation sites. OPRD manages recreation resources at Prineville Reservoir on behalf of Reclamation.

Lower Reservoir

On March 16, 1961, shortly after the completion of Bowman Dam, Reclamation transferred recreation management responsibility to Crook County for most of the land surrounding the lower reservoir. Shortly thereafter, Crook County subleased 365 acres to the State of Oregon for what is now Prineville State Park. Under this license agreement (Contract 14-06-100-2124, dated June 27, 1961) between Crook County and the State of Oregon, the County agreed to license to the State a portion of the westerly half of the land surrounding Prineville Reservoir for the purpose of developing and maintaining a park. The agreement also required Crook County to construct a road to access the State Park. A follow-up license agreement dated June 27, 1961 between Crook County and the State of Oregon extended the above agreement for a 50-year term to expire March 16, 2011. This license required Crook County to construct a road from Combs Flat Road south to the State Park (North Side Primitive Road).

Crook County entered into a second license agreement on April 17, 1964 to further the development of recreational facilities at Prineville Reservoir. This 20-year agreement (with a 20-year renewal option) was with a private concessionaire to develop and operate the 190-acre Prineville Reservoir Resort. This license required resort facilities to be open daily for a minimum of 6 months per year. Minimum standards and structures permitted under the license included six 200 square foot cabins with running water and indoor sanitary facilities; a 1,200 square foot store; a commercial dock large enough for 20 boats; car and boat trailer parking; boat rental for at least twelve 14-foot boats; well and water filtration and storage; and a 20-unit trailer park with expansion for 20 additional trailers (specific recreation facilities are discussed in further detail in Section 3.7, Recreation). The resort was acquired by a second owner, who entered into a 20-year concession agreement with Reclamation on October 21, 1986. The resort concession was assigned a third time to the current owners on September 8, 1992. This

concession agreement was amended by Reclamation most recently on May 27, 1994 and will expire on December 31, 2005. Due to a number of physical site constraints, only a relatively small portion of the 190-acre resort area has been developed for recreation (pers. comm., Hawes, 2001).

In December 1985, Crook County terminated its license agreement with Reclamation. OPRD, which was previously a tenant of Crook County, renewed its lease directly with Reclamation for a 20-year term beginning May 5, 1987. This agreement recognized the State's ownership of existing recreation facilities built by the State. It also required the State to "make and enforce rules and regulations to protect plants, fish and wildlife; to preserve the scenic, scientific, aesthetic, historic and archeological resources of the area; and for the preservation of law and order in the interest of public safety" within the boundaries of the State Park.

OPRD's role was defined by the 1992 RMP to an on-site managing partner in conjunction with ODFW. Management of recreation at Prineville resulted in numerous facility improvements which are listed in Section 3.7 (Recreation) of this document.

On May 25, 1995, OPRD's lease at Prineville Reservoir was extended from the original 20-year term to a 50-year term starting from the date of the original agreement on May 5, 1987 and expiring on May 5, 2037. This lease also increased the area of OPRD management to include a large section of the Reservoir's north shore, extending from the County boat ramp to north of Jasper Point.

The current lease has been amended twice since 1995. The first amendment (Amendment No. 1, dated February 4, 1999), rectified a minor property boundary conflict between the Prineville State Park and the Prineville Reservoir Resort near Jasper Point. This amendment adjusted the boundary to include the parking lot for the Jasper Point boat ramp entirely within the State Park's area.

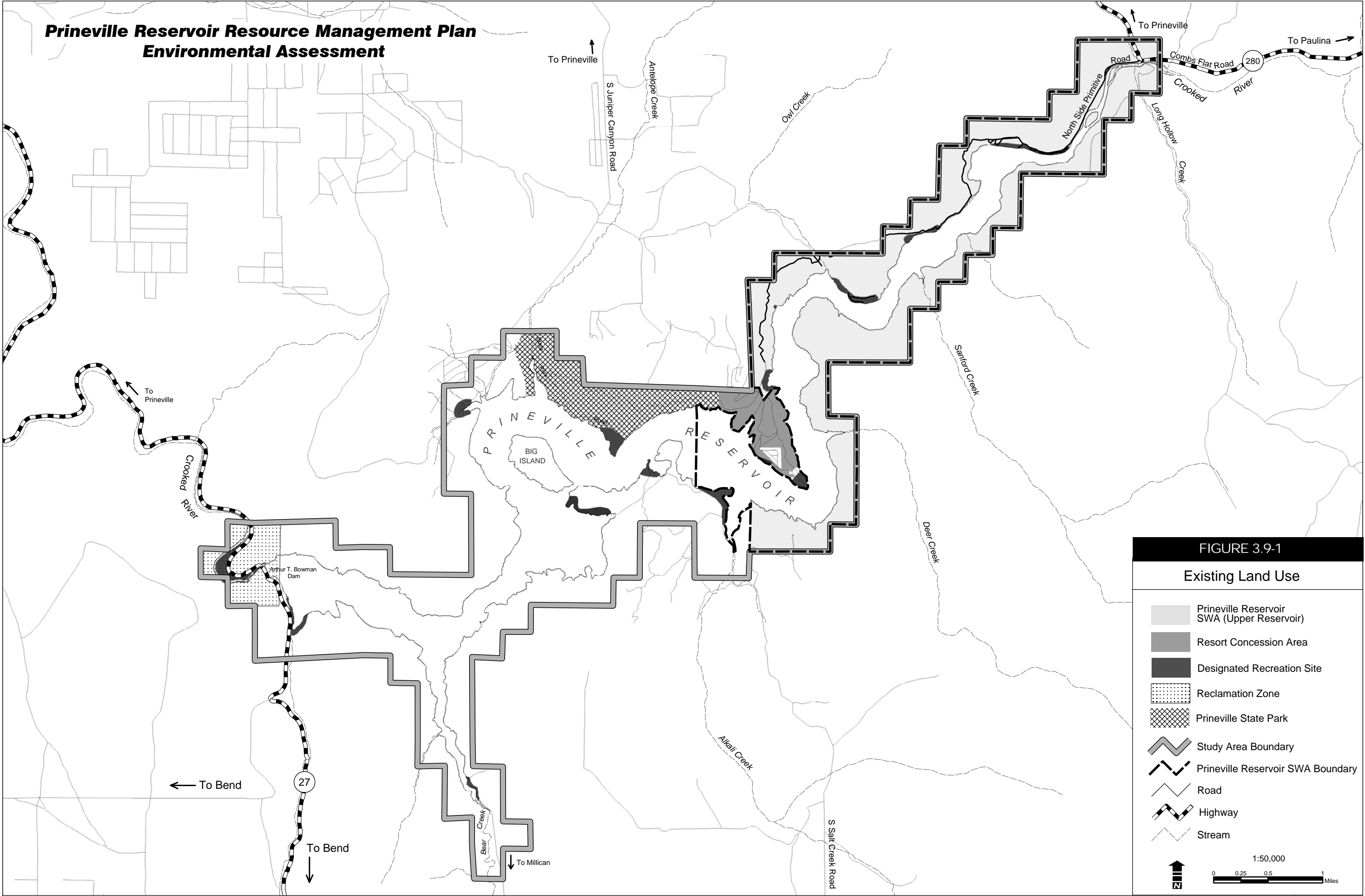
The second amendment (Amendment No. 2, dated May 4, 1999), provided for the continuing management, protection, and administration of all Reclamation land and water resources at Prineville Reservoir, except for those leased to the Prineville Reservoir Resort. Specific responsibilities include recreation management, protection, administration, and maintenance on lands under a wildlife management agreement with ODFW including managing garbage collection, sanitation, law enforcement, repairs, and similar services. This amendment provided up to 50 percent reimbursement funding from Reclamation to assist OPRD with operation and maintenance costs. (Specific service responsibilities are addressed in Section 3.11, Public Services and Utilities.)

Reclamation reserved administrative jurisdiction over a 280-acre portion of the reservoir in the vicinity of Bowman Dam referred to as "the Reclamation Zone." This area includes the dam itself, as well as the area immediately upstream and downstream of the dam.

Upper Reservoir

On March 14, 1962, Reclamation transferred management of the upper reservoir area to the Oregon Game Commission (now ODFW) to administer for fish and wildlife management. This 3,160-acre area referenced on the license agreement as "the State Zone" became the Prineville Reservoir SWA. This 50-

**Prineville Reservoir Resource Management Plan
Environmental Assessment**



year agreement required the State to “make and enforce rules and regulations for the use of the area to protect the health and safety of persons using the area, to protect plants, fish and wildlife; to preserve the scenic, scientific, aesthetic, historic and archeological resources of the area; and for the preservation of law and order in the interest of public safety” within the boundaries of the State zone. Within this zone, the State also had authority to issue grazing permits where consistent with wildlife management needs and with Reclamation approval.

On March 4, 1976, the license agreement between ODFW and Reclamation was amended to adjust the boundary between the State and County zones to accommodate the development of a County park.

ODFW continues to manage wildlife resources in the SWA. Recreational use is permitted in this area, but ODFW’s primary management objective for the SWA is wildlife habitat protection and enhancement, primarily for waterfowl, upland game, and big game populations. Land management in this area has focused on increasing habitat for these game species. (More detail on habitat management in the SWA is addressed in Section 3.5, Wildlife).

3.9.1.2 Easements and Leases

Reclamation property at Prineville Reservoir is encumbered by the following right-of-way and utility easements and grazing leases:

Rights-of-Way

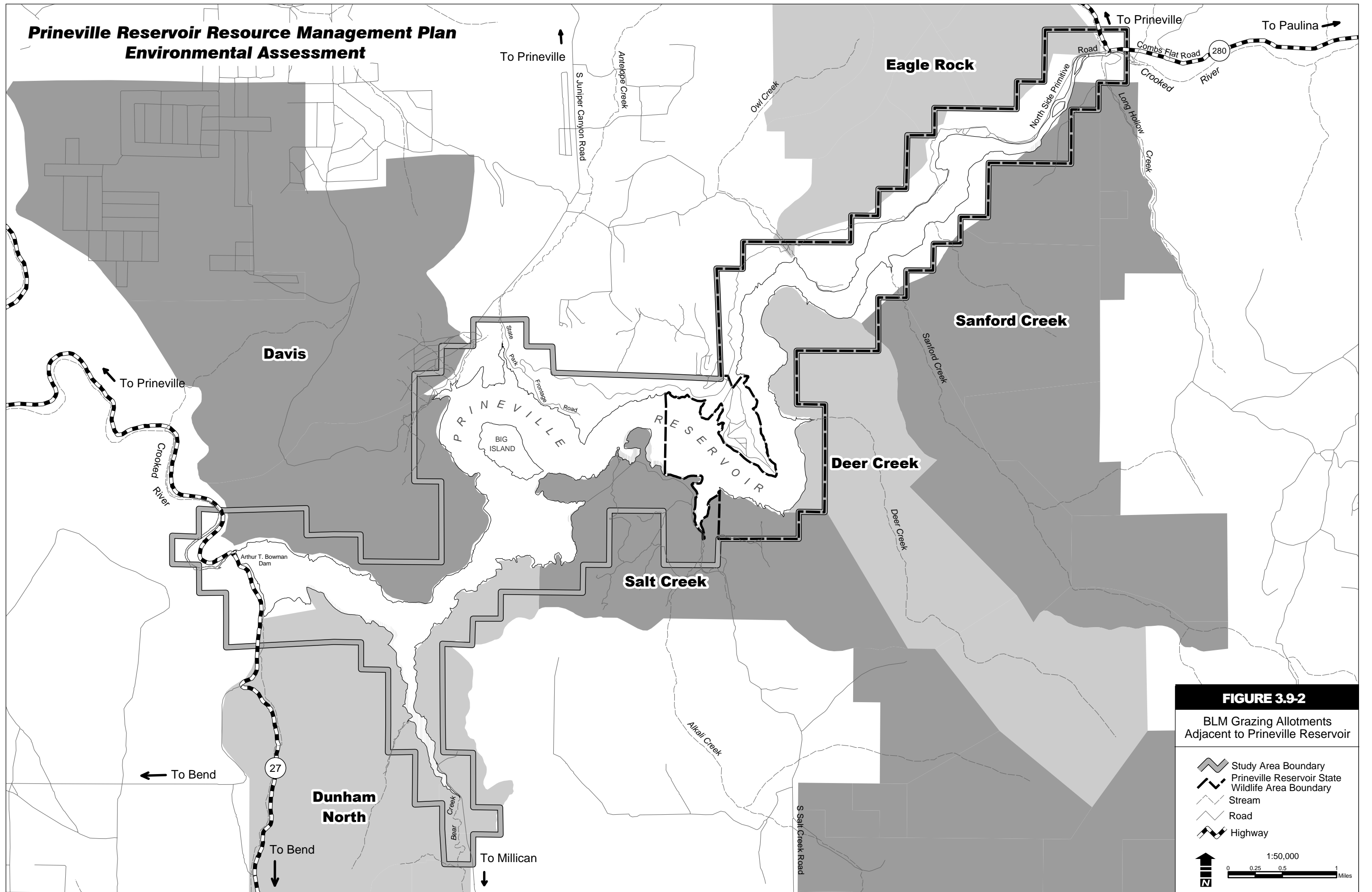
Over the years, Reclamation has issued a number of access easements to adjoining property owners. Most of these authorize pre-existing accesses to individual property owners and subdivisions. The most significant access allowance occurred October 23, 1958 in anticipation of the dam’s construction. To accommodate construction of Bowman Dam and Prineville Reservoir, Reclamation deeded an 82.74-acre strip of land to the State of Oregon Highway Commission for the relocation of Oregon State Highway No. 14 and No. 380 (Contract No. 14-06-100-1616). Reclamation also provided a perpetual road easement across the top of the dam. Reclamation had previously acquired State highway rights-of-way and compensated the State of Oregon for interference with existing County roads by Contract No. 14-06-100-1509 dated June 20, 1958. Prior to these agreements, SR 27 followed the Crooked River valley east until veering south up the Bear Creek canyon. Several other roads intersected with this highway within the area of the present reservoir including Alfalfa Road and a road that continued up the Crooked River valley, connecting with the North Side Primitive Road. The Juniper Canyon Road originally connected the City of Prineville with the Village of Roberts, but the section between the County boat ramp and Roberts Bay was inundated with the creation of the reservoir.

Use of existing roads across Reclamation land to access several private cabins on the south side of Prineville Reservoir has been authorized by similar documents. Standard language common to all these documents limited the government’s responsibility for road maintenance and prohibited construction of fences or gates to restrict access by easement holders. One relatively recent easement has been authorized to provide access to the Lakeview Cove Estates (June 23, 1999) subdivision over Reclamation land to South Juniper Canyon Road.

Telephone Easement

Reclamation provided for relocation of telephone facilities per Contract No. 14-06-100-1783 dated September 25, 1959. This agreement between Reclamation and the Bear Creek Telephone Company

Prineville Reservoir Resource Management Plan Environmental Assessment



provided for Reclamation to relocate a portion of the telephone line from the County boat ramp to Roberts Bay. The old line followed the County Road through the Crooked River valley. The new route follows the north shore of the reservoir before crossing the water in a buried cable and re-emerging near Roberts Bay West.

Power Line Easement

A contract between Reclamation and the Central Electric Cooperative (Contract No. 14-06-100-2105) dated March 13, 1961, provided for relocation of a power line. Reclamation provided Central Electric Cooperative a cash settlement for the construction, relocation, adjustment, and abandonment of the power line in areas inundated by the Prineville Reservoir itself and other parts of the study area closer to the City of Prineville. This work included removal of an existing 14.4 kilovolt (kV) power line located within the Crooked River valley and construction of a new section of 14.4 kV/24.9 kV line to serve two customers north of the County boat ramp.

Grazing

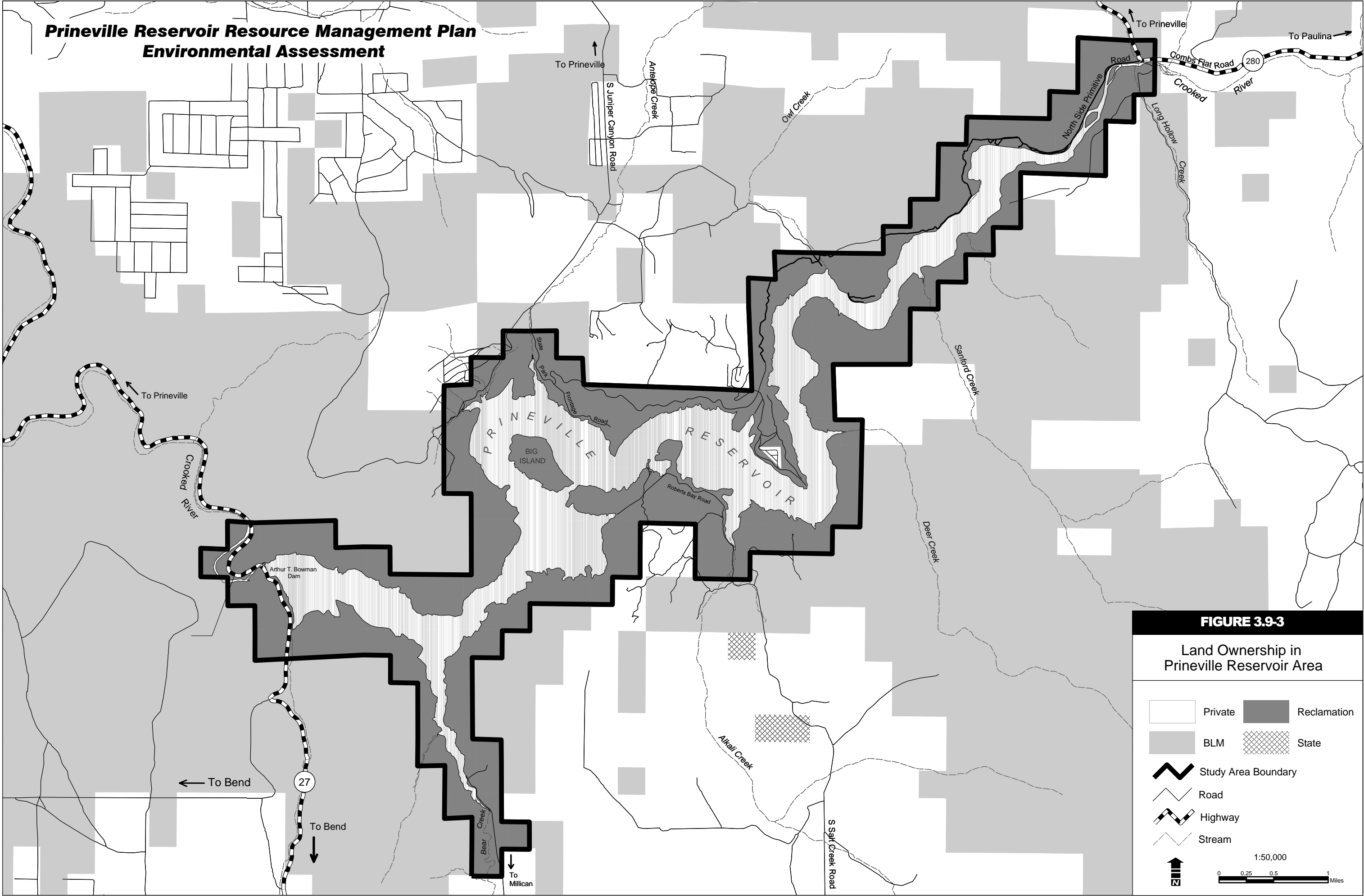
Reclamation has authorized BLM to manage grazing on Reclamation lands where compatible with Reclamation's current or planned use of any land area, and where not required for fish and wildlife management purposes or related uses. ODFW has the option of issuing grazing permits with approval from Reclamation when consistent with SWA management goals and objectives.

On Reclamation withdrawn or acquired land, permits issued by BLM shall be issued for BLM's normal permit or lease period, which has been 10 years, but shall include special stipulations as determined necessary for Reclamation to protect the land or facilities for Reclamation project purposes. When Reclamation determines that within 2 years its needs and uses will no longer be compatible with grazing, Reclamation will so notify BLM enabling it to notify the lessees and permittees and terminate the portions of the leases and/or permits on Reclamation lands in accordance with section 402 of the Federal Land Policy Management Act (FLPMA). Under emergency conditions, leases and permits may be terminated with shorter notice.

There are six permits issued for portions of 10 allotments that extend onto Reclamation lands around Prineville Reservoir (Table 3.9-1 and Figure 3.9-2). Grazing is restricted from the vicinity of the northern end of the reservoir by fencing to protect the SWA though there are several openings. On the south shore, the Taylor Butte and a portion of the Salt Creek and Dunham North allotments extend to the reservoir, allowing livestock direct access to the reservoir. On the north side, the upper portion of the Davis allotment extends along the shore of Prineville Reservoir from the dam to the County boat ramp (per. comm., Swanson, 2001).

During the 1992 RMP process, grazing management was identified as an issue needing immediate attention. Public comment emphasized that without careful livestock control and management, grazing at Prineville Reservoir is incompatible with wildlife habitat, recreation, and other resource values (Reclamation 1992).

**Prineville Reservoir Resource Management Plan
Environmental Assessment**



Source: Reclamation, 2001; OPRD, 2001; BLM Oregon, 2002; EDAW, 2002.

Table 3.9-1: BLM grazing allotments that overlap Reclamation lands at Prineville Reservoir.

Allotment	Total AUMs ¹	Term
Sanford Creek	370	3/01/1994 to 02/28/2008
Eagle Rock	155	3/01/1994 to 02/28/2008
Deer Creek	170	2/24/1997 to 12/31/2002
Salt Creek	1364	05/01/1997 to 12/31/2006
Dunham North	184	11/15/1999 to 02/28/2009
Davis	348	03/01/1995 to 02/28/2005
Carey ²	43	03/01/1998 to 02/28/2008

Source: BLM, Prineville District.

¹ AUM is Animal Unit Month.

² The Carey Allotment is not shown in Figure 3.9-2; the GIS data were not available. This allotment is located between the Eagle Rock and Davis Allotments.

Note: The pastures in these allotments can be grazed year-round, but BLM manages them according to site-specific conditions. BLM restricts grazing from early spring through late fall on those pastures that overlap Reclamation land to avoid conflicts with recreation use.

The following actions regarding grazing management were identified under the 1992 RMP:

- Grazing will be eliminated from all developed/designated recreation areas by fencing.
- Grazing use within the northeast and southeast portions of the SWA not administered by BLM will continue to be determined annually by ODFW and Reclamation.
- Grazing on Reclamation administered lands will be evaluated during development of the Prineville Reservoir Habitat and Wildlife Management Plan. Any changes in grazing use will be made in close coordination among Reclamation, BLM, ODFW, and affected parties. Emphasis will be placed in keeping livestock use away from reservoir shoreline, wetland, and riparian areas. Methods to accomplish this, including the development of watering locations in upland areas, will be considered.
- Reclamation will actively participate in the revision of BLM allotment management plans affecting Reclamation lands at Prineville Reservoir. Reclamation's guidelines for these efforts will be to preserve, protect, and enhance the natural resource values at Prineville Reservoir.

These actions have been met with limited success. The SWA was fenced to eliminate trespass livestock, but a Habitat and Wildlife Management Plan has not yet been prepared.

3.9.1.3 Adjacent Land Uses

Most lands surrounding Reclamation's land at Prineville Reservoir are managed by BLM for multiple uses, including grazing (Figure 3.9-3). Privately held lands to the north and west of the reservoir are zoned Rural Residential by Crook County, which allows housing development at densities up to 1 dwelling unit per 5 acres (pers. comm., Moore, 2001). On the south side, the County has zoned most of the land Park Reserve, which permits agriculture, park uses, and residential development (1 dwelling unit) on parcels 20 acres and larger. Land on the northeast end of the reservoir is zoned Exclusive Farm Use, which limits land use to agriculture, agricultural businesses, and homes at densities limited to 1 dwelling unit per 80 acres (pers. comm., Moore, 2001).

Existing development within the Prineville Reservoir drainage is located in three older subdivisions (Bottero Park, Jasper Knolls, and Lakeview Cove Estates), as well as four large plats on the south side of the reservoir and a few scattered houses. Bottero Park and Jasper Knolls have electrical and telephone service, and an overhead electric line was installed to Lakeview Cove Estates in 2000 with sufficient power capacity for approximately 31 lots (pers. comm., McDevitt, 2001). In general, all of these developments rely on wells and septic systems for water supply and sewage treatment. Factors limiting development include limited road access, strict County septic approval requirements, and lack of utility service (pers. comm., Moore, 2001).

Bottero Park is a privately owned inholding of 11 acres. This private subdivision, which was platted in 1963 by the former land owner of portions of the Prineville Reservoir site, is centrally located on a peninsula in the Prineville Reservoir. Over the years, most of the 15 homes on 51 lots have gradually been converted from trailer platforms and modest vacation cabins to more substantial homes, a number of which are occupied year round (Crook County 1980).

Jasper Knolls is a 44-acre subdivision of 86 lots which overlooks the reservoir near Jasper Point. This subdivision was platted in 1964 and contains a mix of approximately 49 summer and year-round residences. In addition, three additional homesites are located behind Jasper Knolls subdivision, of which only one is developed (pers. comm., McDevitt, 2001). Access to Jasper Knolls is provided via an easement over Reclamation land to South Juniper Canyon Road.

Lakeview Cove Estates, a 105-lot subdivision, is located on nearly 55 acres on a hillside above the County boat ramp area overlooking the reservoir. This plat was filed with Crook County in 1966, but little development activity occurred due to lack of road access (pers. comm., Seely, 2001). On June 23, 1999, the property owners acquired an access easement across Reclamation land for a road to connect these homesites to the County boat ramp access road. This access also includes overhead electric line installed by Central Electric Cooperative in 2000 for approximately 31 lots (pers. comm., McDevitt, 2001), which would facilitate limited future residential development if water and other services could be obtained.

According to the County Road Map, the next closest existing subdivision is Idle Way Acres, a 134-lot subdivision about 1 mile north of Reclamation's property easily accessed by Juniper Canyon Road. Other individual homes are scattered around the area, several of which are located on the south side of the reservoir. The closest of these are three houses located on the slope above Roberts Bay.

3.9.2 Environmental Consequences

3.9.2.1 Alternative A – No Action: Continuation of Existing Management Practices

The 1992 RMP recommended that a Grazing Management Plan for Reclamation lands be developed to ensure the protection of sensitive resources. This program was never developed or implemented. Under Alternative A, Reclamation would complete a Grazing Management Plan for Prineville Reservoir lands. This would increase the level of responsible land management and preservation of resource values. Any restrictions of grazing on Reclamation land would alter small areas of BLM grazing allotments around sensitive resource and recreation areas. The area of the allotments affected would be small in proportion to the size of these allotments.

Management of the SWA would continue to emphasize habitat and wildlife values, and the development of a Habitat and Wildlife Management Plan would ensure responsible management of these resources. Continued coordination with OPRD and ODFW through their respective leases with Reclamation would provide continued management of recreation and fish and wildlife on Reclamation lands. Designation of campsites in the SWA and Roberts Bay East would provide for a more efficient management of the recreation and natural resource values of the area and would reduce current dispersed land use patterns that adversely affect natural resources. In general, Alternative A would have greater benefits to land management than Alternative B, but less than those of Alternative C.

Mitigation and Residual Impacts [Alternative A]

No mitigation measures are proposed for Alternative A because the actions under this alternative do not have substantial adverse impacts on land use and management in the RMP study area. BMPs listed in Chapter 5 (Environmental Commitments) are included for all alternatives. The residual impacts are previously discussed in more detail in the above narrative.

Cumulative Impacts [Alternative A]

As discussed in Section 3.10 (Socioeconomics), the regional population is expected to grow for the foreseeable future. The expanding population would likely increase development pressure on private lands near Prineville Reservoir, especially Lakeview Cove Estates that only recently acquired access and electricity. As new homes are constructed here, and on other developable lots within the Prineville Reservoir basin, the reservoir's character would become increasingly suburban with resulting impacts to land uses at Prineville Reservoir.

3.9.2.2 Alternative B – Natural Resources/Dispersed Recreation Balance

Land use impacts under Alternative B would be very similar to those anticipated under Alternative A. No negative impacts are expected, and minor positive impacts associated with improvements to livestock management and increased enforcement of illegal ORV use would reduce misuse of land resources.

Mitigation and Residual Impacts [Alternative B]

No mitigation measures are proposed for Alternative B because the actions under this alternative do not have adverse or residual impacts on land use within the general vicinity of the RMP study area.

Cumulative Impacts [Alternative B]

Cumulative impacts under Alternative B would be similar to those under Alternative A. Regional population growth is likely to contribute to local development pressures.

3.9.2.3 Alternative C – Natural Resource Protection/Formal Recreation Emphasis (Preferred Alternative)

In general, Alternative C proposes to increase developed capacity for recreational uses at Prineville Reservoir as a way to accommodate existing and projected use while protecting resources. This approach would have mostly positive land use benefits by concentrating recreational activity in developed and managed recreation sites and by adding new facilities and by potentially limiting visitor use to more manageable levels. Although these impacts would be beneficial, this alternative would alter

the existing character of the area around Prineville Reservoir more than either of the other two alternatives.

Substantially expanded recreational facilities may also have secondary land use impacts, resulting from increased visibility of the Prineville Reservoir area that would likely result from this development especially if OPRD promotes the expanded facilities as a way to recoup its investments. Another potential secondary impact could result from service improvements to the south side of the reservoir. If electricity is developed along Roberts Bay Road at a future time, this could stimulate potential residential and second home development on private land outside Reclamation property.

Mitigation and Residual Impacts [Alternative C]

No mitigation measures are proposed for Alternative C because the actions under this alternative do not have significant adverse impacts on land use within the general vicinity of the RMP study area. Residual impacts include increased development pressure possibly resulting from OPRD-generated publicity and by public service upgrades to the south side of the reservoir such as road improvements and electrical service.

Cumulative Impacts [Alternative C]

Cumulative impacts associated with increased recreation use and regional population growth under Alternative C would be similar to those under Alternative A. Increased recreational development proposed under Alternative C would be more consistent with the changing character of private lands surrounding Prineville Reservoir as residential development expands in nearby subdivisions.

3.10 Socioeconomics

This section addresses impacts associated with all three alternatives on socioeconomic issues in the vicinity of Reclamation-owned lands bordering Prineville Reservoir.

3.10.1 Affected Environment

Prineville Reservoir is located in Crook County, Oregon. Crook County's economy and demographics are profiled below. The data shown in Tables 3.10-1 through 3.10-5 were gathered from various sources and may vary in some instances.

3.10.1.1 Economy and Employment

Manufacturing and trade (primarily wood products and tires) and agriculture (farming and ranching) are the principal employment sources for most families in Crook County. The area's best-known and largest employer is Les Schwab Tires, headquartered in Prineville. As shown in Table 3.10-1, all other large manufacturing sector employers produce wood products.

Table 3.10-1: Five largest employers, public and private, as of September 2000.

Employer—Product/Service	Number of Employees
Les Schwab Tire Co—Tires	833
Clear Pine Moldings, Inc.—Millwork, Wood Products	549
American Pine Products—Pine Moldings	425
Ochoco Lumber Company—Lumber Products	212
Pioneer Cust Stock—Millwork	120

Source: Oregon Economic and Community Development Department website; accessed 4/10/01

The principal irrigated crops are small grains, alfalfa, potatoes, and peppermint. Agricultural use of non-irrigated lands includes dryland wheat and livestock grazing. Approximately 48 percent of the County's land area is farm land (Prineville-Crook County Chamber of Commerce 2001).

Local economic health has been gradually rebounding after years of decline in the timber industry, with manufacturing and the service sectors playing an increasingly important role in the local economy. Leading economic indicators in Crook County are summarized in Table 3.10-2.

3.10.1.2 Population and Demographics

Crook County is a sparsely populated rural county of 2,991 square miles, with an average population density of 6 persons per square mile (Oregon Economic and Community Development Department website). Population growth (See Table 3.10-3) has increased slightly faster in the City of Prineville than Crook County as a whole, in part because Prineville's housing market is relatively affordable in comparison to other areas in the region. Crook County's population growth is expected to slow slightly in the future, with long-term growth at between 15 and 18 percent per decade until 2040, as shown in Table 3.10-4.

The City of Prineville has become increasingly attractive to retirees interested in central Oregon's climate and amenities, as well as to commuters employed in nearby Bend and Redmond (pers. comm., Moore, 2001). Overall, the central Oregon area around the City of Bend is the fastest growing area in the state. It continues to attract small high-tech companies, the resort industry, and retirees (McMahon 2001). Among cities in Oregon with a population of greater than 10,000 in 1990, Bend was the fastest

growing area, increasing by 160 percent during the decade and reaching 53,000 in 2000. Ranked by the amount of population change during the decade, Bend ranked third (with 33,000) behind Portland and Hillsboro. Deschutes County, where Bend is located, has also experienced extremely rapid population growth. In the period between 1990 and 2000, Deschutes County had the highest percent change in population (53.9 percent) in the entire state (Center for Population Research & Census website).

Racial diversity is relatively limited in Crook County (see Table 3.10-5). Approximately 93 percent of the population is white. Latinos are the only minority group comprising more than 5 percent of the population. Other than Latinos, which more than doubled in population since the last census, Crook County appears to be relatively stable in terms of racial demographics.

Table 3.10-2: Crook County economic indicators.

Economic Indicators	2000
Population	19,182
Labor Force	8,010
Total Employment	7,340
Unemployment	640
Unemployment Rate	8.4
Non-Farm Payroll Employment	6,350
Total Covered Employment	6,336
Total Covered Payroll	167,955
(\$ thousands)	
Average Annual Payroll Per Employee	26,508
Number of Business Units	391
Total Personal Income (\$ millions)	20,225
Annual Per Capita Personal Income	16,899
Assessed Value of Property (\$ millions)	1,038
Residential Construction	
Building Permits	205
Value (\$ thousands)	24,926
Travel Expenditures (\$ millions)	23,400
Travel-Related Employment	500

Sources: Center for Population Research & Census website; U.S. Census Bureau website; Bureau of Economic Analysis website; Oregon Tourism Commission website; Oregon Department of Revenue website; Oregon Economic and Community Development Department website.

Table 3.10-3: Local and regional population growth.

	1970	1980	1990	1998	1999	2000	Change 1990-2000
City of Prineville	4,101	5,276	5,355	6,920	7,255	7,356	37.4%
Crook County	9,985	13,091	14,111	16,650	16,800	19,182	35.9%

Sources: U.S. Census Bureau website; Center for Population Research and Census website; Oregon Economic and Community Development Department website; Office of Economic Analysis website.

Table 3.10-4: Long-term Crook County population and non-agricultural employment forecast.

Crook County	2000	2010	2020	2030	2040	Change 2000-2040
Population	17,168	20,215	23,678	27,567	31,752	84.9%
Employment	6,834	8,160	9,266	10,634	12,264	79.5%

Source: Office of Economic Analysis website.

Table 3.10-5: 2000 Crook County population by race.

Race	1990		2000	
	Population	Percentage	Population	Percentage
White	13,637	97	17,830	92.9
African American	11	0.08	8	0.04
Indian/Alaska Native	221	1.6	250	1.3
Asian	47	0.3	82	0.4
Hawaiian/Pacific Islander	N/A	N/A	6	0.03
Other	195	1.4	731	3.81
Two or More Races	N/A	N/A	275	1.39
Latino	338	2.4	1,082	5.6

Source: 1990, 2000 Census

Note: The percentage totals are greater than 100% because Latinos (an ethnicity) are also counted as African American or White (races) depending on how they identify themselves.

3.10.2 Environmental Consequences

None of the alternatives are expected to directly affect local population or income to a substantial degree. All three of the alternatives would increase fencing, which would limit the area of existing grazing leases to a minor degree, but this reduction would not be significant relative to the area of available grazing land in the region nor the amount of grazing land available per each allotment. A minor positive socioeconomic effect under Alternative C would be a small increase in seasonal employment by OPRD. If implemented, any of the three alternatives would improve the amenity value of Prineville Reservoir, making the region more desirable in and of itself; however, this change would not likely result in any measurable change to local population.

The primary financial implications for Crook County are related to law enforcement. This is because of the costs to Crook County related to patrolling the study area. These costs have historically been offset to some degree through financial assistance provided by Reclamation. As discussed in Section 3.11, the proposed level of law enforcement varies to some degree among the alternatives.

Alternative A proposes continued enforcement by the Crook County Sheriff's office and expanding resources as needed.

Proposed law enforcement under Alternative B would increase enforcement of ORV access rules but would otherwise be identical to the No Action Alternative, resulting in similar financial implications for Crook County. However, the lack of environmental controls proposed under Alternative B may actually result in an equivalent or greater need for local law enforcement; thus, Alternative B may ultimately be the most costly.

Alternative C proposes working with Crook County to establish additional ordinances to improve enforcement capability on Reclamation lands in addition to continuing existing enforcement practices. As long as Reclamation funding keeps pace with expanded law enforcement capability, no additional financial burdens should be expected by Crook County. Alternative C effectively sets visitor limits by defining campsites and use areas, and by providing a management presence particularly at Roberts Bay. This should reduce the law enforcement burden to the County more than Alternatives A or B.

All three alternatives include improvements that should enhance tourism-related revenues for the local economy, although it is difficult to accurately project a correlation between the three alternatives and differing levels of revenue.

Mitigation and Residual Impacts

No mitigation measures other than continuation of appropriate levels of support for law enforcement are proposed since none of the alternatives are expected to directly affect local population or income to a substantial degree. No significant residual impacts related to socioeconomics related to the alternatives are anticipated.

Cumulative Impacts

Increased recreation use and regional population growth are likely to continue to put pressure on existing and proposed recreation facilities at Prineville Reservoir.

Projected population growth in Prineville and Crook County, as well as Deschutes County, would continue to place pressure on recreation and wildlife resources at and around Prineville Reservoir as a growing population of area residents seeks nearby recreational amenities. As discussed in Section 3.9 (Land Use), privately owned land near the reservoir would be subject to increasing development pressure.

3.11 Public Services and Utilities

This section discusses relevant public services and utilities at Prineville Reservoir and in the surrounding area.

3.11.1 Affected Environment

3.11.1.1 Emergency Fire Suppression Services

Under the terms of its lease with Reclamation (as amended May 4, 1999), OPRD is the lead on-site agency in all emergency and fire suppression activities on Reclamation lands administered by ORPD, within the limits and responsibilities outlined in the Prineville State Park Emergency Action Plan. In practice, BLM is the first responder for wildland fires on lands owned and managed by Reclamation at Prineville Reservoir. Prineville Reservoir and the public lands in its immediate vicinity are considered by BLM to be an area of high value to receive high priority for fire management and suppression (Reclamation 1992). OPRD maintains a small pumper truck to fight structural fires at Prineville State Park (pers. comm., Crawford, 2000). Wildland fire protection in rural areas is coordinated with BLM and the U.S. Forest Service.

Responsibility for fires on Prineville State Park lands, lands leased by the Prineville Reservoir Resort, or those on private property comes under the jurisdiction of the Crook County Rural Fire District #1. Crook County Rural Fire District #1 was created by a merger between the Prineville Fire Department and Crook County Rural Fire Department's Zone #2 on July 1, 2001. Following this merger, the boundaries of the Fire District were extended from Reclamation's property line to the Prineville Reservoir Resort, including Prineville State Park, Bottero Park, and Jasper Knolls. Crook County Rural Fire District #1 provides fire protection, ambulance service, and emergency medical technicians to an area covering approximately 54 square miles. Crook County Rural Fire District #1 provides fire protection service to the community from a main station located at 500 N Belknap Street in downtown Prineville. This station is equipped with four type 1 fire trucks, two tenders, three brush trucks, and three medical units. The department has six paid and 65 volunteer firefighters. The Crook County Rural Fire District #1 plans to build a new fire substation on land it acquired in Juniper Canyon. When completed in 2002 or 2003, this new satellite station would be equipped with a Class A fire truck, a brush truck, a tender (3,000-gallon tank truck), and a medical unit. This location, which is considerably closer to the north side of the Prineville Reservoir than the current fire station, is expected to cut response time to the north side of the reservoir by approximately 50 percent (pers. comm., Schnorr, 2001).

3.11.1.2 Emergency Medical Services

Prineville Reservoir is located within the Crook County Rural Fire District #1's Ambulance Service Area. The Crook County Rural Fire District #1 operates three ambulances. Emergency medical response time is approximately 10 to 15 minutes to Prineville State Park and other destinations on the reservoir's north side. Destinations on the south side such as Powder House Cove are estimated to require 30 to 45 minutes to reach by ambulance and potentially longer for Roberts Bay. On average, camping and water skiing accidents result in approximately one or two visits to the reservoir by the ambulance per month during the summer season (pers. comm., Schnorr, 2001). The nearest hospital is Pioneer Memorial Hospital, a non-profit, 35-bed, acute care medical facility providing full medical

services to the Prineville-Crook County area (Oregon Economic and Community Development Department website). Emergency air transportation is available from Life Flight in Bend, Oregon. Response time to Prineville Reservoir is approximately 15 minutes to any point along the reservoir.

3.11.1.3 Law Enforcement

The Crook County Sheriff's Office is the lead law enforcement agency at Prineville Reservoir, with patrol services provided on shore under contract with Reclamation. The Crook County Sheriff's Marine Patrol enforces boating regulations under contract to the Oregon State Marine Board. OPRD and Oregon State Police also provide limited enforcement services (pers. comm., Hensley, 2001).

Reclamation has contracted with the Crook County Sheriff's Department on an annual basis since 1986 to provide supplemental surveillance and law enforcement services at the reservoir. The current law enforcement contract provides for the Sheriff's Office to perform year-round response to specific complaints, along with limited preventive patrol. Law enforcement is stepped up at Prineville Reservoir from Memorial Day through Labor Day of each year with the addition of two seasonal deputies who are each assigned to a 40-hour patrol week at Prineville Reservoir. Patrol time is determined for each seasonal contract. Sheriff's deputies patrol on flexible schedules to meet the requirements of seasonal demands.

The primary emphasis of these vehicle and foot patrols is to enforce County Ordinance No. 101, which amended County Ordinance No. 34 on April 12, 1975. Both local laws were initiated in response to complaints about ORVs, vandalism, the use of firearms, domestic disturbances, alcohol-related incidents, and other violations at Prineville Reservoir. These regulations specifically address vehicles, vehicle use, and parking; noise and quiet hours; weapons and hunting; fires; pets; protection of wood and other plant life; buildings, signs, and recreation area equipment; waste disposal; cleaning fish and dishes; and camping (the full text of County Ordinance No. 101 is included as Appendix G). The Crook County Sheriff also enforces Oregon State laws.

In addition, the County's marine deputies patrol the reservoir by boat from April to September, with greatest intensity between Memorial Day and Labor Day. Two boats patrol the reservoir, especially on weekends and holidays. Watercraft safety is a major concern of the marine patrols who enforce speed and other regulations on behalf of the Oregon State Marine Board. Currently, the only areas of the reservoir posted for 5 mph boating are Powder House Cove, the straits between the big island and Juniper Point, Roberts Bay, and the portion of the reservoir north of Owl Creek. Boat speed is also restricted to 5 mph within 200 feet from the shore and in front of the State Park, where 3 mph is the preferred speed limit. Boat speed is limited to 10 mph within 100 feet of another vessel (pers. comm., Hensley, 2001).

OPRD has citation authority to enforce the Oregon Administrative Rules within Reclamation's property. In addition to hunting and fishing enforcement by the Crook County Sheriff's Office, the Oregon State Police Department's game officers enforce hunting and fishing regulations on and around the reservoir, as well as in the back country (pers. comm., Hensley, 2001). Oregon State Police also provide random patrols throughout the year to assist in unauthorized ORV use enforcement and trespass issues.

During the summer season, Prineville Reservoir is a major law enforcement focus by Crook County. Specific "hot spots" include less-regulated sites such as Roberts Bay and areas accessed by the North Side Primitive Road. The Powder House Cove area has also become an area of increased law

enforcement due to unsafe parking on Highway 27, watercraft crowding near the makeshift boat ramp, and other conflicts resulting from increased use by visitors from the Bend area (pers. comm., Hensley, 2001).

3.11.1.4 Water Supply

Prineville State Park draws groundwater from three wells for domestic and irrigation uses. One well serves as the primary water source with the remaining two providing backup. Groundwater is pumped to a 20,000 gallon concrete storage tank that supplies restrooms, spigots, and campsite hookups with gravity-fed potable water. This tank is scheduled to be replaced in 2003 with a 100,000 gallon steel storage tank. Capacity of this system is estimated at 23,500 gallons per day. Park facilities at Jasper Point are served by a separate well (pers. comm., Skavlan, 2001). Jasper Point also depends on groundwater for domestic purposes and fire protection. This campsite is supplied by one well and a 20,000 gallon water tank that supplies all campsites with water through gravity-fed lines, capable of processing 500 gallons per day (pers. comm., Crawford, 2001). This system was upgraded in 2001 with the addition of a pressure regulating pump.

Prineville Reservoir Resort operates three wells in rotation which pump water to a 9,000 gallon storage cistern. Stored water is fed by gravity to water users, including the motel, two private homes, the store/café, and spigots at the campsites and marina. Resort owners installed a new well in 2000 and replaced a pump motor the following year. This system does not provide adequate water flow during the peak season in dry years. At these times, the resort re-fills the cistern with fresh water trucked in from Prineville. Water conservation measures in the works or planned include low-flow showerheads and card showers to prevent unauthorized use. Bottero Park and Jasper Knolls also depend on well-supplied groundwater (pers. comm., Hawes, 2001).

3.11.1.5 Wastewater Treatment

Sewage generated by campground restrooms and campground hookups at Prineville State Park is treated by septic tank and leaching field systems. Sewage treatment at Jasper Point is limited to a vault toilet. ORPD installed a dump station for RV use in June 2002. Recreation sites such as Owl Creek, Cattle Guard, Old Field, Roberts Bay, and Big Bend—as well as the County boat ramp and Powder House Cove—have portable or vault toilets maintained by a private vendor under contract to ORPD (pers. comm., Skavlan, 2001). The Prineville Reservoir Resort has separate septic systems to treat wastewater generated by two private houses, the store/café, motel, and two restrooms. Wastes discharged at the RV dump station are stored in a large holding tank emptied by a commercial hauler one to two times each season (pers. comm., Hawes, 2001). A floating restroom was put in place in Juniper Bay for seasonal use by boaters during the 2001 and 2002 recreation season (August-October 2001 and April-October 15, 2002).

3.11.1.6 Solid Waste

ORPD maintenance crews at Prineville State Park collect trash from receptacles throughout the park and Jasper Point on an as-needed basis. During peak activity periods, this can be up to several times per day. The trash truck is emptied on a weekly basis, or more frequently if necessary, at the local landfill near Prineville. Trash receptacles at recreation sites such as Owl Creek, Cattle Guard, Old Field, Roberts Bay, and Big Bend—as well as the County boat ramp, Powder House Cove, and Bear Creek—are emptied by private vendor under contract to ORPD (pers. comm., Skavlan, 2001).

3.11.1.7 Gas

There is no natural gas service available in the vicinity of Prineville Reservoir. Both bottled propane and gasoline are stored and sold at the Prineville Reservoir Resort.

3.11.1.8 Electrical

Central Electric Cooperative provides 30 amp service to most campsites at Prineville State Park and Jasper Point. Campsites at Prineville Reservoir Resort have 20 amp service. Electrical service is also provided to facilities at Bowman Dam. Electricity is measured by seven meters in the State Park and three meters in Jasper Point. Bottero Park and Prineville Reservoir Resort have a combined total of 29 electric meters (pers. comm., McDevitt, 2001).

3.11.1.9 Telecommunications

Prineville State Park and Jasper Point each has one payphone, with service provided by Qwest. Administration facilities at Prineville State Park are served by nine lines. Mobile telephone service is limited at Prineville State Park for some service providers, especially digital phones. Most cellular phone customers report better coverage at Jasper Point (pers. comm., Skavlan, 2001). Two Qwest pay phones are located at the Prineville Reservoir Resort, which also maintains two business lines and two personal lines (pers. comm. Hawes, 2001). A repeater tower has been proposed to assist emergency, law enforcement, and operations communications. A tentative site for this tower is the south shore of the reservoir between Powder House Cove and the Bear Creek Arm.

3.11.2 Environmental Consequences

3.11.2.1 Alternative A – No Action: Continuation of Existing Management Practices

Current fire prevention and law enforcement practices would continue under Alternative A. Results of the development of Jasper Point would indicate that formalized recreational site development proposed under this alternative for Roberts Bay East would likely improve behavior by visitors, resulting in positive benefits to the south shore areas.

Utilities would remain relatively unchanged under Alternative A, although potable water is proposed for Roberts Bay. Based on the history of water shortages reported by the Prineville Reservoir Resort, this new water demand could also experience and possibly contribute to supply shortages during the peak use dry period. This could potentially affect recreation users at Roberts Bay.

Information signage would be added under Alternative A to inform visitors about the pack-in/pack-out policy for solid waste, which would likely reduce some litter problems in remote sites.

Mitigation and Residual Impacts [Alternative A]

To prevent possible utility impacts, such as over-consumption of water or excessive demands on wastewater treatment facilities during the dry summer months, water saving technology would be used in any new recreation or support facility development where feasible. If this approach does not prove successful, possible residual impacts include potential water shortages resulting from new facilities at Roberts Bay.

Cumulative Impacts [Alternative A]

Projected regional population growth and resulting local development and increased visitation would have a long-term effect on public service providers and resources. Specifically, this growth will add to the response demands of local fire suppression services, emergency medical, and law enforcement. Residential development within the Prineville Reservoir basin and its effect on water quality and supply are of particular concern, especially for Jasper Knolls and Bottero Park due to their proximity to OPRD-managed public recreational facilities. The outcome of the PRRS would not affect public services or utilities associated with Prineville Reservoir.

3.11.2.2 Alternative B – Natural Resources/Dispersed Recreation Balance

Under Alternative B, OPRD would develop an agreement with Crook County Rural Fire District #1 for structural fire protection, which could result in positive benefits for both agencies.

Vehicle access rule enforcement would be increased under Alternative B. In addition, signage and additional barriers will be installed to control ORV use.

Utilities would remain relatively unchanged under Alternative B, although potable water is proposed for Roberts Bay. This would create new demands on the local groundwater supply and may contribute to supply shortages during the peak use dry period and would adversely affect recreationists.

Information signage would be added under Alternative B to inform visitors about the pack-in/pack-out policy for garbage, which would likely reduce some litter problems in remote sites.

Mitigation and Residual Impacts [Alternative B]

Mitigation measures proposed for Alternative B consist of the use of water-saving technology, similar to those proposed under Alternative A. Nevertheless, water shortages occurring at times of peak demand may still occur as residual impacts.

Cumulative Impacts [Alternative B]

Cumulative impacts associated with increased recreation use and regional population growth under Alternative B would be similar to those under Alternative A by adding to demands on local public service providers and increasing resource pressures.

3.11.2.3 Alternative C – Natural Resource Protection/Formal Recreation Emphasis

In addition to the interagency structural fire protection agreement between OPRD and the Crook County Rural Fire District #1, Reclamation would cooperate with neighboring counties on a wildland fire prevention program. In addition, fire prevention and closure information would be posted at recreation sites. Emergency communications capabilities would also be improved under this alternative through cooperation with other interested agencies and parties, resulting in positive public service impacts.

In association with the greater emphasis on developed recreation under Alternative C, enforcement funding would be continued and expanded as necessary. Additional County ordinances may be established through cooperation with Crook County to improve enforcement on Reclamation lands, and established Reclamation regulations would be enforced. As a result of these measures, benefits from

better and more coordinated enforcement of laws and regulations could be expected under Alternative C. Nevertheless, local law enforcement capabilities are limited. Additional enforcement responsibilities, such as more restrictive no-wake zones and use prohibitions, may have staffing or level of service impacts for local law enforcement entities. Alternative C effectively sets visitor use limits by defining campsites and use areas and by providing a management presence particularly at Roberts Bay. This should reduce the law enforcement burden to the County more than Alternatives A or B.

New recreational facility development proposed under Alternative C would result in proportional increases in demand for water supplies and wastewater treatment. Specifically, new employee housing and rental cabins proposed for the expanded State Park area, along with new flush toilets, showers, irrigation, and employee housing at Roberts Bay, would require substantial new and expanded utility capacity.

Alternative C includes improved visitor communications, such as information signage and park brochures, to inform visitors about the pack-in/pack-out policy for solid waste, which would likely reduce some litter problems in remote sites.

Mitigation and Residual Impacts [Alternative C]

Mitigation measures proposed for Alternative C consist of the use of water-saving technology, similar to those proposed under Alternatives A and B. Likewise, water shortages occurring at times of peak demand may still occur as residual impacts.

Cumulative Impacts [Alternative C]

Cumulative impacts associated with increased recreation use and regional population growth under Alternative B would be similar to those under Alternative A by adding to demands on local public service providers and increasing resource pressures. To function successfully, Alternative C would likely place increased demands on local public services.

3.12 Environmental Justice

This section addresses impacts associated with the alternatives on environmental justice issues in the vicinity of Prineville Reservoir.

3.12.1 Affected Environment

In February 1994, the President issued Executive Order 12898 that requires all Federal agencies to seek to achieve environmental justice by “identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations” (Executive Order 12898).

The resource management planning and NEPA environmental review process for the Prineville Reservoir RMP complied with Executive Order 12898 by identifying minority and low-income populations early in the process and incorporating the perspectives of these populations into the decision-making process.

The Department of Housing and Urban Development (HUD) defines low income as 80 percent of the median family income for the area, subject to adjustment for areas with unusually high or low incomes or housing costs. Based on the HUD standard, Crook County (with an average 1998 per capita income of \$19,905) would not be considered a low-income population in Oregon, which had a statewide 1998 per capita income of \$23,920. Nearly 93 percent of the population is white; thus, the potentially affected minority population in this region is extremely limited including 1,082 Latinos, 1,006 mixed and other races, 250 Indian/Alaska Natives, and a small handful of others.

3.12.2 Environmental Consequences

3.12.2.1 Alternative A – No Action: Continuation of Existing Management Practices

While there are no statistics available on the racial or economic status of users of Prineville Reservoir, it is likely that users are a proportional reflection of the local and regional population. Alternative A would generally comply with Executive Order 12898, but lower income families or individuals may be affected more from fees for developed campsites compared to middle or upper income families or individuals. Fees for campsites would be developed according to OPRD guidelines, which offer a relatively low cost recreation option for the provided amenities. Therefore, only minor effects would be anticipated from the fees charged at campsites around the reservoir to lower income populations.

Mitigation and Residual Impacts [Alternative A]

As stated in Chapter 5 (Environmental Commitments), entrance and user fees will be structured to allow many individuals and families of different income levels to use Prineville Reservoir 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.

Cumulative Impacts [Alternative A]

Increased recreation use and regional population growth are likely to continue to put pressure on existing and proposed recreation facilities at Prineville Reservoir, resulting in potential competition for

use of recreation sites. These effects would be common for all user groups and no disproportionate effects are anticipated.

3.12.2.2 Alternative B – Natural Resource /Dispersed Recreation Balance

Environmental justice effects would be similar to those described under Alternative A; however, the increase in dispersed camping options under this alternative would provide more free camping opportunities for low-income visitors.

Mitigation and Residual Impacts [Alternative B]

Mitigation measures proposed for Alternative B consist of fee structuring supportive of visitors of different incomes as addressed in Chapter 5 (Environmental Commitments) and would be similar to those proposed under Alternative A.

Cumulative Impacts [Alternative B]

Increased recreation use and regional population growth are likely to continue to put pressure on existing and proposed recreation facilities at Prineville Reservoir, resulting in potential competition for use of recreation sites.

3.12.2.3 Alternative C – Natural Resource Protection/Formal Recreation Emphasis (Preferred Alternative)

Environmental justice effects would be similar to those described under Alternative A, although this alternative offers fewer free dispersed camping opportunities.

Mitigation and Residual Impacts [Alternative C]

Mitigation measures proposed for Alternative C consist of fee structuring supportive of visitors of different incomes as addressed in Chapter 5 (Environmental Commitments) and would be similar to those proposed under Alternatives A and B.

Cumulative Impacts [Alternative C]

Increased recreation use and regional population growth are likely to continue to put pressure on existing and proposed recreation facilities at Prineville Reservoir, resulting in potential competition for use of recreation sites.

3.13 Cultural Resources

The National Historic Preservation Act (NHPA) is the principal law directing cultural resource management actions on Federal lands. Section 106 of NHPA requires that agencies identify and seek to protect historic properties on Federal land or that will be impacted by a Federal undertaking. Associated regulations (36 CFR 800) and Departmental guidance define the processes to be used to comply with Section 106. Section 110 of NHPA directs agencies to manage historic properties on their lands as stewards of the resource for future generations. NHPA defines historic properties to include prehistoric and historic period archeological sites, buildings, or places that are of historic significance and are eligible for inclusion in the National Register of Historic Places (Register). Historic properties also include traditional cultural properties (TCPs). TCPs are places of special heritage value to contemporary communities (often, but not necessarily, Indian communities), and meet the criteria for eligibility to the Register. Their heritage value stems from their association with the cultural practices or beliefs that are important in maintaining the cultural identity of that community.

Indian tribes may identify places or resources that are of cultural value to the tribe, but do not conform to any of the Register's four criteria of historic significance. For this study, these are termed "culturally important resources." Federal agencies are not required to seek to protect culturally important resources as part of their historic property preservation programs.

3.13.1 Affected Environment

3.13.1.1 Previous Investigations

To date, approximately 2,945 acres of land around Prineville Reservoir have been inventoried for archeological resources, and 126 archeological sites and one human burial have been recorded. No TCPs have been recorded, but tribes have indicated that culturally important resources are present. The following discussions summarize cultural resource investigations and results through July 2002.

Archeological investigations first occurred in 1948, when the Smithsonian Institution's River Basin Survey (RBS) completed a reconnaissance survey of the reservoir basin prior to construction of the dam (Osborne 1948). The RBS team recorded nine archeological sites (35-CR-1 through CR-9) and the burial (35-CR-10). They noted, but did not record, two rock slab enclosures. They excavated the burial, which was later sent to the Smithsonian Institution. From surface evidence, the RBS team determined that the archeological sites were not historically important, and no data recovery occurred. No further cultural resource investigations occurred at the reservoir until the 1990s.

In 1992, Reclamation completed the Prineville Reservoir RMP. The RMP incorporated commitments to initiate systematic archeological investigations at the reservoir. The commitments focused on archeological site identification and preparation of a Cultural Resource Management Plan (CRMP). Consultation with the State Historic Preservation Officer (SHPO) was to occur to determine Register eligibility, where this could be accomplished using survey information. Reclamation anticipated that the surveys would be completed in 1993 and the CRMP would be written in 1994. Surveys did begin in 1993. However, a far greater number of sites were found than anticipated. The greater level of effort necessary to document these sites caused all available funding to be expended to survey and record sites in only a portion of the study area. Work resumed in 1998, when funding again became available. Since 1992, investigations have focused on conducting archeological surveys and test excavations in the areas

with the highest probability for cultural resources and the greatest potential for impact from reservoir operations or land use.

The principal investigations completed since 1992 are as follows. In 1993 and 1999, Reclamation's contractors completed intensive archeological surveys of lands on the north shore upstream of the County boat ramp, much of the south shore upstream of Juniper Point, and at the Big Bend recreational use area below the dam. The surveyors relocated four of the nine sites recorded by the RBS team, and recorded 116 new archeological sites. The 1993 surveys are reported in Morgan et al. (1999) and the 1999 surveys in Oetting (2000). In 1998 and 2002, the Powder House Cove area was surveyed, encompassing locations that might be developed under Alternatives B or C of this RMP update. The surveys are reported in Regan and Crisson (1998) and via pers. comm. (A. Oetting, 2002).

No sites were found at Big Bend recreational area. One site was recorded upstream of Powder House Cove (pers. comm., A. Oetting, 2002), in the area considered for recreation development under Alternative C. Sites were recorded throughout all other surveyed areas, even in locations where somewhat rougher terrain might have been expected to discourage frequent human use. Sites are present in or near all designated recreation areas around the reservoir except Owl Creek. They are present along much of the shoreline areas in the SWA, which are the focus of much of the dispersed boat-in or land-based camping and day use. Some are within the reservoir operational zone. The North Side Primitive Road passes through sites, as do other unauthorized roads and trails.

Of the 126 recorded archeological sites, nine are 20th century trash dumps; one is the foundation from a ranch/farmstead; one is a masonry structure that may have been the powder house used when constructing Bowman Dam; and two are rock overhangs with associated prehistoric archeological deposits. The remaining 113 sites are prehistoric archeological sites variously recorded as lithic scatters or artifact scatters. Diagnostic artifacts observed at the sites indicate they span the last 4,000 years. The prehistoric sites primarily consist of debitage from stone tool manufacture. Some sites also contain natural cobbles that exhibit wear from use as grinding implements. Two of those sites have boulders with ground surfaces indicating they were used as grinding platforms, and several have fragments of stones that appear to have been used as grinding platforms. Most formed tools found were projectile points or point fragments, scrapers, graters, or bifacial fragments.

As of 2002, most lands with a high or moderate probability for site occurrence have been surveyed. Most of the unsurveyed lands are extremely steep, rocky areas with low site potential. Additional survey is needed in some areas, particularly portions of the south shore below Juniper Point and up Bear Creek. The two rock enclosures noted by the RBS also need to be relocated.

In 1998, Reclamation began archeological test excavations at recorded sites in areas most subject to impacts. Test excavations were completed at 20 of the recorded sites in the vicinity of the Roberts Bay recreation use area (Oetting 1999). The test excavations indicate that three of those sites contain subsurface deposits that appear to make them eligible for the Register under criterion d. Sites eligible under criterion d have the potential to contribute new information that will expand our understanding of past lifeways. The remaining 17 sites tested at Roberts Bay appear to fail to meet Register criteria.

In 2001, preliminary test probing was completed at 44 of the recorded archeological sites on the north shore (Oetting 2001). The 44 probed sites are near the County boat ramp, within the State Park, near Jasper Point Campground, along the North Side Primitive Road, and between the North Side Primitive Road and the shoreline. The latter area encompassed recorded archeological sites in or near the

primitive-designated recreation areas in the SWA. The probing indicated that 29 of the 44 sites seem to lack any subsurface materials and are unlikely to meet minimum Register criteria. Fifteen of the probed sites required additional test excavation to determine their historic significance. All of these 15 sites are in locations that are commonly used for dispersed camping or day use. Some are where recreational development is proposed or where primitive-designated use is authorized. In 2002, more extensive test excavations were completed at four of those 15 sites. Two of the tested sites are at proposed recreation use sites within the State Park, and the other two are in the vicinity of the Old Field and Cattle Guard primitive-designated recreation areas. The additional test excavations confirmed that these four sites contain subsurface deposits, and at least three of the four appear eligible to the Register (pers. comm., A. Oetting, 2002). Consultation with the Oregon SHPO and with interested Indian tribes is needed before the final determination can be made about the historic significance of any of the sites discussed above.

Further investigations have been completed at the nine trash dump sites to assess their historic significance. The contractor has recommended that none of the nine dump sites be considered eligible to the National Register (Minor and Oetting 2002). No test excavations have yet occurred at the other archeological sites recorded at the reservoir to enable determination of their eligibility to the Register.

3.13.1.2 Tribal Consultations to Identify Traditional Cultural Properties

In 2001, Reclamation initiated tribal consultations to learn if TCPs or culturally important resources might be present at the reservoir. Prineville Reservoir is situated within the ceded lands of The Confederated Tribes of the Warm Springs Reservation of Oregon (Warm Springs Tribes). In January 2001, Reclamation management and staff met with staff from the Warm Springs Tribes' Natural Resources Department. They indicated that the Warm Springs Tribes' Cultural Committee would contact Reclamation if they felt it necessary to be involved in the RMP update. In July 2001, a member of the Cultural Committee contacted Reclamation and indicated that archeological sites, TCPs, and traditional subsistence plants were present near Prineville Reservoir, and they were concerned about their protection. In August 2001, Reclamation staff met at the reservoir with members of the Cultural Committee. The meeting focused on familiarizing Cultural Committee members with the RMP update process and goals, and with general discussions of land management issues and tribal concerns about resource management. The Cultural Committee indicated they would collect existing information about TCPs and provide it for Reclamation's use in preservation planning. They also requested that Reclamation complete an ethnographic study for the area. In March 2002, Reclamation contacted the Cultural Committee and learned they had talked with knowledgeable people in the tribe and identified several areas at the reservoir that have important plants and cultural sites. In April it was agreed that the Cultural Committee would visit the reservoir to collect field data. They would use the information when providing tribal comments in the Ad Hoc Work Group, and would share data with Reclamation, to the extent determined appropriate by the tribes. At this time, Reclamation had not yet received further information about the location or characteristics of TCPs or culturally important resources. Consultations with the Warm Springs Tribes about these resources will continue during the RMP implementation.

In 2001, Reclamation also notified the Burns Paiute Tribe and the Klamath Tribes of the RMP update and offered to meet to discuss cultural resource issues or concerns.

3.13.1.3 Current Integrity

Archeological contractors performing investigations at Prineville Reservoir were instructed to note factors obviously affecting the sites. The principal impacting agents they documented were:

- Reservoir operation, causing bank and surface erosion and exposing artifacts;
- Sheet erosion from uncontrolled surface runoff, usually noted where there was little vegetation;
- Over-use of areas by recreationists;
- ORV operation, both cross country or on unarmored roads, through archeological sites; and
- Relic collection on sites.

Although some sites may never have had large amounts of artifactual material, evidence indicates that relic collection has contributed to sparsity of material at many sites. Site documentation actions included counting and mapping the locations of artifacts at sites. Archeologists completing site documentation noted rapid (often overnight) disappearance of recorded but uncollected artifacts. Archeological sites that were documented in 1993 and then documented again in 1999 showed a reduction in surface-visible artifacts; in some cases, all diagnostic tools and many other artifacts were gone. Similar loss of documented artifacts occurred at some sites between visits in 2000 and 2001. Piles of artifacts picked up and then rejected by collectors were noted at several sites. Typically, loss of artifacts and the presence of collection piles were noted at sites at or near designated recreation sites or very near the shoreline in preferred dispersed use areas

3.13.2 Environmental Consequences

Archeological sites are very fragile. Much of a site's scientific value lies in maintaining the original vertical and horizontal spatial relationship of all artifacts. Any event or action that disturbs the soil or strips away vegetation can damage or destroy that spatial relationship, and also expose artifacts to looters. The Warm Springs Tribes have indicated that traditional subsistence plants and TCPs are present. Although Reclamation has not yet been informed of the kind and location of these resources, it can be assumed that uses that damage vegetation or disturb soils may harm these kinds of resources.

The three alternatives have the potential to adversely impact historic properties. Soil and vegetation disturbance can occur from construction of recreational improvements, continued or increased dispersed recreation, ORV use, wildfire suppression actions, and habitat and wildlife management actions. The trend of increased recreation use on these lands may increase relic collection and soil disturbance, and associated resource impacts, over time.

Actions under the alternatives also offer the potential benefit of aiding historic preservation. All alternatives include some level of programmatic cultural resource management activity, although under no alternative would application of these management actions protect and preserve all of the Register eligible sites from continued or new impacts. All alternatives call for increased enforcement of ORV restrictions. All alternatives presume application of BMPs described in Chapter 5. Implementation of the BMPs would avoid or reduce impacts to sites from all authorized uses except dispersed recreation. Where impacts cannot be avoided by application of BMPs, the alternatives all include the commitment to mitigate adverse impacts on the best examples of affected Register eligible properties.

3.13.2.1 Alternative A - No Action, Continuation of Existing Management Practices

Increased enforcement of restrictions on ORV use throughout the study area would reduce, and perhaps in some locations stop, ORV-induced rutting and churning of soils that redistribute archeological materials, damaging the scientifically informative horizontal and vertical spatial relationship. It would also reduce damage to vegetation, resulting in less soil erosion, fewer artifacts exposed to relic collection, and less damage to plant materials with traditional importance for Indian tribes. Enforced restriction of motorized vehicles to designated roads might reduce public use of lands at any distance from those roads. This would reduce the likelihood of vandalism or inadvertent damage to cultural resource sites away from roads.

The existing seasonal vehicle closure in the SWA halts vehicle-induced soil damage during that time period. There is likely little public use of the area during the closure, other than boat-in use of the shoreline. Continued limitation of the south shore of the SWA to boat-in day use would continue to protect resources there from ORV use.

Preparation of a comprehensive Habitat and Wildlife Management Plan would allow Section 106 compliance requirements, Reclamation's impact avoidance commitments, and related BMPs to be integrated into that program. This should reduce the chances of accidental damage to cultural resources.

The plan could be a means to define kinds of actions to avoid damage to archeological sites or TCPs, and would allow potentially beneficial actions to be incorporated into the wildlife program. The concept incorporates actions that could benefit Section 110 cultural resource protection goals, potentially extending them beyond the high priority focus area discussed above. These include restoration of vegetation, which would reduce erosion; fencing to keep livestock from sensitive habitat areas, which would reduce soil disturbance; and efforts to control ORV access to shoreline areas in the SWA, which would reduce soil disturbance. Fencing areas could potentially damage sites, either from fence installation or from livestock creating an entrenched pathway along the fence line. Construction of upland watering locations or ground-disturbing habitat restoration actions could damage sites. However, these risks could be minimized by application of Reclamation's commitment to avoid placing new developments within site boundaries (see Chapter 2).

Activities to define and implement habitat management actions would benefit cultural resources if those activities identify and eliminate uses that are impacting archeological sites and traditionally important plant communities. Fencing would have benefits or impacts, as discussed under the Habitat and Wildlife Management Plan. Keeping livestock away from the shoreline or other wet areas would be a benefit because animals sink into the wet ground, churn the soils, and damage archeological deposits.

Designating specific locations for the Juniper Bass, Cattle Guard, and Old Field camping areas would benefit cultural resources. At least 10 archeological sites lie along the SWA shoreline in the vicinity of these camping areas, and it is probable that as-yet undocumented TCPs or traditionally important plant communities are also present. Designating specific campsite locations could reduce random camping and allow designated campsites to be selected to avoid cultural resource sites. Designation of campsites would also allow enforcement of user restrictions. These actions could reduce ongoing use damages that archeological contractors observed at archeological sites in the area. These damages include: relic collection; damage from ORV activity; digging of fire, trash, or toilet pits into archeological deposits; and loss of vegetation that can increase surface erosion or harm traditionally important plant communities. Relic collection would likely continue on sites within walking distance of designated camping areas. If TCPs are present, they most likely would also be damaged by these ground-disturbing

activities. Note: these kinds of impacts are generic to recreation day use and camping activities at unimproved sites or primitive use areas discussed below.

Dispersed camping would be allowed to continue throughout the area, except between Roberts Bay and Long Hollow Creek. Dispersed day use would continue on all open lands. Boat-in day use would continue on all shoreline areas. These uses would allow continuation of impacts associated with recreation day use and camping at primitive locations described above. If the trend of increased recreational use continues, then the level of impact would increase, and it could extend into areas that currently are little used. It is possible that continued area-wide dispersed use would negate the benefits from designating specific campsites at Juniper Bass, Cattle Guard, and Old Field, as people turned away from those locations may simply camp at another location of their choice elsewhere at the reservoir.

Recreation improvements proposed for the Prineville Reservoir Resort and Powder House Cove are unlikely to impact cultural resources; no archeological sites are present in those areas. It is unlikely that TCPs are present because of extensive prior disturbances. Powder House Cove was used to dump spoil material excavated from Bowman Dam's foundation, and the portion of the resort involved under Alternative A is fully developed.

It is unlikely that adverse effects would occur from improvements to the County boat ramp. Although archeological sites are present, all but one lie outside of direct construction impact areas. One site may lie within impact areas, but it appears not eligible to the Register; consultation is needed with the SHPO to confirm this assessment. Reclamation must also consult with the Warm Springs Tribes to determine if they are aware of TCPs in the area. However, past road and facilities construction and impacts from recreational use make it unlikely that any TCPs that might once have been present would have survived.

Development of the State Park North Expansion Area and Antelope Creek Day Use Area would adversely affect cultural resources. One archeological site is present at each location, and each has at least isolated areas that contain subsurface deposits that may make them eligible to the Register. At the North Expansion Area, the subsurface deposits are confined to a very small area. Therefore, application of site protection commitments defined in Chapter 2 could avoid impacts to that portion of the resource site. At the Antelope Creek Day Use Area, it is not likely that adverse impacts to the archeological site can be avoided. However, the resource deposits in much of the construction impact zone are already being badly damaged by dispersed recreational use of the unimproved location. The site is also being impacted by erosion from reservoir operations and surface run-off. These damages will continue even if recreational improvements at this location do not go forward under the updated RMP because this location is very attractive for recreators. Consultations are needed with the Warm Springs Tribes to determine if TCPs are present. If they are present, it is very likely they are being impacted by existing uses and ongoing erosion and would be further damaged by proposed construction. There is a possibility that development of these locations could benefit cultural resources elsewhere at the reservoir. As discussed above, dispersed camping is authorized on the north shore in the SWA. Some of those campers may be in the SWA because they cannot currently be accommodated at improved campgrounds and would use campgrounds if there were space. This would reduce the number of dispersed campers and the resource impacts they can cause.

No cultural resource investigations have occurred in the Bear Creek designated use area. If sites are present, "status quo" actions under Alternative A would cause no new impacts. However, impacts described above for dispersed recreational use in primitive use areas are likely occurring and would continue to occur.

It is unlikely that adverse effects would occur from continued dispersed camping at Juniper Point. One archeological site is present, but it appears not eligible to the Register. Consultation is needed with the SHPO to confirm this assessment. Reclamation must also consult with the Warm Springs Tribes to determine if they are aware of TCPs in the area. If they are present, no new impacts are likely to occur under Alternative A, but ongoing effects from recreational use would continue.

Improvements at Roberts Bay East would provide designated camping areas. Three archeological sites that appear eligible to the Register are present in the Roberts Bay area, but all lie outside the construction area and would not be affected. Two additional archeological sites that appear to be not eligible to the Register lie within the construction zone and would be entirely destroyed. However, there is no responsibility to protect not eligible sites, so this would not constitute an adverse effect. Consultations with the SHPO are needed to confirm that these sites are not eligible. Consultations with the Warm Springs Tribes are needed to determine if TCPs are present in the proposed development area.

Much of the area proposed for development at Roberts Bay East has been extensively altered by past use and development, and it is unlikely that TCPs have survived. Under Alternative A, dispersed day use and camping would continue throughout the Roberts Bay area. The primary impacts to cultural resources in that area are from recreational use of the area (relic collection, soil disturbance from ORV use, sheet erosion from loss of vegetation). Therefore, continued dispersed day use and camping would allow these ongoing adverse effects to persist. Construction of the Roberts Bay East campground may somewhat reduce the amount of random camping in the area. However, “overflow” campers, or those who prefer a more primitive camping experience, will still disperse through the area and could impact cultural resources. Two of the three Register-eligible sites are located in areas on or reasonably near the shoreline, where camping or day use most commonly occurs. The third site is unlikely to be impacted by dispersed use, at least in the short term, because it is located well away from the shore. One of the three sites is on the shoreline in an area that may attract boat-in users. That same site benefits from the wetland protection measures that have stopped ORV access to the island. Additional archeological sites are present at Roberts Bay, but they do not appear to be eligible to the Register. Tribal consultations are necessary to determine if TCPs are present in areas that might be impacted by dispersed recreational use.

No impacts would occur from improvements to the roads to Roberts Bay where the road lies on Reclamation land. No survey has occurred along sections of road beyond Reclamation’s boundary but would be needed to assess potential impacts.

Under Alternative A, the cultural resource program goals would stay largely as implemented under the 1992 RMP. This commits Reclamation to go beyond compliance-based responsibilities defined in Section 106 of NHPA, and extends activities to programmatic survey, site recordation, testing, and resource protection in high priority locations. These are locations that are likely to contain historic properties, and are also most subject to damaging impacts from erosion or public land use. Alternative A adds specific commitments for TCP consultations and Archaeological Resources Protection Act (ARPA) awareness that were not addressed in the 1992 RMP. This makes Alternative A an improvement over the existing condition defined in the 1992 RMP.

Mitigation Measures and Residual Impacts [Alternative A]

Residual impacts would be as follows:

Alternative A would allow for incremental application of a management program focused on high priority areas. However, even while beneficial resource management actions were occurring at some

sites in the high priority areas, unmitigated damaging impacts from erosion or land use would continue to occur on other sites in the high priority areas. Sites outside of the high priority areas would be adversely affected by ongoing erosion or land use before Reclamation may be aware of the damage. This focus would make it difficult for Reclamation to fully comply with Section 110 resource management responsibilities.

It is unreasonable to expect to be able to halt the dispersed recreational uses that are damaging the greatest number of cultural resources sites, as that would effectively make many of the most attractive areas closed to many public uses. Therefore, compliance with NHPA will most likely occur through selecting the best few sites in the high priority zone and focusing protective or mitigation actions on those sites. The remaining Register-eligible sites are unlikely to receive protection or mitigation actions.

Cumulative Impacts [Alternative A]

Indications are that recreational visitation at Prineville Reservoir will continue to increase in coming years. This is likely to increase relic collection and pot hunting at sites. Unless strictly controlled, it is likely that ORV use will increase, causing soil disturbances that damage archeological deposits or vegetation loss that increases soil erosion. There would be an increase in dispersed camping, dispersed day use, and boat-in use of shoreline areas, with associated increases in relic collection; digging of fire, trash, and toilet pits in sites; increased soil erosion due to loss of vegetation; and damage to TCP's and culturally important traditional plant communities.

3.13.2.2 Alternative B: Natural Resource/Dispersed Recreation Balance

Impacts and benefits for Alternative B would be the same as for Alternative A, except as described below.

Improved enforcement of the ORV restrictions would increase cultural resource protection benefits over Alternative A, further reducing soil and vegetation disturbances that damage the resource sites and traditionally important vegetation communities.

Alternative B does not include preparation of a comprehensive Habitat and Wildlife Management Plan. This would reduce the benefit observed under Alternative A, as the opportunity for programmatic integration of cultural resource impact avoidance commitments and BMPs into the wildlife program would be lost. There would be less opportunity to shape wildlife enhancement actions to aid cultural resource management objectives. Case-by-case review and clearance for ground-disturbing implementation actions would be required. Benefits would still occur from restoration efforts that reduce soil erosion if it occurs where cultural resources sites are suffering from erosion and from a continued emphasis on reducing ORV impacts.

Alternative B proposes to construct boundary fencing where adjacent land use conflicts with Reclamation management objectives. This could benefit cultural resource management over Alternative A. The fence would clearly mark the boundary so that the public would understand where Reclamation's ORV closure takes place and aid personnel enforcing that closure. Damages could occur if the fence were constructed through a cultural resource site.

Actions to protect scenic values would be initiated under Alternative B. These have the potential to benefit cultural resources if TCPs are identified where viewshed characteristics are a contributing value.

Ground-disturbing actions associated with wildfire suppression could damage sites, including construction of access roads, fire breaks, and spike camps or clean-up actions such as grubbing.

Alternative B would maintain existing conditions and use patterns at the four designated primitive camping areas in the SWA. This is less beneficial to cultural resources than under Alternative A, as it would allow the currently uncontrolled use to continue. Without campsite designation, camping cannot be directed away from cultural resource sites in the area. This would increase impacts from dispersed camping over those identified for Alternatives A or C.

At Prineville Reservoir Resort, additional cabins and campsites would be constructed, but the possible locations are not yet identified. The undeveloped areas of the peninsula away from the resort and Jasper Point Campground are largely undisturbed, and several archeological sites are recorded there. Tribal consultations would be needed to determine if TCPs were present; if they are present, they are likely to retain their tribal value. If proposed development occurred on or near an archeological site or TCP, it would damage or destroy the site. Even if direct construction impacts are avoided, increased use of this area would increase the danger of relic collection or damage from vegetation loss.

There would be no impact to cultural resources from the action proposed at Jasper Point Campground and boat ramp. Although an archeological site is present, the portion within the existing campground has been determined not eligible to the Register. There is essentially no likelihood of TCPs as this is a developed campground.

Additional parking proposed at Powder House Cove would have no impact on archeological properties. Consultations would be needed to determine if TCPs are present.

Developments at Antelope Creek Day Use Area would be expanded under Alternative B to include a group day use area. This would expand damaging impacts described under Alternative A into another portion of the archeological site.

At Roberts Bay, Alternative B would provide cultural resource benefits not offered under Alternative A. Principal existing impacts are from dispersed recreational use, which exceeds the capacity of facilities. Additional facilities constructed at Roberts Bay would not impact any of the three archeological sites that appear eligible to the Register. They would be located near several other archeological sites that appear to be not eligible to the Register; SHPO consultations are needed to confirm the eligibility status of those sites. Alternative B proposes to have a camp host on site, and this would provide a benefit to cultural resources not offered under Alternative A. The presence of a camp host typically reduces or eliminates unauthorized activities at a location, and the host can monitor site condition.

Under Alternative B, programmatic (Section 110) cultural resource management actions would also occur in authorized use areas where no development would occur (such as boat-in day use areas). If needed, TCP inventories would be initiated, focusing on high priority areas. These actions would bring Reclamation into compliance with Section 110 in areas not considered under the current program. This is an improvement over Alternative A.

Mitigation Measures and Residual Impacts [Alternative B]

Residual impacts would be the same as for Alternative A, except that under Alternative B:

There is an improvement over Alternative A, in that Section 110 resource management actions extend into additional areas, reducing the residual effect overall. However, large areas would still not be incorporated into systematic resource identification and management processes. Data indicate that sites in those areas are subject to ongoing adverse effects, most notably from dispersed recreational use and ORVs.

If TCPs are identified, overall impacts would be reduced relative to Alternative A. However, those located outside of high priority impact areas would still be offered no programmatic management consideration.

Residual impacts would increase in the SWA relative to Alternative A, since no boundaries would be defined for the four primitive-designated camping areas.

Cumulative Impacts [Alternative B]

Same as for Alternative A.

3.13.2.3 Alternative C: Natural Resource Protection/Formal Recreation Emphasis (Preferred Alternative)

Environmental consequences under Alternative C would be the same as for Alternative B, except for the following:

Alternative C would provide greater benefit through policy enforcement actions than either Alternative A or B. It would further increased ORV enforcement and more clearly define roads opened to motorized vehicles. It would prohibit or limit new private road development on Reclamation lands. Since authorized roads tend to become avenues from which unauthorized ORV users depart, this constraint should further reduce ORV damage to lands and their resources. It would improve enforcement capability on Reclamation lands through improved County ordinances and enforcement of Reclamation regulations. Expanded law enforcement presence can further control unauthorized uses of the lands and reduce resource damage from inappropriate uses.

Alternative C would include preparation of a comprehensive Habitat and Wildlife Management Plan. This would incorporate the potential benefits discussed under Alternative A.

Alternative C specifies cultural resource sites as sensitive resources from which grazing will be eliminated. This may increase land user and agency awareness and aid in avoiding inadvertent damages. Site examination would be needed to assess if grazing is causing damage.

The alternative would provide basic amenities for boat-in use at selected locations to concentrate use. However, there would be no greater restrictions on boat-in use than under Alternative A or B. Therefore, in most locations this would not reduce the ongoing adverse impacts to cultural resource sites.

Alternative C would restore the intent to define primitive-designated camp areas in the SWA, as well as add the intent to mark the perimeter and require camper registration. This is the most beneficial approach for cultural resources of those considered in this study. Marked boundaries would allow restrictions to be enforced, and registration would increase public awareness that management oversight is occurring. Secondary impacts of increased relic collection on surrounding sites could still occur.

Alternative C would limit camping on the north shore within the SWA to the five primitive-designated camping areas, but continue to allow dispersed day use throughout that larger area. This may slightly reduce impacts as identified for Alternatives A and B. However, even during day use, people still use the land in ways that cause soil disturbance that damages resources.

For Prineville Reservoir Resort expansion, no sites have been found at Social Security Beach, and so formalizing that use would not affect cultural resources. Analysis of other effects is the same as for Alternative B.

For Powder House Cove, Alternative C would provide a large new facility upstream of the existing ramp. One historic property is present, but this structure can be avoided during development. Consultations to determine if TCPs are present in this area remain to be completed. If no TCPs are present, there would be no effect to cultural resources from development.

Alternative C provides the greatest cultural resource benefits for sites in the Roberts Bay area. Potential impacts from construction would largely be as described for Alternative B. However, there may be a significant reduction in ongoing impacts from dispersed use, as recreation use would be better contained and on-site management by camp hosts would increase.

Programmatic cultural resource management would incorporate all actions identified for Alternative B, as well as extend Section 110 management actions to all areas with potential user impacts. Over time, this would bring Reclamation into full compliance with Section 110 of NHPA. The more extensive public outreach and education elements would enhance compliance with NHPA and ARPA requirements to disseminate cultural resource information for the enjoyment and education of the public, further aiding in resource protection.

Mitigation Measures and Residual Impacts [Alternative C]

Residual impacts would be as follows:

Alternative C allows for comprehensive cultural resource management, which would greatly benefit the resource. However, practicality requires that a program of this scope and expense be implemented incrementally. Therefore, while beneficial cultural resource management actions are occurring at some sites, damaging or unmitigated impacts would continue to occur on other sites not yet incorporated into the management program.

As previously identified, it is unreasonable to halt all actions that are damaging the greatest number of cultural resource sites. Even under a comprehensive resource management program, sites will still be sacrificed. NHPA does not require protection of all Register eligible sites, and practical funding issues will not allow Reclamation to consider protection of all eligible sites.

Cumulative Impacts [Alternative C]

Same as for Alternative A.

3.14 Indian Sacred Sites

3.14.1 Affected Environment

Indian 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 seek to avoid adversely affecting the physical integrity of such sites.

No Indian sacred sites are known to exist within Reclamation’s jurisdiction at Prineville Reservoir. As described above under Section 3.13 (Cultural Resources) Reclamation has contacted the Warm Springs Tribes, the Burns Paiute Tribe, and the Klamath Tribes and notified them about the RMP update. Reclamation requested that the tribes inform Reclamation if Indian sacred sites are present. No response has been received from the Burns Paiute Tribe or the Klamath Tribes. The Warm Springs Tribes have indicated that culturally important resources are present but have not indicated that sacred sites are present.

3.14.2 Environmental Consequences

No sacred sites have been reported at the reservoir at this time. If Indian sacred sites are identified in the future, then impacts upon those sites would be evaluated at that time.

3.14.2.1 Residual Impacts

Residual impacts would occur if Indian sacred sites are found and are endangered from reservoir-related erosion or from land use, and those site cannot be protected from further damage.

3.14.2.2 Cumulative Impacts

Indications are that recreational visitation at Prineville Reservoir will continue to increase in coming years. If Indian sacred sites are present, this might impact those sites in several ways. People using the site location might inadvertently damage natural or cultural features that are important to the sacred nature or continued use of the location for traditional religious purposes. Increased density of recreational use might also unintentionally intrude upon the privacy that is necessary or desirable when practicing traditional religious activities.

3.15 Indian Trust Assets

3.15.1 Affected Environment

Reclamation has an established policy (October 3, 1993) to protect Indian Trust Assets (ITAs) from adverse impacts of its program and activities and to enable the Secretary of the Interior (Secretary) to fulfill responsibilities to Indian tribes. ITAs are legal interests in property held in trust by the United States for Indian tribes or individuals. The United States, with the Secretary as the trustee, holds many assets in trust for Indian tribes or Indian individuals. Examples of ITAs include lands, minerals, hunting and fishing rights, and water rights. While most ITAs are on-reservation, they may also be found off-reservation.

The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to Indian tribes or by Indian individuals by treaties, statutes, and executive orders. These are sometimes further interpreted through court decisions and regulations.

3.15.1.1 Confederated Tribes of the Warm Springs Reservation

The Confederated Tribes of the Warm Springs Reservation (Warm Springs Tribes) include the Wasco, Warm Springs, and Northern Paiute Tribes. The Warm Springs Reservation was created by the Treaty with the Tribes of Middle Oregon in June 25, 1855 (Treaty of 1855) and covers an area of 640,000 acres in the Deschutes River basin within Central Oregon. The Warm Springs Tribal territory originally comprised more than 10 million acres. This territory was ceded to the United States in return for retaining and preserving the Warm Spring Tribes rights to self-govern, fish, hunt, graze livestock, and gather foods within those lands. The Warm Springs Tribes reserved ITAs are hunting, fishing, and gathering rights on ceded lands.

Prineville Reservoir and the area of Reclamation's proposed action is located within the Warm Springs Tribes ceded area. ITAs of potential concern to the Warm Springs Tribes include the rights to fish, hunt, graze livestock, and gather food. The resources that provide for these rights to be exercised include fish, wildlife, and vegetation. The Warm Springs Tribes especially value the need to augment flows and restore historical fishing opportunities in the Deschutes River basin, particularly anadromous fish resources. Huckleberry (*Vaccinium membranaceum*) and other traditionally harvested vegetation and roots are also very important food resources for the Warm Springs Tribes.

A description of important Native American Indian Trust assets in the Deschutes River Basin has been further documented by the Warm Springs Tribes in Restoring Oregon's Deschutes River - Developing Partnerships and Economic Incentives to Improve Water Quality and Instream Flows (Moore et al. 1995). The Warm Springs Tribes have identified that their paramount goal is to enhance Deschutes River tribal fisheries by increasing instream flows. The Warm Springs Tribes portfolio of trust assets and treaty rights – on-reservation, off-reservation, water resources – “all.....depend on a continuing supply of high-quality water” in the Deschutes River Basin (Moore et al. 1995).

Reclamation sent a letter, dated September 24, 2001 to the U.S. Bureau of Indian Affairs (BIA) requesting formal information on any ITAs held in trust by the United States in the proposed Federal action area. BIA's formal response is contained in Appendix H.

As indicated in Chapter 4, the Warm Springs Tribes will be consulted to determine if TCPs and Indian Sacred sites are present and are impacted by the proposed action.

3.15.1.2 Klamath Tribes

The Klamath Tribes Natural Resource Department was contacted by letter on August 22, 2001 to determine if the tribes assert traditional hunting, fishing, and grazing rights in the study area. They were also asked if TCPs and Indian Sacred sites are present and are impacted by the proposed action. No response has been received.

3.15.1.3 Burns Paiute

The Burns Paiute Tribe holds no off-reservation Treaty rights, and therefore no ITAs, in the study area. As indicated in Chapter 4, the Burns Paiute Tribe has been consulted by letter dated August 22, 2001 to determine if TCPs and Indian Sacred sites are present and are impacted by the proposed action. No response was received.

3.15.2 Environmental Consequences

The BIA indicates that no known ITA lands are present in the RMP study area. None of the alternatives would affect ITAs.

3.16 Paleontological Resources

3.16.1 Affected Environment

Eastern Oregon is rich in vertebrate, invertebrate, and botanical paleontological materials. The John Day basin is recognized to have some of America's more important Oligocene, Miocene, and Pliocene epoch deposits. These deposits have been the focus of scientific research since the late 1800s. The John Day Fossils Beds National Monument, located about 50 miles northeast of Prineville Reservoir, was created to foster continuing research and to interpret the fossil materials and paleo-environment of the area for the public.

Most area paleontological deposits are associated with specific geological formations. Eocene-Oligocene-Miocene deposits dating from 55 to 19 million years ago are found in the Clarno and John Day Formations. Fossil deposits have been documented in these geological formations extending through and south of the Prineville Reservoir area. Geological maps indicate outcrops of both the Clarno and John Day Formations on lands in the central section of Prineville Reservoir. One finding of botanical fossil materials has been reported from Reclamation lands, but only the approximate area of the find is known.

No inventories of paleontological deposits have been completed at the reservoir. However, as part of archeological surveys in 1993 and 1999, archeological crews were required to record any fossil materials or localities noted during their work. No such materials were found. However, no archeological survey has yet occurred in areas where Clarno or John Day Formations are exposed on the ground surface.

3.16.2 Environmental Consequences

Since paleontological localities have not been documented at Prineville Reservoir, no specific impacts can currently be analyzed. We do know that no Clarno or John Day Formations surface in any areas where facility construction or other ground-disturbing actions are proposed, and archeologists surveying these locations noted no fossil materials. Therefore, it is unlikely that impacts to paleontological resources will occur from actions proposed in these locations under any alternative. If fossil-bearing formations surface within the operational zone of the reservoir, then reservoir-induced erosion may have exposed fossil materials. Exposed fossils would be vulnerable to collection and digging might occur by fossil collectors, which would further damage the deposits. Collection could also occur if fossil materials are exposed elsewhere on Reclamation lands visited by boat-in or hike-in users.

3.16.2.1 Residual Impacts and Mitigation

Mitigation needs cannot be identified at this time, as no paleontological resources have been identified within the project area. If, in the future, they are found within the reservoir erosional zone, Reclamation will apply the commitments defined in Chapter 2 and Chapter 5.

Residual impacts would occur if paleontological resources were found, were endangered by reservoir erosion or land use, and no actions were taken to assess their scientific value. Residual effects would also occur if scientifically valuable fossil deposits were discovered and the appropriate management actions were not taken to prevent damage to or loss of the resource, or to mitigate unavoidable effects.

3.16.2.2 Cumulative Impacts

Indications are that recreational visitation at Prineville Reservoir will continue to increase in coming years. This might increase unauthorized collection of exposed fossil materials, if fossils are present in erosional areas.

3.17 Transportation and Access

3.17.1 Affected Environment

This section addresses vehicular access to destinations at the Prineville Reservoir from local and regional population centers. Information on local airports and bus service is also included. Access and circulation are illustrated on Figure 3.17-1.

3.17.1.1 Road Access

Primary road access from the City of Prineville to the Prineville Reservoir area, including Prineville State Park, Prineville Reservoir Resort, Jasper Point, and the County boat ramp, is provided via Juniper Canyon Road. State Route 27 provides access from the City of Prineville to Bowman Dam and Powder House Cove with connections to other destinations on the reservoir's south side. The north end of the reservoir is accessed from the City of Prineville by a 15-mile section of the Combs Flat Road (Paulina Highway, State Route 380). From the City of Bend, most visitors travel to the south side via Alfalfa Road, which connects with State Route 27.

Juniper Canyon Road is the primary road leading to the most heavily used recreation sites on the reservoir's north shore. The 17-mile-long, 2-lane asphalt and oil mat-surfaced road is well maintained by Crook County and was resurfaced most recently in 1998. The asphalt paved portions of the road are 24 feet wide with 2-foot gravel shoulders on either side. Most of this road has a posted speed limit of 55 mph, which is reduced closer to the reservoir due to numerous curves in this part of the road. Peak traffic volumes on the Juniper Canyon Road approach 4,000 trips per day (pers. comm., Thompson, 2001). State Route 27 (also known as the Crooked River Highway) parallels the river below the dam through the winding, scenic Crooked River Canyon. This road is also a well-maintained 2-lane asphalt road but is a little longer, and speeds are slower as a result of the numerous curves.

Between Jasper Point and the upper end of the reservoir within the Prineville Reservoir SWA, access to primitive shoreline campsites at Owl Creek, Juniper Bass, Cattle Guard, and Old Field is provided via the 6.3-mile-long North Side Primitive Road. The Combs Flat Road (Paulina Highway) intersects the primitive road at the northeast end of the reservoir. The primitive road is unsurfaced and seldom wide enough for two vehicles to pass. Numerous curves, substandard gradients, and limited drainage and maintenance render the road virtually unsuitable for safe or sustained public travel, particularly following precipitation when the road is wet and slippery. The western two-thirds of the road is located on steep slopes with many curves. The eastern one-third is located on more gently sloping topography with fewer curves and abrupt changes in elevation. The road currently does not meet the minimum standards for rural roads. Traffic control, road directional, and information signs are lacking in most areas. The North Side Primitive Road is open on a seasonal basis only—generally from April 15 to November 15 from Jasper Point to Old Field, and March 15 to December 15 from Old Field to Combs Flat Road to accommodate wintering deer and other wildlife.

Road access to the Reservoir's south shore is extremely limited. Road access to destinations on the reservoir's south side (including Roberts Bay, Bear Creek, Powder House Cove, Bowman Dam, and the lower Crooked River) is via the Crooked River Highway, State Route 27, which originates in the City of Prineville and links U.S. Route 26 with U.S. Route 20 to the south. Between Prineville and Powder House Cove south of Bowman Dam, State Route 27 is a 2-lane asphalt-surfaced road.

Farther south toward U.S. Route 20, Route 27 becomes a wide and well-maintained graveled road. Traffic volumes on SR 27 range from 1,100 average daily trips south of the City of Prineville to 90 near the junction with Alfalfa Road (ODOT website 2001).

The most direct route from Bend follows SW Willard Road, which connects to SW Reservoir Road and SE Reservoir Road before intersecting with State Route 27. Collectively, this route, which was paved with an oil-mat surface from 1988 to 1998, is known as Alfalfa Road. This smooth road surface has substantially reduced driving time from Bend to only 30 to 45 minutes, making Prineville Reservoir an increasingly popular destination for visitors from the Bend area.

State Route 27 leads directly to the Powder House Cove recreation site, with access to the Bear Creek Arm of Prineville Reservoir requiring travel on a single lane primitive road (SE Lakeview Road) adjacent to Bear Creek. Access to the Roberts Bay area requires traveling on a 2-lane graveled County Road called S. Salt Creek Road to the old stage stop know as Roberts. The section from Roberts to the Reclamation boundary, known as the Roberts Bay Road, is seldom maintained and in poor condition. If legal access can be determined or acquired, Reclamation in cooperation with OPRD, will take responsibility for maintaining the road to Roberts Bay commensurate with the level of facility development. See Appendix K for communications with Crook County regarding the Roberts Bay Road. County and State road data are summarized in Table 3.17-1.

Table 3.17-1: County and State roads in vicinity of Prineville Reservoir.

Road Name	#	Classification	Surface	Condition
S Juniper Canyon	214	Major Collector	Asphalt/oil mat	good
SW Willard	351	Minor Rural	oil-mat	good
SW Reservoir	332	Minor Rural	oil-mat	good
SE Reservoir	332A	Minor Rural	oil-mat	good
SE Lakeview	355	Minor	gravel	fair
S Salt Creek	134	Minor	gravel	good
Crooked River Hwy	SR 27	Highway	paved	good
Combs Flat Road	SR 380	Highway	paved	good

Source: Crook County Road Department 1988

3.17.2 Environmental Consequences

3.17.2.1 Alternative A – No Action: Continuation of Existing Management Practices

Alternative A includes a number of recommendations to improve local access conditions at Prineville Reservoir. Some of these measures from the 1992 RMP have been implemented and some have not. As discussed in other sections of this Final EA, increased enforcement of ORV regulations proposed under this alternative have resulted in positive impacts in terms of resource protection but also in terms of safety and road maintenance. This alternative also proposes a travel management plan that would mark roads that are open for vehicle travel. If implemented consistently, such a measure would provide motorists with the necessary information for navigation and provide law enforcement and park rangers with an important management tool. Under this alternative, the current seasonal road closures on portions of the North Side Primitive Road would remain in effect for the benefit of wildlife, primarily winter deer and elk. In addition to serving wildlife, these closures have the secondary benefit of reducing maintenance requirements during the wettest part of the year when this unpaved road is susceptible to the most damage. Because both ends of this road are roughly the same distance from Prineville via alternative routes, this continued closure poses no significant access problem (see Appendix K for correspondence with Crook County on this issue).

**Prineville Reservoir Resource Management Plan
Environmental Assessment**

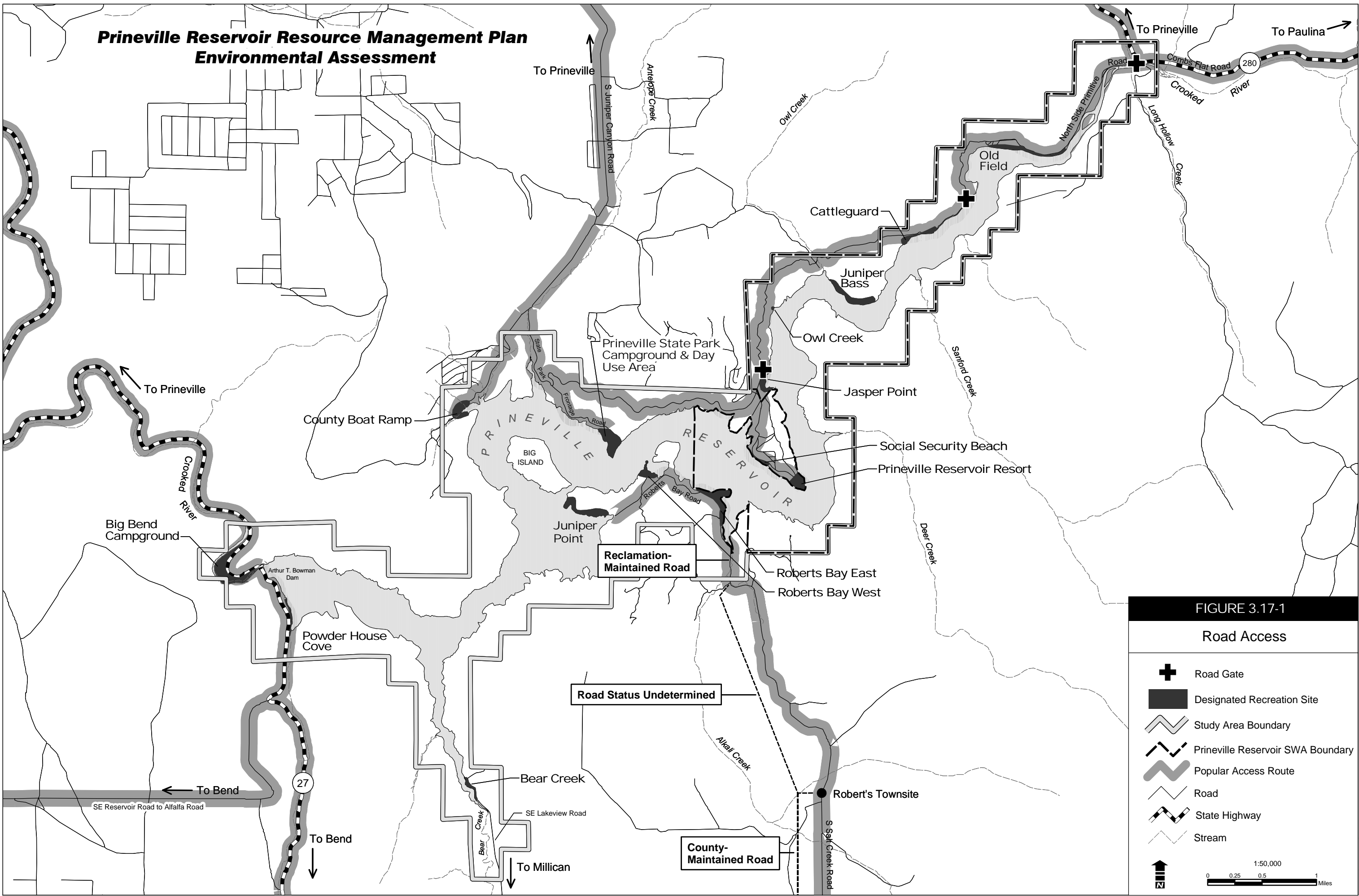
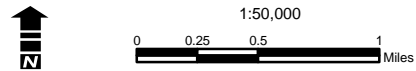


FIGURE 3.17-1

Road Access

- Road Gate
- Designated Recreation Site
- Study Area Boundary
- Prineville Reservoir SWA Boundary
- Popular Access Route
- Road
- State Highway
- Stream



Alternative A includes proposed construction of a concrete boat ramp and a gravel parking lot at Powder House Cove with spaces for up to 25 vehicles (including 22 trailer stalls). Although this would be an improvement over existing conditions, this facility would be inadequate to meet current demand at Powder House Cove, which has increased significantly since 1992. As a result, vehicles and boat trailers could be expected to continue to park along the shoulder of State Route 27, continuing existing adverse parking, vehicle movement, and safety conditions.

Improvements to 0.7-mile-long Roberts Bay Road with new culverts, widening, and directional and traffic signs would significantly improve access to and through the Roberts Bay area, resulting in benefits in terms of safety and resource protection. Reclamation only has authority over Roberts Bay Road on Reclamation lands. This section is already in fairly good shape. Increased use on remainder of Roberts Bay Road with or without development can only be expected to increase, resulting in more road deterioration and maintenance needs.

Traffic may slightly increase under Alternative A from the increased availability of facilities at Antelope Creek and improvement to road access to Roberts Bay. These actions would be balanced by increased enforcement of vehicle rules and more controlled camping activity in the SWA and Roberts Bay East, which would reduce the density of camping and reduce dispersed driving and parking. Roberts Bay West would continue to be used for dispersed camping and may see greater traffic and camping density if Roberts Bay East designated campsites are regularly filled.

Mitigation and Residual Impacts [Alternative A]

No mitigation measures are proposed for Alternative A because the actions under this alternative do not have substantial adverse impacts on transportation and access in the RMP study area or in the surrounding vicinity. Residual impacts could include slight increases in traffic as discussed above.

Cumulative Impacts [Alternative A]

Increasing use of roads in the vicinity of the Prineville Reservoir will likely accompany continued population growth throughout central Oregon. Additional traffic would impact access to Prineville Reservoir under any of the alternatives.

3.17.2.2 Alternative B – Natural Resources/Dispersed Recreation Balance

Transportation and access impacts anticipated under Alternative B would be similar to those under Alternative A, although Alternative B lacks some of the management tools such as the travel management plan and increased ORV enforcement that could result in positive impacts under Alternative A. Nevertheless, Alternative B does propose increasing enforcement of vehicle access rules.

With over three times as many parking stalls proposed under this alternative for Powder House Cove than under Alternative A, Alternative B would likely eliminate much of the existing overflow parking and its associated impacts on the shoulder of State Route 27.

Alternative B is more permissive of unmanaged, dispersed recreation activity than either of the other alternatives, especially along the reservoir's south shore. Continued dispersed camping around Roberts Bay (especially during summer holiday weekends) would likely continue to generate higher levels of use and corresponding vehicle trips than would be generated by either of the other alternatives. This alternative does not include provisions to improve Roberts Bay Road itself but does include traffic and

directional signage and would include improved maintenance through coordination with appropriate authorities. Traffic associated with activity in the Roberts Bay area would be most noticeable on Roberts Bay Road itself, South Salt Creek Road, and sections of State Route 27.

Mitigation and Residual Impacts [Alternative B]

No mitigation measures are proposed for Alternative B because the actions under this alternative do not have substantial adverse impacts on transportation and access in the RMP study area or in the surrounding vicinity. Residual impacts could include modest increases in traffic but without necessary road improvements as discussed above.

Cumulative Impacts [Alternative B]

Increasing use of roads in the vicinity of the Prineville Reservoir would likely accompany continued population growth throughout central Oregon. Additional traffic would impact access to Prineville Reservoir under any of the alternatives.

3.17.2.3 Alternative C – Natural Resource Protection/Formal Recreation Emphasis

Alternative C includes a number of provisions intended to limit vehicular access to designated roads and preventing vehicle use in the junipers and drawdown zone. Likewise, Alternative C includes closure of the entire North Side Primitive Road for the entire winter, as well as providing the flexibility to adjust the closure dates based on prevailing conditions. These provisions, intended to protect natural resources, may affect recreational vehicular activity to a limited degree, but not authorized access and transportation needs. These provisions, along with proposed signage program and visitor brochures, would enhance public understanding of resource management issues and help motorists comply with the proposed programs. Under this alternative, four primitive designated campgrounds (Juniper Bass, Old Field, Owl Creek, and Cattle Guard) would include a total of 63 campsites all accessed by the North Side Primitive Road. This alternative provides no road improvements even though camping fees may increase the service expectations of campsite customers, thus creating potential management issues for OPRD and Reclamation.

Alternative C is the only proposal that fully addresses the magnitude of current demand at Powder House Cove by proposing a new day use/boat ramp area with large parking capacity for cars and trailers away from State Route 27. This would likely eliminate shoulder parking and dramatically improve lake access for Bend area visitors while reducing parking-related impacts along a narrow, curving section of State Route 27.

If legal access can be determined or acquired, Reclamation in cooperation with OPRD will take responsibility for maintaining the road to Roberts Bay commensurate with the level of facility development. If legal access cannot be determined or obtained, and Reclamation cannot responsibly manage these lands, then it may be necessary to close this recreation area.

Access to the Roberts Bay area (and resulting impacts) would be improved by a defined road system. This would enhance safety and circulation throughout Roberts Bay. In addition, a “Park Full” indicator sign would be posted at one of the intersections prior to accessing the Roberts Bay Road. These improvements, along with regrading and other site-specific improvements associated with construction of a new, two-phase recreation development at Roberts Bay, would likely significantly improve access and transportation conditions on the reservoir’s south side. In addition, Alternative C effectively limits

the number of recreation users at Roberts Bay, which would reduce the potential for traffic problems on the access road.

Mitigation and Residual Impacts [Alternative C]

No mitigation measures are proposed for Alternative C because the actions under this alternative are expected to improve transportation and access in the RMP study area or in the surrounding vicinity. Residual impacts could include modest increases in traffic associated with regional population growth.

Cumulative Impacts [Alternative C]

Cumulative impacts under Alternative C would be similar to those under Alternative A although Alternative C is the most proactive of the three in preparing for additional activity (future conditions) at the reservoir. Of particular concern is the segment of State Route 27 near Powder House Cove. This curving section of road built across a steeply sloping hillside will continue to serve as an overflow parking area for boaters unless a significant new day use facility is constructed as proposed in Alternative C.

4.0 Consultation and Coordination

4.0 CONSULTATION AND COORDINATION

4.1 Public Involvement

Reclamation's approach to preparing the RMP and associated EA was to involve the public, particularly by developing a dialogue with local stakeholder groups. The goal of the public involvement process was to make sure that all stakeholders, including the general public, have ample opportunity to express their interests, concerns, and viewpoints, and to comment on the plan as it was developed. By fostering two-way communication, Reclamation was also able to use the talents and perspectives of local user groups and agencies during the alternatives development process.

Reclamation's public involvement process involved four key components:

- **Newsbriefs** – A newsletter was initially mailed to more than 355 user groups, nearby residents, and agencies. The mailing list is continuously expanded as more interested parties are identified. Five newsbriefs have been released with one more scheduled upon completion of the Final EA and RMP.
- **Public Meetings/Workshops** – Four public meetings were included in the RMP planning process. Three were held prior to the release of the Draft EA. A final public meeting was held in November 2002 to take public comments on the Draft EA. The two initial public meetings included a session in Prineville and one in Portland. The third public meeting was held in Prineville.
- **Ad Hoc Work Group** – This group consists of approximately 18 representatives from interested groups and agencies. They have met five times throughout the RMP development process to identify issues, and assist with RMP update and alternatives development.
- **RMP Study Web Site** – The newsbriefs, draft materials, and meeting announcements are continuously updated at a dedicated website on Reclamation's Pacific Northwest site: www.usbr.gov/pn/.
- **News Releases** – Periodically, Reclamation prepares news releases for distribution to local news media. Such news releases generally result in press coverage of the RMP process.

In February 2001, the first newsbrief introduced the RMP process, announced the first set of public meetings, and provided a form for submitting issues and initial comments on the management and facilities at Prineville Reservoir. Approximately 12 of these response forms were returned. The results of the mail-in form and the issues raised at the first public meeting were summarized in the second newsbrief, mailed July 2001. The issues were listed in a table with the number of responses for each issue. The third newsbrief was mailed in September 2001 and provided an update of the Ad Hoc Work Group process. The fourth newsbrief in November 2001 announced the second public meeting, summarized the draft goals and objectives of the RMP, and summarized the alternatives being considered. A fifth newsbrief was mailed out in November 2002 prior to the public meeting for the Draft EA. A sixth newsbrief will be mailed out to summarize the results of the public meeting and the chosen alternative for the RMP.

The first two public meetings were held on March 14, 2001 in Prineville and March 15, 2001 in Portland. The purpose of these meetings was to conduct public scoping of the issues at Prineville Reservoir. Approximately 30 people attended the Prineville meeting and 5 attended the Portland meeting. Reclamation provided information about the RMP planning process, then the participants broke into small work groups to discuss important issues and opportunities the RMP should address. The second public meeting was held November 28, 2001, in Prineville. Approximately 18 people attended the meeting. The meeting followed a similar format, beginning with presentation of the alternatives and RMP draft goals and objectives, and following on with small group discussions. The third public meeting was held in Prineville on November 21, 2002. Approximately 8 people attended the meeting.

The Ad Hoc Work Group met in April, June, August, and November 2001, February and December 2002, and March 2003. As part of the June meeting, the group spent a day touring the Prineville Reservoir study area and becoming more familiar with the issues. Although some were able to participate more than others, 18 members were of considerable assistance in the alternatives development process. A wide variety of viewpoints was included in the group. The Preferred Alternative was arrived at through Ad Hoc Work Group discussions, public comments from the second set of public meetings, and the recommendations of agency specialists and planners. The entities represented in the Ad Hoc Work Group are listed in Table 4.1-1.

Table 4.1-1: Ad Hoc Work Group.

Bureau of Land Management	Ochoco Irrigation District
Central Oregon Bass Club	Oregon State Marine Board
Confederated Tribes of the Warm Springs	Oregon Department of Fish and Wildlife
Crook County Planning Department	Oregon Parks and Recreation Department
Crook County Sheriff's Department	Prineville Reservoir Resort
Crooked River Watershed Council	Prineville-Crook County Chamber of Commerce
Deschutes County	South Shore Land Owners
Grazing Interests	South Shore Recreationists
North Shore Land Owners	U.S. Fish and Wildlife Service

4.2 Agency Consultation and Coordination

Reclamation consulted with several Federal and local agencies throughout the RMP process to gather valuable input and to meet regulatory requirements. This coordination was integrated with the public involvement process.

4.2.1 Fish and Wildlife Coordination Act

Reclamation has consulted with and arranged for the U.S. Fish and Wildlife Service (FWS) to provide a Planning Aid Memorandum (PAM) (Appendix I) under authority of the Fish and Wildlife Coordination Act (FWCA). Recommendations contained in the PAM have been incorporated in the final Preferred Alternative and evaluated in the Final EA.

4.2.2 Endangered Species Act

The evaluation of endangered species contained in this Final EA serves as Reclamation's biological assessment as required under the Endangered Species Act (ESA). It evaluates impacts to listed and proposed for listing species including bald eagles and lynx, and one candidate species, the Oregon spotted frog. Reclamation has determined that the Preferred Alternative may affect but is not likely to adversely affect bald eagles. The Preferred Alternative would have no effect to other listed, proposed, or

candidate species. If FWS concurs with this finding, consultation under the ESA is complete. If FWS disagrees with the finding, additional consultation will occur prior to the Final EA.

4.2.3 National Historic Preservation Act

Reclamation has collected existing cultural resource information from the Prineville Reservoir area to prepare the Final EA, and has initiated consultations with potentially interested Indian tribes as required by 36 CFR 800. In July 2001, the Warm Springs Tribes' Cultural Committee informed Reclamation that traditionally important plants are present at the reservoir, and that they have concerns about impacts to those plants and to archeological sites. Reclamation will continue to consult with the Warm Springs Tribes and document locations of cultural resources of concern to the tribes. Coordination with the Oregon SHPO and additional coordination with the Confederated Tribes of the Warm Springs, the Klamath Tribes, and the Burns-Paiute Tribe occurred in conjunction with public review of the Draft EA. It is understood that specific, future undertakings in response to specific RMP prescriptions will require specific consultations with the SHPO and the tribes pursuant to the 36 CFR 800 regulations.

4.3 Tribal Consultation and Coordination

4.3.1 Government-to-Government Consultation with Tribes

Reclamation met with natural resource staff and other members of the Confederated Tribes of the Warm Springs to discuss the preparation of the RMP and to identify archeological sites, ITAs, TCPs, and Indian sacred sites. A representative from the Warm Springs Tribes participated in the Ad Hoc Work Group, which facilitated close coordination with the Government and helped ensure that tribal interests were integrated with the RMP. Several meetings were held and correspondence was exchanged between Reclamation and the Warm Springs Tribes. The dates for the meetings and correspondence are provided in Appendix H.

Pursuant to the NHPA, in January 2001, Reclamation initiated consultations with the Warm Springs Tribes to determine if traditional cultural properties or culturally important resources are present at the reservoir. The outcome is discussed above in Section 4.2.3. In August 2001, Reclamation notified the Burns-Paiute and Klamath Tribes of the RMP update by letter. They were asked to inform Reclamation if culturally important sites were present at the reservoir, and offered a meeting with Reclamation, if the tribes' desired. As of this time, Reclamation has received no response to the notification. Reclamation provided copies of the Draft EA to these tribes to solicit their input and comment. Goals and objectives addressing tribal concerns are found in Appendix A.

The RMP and EA will be distributed to representatives from the Confederated Tribes of the Warm Springs, the Burns Paiute Tribes, and the Klamath Tribes. Tribal representatives that will receive the Final EA are listed in Chapter 7, Distribution List.

4.3.2 Indian Sacred Sites (Executive Order 13007)

Reclamation informed the Warm Springs, Klamath Tribes, and Burns Paiute Tribes about the RMP update and requested that they inform Reclamation if they were aware of Indian sacred sites within the study area. The notification and consultation processes were coordinated with the NHPA consultation

process. The Warm Springs Tribes did respond to the notification but have not identified any sacred sites, and the other tribes have not responded.

4.3.3 Indian Trust Assets

Reclamation coordinated with the Warm Springs Tribes to identify ITAs. These are fully discussed in Chapter 3, Section 3.15, and Indian Trust Assets.

4.3.4 Other Laws and Regulations

The relationship between Federal agencies and sovereign tribes is defined by several laws and regulations addressing the requirement of Federal agencies to notify or consult with Native American groups or otherwise consider their interests when planning and implementing Federal undertakings. Among these are the following:

- National Environmental Policy Act
- Executive Order 12875, Enhancing the Intergovernmental Partnership
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- Presidential Memorandum: Government-to-Government Relations with Native American Tribal Governments
- Executive Order 13084, Consultation and Coordination with Indian Tribal Governments

Reclamation has adhered to these laws and regulations as applicable to the development of the RMP.

5.0 Environmental Commitments

5.0 ENVIRONMENTAL COMMITMENTS

5.1 Best Management Practices

The following best management practices (BMPs) will be implemented to avoid or minimize potential effects to the resources within the Prineville Reservoir RMP study area that could occur if the Preferred Alternative were implemented. Although not listed here, the management actions identified in the Preferred Alternative as needed for proper stewardship of resources are also considered to be environmental commitments.

5.1.1 Landscape Preservation and Impact Avoidance

1. Developed facilities will complement and be subservient with the surrounding landscape wherever possible.
2. Disturbed areas resulting from any construction will be aggressively revegetated.
3. To the maximum extent practicable, all existing trees, shrubs, and other naturally occurring vegetation will be preserved and protected from construction operations and equipment except where clearing operations are required for permanent structures, approved construction roads, or excavation operations.
4. To the maximum extent practicable, all maintenance yards, field offices, and staging areas will be arranged to preserve trees, shrubs, and other vegetation.
5. Clearing will be restricted to that area needed for construction. In critical habitat areas including, but not limited to, wetlands and riparian areas clearing may be restricted to only a few feet beyond areas required for construction.
6. Stream corridors, wetlands, riparian areas, steep slopes, or other critical environmental areas will not be used for equipment or materials storage or stockpiling; construction staging or maintenance; field offices; hazardous material or fuel storage, handling, or transfer; or temporary access roads, in order to reduce environmental damage.
7. Excavated or graded materials will not be stockpiled or deposited on or within 100 feet of any steep slopes (defined by industry standards), wetlands, riparian areas, or stream banks (including seasonally active ephemeral streams without woody or herbaceous vegetation growing in the channel bottom), or on native vegetation.
8. To the maximum extent possible, staging areas, access roads, and other site disturbances will be located in disturbed areas, not in native or naturally occurring vegetation.
9. The width of all new permanent access roads will be kept to the absolute minimum needed for safety, avoiding wetland and riparian areas where possible. Turnouts and staging areas will not be placed in wetlands.

5.1.2 Erosion and Sediment Control

1. The design and construction of facilities will employ applicable recognized Best Management Practices to prevent possible soil erosion and subsequent water quality impacts.
2. The planting of grasses, forbs, trees, or shrubs beneficial to wildlife, or the placement of riprap, sand bags, sod, erosion mats, bale dikes, mulch, or excelsior blankets will be used to prevent and minimize erosion and siltation during construction and during the period needed to reestablish permanent vegetative cover on disturbed sites.
3. Final erosion control and site restoration measures will be initiated as soon as a particular area is no longer needed for construction, stockpiling, or access. Clearing schedules will be arranged to minimize exposure of soils.
4. Cuts and fills for relocated and new roads will be sloped to facilitate revegetation.
5. Soil or rock stockpiles, excavated materials, or excess soil materials will not be placed near sensitive habitats, including water channels, wetlands, riparian areas, and on native or naturally occurring vegetation, where they may erode into these habitats or be washed away by high water or storm runoff. Waste piles will be revegetated using suitable native species after they are shaped to provide a natural appearance.

5.1.3 Biological Resources

1. Rare and sensitive species clearances described below will be conducted after project authorization, but prior to the start of construction.
2. If native plant communities must be used for access roads or staging areas, site clearances at the appropriate time of year for the species involved will be conducted by qualified biologists to ensure sensitive species are not impacted. Any established search protocols will be followed. Additional information concerning avoidance of threatened or endangered species is presented in Section 3.6.
3. Construction activities that could impact fish will be undertaken during non-spawning periods.
4. During the 10-year period covered by this RMP, species not currently protected under the Endangered Species Act may be listed. If any such species occur on Reclamation lands, Reclamation would enforce time of year access restrictions in areas harboring Federal and state designated species of special concern (including Federally designated rare, endangered, or threatened species).
5. In-water construction for boat ramps would be limited to between July 1 and March 1 for the protection of aquatic resources. Reclamation will consult with OFDW and FWS regarding construction timing of boat ramps.

5.1.4 Site Restoration and Revegetation

1. Construction areas, including storage yards, will limit the amount of waste material and trash accumulations at all times.
2. All unused materials and trash will be removed from construction and storage sites during the final phase of work. All removed material will be placed in approved sanitary landfills or storage sites, and work areas will be left to conform to the natural landscape.
3. Upon completion of construction, grade any land disturbed outside the limits of reservoir pools, permanent roads, and other permanent facilities to provide proper drainage and blend with the natural contour of the land. Following grading, revegetate using plants native to the area, suitable for the site conditions, and beneficial to wildlife.
4. Where applicable, consult with the following agencies to determine the recommended plant species composition, seeding rates, and planting dates:
 - Oregon Department of Fish and Wildlife
 - U.S. Natural Resources Conservation Service (NRCS)
 - Oregon Parks and Recreation Department
 - U.S. Bureau of Land Management (BLM)
5. Grasses, forbs, shrubs, and trees appropriate for site conditions and surrounding vegetation will be included on a plant list developed during site design. Species chosen for a site will be matched for site drainage, climate, shading, resistance to erosion, soil type, slope, aspect, and vegetation management goals. Wetland and riparian species will be used in revegetating disturbed wetlands. Upland revegetation shall match the plant list to the site's soil type, topographic position, elevation, and surrounding communities. Reclamation will consider using plant materials that are traditionally important to the Warm Springs Tribes, when such plants will accomplish the restoration or revegetation objectives and are reasonably comparable in cost.

5.1.5 Pollution Prevention

1. All Federal and State laws related to control and abatement of water pollution will be complied with. All waste material and sewage from construction activities or project-related features will be disposed of according to Federal and State pollution control regulations.
2. Construction contractors may be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit as established under Public Law 92B500 and amended by the Clean Water Act (Public Law 95B217).
3. Construction specifications shall require construction methods that will prevent entrance or accidental spillage of pollutants into flowing or dry watercourses and underground water sources. Potential pollutants and wastes include refuse, garbage, cement, concrete, sewage effluent, industrial waste, oil and other petroleum products, aggregate processing tailings, mineral salts, drilling mud, and thermal pollution.

4. Eroded materials shall be prevented from entering streams or watercourses during dewatering activities associated with structure foundations or earthwork operations adjacent to, or encroaching on, streams or watercourses.
5. Any construction wastewater discharged into surface waters will be essentially free of settling material. Water pumped from behind cofferdams and wastewater from aggregate processing, concrete batching, or other construction operations shall not enter streams or watercourses without water quality treatment. Turbidity control methods may include settling ponds; gravel-filter entrapment dikes; approved flocculating processes not harmful to fish or other aquatic life; recirculation systems for washing aggregates; or other approved methods.
6. Any riprap shall be free of contaminants and not contribute significantly to the turbidity of the reservoir.
7. Appropriate controls to reduce stormwater pollutant loads in post-construction site runoff shall be followed. The appropriate facilities shall be properly designed, installed, and maintained to provide water quality treatment for runoff originating from all recreational facilities.
8. All parking lots and marinas should be designed to promote efficient vehicle and boat traffic to prevent congestion and pollution.
9. Waste facilities should be connected, whenever possible, to sanitary sewer systems instead of septic tanks to avoid water quality problems from failed tanks.

5.1.6 Noise and Air Pollution Prevention

1. Contractors will be required to comply with all applicable Federal, State, and local laws and regulations concerning prevention and control of noise and air pollution. Contractors are expected to use reasonably available methods and devices to control, prevent, and reduce atmospheric emissions or discharges of atmospheric contaminants and noise.
2. Contractors will be required to reduce dust from construction operations and prevent it from damaging dwellings or causing a nuisance to people. Methods such as wetting exposed soil or roads where dust is generated by passing vehicles will be employed.

5.1.7 Cultural Resource Site Protection

1. If necessary, prepare a Cultural Resource Management Plan or Plans to define long-term resource management goals and processes. It may be a single reservoir-wide plan, or a number of plans by locality (example, north shore of SWA) or for specific sites. The latter would be prepared on a priority basis.
2. If the Warm Springs Tribes identify culturally important resources within new development areas, avoid adverse impacts to those resource locations when avoidance will allow accomplishment of broader agency responsibilities, is cost effective, and lies within Reclamation's authority.

3. Integrate cultural resource management requirements and goals into other management plans completed under the RMP, including the comprehensive Habitat and Wildlife Management Plan and Integrated Pest Management Plan.
4. When implementing habitat restoration activities, use plants that have traditional importance to the Warm Springs Tribes, when they will accomplish the restoration goal and are reasonably comparable in cost.
5. Provide information about the history and prehistory of the area, for the enjoyment of users.
6. Work with BLM during their resource management planning actions on lands adjacent to Reclamation's boundary to identify actions they might implement that would aid in protecting resources on Reclamation lands.

5.1.8 Miscellaneous Comments

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 users and between visitors and adjacent land owners.

5.2 Mitigation Measures

Mitigation measures are environmental commitments intended to compensate for impacts that cannot be avoided through implementation of BMPs.

5.2.1 Soils

All roads, trails, and new or upgraded facilities shall employ designs that will not contribute to short- or long-term soil loss during and following construction and revegetation.

5.2.2 Vegetation

In addition to Reclamation's overall planned increase in noxious and invasive weed control efforts, all sites that are disturbed for facilities and trail construction shall be actively monitored for these plants. All infestations will be treated in accordance with accepted methods and agreements with ODFW and Crook County and in accordance with Reclamation's Integrated Pest Management Plan. Trails shall continue to be monitored at least once annually, followed by aggressive weed control efforts.

5.2.3 Wildlife

Reclamation shall replace the area and habitat value of all wetland and riparian areas that are directly impacted or degraded by implementation actions.

5.2.4 Cultural Resources

Mitigation under all alternatives would occur if cultural resources are present that are eligible for the National Register, and if they are being adversely impacted by reservoir operations or land uses or are being damaged by natural agents. If an action is planned that could adversely impact historic properties, Reclamation would investigate options to avoid the site. Cultural resource management actions for impacted sites would be planned and implemented in accordance with consultation requirements defined in 36 CFR 800, using methods consistent with the Secretary of the Interior's Standards and Guidelines.

5.2.5 Transportation and Access

Upon development of more detailed plans for planned improvements (e.g., Powder House Cove boat ramp, access, and parking), predictions of increased traffic volumes would be more clearly defined. Mitigation to reduce congestion could include measures such as the installation of left hand turn lanes, pavement widening, or noise abatement where necessary. Specific mitigation requirements would be determined during site-specific facility designs. Access for and use of all planned improvements by persons with disabilities is required under Section 10 of the Rehabilitation Act, as amended. All new facilities will be installed, and all existing facilities will be retrofitted in accordance with current accessibility standards.

6.0 Preparers

Prineville Reservoir Resource Management Plan and Master Plan: Final EA

6.0 PREPARERS

Name	Background	Responsibility
Vicki Kellerman	Reclamation	Team Leader
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7.0 Distribution List

7.0 DISTRIBUTION LIST

7.1 Overview

The Prineville RMP Final EA has been sent to the tribes, government officials, agencies, organizations, and businesses, libraries, and individuals named in the following distribution list. As noted, the EA is available for review at several libraries; it is also available for viewing (and downloading, if desired) on Reclamation's web site.

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7.6 News Media

The Bulletin
807 Ochoco Avenue
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Central Oregonian
558 North Main
Prineville, OR 97754-1199

7.7 Libraries

Crook County Library
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8.0 Glossary

8.0 GLOSSARY

Accessibility	Providing participation in programs and use of facilities to persons with a disability.
Acre-foot	Volume of water (43,560 cubic feet) that would cover 1 acre land, 1 foot deep.
Action Alternative	A change in the current management approach.
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.
Algal bloom	Rapid and flourishing growth of algae.
Alternatives	Courses of action that may meet the objectives of a proposal at varying levels of accomplishment, including the most likely future conditions without the management plan or action.
Amphibian	Vertebrate animal that has a life stage in water and a life stage on land (for example, salamanders, frogs, and toads).
Animal Unit	One mature cow of approximately 1,000 pounds, either dry or with calf up to 6 months of age, or their equivalent (one horse, five domestic sheep).
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 use.
Animal Unit Month (AUM)	The amount of feed or forage required by one animal unit grazing on a pasture for one month.
Best Management Practices	Activities that are added to typical operation, construction, or maintenance efforts that help to protect environmental resources by avoiding or minimizing impacts of an action.
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).
Cryptobiotic Soils	Soil crusts formed by living organisms and their byproducts, creating a crust of soil particles bound together by organic materials.

Cubic foot per second (cfs)	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.
Cultural resource	Cultural resources are historic and traditional properties that reflect our heritage.
Disability	With respect to an individual as a physical or mental impairment that substantially limits one or more of the major life activities of such individuals; a record of such impairment; or being regarded as having such an impairment.
Drawdown	Lowering of a reservoir's water level; process of releasing reservoir storage.
Endangered species	A species or subspecies whose survival is in danger of extinction throughout all or a significant portion of its range.
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.
Eutrophication	The process or condition in a body of water in which the increase of mineral and organic nutrients has reduced the dissolved oxygen, producing an environment that favors plant over animal life.
Facilities	Manmade structures.
Fish and Wildlife Service Species of Concern	Species identified by the FWS for which further biological research and field study are needed to resolve these species' conservation status.
Grazing Allotments	Designated areas of BLM grazing leases that extend onto Reclamation lands.
Habitat	Area where a plant or animal finds suitable living conditions.
Indian Sacred Sites	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."
Indian Trust Assets	Legal interests in property held in trust by the United States for Indian Tribes or individuals, such as lands, minerals, hunting and fishing rights, and water rights.

Intermittent streams	Streams that contain running water longer than ephemeral streams but not all year.
Juvenile	Young animal that has not reached reproductive age.
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.
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.
No Action Alternative	The outcome expected from a continuation of current management practices.
Perennial	Plants that have a life cycle that lasts for more than 2 years.
Precipitation	Rain, sleet, and snow.
Public involvement	The systematic provision for affected publics to be informed about and participate in Reclamation decision making. It centers around effective, open exchange and communication among the partners, agencies, organizations, and all the various affected publics.
Raptor	Any predatory bird, such as a falcon, eagle, hawk, or owl, that has feet with sharp talons or claws and a hooked beak.
Reptile	Cold-blooded vertebrate of the class Reptilia, comprised of turtles, snakes, lizards, and crocodiles.
Resident	A wildlife species commonly found in an area during a particular season: summer, winter, or year round.
Resource topics	The components of the natural and human environment that could be affected by the alternatives, such as water quality, wildlife, socioeconomic, and cultural resources.
Resource management plan	A 10-year plan developed by Reclamation to manage their lands and resources in the study area.
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.

Rural Residential	A category of land use. A narrow, 50- to 100-foot wide, strip of Reclamation ownership located between the high water line and adjacent, subdivided private land.
Sediment	Unconsolidated solid material that comes from weathering of rock and is carried by, suspended in, or deposited by water or wind.
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 that (1) has a high degree of similarity, (2) is capable of interbreeding only within the species, and (3) shows persistent differences from members of allied species.
Threatened species	Any species that has the potential of becoming endangered in the near future and is listed as a threatened species under the Endangered Species Act.
Traditional cultural property	A site or resource that is eligible for inclusion in the <i>National Register of Historic Places</i> because of its association with cultural practices or beliefs of a living community.
Total Maximum Daily Load	The total amount of pollutants that can be discharged to a water body, per day, and not exceed water quality standards.
Wetland habitat	Wildlife habitat associated with water 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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9.0 BIBLIOGRAPHY

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Appendix A

Prineville Reservoir RMP Goals and Objectives

Prineville Reservoir Resource Management Plan and Master Plan: Final EA

PRINEVILLE RESERVOIR RESOURCE MANAGEMENT PLAN & MASTER PLAN GOALS AND OBJECTIVES

Introduction

A set of draft RMP/MP Goals and Objectives were prepared as part of the RMP alternatives development and analysis process and included as Appendix A in the Draft EA. The draft Goals and Objectives were derived from: (1) the public involvement process (including Ad Hoc Work Group discussions); (2) ongoing coordination with Reclamation decision-makers regarding the scope of the RMP/MP and Reclamation's mission/authority related to RMP preparation and implementation; (3) preliminary findings of the RMP resource inventory; and (4) input from specialists on the RMP Planning Team.

These final Goals and Objectives were further refined as a result of public, agency, and Tribal comments on the Draft EA and are included in the RMP/MP. They reflect the full range of issues and opportunities which must be addressed in the RMP (as presented and discussed in the separate Problem Statement document included in the RMP).

The RMP will also be governed by a number of legal mandates, all of which will serve as guidance in both interpreting the Goals and Objectives and implementing proposed management actions. The primary among these are listed below.

Law, Executive Order, or Policy	Description
Accessibility for Persons with Disabilities - Reclamation Policy (November 18, 1998)	Established a Pacific Northwest regional policy to assure that all administrative offices, facilities, services, and programs open to the public, utilized by Federal employees, and managed by Reclamation, a managing partner, or a concessionaire, are fully accessible for both employees and the public.
Archaeological Resources Protection Act (ARPA) of 1979, as amended	Ensures the protection and preservation of archeological sites on Federal land. ARPA requires that Federal permits be obtained before cultural resource investigations begin on Federal land. It also requires that investigators consult with the appropriate Native American groups before conducting archeological studies on Native American origin sites.
Clean Water Act (CWA) of 1974, as amended*	Provides for protection of water quality.
Clean Air Act (CAA) of 1970	Provides for protection of air quality.

Law, Executive Order, or Policy	Description
Endangered Species Act (ESA) of 1973, as amended	Provides for protection of plants, fish, and wildlife that have a designation as threatened or endangered.
Executive Order 12898, February 11, 1994, Environmental Justice, as amended by Executive Order 12948, January 30, 1995	Requires Federal agencies to consider the effects of its programs and policies on minority and lower income populations.
Executive Order 11990, Protection of Wetlands	Directs all Federal agencies to avoid, if possible, adverse impacts to wetlands and to preserve and enhance the natural and beneficial values of wetlands.
Executive Order 13007, Indian Sacred Sites, May 24, 1996	Provides for access to, and ceremonial use of, Indian sacred sites on Federal lands used by Indian religious practitioners.
Executive Order 13175, Consultation and Coordination with Indian Tribal Government, November 6, 2000 (revokes EO 13084)	<p>The EO builds on previous administrative actions and is intended to:</p> <ul style="list-style-type: none"> § Establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications. § Strengthen government- to-government relations with Indian tribes; and § Reduce the imposition of unfunded mandates upon Indian tribes.
Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, January 10, 2001	Requires Federal agencies that may have a negative effect on migratory birds to develop and implement a Memorandum of Understanding with the U.S. Fish and Wildlife Service to promote the conservation of migratory birds.
Fish and Wildlife Coordination Act (FWCA) of 1958	Requires consultation and coordination with the U.S. Fish and Wildlife Service
Indian Trust Assets Policy (July 1993)	Requires that Reclamation provide protection and continuation of Tribal hunting, fishing, and gathering Treaty Rights.
Migratory Bird Treaty Act of 1918, as amended	Provides protection for bird species that migrate across state lines.
National Environmental Policy Act (NEPA) of 1969	Council on Environmental Quality regulations implementing NEPA specify that as part of the NEPA scoping process, the lead agency "...shall invite the participation of affected Federal, State, and local agencies, any affected Indian tribe,... (1501.7[a]1."

Law, Executive Order, or Policy	Description
National Historic Preservation Act (NHPA) of 1966, as amended	Section 106 requires Federal agencies to consider the effects of any actions or programs on historic properties. It also requires agencies to consult with Indian tribes if a proposed Federal action may affect properties to which they attach religious and cultural significance. Section 110 requires agencies to identify and appropriately manage historic properties on lands under their jurisdiction.
Native American Graves Protection and Repatriation Act (NAGPRA) of 1990	Regulations for the treatment of Native American graves, human remains, funeral objects, sacred objects, and other objects of cultural patrimony. Requires consultation with Native American Tribes during Federal project planning.
Presidential Memorandum: Government-to-Government Relations with Native American Tribal Governments, April 29, 1994	Specifies a commitment to developing more effective day-to-day working relationships with sovereign Tribal governments. Each executive department and agency shall consult to the greatest extent practicable and to the extent permitted by law, with Tribal governments prior to taking actions affecting Federally recognized Tribal governments.
Rehabilitation Act of 1973, Title V, Section 504	Provides for access to Federal or Federally assisted facilities for the disabled. The Uniform Federal Accessibility Standards (UFAS) or the Americans with Disabilities Act Accessibility Guidelines (ADAAG), whichever is the more stringent, are followed as compliance with Section 504.
Title 28, Public Law 89-72, as amended	Provides Reclamation with the authority to cost-share on recreation projects and fish and wildlife enhancement facilities with managing partners on Reclamation lands.
Interior Department Manual Part 512, Chapter 2	Articulates the policy, responsibilities and procedures for consulting with tribes to identify and assess impact to Indian trust resources.

*A permit may need to be required for construction related activities.

RMP Policy and Purpose

Reclamation's resource management policy is to provide a broad level of stewardship to ensure and encourage resource protection, conservation, and multiple use, as appropriate. Management practices and principles established in an RMP must be consistent with project purposes and in accordance with existing Federal laws, regulations, and policies, and provide for the protection of fish, wildlife, and other natural resources; cultural resources; public health and safety; and applicable uses of Reclamation lands and water areas, public access, and outdoor recreation. RMPs are intended to be used as the basis for directing activities on Reclamation lands and reservoirs in a way that maximizes overall public and resource benefits while providing guidance for managing the area during the next 10 year period. Through implementation of an RMP, Reclamation aims to balance competing and conflicting demands for differing uses and to maximize compatibility with surrounding land uses, while affording an appropriate level of resource protection and enhancement.

Goals and Objectives

Natural Resources (NAT)

GOAL NAT 1: Protect, conserve, restore, and enhance wildlife habitat and natural resources on Reclamation lands.

Objective NAT 1.1: Avoid or minimize adverse impacts of RMP actions on Federal and State designated species of special concern, including Federally listed, endangered, or threatened species.

Objective NAT 1.2: Minimize adverse impacts to wildlife and vegetation values in all actions considered to accommodate public demand at recreation sites or on the surface and shoreline of Prineville Reservoir; and utilize management practices that protect and enhance resource values of and for native species (plants and animals) in all decisions related to habitat management and land use.

Objective NAT 1.3: Manage all SWA-designated lands and adjacent shoreline areas to protect habitat for waterfowl, other migratory birds, and big game.

Objective NAT 1.4: Protect, enhance, and/or restore wetland and riparian habitats in accordance with existing Federal regulations and consistent with this RMP.

Objective NAT 1.5: Work with partner agencies (ODFW, USFS, Crook County, BLM, ODA [Invasive Species Council]) to study and effectively control aquatic and terrestrial noxious and invasive weed problems on Reclamation lands and water.

Objective NAT 1.6: Manage grazing on Reclamation lands as appropriate to meet management objectives.

Objective NAT 1.7: Install range improvements and boundary fencing in priority areas around the reservoir.

Objective NAT 1.8: Determine the extent of cryptobiotic soil on Reclamation land, assess the effects from recreation use and livestock grazing, and implement appropriate protection measures.

GOAL NAT 2: Protect and enhance the quality of the fishery at Prineville Reservoir.

Objective NAT 2.1: Cooperate with ODFW, BLM and local fishing organizations in conducting ongoing studies of fishery conditions and improvement needs, particularly those related to maintenance and improvement of the warm water fishery.

GOAL NAT 3: Protect and improve water quality in Prineville Reservoir and its tributaries.

Objective NAT 3.1: Actively participate with the Crooked River Watershed Council, Deschutes Resources Conservancy, and ODEQ in implementing water quality improvement actions.

Objective NAT 3.2: Provide adequate sanitation and waste management facilities at all improved recreation sites (e.g., restrooms, trash containers, RV and boat dump stations, fish cleaning stations, as appropriate) to protect water quality.

Objective NAT 3.3: Protect, enhance, restore, and develop wetland and riparian habitats as a key means of improving the quality of water entering the reservoir.

Objective NAT 3.4: Manage the use of chemical fertilizers, herbicides, and pesticides on Reclamation lands in a manner that does not adversely affect water quality, wildlife, or people.

Objective NAT 3.5: Minimize the potential for pollutants to enter Prineville Reservoir and its tributaries from activities affecting Reclamation lands.

GOAL NAT 4: Control soil erosion in priority areas where erosion causes concern for water quality, natural and cultural resources, safety, and damage to capital improvements.

Objective NAT 4.1: Restrict recreational and other uses in shoreline areas where such uses can significantly increase erosion and cannot be mitigated.

Objective NAT 4.2: Protect and/or restore shoreline, upland, and tributary riparian vegetation to control erosion.

Objective NAT 4.3: Implement an effective erosion control program in all construction, operations, and maintenance programs on Reclamation lands while considering program effects on other resources (natural, scenic, cultural).

Objective NAT 4.4: Cooperate with applicable agencies and affected private landowners to get BMPs instituted on surrounding lands where offsite activities may affect Reclamation lands and Prineville Reservoir.

GOAL NAT 5: Protect the scenic quality and open space values of Reclamation lands at Prineville Reservoir.

Objective NAT 5.1: Ensure that siting and design of all new facilities on Reclamation lands maximize compatibility and integration with open, rural environment of the reservoir and surrounding area.

Objective NAT 5.2: Develop and require compliance with design guidelines for erosion control structures and any other permitted improvements on Reclamation shore lands.

Objective NAT 5.3: Consider scenic values of offsite activities and coordinate with others to minimize impacts where feasible on surrounding lands.

Objective NAT 5.4: Consider scenic values and involve interested parties when implementing vegetation management activities on Reclamation lands.

Cultural Resources (CUL)

GOAL CUL 1: Protect and preserve cultural resources (including prehistoric, historic, and traditional cultural properties).

Objective CUL 1.1: Avoid or minimize impacts to significant cultural resource sites from new undertakings, in accordance with Section 106 of the National Historic Preservation Act (NHPA) and other applicable Federal laws.

Objective CUL 1.2: In accordance with Section 110 of NHPA, accomplish proactive management of cultural resources, including identification, evaluation, and protection of National Register eligible resource sites.

Objective CUL 1.3: Increase awareness of cultural resources protection requirements among resource management partners (OPRD, Crook County, ODFW, etc.) and lease holders.

Objective CUL 1.4: Provide opportunities for public education about cultural resources, including the importance of and legal requirements for protecting these resources.

Indian Sacred Sites (ISS)

GOAL ISS 1: Protect Indian Sacred Sites

Objective ISS 1.1: Seek to avoid damage to Indian sacred sites, when protection is consistent with accomplishing Reclamation's missions and larger public responsibilities, and within agency authority.

Objective ISS 1.2: Provide access by traditional religious practitioners to Indian sacred sites, when consistent with agency mission and when it does not conflict with other land management commitments.

Indian Trust Assets (ITAs)

GOAL ITA 1: Protect Indian Trust Assets as specified in applicable Federal mandates

Objective ITA 1.1: Seek to avoid any action that would adversely impact Tribal hunting, fishing, livestock grazing, and gathering rights, as defined in tribal treaties or court decisions.

Paleontology (PAL)

GOAL PAL 1: Protect significant paleontological sites.

Objective PAL 1.1: Seek to avoid damage to significant paleontological sites when implementing new actions.

Objective PAL 1.2: Seek to manage significant paleontological sites on Reclamation lands, and interpret for the public.

Recreation and Access (REC)

GOAL REC 1: Provide adequate sites and facilities to support the demand for land-based recreational uses while affording the public a quality recreational experience and consistent with natural and cultural resource objectives.

Objective REC 1.1 Provide quality camping opportunities by improving and/or expanding existing sites and developing new sites.

Objective REC 1.2: Designate recreation sites and institute seasonal use periods that are consistent with management objectives for the reservoir area.

Objective REC 1.3: Coordinate with managing partner to provide additional day use sites and facilities to meet increasing demand and buffer day use activity areas from overnight campgrounds.

Objective REC 1.4: Contribute to an environment that supports viable commercial recreation services, where appropriate.

GOAL REC 2: Provide adequate shoreline and water-based facilities to support the demand for boating and other water-based uses consistent with natural and cultural resource objectives.

Objective REC 2.1: Allow for the continued use and development of at your own risk swimming areas at appropriate locations around the reservoir.

Objective REC 2.2: Work with managing partners (OPRD, ODFW, State Marine Board) to enhance shoreline fishing opportunities and associated parking.

Objective REC 2.3: Improve boat launch ramps at Prineville Reservoir consistent with natural and cultural resource protection and conservation objectives.

Objective REC 2.4: Work with managing partner (OPRD) to reduce peak period congestion at Powder House Cove boat launch.

GOAL REC 3: Manage the Prineville water surface to accommodate a variety of uses in a safe manner while minimizing conflicts among users.

Objective REC 3.1: Implement actions with OPRD and the State Marine Board that reduce conflicts between motorized and non-motorized water craft, as needed.

Objective REC 3.2: Work with Crook County and the State Marine Board to achieve needed enforcement of rules and regulations, and protection of public health and safety.

GOAL REC 4: Provide appropriate vehicular and non-motorized access to recreation sites at Prineville Reservoir consistent with natural and cultural resource objectives.

Objective REC 4.1: Provide expanded opportunities for hiking, bicycling, equestrian trails and trailheads at Prineville Reservoir.

Objective REC 4.2: Cooperate with ODFW as needed in providing hunting opportunities consistent with SWA mission and management actions.

Objective REC 4.3: Enforce existing OHV regulations including County Ordinance No. 34 as Amended by Ordinance 101 and Federal Regulation 43 CFR, Part 420 restricting licensed vehicle use to designated roads only (as identified and mapped in the original legislation).

Objective REC 4.4: Coordinate with OPRD, Crook County, BLM, ODOT, and ODFW to manage access and roads at Prineville Reservoir.

GOAL REC 5: Ensure that appropriate facilities, programs, and signage, and/or an equivalent experience is provided and accessible to persons with disabilities.

Objective REC 5.1: Incorporate Federal accessibility standards in the design and construction of new and renovated facilities, trails, and signage including the Uniform Federal Accessibility Standards (UFAS) and the Americans with Disabilities Act (ADA) Accessibility Guidelines. The latter shall be used when they are the more stringent of the two regulations.

Land Management and Implementation (LMI)

GOAL LMI 1: Ensure continued coordination and cooperation with involved agencies and the public as needed to implement the RMP/MP.

Objective LMI 1.1: Work with surrounding landowners, Crook County, and BLM to address access and other needs associated with adjacent private property.

Objective LMI 1.2: Work with surrounding landowners and adjacent jurisdictions to minimize impacts from RMP implementation on private lands and impacts from private lands on Reclamation lands.

Objective LMI 1.3: Work with applicable agencies in the implementation of a Coordinated Emergency Fire Plan for the Prineville Reservoir area, including consistent fire closure dates, coordinated response, access for emergency purposes, placement and use of radio repeater towers, and fire information/signage.

Objective LMI 1.4: Provide for the appropriate level of maintenance and management at Prineville Reservoir.

Objective LMI 1.5: Coordinate with BLM and Crook County to address access to adjacent private lands from Reclamation lands, explore opportunities for trail linkages and other forms of recreation, viewshed impacts, and general land management considerations on lands outside of Reclamation's ownership.

GOAL LMI 2: Ensure protection of the public, and public resource values and facilities.

Objective LMI 2.1: Require that Reclamation's directives and standards as per the Federal Wildland Fire Management Policy are followed in all fire prevention and suppression activities on Reclamation lands.

Objective LMI 2.2: Work with the OPRD, County Sheriff's Department and the Marine Patrol Board to ensure an adequate level of law enforcement on Reclamation lands and Prineville Reservoir.

GOAL LMI 3: Provide informational, educational, and interpretive materials to increase public awareness of recreational opportunities, use restrictions, safety concerns, and natural and cultural resource values.

Objective LMI 3.1: Using Reclamation's and OPRD's sign manuals as appropriate, develop clear, consistent signage to guide public access to and use of Reclamation lands and facilities.

Objective LMI 3.2: Provide informative and concise public information materials on a continuing basis (including adequate funding for reproduction of these materials) at: recreation sites, interpretive sites, visitors center(s); and through local merchants, chambers of commerce, government offices, and other means (such as the worldwide web).

GOAL LMI 4: Achieve timely implementation of RMP programs and projects.

Objective LMI 4.1: Establish and maintain a clear phasing schedule and list of priorities for RMP implementation; and update on an annual basis.

Objective LMI 4.2: Seek Reclamation and joint funding to implement the RMP according to the priority list and phasing schedule.

Objective LMI 4.3: Keep stakeholders, surrounding landowners, and the public informed regarding the status of implementing the RMP.

Appendix B

Alternative A Conceptual Plan

Prineville Reservoir Resource Management Plan and Master Plan; Final EA

Powder House Cove

BUREAU OF RECLAMATION
PRINEVILLE, OREGON

Conceptual Plan

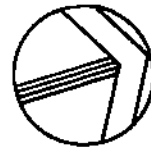
Beck & Baird/Boise
Landscape Architecture Planning Urban Design
Beck & Baird
P.O. Box 7423 Boise, ID 83707 (208) 342-4811
Offices: Boise, Idaho & Seattle, Washington



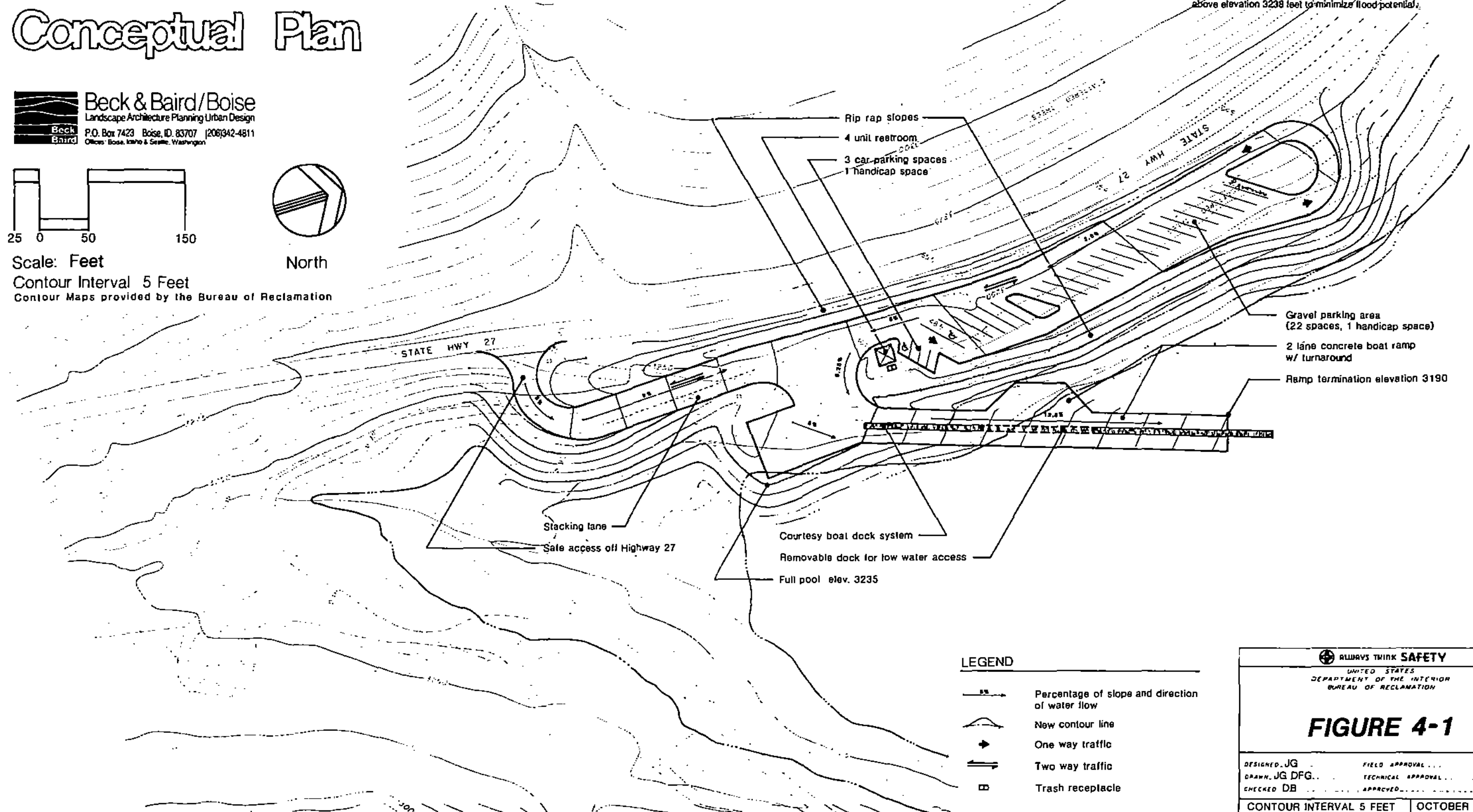
Scale: Feet

Contour Interval 5 Feet

Contour Maps provided by the Bureau of Reclamation



North



NOTES:

- (1) Full reservoir pool elevation: 3235 feet
- (2) A detailed survey to verify topographic information, vegetation and other existing site conditions will be accomplished prior to construction drawing and specification development.
- (3) This is a conceptual plan. Constructed facilities will be located to preserve existing vegetation and minimize site disturbance to the greatest extent possible.
- (4) Recreation facilities located between surcharge elevations 3235 and 3238 feet will be constructed to withstand short-term inundation. All major facilities (i.e. restrooms) will be located above elevation 3238 feet to minimize flood potential.

LEGEND

- Percentage of slope and direction of water flow
- New contour line
- One way traffic
- Two way traffic
- Trash receptacle

ALWAYS THINK SAFETY

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

FIGURE 4-1

DESIGNED: JG
DRAWN: JG DFG
CHECKED: DB

FIELD APPROVAL
TECHNICAL APPROVAL
APPROVED

CONTOUR INTERVAL 5 FEET | OCTOBER 4, 1991

Roberts Bay East

BUREAU OF RECLAMATION
PRINEVILLE, OREGON

Conceptual Plan

Beck & Baird/Boise
Landscape Architecture Planning Urban Design
P.O. Box 7423 Boise, ID 83707 (208)342-4811
Offices Boise, Idaho & Seattle, Washington



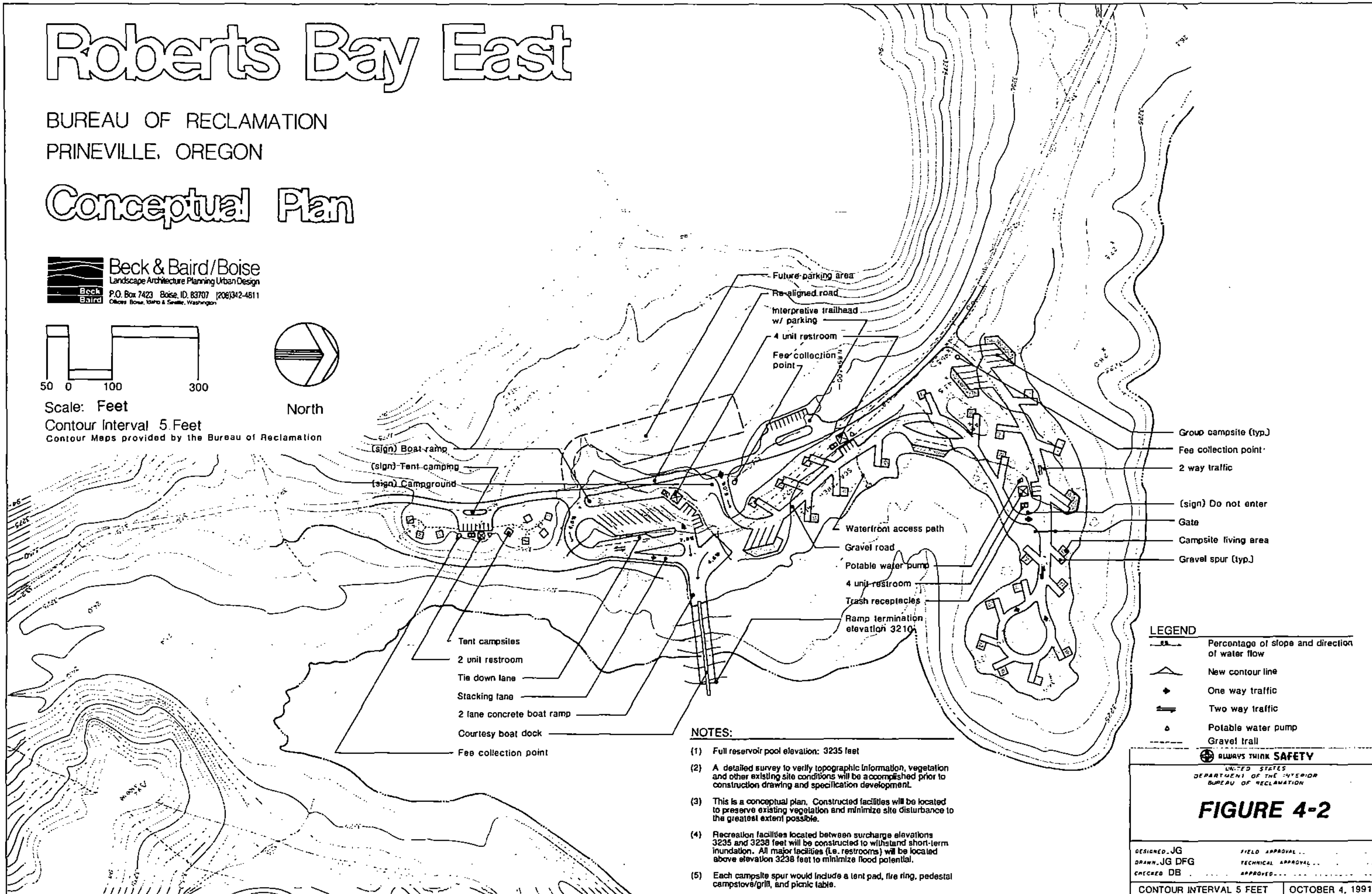
Scale: Feet

Contour Interval 5 Feet

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North



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- (4) Recreation facilities located between surcharge elevations 3235 and 3238 feet will be constructed to withstand short-term inundation. All major facilities (i.e. restrooms) will be located above elevation 3238 feet to minimize flood potential.
- (5) Each campsite spur would include a tent pad, fire ring, pedestal campstove/grill, and picnic table.

LEGEND

- Percentage of slope and direction of water flow
- New contour line
- One way traffic
- Two way traffic
- Potable water pump
- Gravel trail

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

FIGURE 4-2

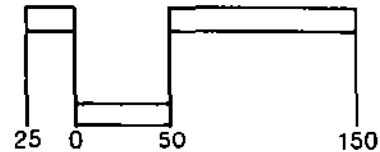
DESIGNED: JG
DRAWN: JG DFG
CHECKED: DB
FIELD APPROVAL:
TECHNICAL APPROVAL:
APPROVED:
CONTOUR INTERVAL 5 FEET
OCTOBER 4, 1991

County Boat Ramp

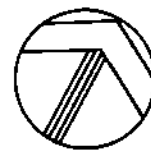
BUREAU OF RECLAMATION
PRINEVILLE, OREGON

Conceptual Plan

Beck & Baird/Boise
Landscape Architecture Planning Urban Design
P.O. Box 7423 Boise, ID 83707 (208)342-4811
Offices: Boise, Idaho & Seattle, Washington



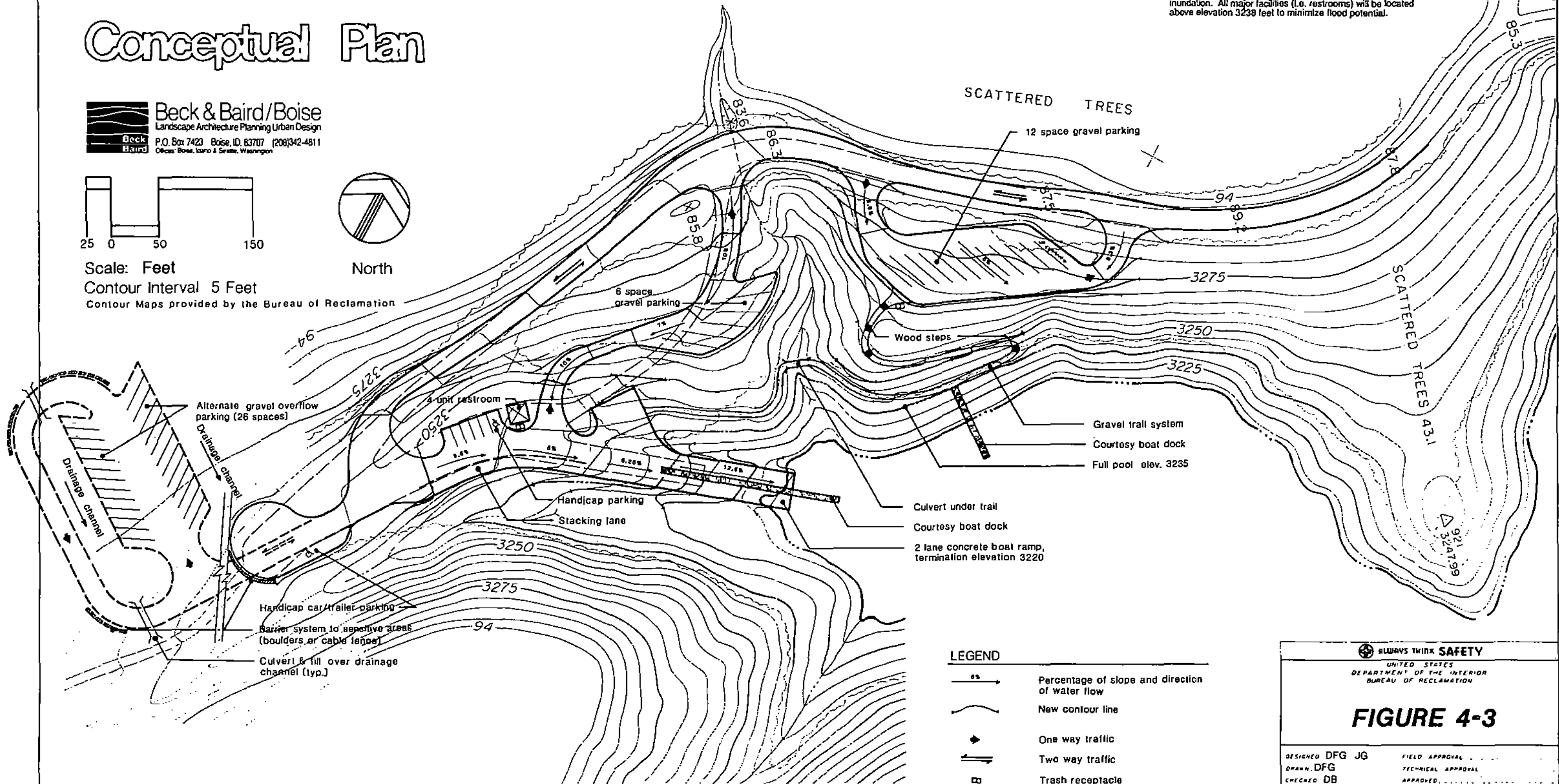
Scale: Feet
Contour Interval 5 Feet
Contour Maps provided by the Bureau of Reclamation



North

NOTES:

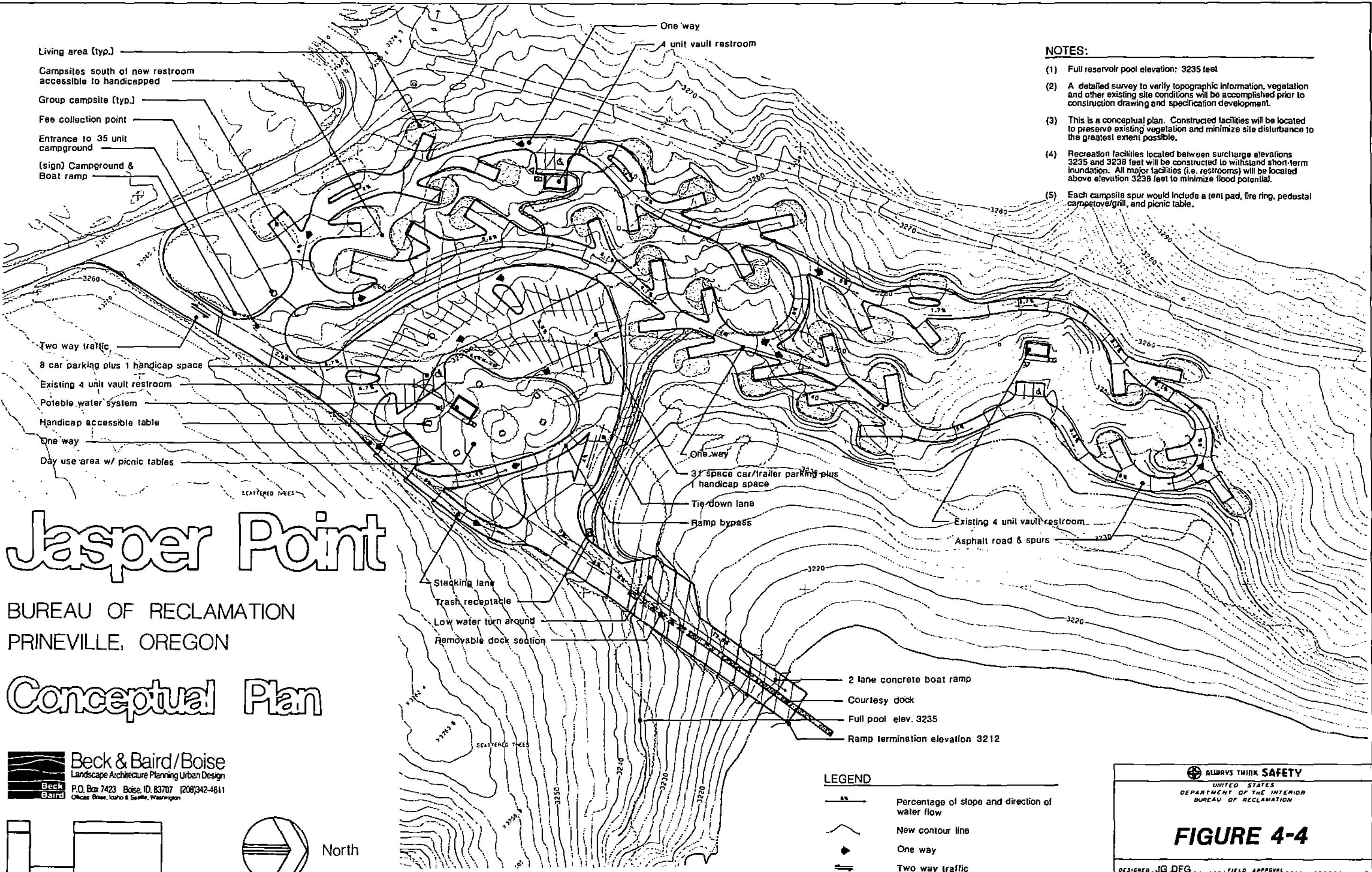
- (1) Full reservoir pool elevation: 3235 feet
- (2) A detailed survey to verify topographic information, vegetation and other existing site conditions will be accomplished prior to construction drawing and specification development.
- (3) This is a conceptual plan. Constructed facilities will be located to preserve existing vegetation and minimize site disturbance to the greatest extent possible.
- (4) Recreation facilities located between surcharge elevations 3235 and 3238 feet will be constructed to withstand short-term inundation. All major facilities (i.e. restrooms) will be located above elevation 3238 feet to minimize flood potential.



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BUREAU OF RECLAMATION

FIGURE 4-3

DESIGNED DFG JG FIELD APPROVAL
DRAWN DFG TECHNICAL APPROVAL
CHECKED DB APPROVED
CONTOUR INTERVAL 5 FEET OCTOBER 4, 1991

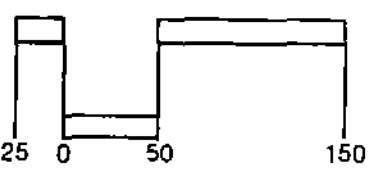


Jasper Point

BUREAU OF RECLAMATION
PRINEVILLE, OREGON

Conceptual Plan

Beck & Baird/Boise
Landscape Architecture Planning Urban Design
P.O. Box 7423 Boise, ID 83707 (208)342-4611
Offices: Boise, Idaho & Seattle, Washington



Scale: Feet Contour Interval 2 Feet
Contour Maps provided by the Bureau of Reclamation



LEGEND	
	Percentage of slope and direction of water flow
	New contour line
	One way
	Two way traffic
	Potable water hydrant
	Trash receptacle

- NOTES:**
- (1) Full reservoir pool elevation: 3235 feet
 - (2) A detailed survey to verify topographic information, vegetation and other existing site conditions will be accomplished prior to construction drawing and specification development.
 - (3) This is a conceptual plan. Constructed facilities will be located to preserve existing vegetation and minimize site disturbance to the greatest extent possible.
 - (4) Recreation facilities located between surcharge elevations 3235 and 3238 feet will be constructed to withstand short-term inundation. All major facilities (i.e. restrooms) will be located above elevation 3238 feet to minimize flood potential.
 - (5) Each campsite spur would include a tent pad, fire ring, pedestal campstove/grill, and picnic table.

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UNITED STATES
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 BUREAU OF RECLAMATION

FIGURE 4-4

DESIGNED: JG DFG	FIELD APPROVAL
DRAWN: DFG	TECHNICAL APPROVAL
CHECKED: DB	APPROVED
CONTOUR INTERVAL 2 FEET	
OCTOBER 4, 1991	

4-20

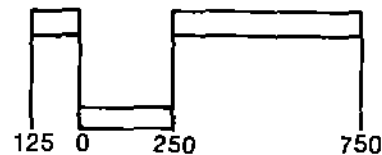
Old Field

BUREAU OF RECLAMATION
PRINEVILLE, OREGON

Conceptual Plan



Beck & Baird/Boise
Landscape Architecture Planning Urban Design
P.O. Box 7423 Boise, ID 83707 (208)342-4811
Offices: Boise, Idaho & Seattle, Washington



Scale: Feet

Contour Interval 50 Feet

Contour Map taken from USGS 7.5 Minute Map
provided by the Bureau of Reclamation



North

Gravel road system

15 unit primitive campground located
in the trees to provide cover

PRINEVILLE RESERVOIR

Typical campsite: fire ring, grill, &
level cleared area

Rental toilet w/ service bay, -
maintained by Bureau of Reclamation

North Side Road

Alternate/Future camp loop
w/ 10 sites

NOTES:

- (1) Full reservoir pool elevation: 3235 feet
- (2) A detailed survey to verify topographic information, vegetation and other existing site conditions will be accomplished prior to construction drawing and specification development.
- (3) This is a conceptual plan. Constructed facilities will be located to preserve existing vegetation and minimize site disturbance to the greatest extent possible.
- (4) Recreation facilities located between surcharge elevations 3235 and 3238 feet will be constructed to withstand short-term inundation. All major facilities (i.e. restrooms) will be located above elevation 3238 feet to minimize flood potential.
- (5) Rock barriers may need to be utilized to discourage off road use.
- (6) One desinitiation site is recommended to concentrate impact in one area & to reduce maintenance obligations.

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BUREAU OF RECLAMATION

FIGURE 4-5

DESIGNED: JG, DFG FIELD APPROVAL
DRAWN: JG, DFG TECHNICAL APPROVAL
CHECKED: DB APPROVED

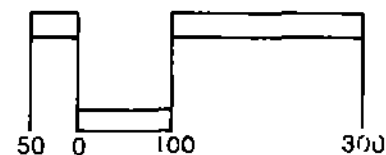
CONTOUR INTERVAL 50 FEET OCTOBER 4, 1991

Juniper Bass

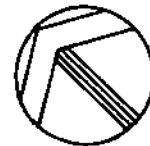
BUREAU OF RECLAMATION
PRINEVILLE, OREGON

Conceptual Plan

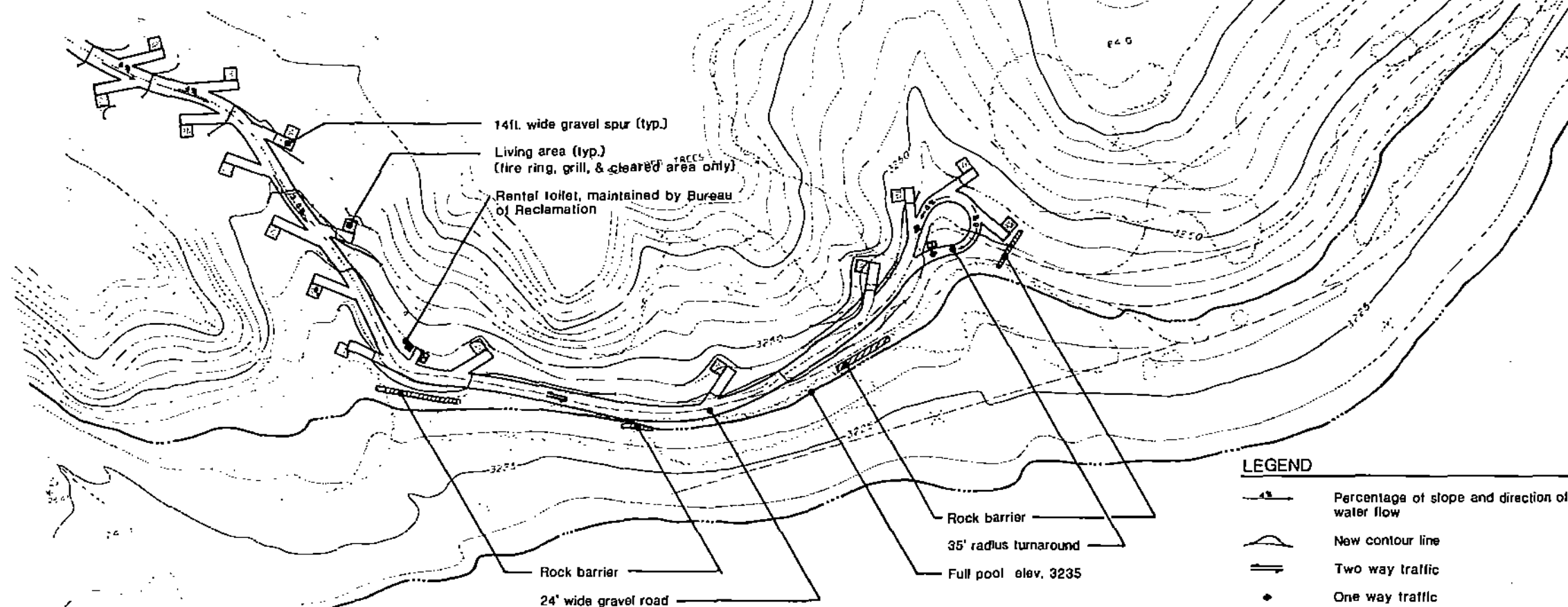
Beck & Baird/Boise
Landscape Architecture Planning Urban Design
Beck & Baird
P.O. Box 7423 Boise, ID 83707 (208)342-4811
Office: Boise, Idaho & Seattle, Washington



Scale: Feet
Contour Interval 5 Feet
Contour Maps provided by the Bureau of Reclamation



North



LEGEND

- Percentage of slope and direction of water flow
- New contour line
- Two way traffic
- One way traffic
- Trash receptacle

NOTES:

- (1) Full reservoir pool elevation: 3235 feet
- (2) A detailed survey to verify topographic information, vegetation and other existing site conditions will be accomplished prior to construction drawing and specification development.
- (3) This is a conceptual plan. Constructed facilities will be located to preserve existing vegetation and minimize site disturbance to the greatest extent possible.
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BUREAU OF RECLAMATION

FIGURE 4-6

DESIGNED DFG JG
DRAWN DFG JG
CHECKED DB

FIELD APPROVAL
TECHNICAL APPROVAL
APPROVED

CONTOUR INTERVAL 5 FEET
OCTOBER 4, 1991

Cattleguard

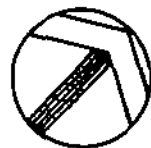
BUREAU OF RECLAMATION
PRINEVILLE, OREGON

Conceptual Plan

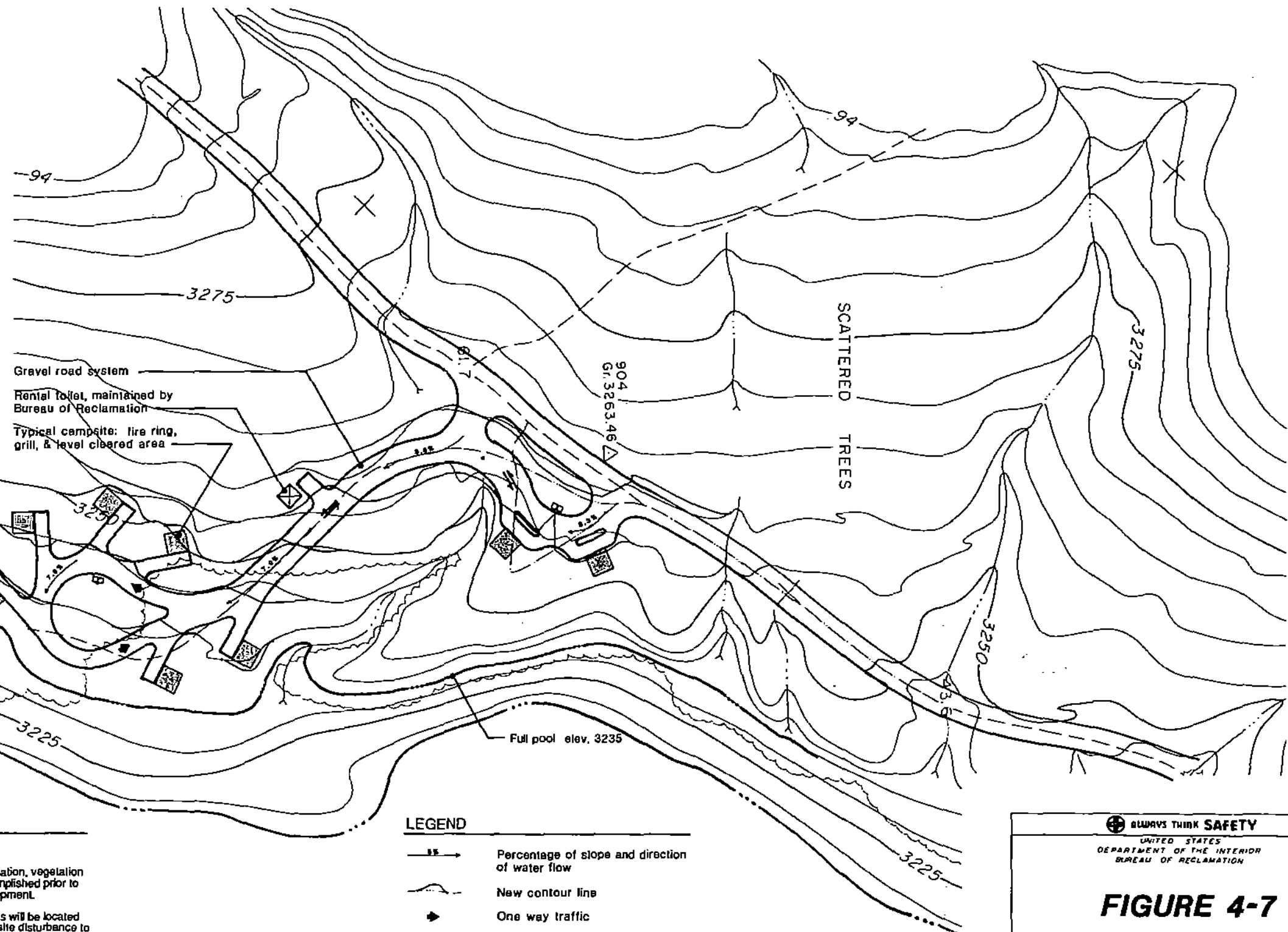
Beck & Baird/Boise
Landscape Architecture Planning Urban Design
P.O. Box 7423 Boise, ID 83707 (208)342-4811
Offices: Boise, Idaho & Seattle, Washington



Scale: Feet
Contour Interval 5 Feet
Contour Maps provided by the Bureau of Reclamation



North



NOTES:

- (1) Full reservoir pool elevation: 3235 feet
- (2) A detailed survey to verify topographic information, vegetation and other existing site conditions will be accomplished prior to construction drawing and specification development.
- (3) This is a conceptual plan. Constructed facilities will be located to preserve existing vegetation and minimize site disturbance to the greatest extent possible.
- (4) Recreation facilities located between surcharge elevations 3235 and 3238 feet will be constructed to withstand short-term inundation. All major facilities (i.e. restrooms) will be located above elevation 3238 feet to minimize flood potential.

LEGEND

- Percentage of slope and direction of water flow
- New contour line
- One way traffic
- Two way traffic
- Trash receptacle

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BUREAU OF RECLAMATION

FIGURE 4-7

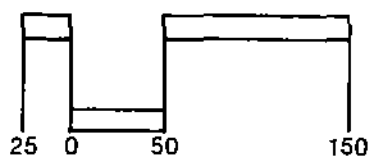
DESIGNED: JG FIELD APPROVAL
DRAWN: DFG, JG TECHNICAL APPROVAL
CHECKED: DB APPROVED
CONTOUR INTERVAL 5 FEET OCTOBER 4, 1991

Owl Creek

BUREAU OF RECLAMATION
PRINEVILLE, OREGON

Conceptual Plan

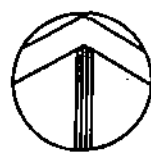
Beck & Baird/Boise
Landscape Architecture Planning Urban Design
Beck & Baird
P.O. Box 7423 Boise, ID 83707 (208)342-4811
Offices: Boise, Idaho & Seattle, Washington



Scale: Feet

Contour Interval 5 Feet

Contour Maps provided by the Bureau of Reclamation



North

Handicap accessible
Rental toilet, maintained by Bureau
of Reclamation
Asphalt path in handicap area
Typical campsite: fire ring, grill, &
level cleared area

(sign) Pedestrian access
8' wide maintenance road, access restricted
by removable bollards
Parking for hike in access
Existing road shown is schematic
Rock barriers sited as required to limit
vehicular access

Gravel path system
Full pool elev. 3235
Handicap campsite accessible by boat only
Courtesy dock

SCATTERED
TREES

LEGEND

- New contour line
- Trash receptacle
- Fire ring

NOTES:

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BUREAU OF RECLAMATION

FIGURE 4-8

DESIGNED: DFG, JG FIELD APPROVAL: _____
DRAWN: DFG, JG TECHNICAL APPROVAL: _____
CHECKED: DB APPROVED: _____

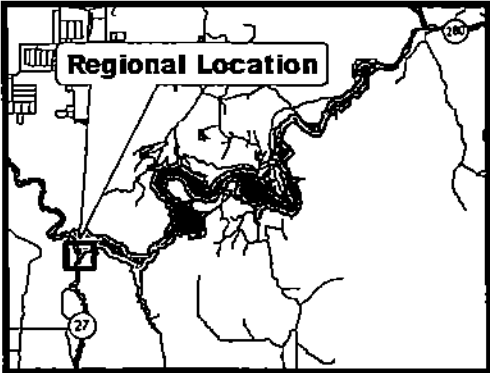
CONTOUR INTERVAL 5 FEET | OCTOBER 4, 1991

Appendix C

Alternative B Conceptual Plan

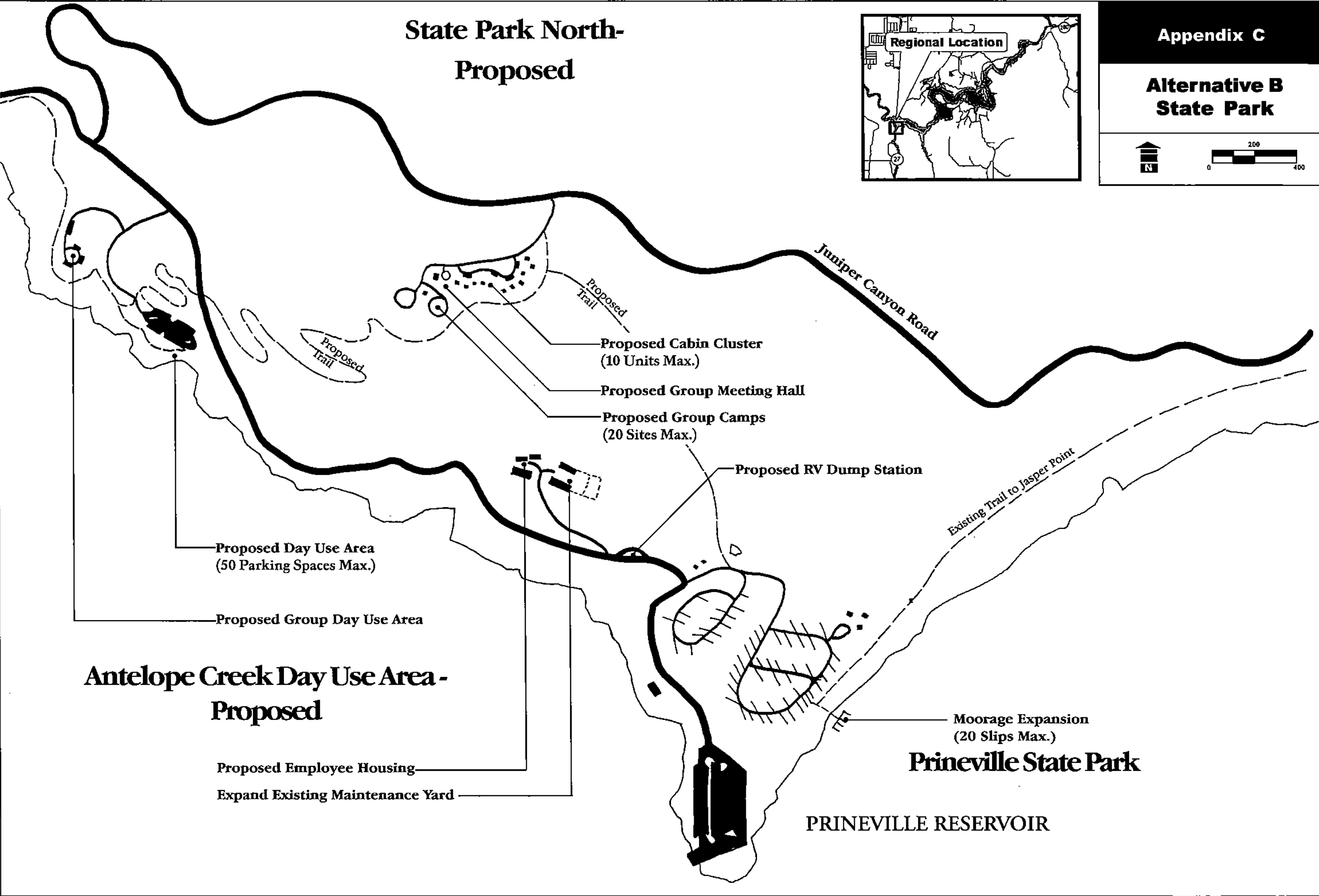
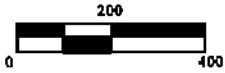
Prineville Reservoir Resource Management Plan and Master Plan: Final EA

**State Park North-
Proposed**

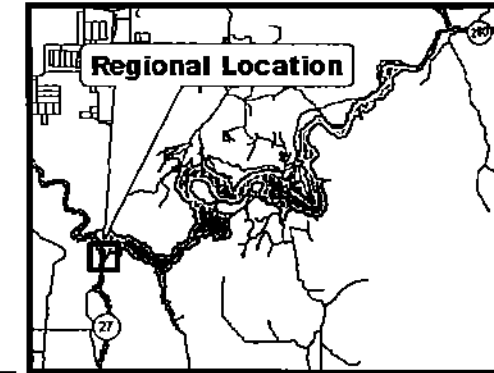
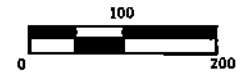


Appendix C

**Alternative B
State Park**



**Alternative B
Powderhouse
Cove**



PRINEVILLE RESERVOIR

Proposed Parking Area
(35 parking spaces Max.)

Improve Existing
Boat Ramp

Improve Entrance

Hwy. 27

Proposed Trail

Historic Powderhouse

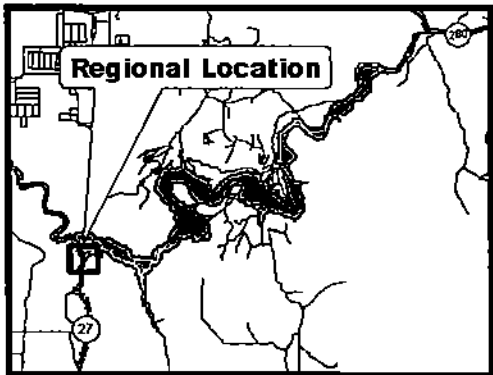
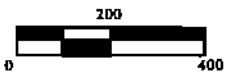
Proposed Trail to Taylor Butte

**Powderhouse Cove Boat Ramp and
Parking Area**

Proposed Parking Area
40 parking spaces

Appendix C

**Alternative B
Robert's Bay**



PRINEVILLE RESERVOIR

Proposed Trailhead
(20 Parking Spaces Max.)

Proposed Primitive
Campsites
(20 Sites Max.)

Proposed Boat Ramp
(50 Parking Spaces Max.)

Proposed
Camp Loops
(50 Sites Max.)

Proposed Group Camp

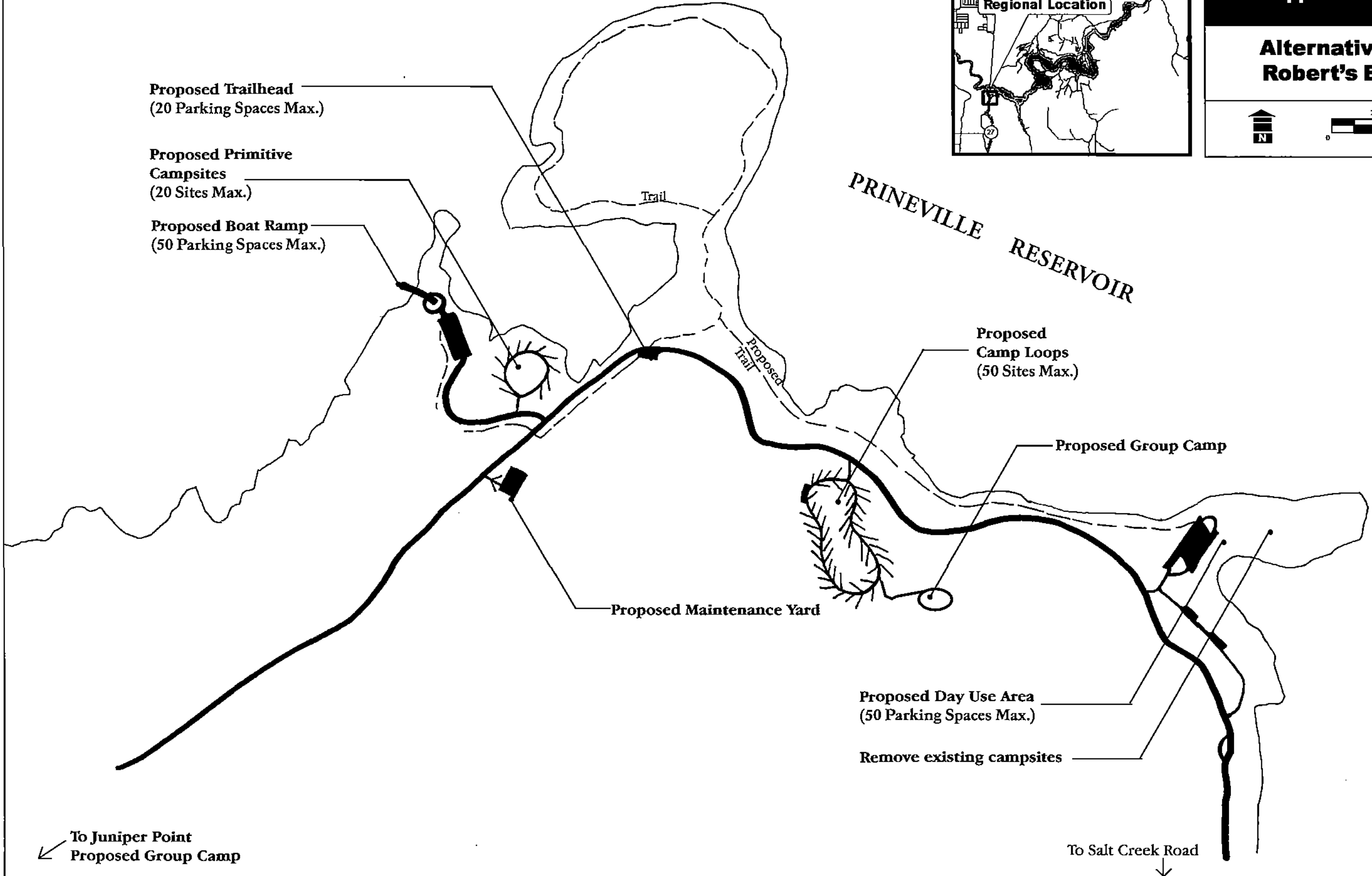
Proposed Maintenance Yard

Proposed Day Use Area
(50 Parking Spaces Max.)

Remove existing campsites

To Juniper Point
Proposed Group Camp

To Salt Creek Road



Appendix D

Alternative C Conceptual Plan

Prineville Reservoir Resource Management Plan and Master Plan: Final EA

State Park North- Proposed

Proposed Camp Loops
(80 Sites Max.)

Proposed RV Dumpstation

Proposed Group Camp
(20 Sites Max.)

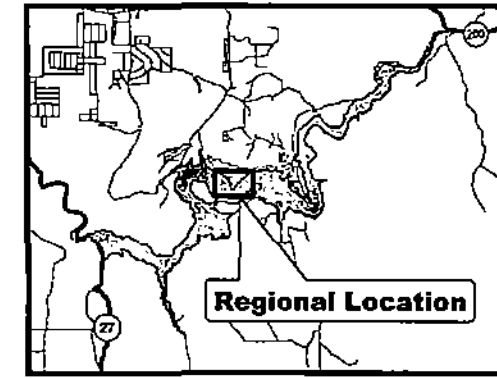
Proposed Cabin Cluster
(10 Max.)

Proposed Group Meeting Hall

Fishing Pier
Swimming Area
Proposed Day Use Area
(50 Parking Spaces Max.)
Proposed Overflow Parking Area
(20 Parking Spaces Max.)
Proposed Group Day Use Area

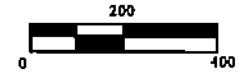
Antelope Creek Day Use Area - Proposed

Proposed Employee Housing
Expand Existing Maintenance Yard
Proposed Concession Bldg.



Appendix D

Alternative C State Park



Juniper Canyon Road

Existing Trail to Jasper Point

Cabin Area Expansion
(3 Units Max.)

Moorage Expansion
(20 Slips Max.)

Prineville State Park

PRINEVILLE RESERVOIR

Fishing Pier

**Alternative C
Powder House
Cove**



PRINEVILLE RESERVOIR

Proposed Parking Area
(120 maximum parking spaces)

Proposed Boat Ramp

Remove Existing Boat Ramp

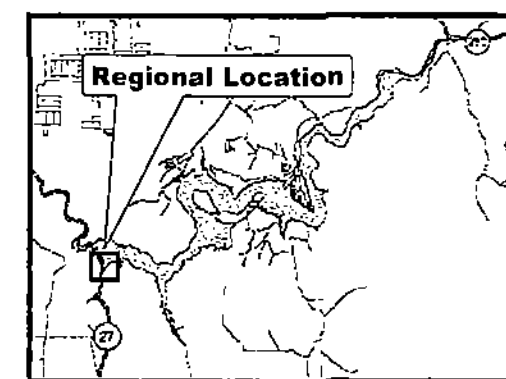
Realign Entrance

Existing Historic
Powder House

Proposed Trail to Taylor Butte

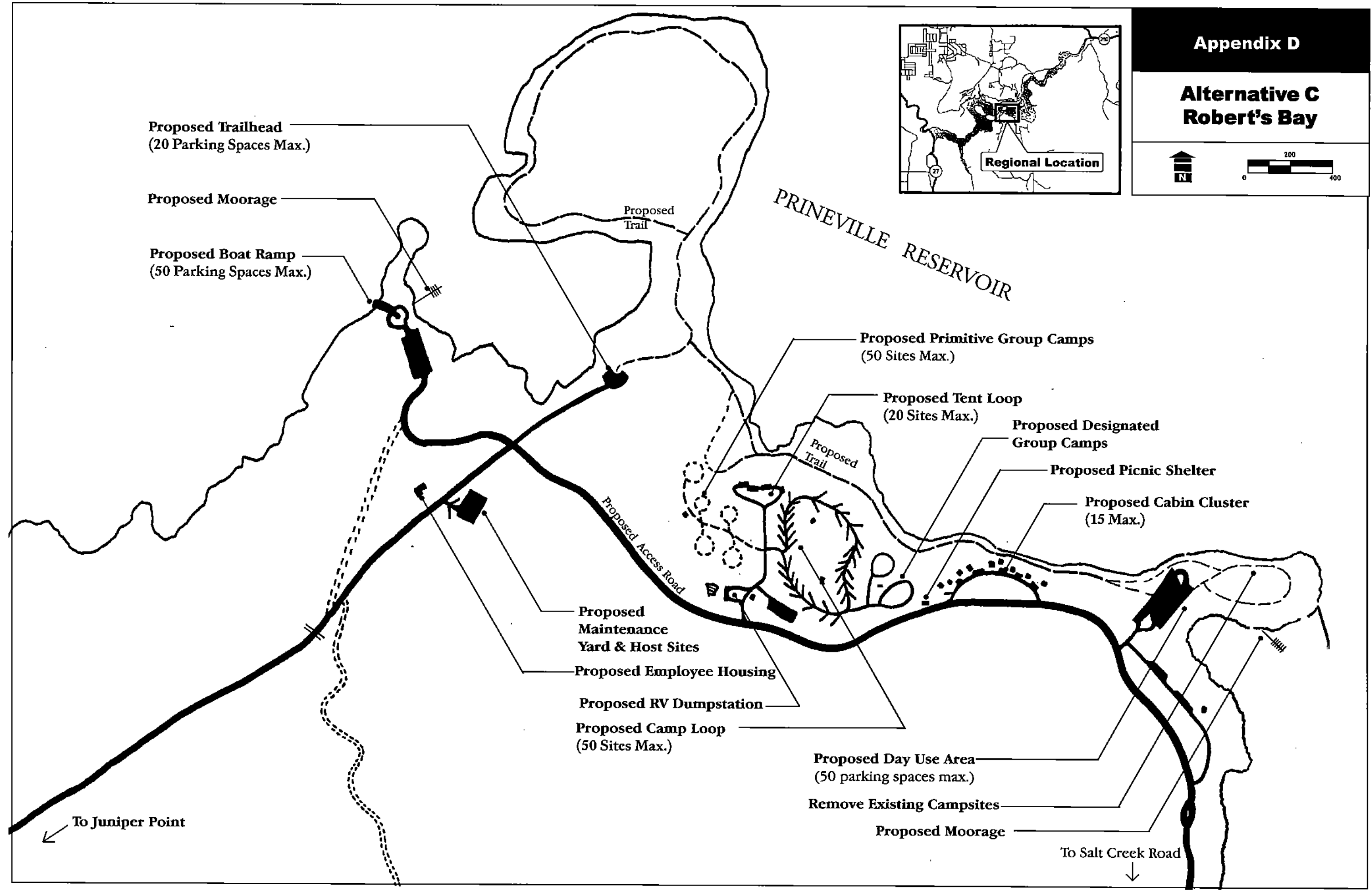
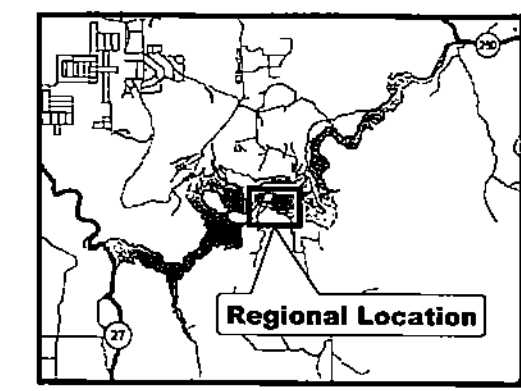
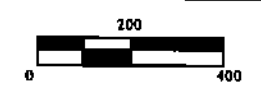
Proposed Day Use Area/Trailhead
(20 spaces)

Proposed Trail



Appendix D

**Alternative C
Robert's Bay**



Appendix E

Management Objectives for the Habitat and Wildlife Management Plan

Appendix E

MANAGEMENT OBJECTIVES FOR THE PRINEVILLE RESERVOIR HABITAT AND WILDLIFE MANAGEMENT PLAN

- Protect and maintain mule deer winter range
- Protect and enhance riparian vegetation for wildlife
- Improve waterfowl nesting habitat
- Protect and enhance nesting and winter habitat for sensitive and Threatened and Endangered Species
- Improve quality and quantity of wetland habitat
- Protect and enhance non-game wildlife habitat
- Maintain and enhance native vegetation
- Promote opportunities for Wildlife viewing/enjoyment
- Promote wildlife ethic and stewardship values

A. HABITAT DEVELOPMENT ACTIONS

1. Plantings: riparian and upland; native and non-native seeding, trees, and shrubs.
2. Water Developments
 - a. Spring development: on BLM land for livestock control, mitigation for fencing water gaps.
 - b. Guzzler development: Opportunities in SWA/North Shore, Enhancement of Roberts Bay riparian areas.
3. Noxious Weed Control
 - a. Controlled burns – continues ongoing program
 - b. Herbicide application
 - c. Re-seeding
4. Nesting structures – placement dependant on level of recreation development
 - a. Wood duck boxes
 - b. Bluebird boxes
 - c. Quail “piles” for roosting, benefits for neo-tropical migrant birds and mammals
 - d. Remove goose nesting structures: Populations doing well, monitor.
5. Perennial food plot development
6. Grazing management
 - a. Continue fencing SWA
 - b. Upgrade fencing material
 - c. Employ as a tool to meet vegetation objects at the discretion of ODFW and Reclamation

7. Upland habitat
 - a. Western juniper controls: mechanical and burns.
 - b. Plantings/seedings
 - c. Bald eagle management plan in partnership with adjoining public land owners.
8. Fisheries management – in cooperation with other agencies
 - a. Aquatic habitat enhancement projects
 - b. Monitoring
- B. ACCESS MANAGEMENT** – predicated on road restrictions and designating travel routes
 1. Reservoir-wide sign program.
 2. Road rehabilitation and revegetation in SWA/north shore.
 3. Road maintenance and improvement on designated routes.
- C. RECREATION MANAGEMENT**
 1. Hunting – continue per State rules
 2. Fishing - continue per State rules
 3. Camping – designate sites to contain dispersed use on North Shore.
 4. Viewing
- D. EDUCATIONAL DEVELOPMENT**
 1. Interpretative sites
 2. Outdoor classroom programs

Appendix F
U.S. Fish and Wildlife Service
Coordination and Consultation



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Oregon Fish & Wildlife Office
2600 S.E. 98th Avenue, Suite 100
Portland, Oregon 97266
(503) 231-6179 FAX: (503) 231-619

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BUREAU OF DECLAMATION		
OFFICIAL FILE COPY		
MAY 08 '03		
TO 94 3900	INIT VK	DATE 5/8
	May 5, 2003	
CONTROL #:	3-2533	
FOLDER #:	20334	

Reply To: 7265.006
File Name: PrinevilleRMP.section7.wpd
TS Number: 03-3151

Memorandum

To: Patti Llewellyn, Program Manager, Lands and Recreation, Bureau of Reclamation,
Pacific Northwest Region, Boise, Idaho

From: State Supervisor/Deputy State Supervisor, Oregon Fish & Wildlife Office,
Portland, Oregon

Subject: Informal Consultation on the Final Environmental Assessment for the Prineville Reservoir Resource Management Plan/Master Plan

This is in response to your letter dated April 15, 2003, transmitting your evaluation of the impacts on the bald eagle (Haliaeetus leucocephalus), Canada lynx (Felis lynx), and Oregon spotted frog (Rana pretiosa) from the proposed Prineville Reservoir Resource Management Plan. Your correspondence was received in this office on April 17, 2003.

The proposed project is described as the Preferred Alternative in the November 8, 2002, Draft Environmental Assessment (DEA) for the Prineville Reservoir Resource Management Plan and Master Plan. The DEA indicated that the Preferred Alternative would have no effect on Federally listed or proposed threatened and endangered species. However, your letter of April 15, 2003 indicated that the Final Environmental Assessment (EA) has been changed to indicate that the Preferred Alternative may affect, but is not likely to adversely affect, bald eagles. The original determination of no project impacts on Canada lynx and Oregon spotted frog will remain in the Final EA.

The Prineville Reservoir area provides important habitat for bald eagles, listed as threatened under the Endangered Species Act (ESA). Successful bald eagle nesting has been documented near the reservoir during the spring and summer. In addition, a large wintering population occupies roost sites near the eastern portion of the reservoir. Proposed restrictions on certain human activities around the reservoir as outlined in the Resource Management Plan would

minimize impacts on bald eagles. We concur with the Bureau of Reclamation that the Preferred Alternative, as described in the DEA and in your April 15, 2003 letter, may affect, but is not likely to adversely affect, bald eagles. This concurrence is based on the project description that includes the following measures which should reduce potential human conflicts with bald eagles in the project area:

1. Vehicle access around the reservoir will be controlled by seasonal road closures, barriers, signs, and increased enforcement. In addition, an annual review of current eagle activities at known nests will be used to determine the opening dates for some winter road closures.
2. A bald eagle management plan will be developed in cooperation with the Oregon Department of Fish and Wildlife and the U.S. Fish and Wildlife Service.
3. A comprehensive monitoring plan will be developed for bald eagle nest and roost sites.
4. Dispersed camping at most of the popular camping areas around the reservoir will be limited to defined, designated campsites.

Canada lynx, listed threatened under the ESA, is not likely to occur in the 3300-foot elevation juniper/sagebrush habitat of the project area. We therefore do not disagree with your finding that the RMP would have no affect on this species.

Consultation is not required for the Oregon spotted frog since it is a candidate species, however, we would not disagree with your determination that the proposed project would have no affect on the frog.

The requirements established under section 7(a)(2) and 7(c) of the Endangered Species Act of 1973, as amended (16 USC 1531 et. seq.), have been met, thereby concluding the consultation process. If you have any questions or need more information, please contact Larry Rasmussen or Joe Zisa at (503) 231-6179.

cc: OFWO Section 7 files



6654
1784

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Oregon Fish and Wildlife Office

2600 S.E. 98th Avenue, Suite 100 3900 pl 12119

Portland, Oregon 97266 390

(503) 231-6179 FAX: (503) 231-6195

Reply To: 8330.0781(01)

File Name: Sp078.wpd

OALS: 01-0178

December 11, 2000

Patti Llewellyn
U.S. Bureau of Reclamation
1150 North Curtis Road, Suite 100
Boise, ID 83706-1234

Subject: Prineville Reservoir, Crooked River Project (1-7-01-SP-078).

Dear Ms. Llewellyn:

This is in response to your letter, dated November 14, 2000, requesting information on listed and proposed endangered and threatened species that may be present within the area of the Prineville Reservoir, Crooked River Project in Crook County. The U.S. Fish and Wildlife Service (Service) received your letter on November 17, 2000.

We have attached a list (Attachment A) of threatened and endangered species that may occur within the area of the Prineville Reservoir, Crooked River Project. The list fulfills the requirement of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). U.S. Bureau of Reclamation (BR) requirements under the Act are outlined in Attachment B.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems on which they depend may be conserved. Under section 7(a)(1) and 7(a)(2) of the Act and pursuant to 50 CFR 402 *et seq.*, BR is required to utilize their authorities to carry out programs which further species conservation and to determine whether projects may affect threatened and endangered species, and/or critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) which are major Federal actions significantly affecting the quality of the human environment as defined in NEPA (42 U.S.C. 4332 (2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to the Biological Assessment be prepared to determine whether they may affect listed and proposed species. Recommended contents of a Biological Assessment are described in Attachment B, as well as 50 CFR 401.12.

If BR determines, based on the Biological Assessment or evaluation, that threatened and endangered species and/or critical habitat may be affected by the project, BR is required to consult with the Service following the requirements of 50 CFR 402 which implement the Act.

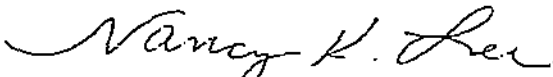
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Attachment A includes a list of candidate species under review for listing. The list reflects changes to the candidate species list published October 25, 1999, in the Federal Register (Vol. 64, No. 205, 57534) and the addition of "species of concern." Candidate species have no protection under the Act but are included for consideration as it is possible candidates could be listed prior to project completion. Species of concern are those taxa whose conservation status is of concern to the Service (many previously known as Category 2 candidates), but for which further information is still needed.

If a proposed project may affect candidate species or species of concern, BR is not required to perform a Biological Assessment or evaluation or consult with the Service. However, the Service recommends addressing potential impacts to these species in order to prevent future conflicts. Therefore, if early evaluation of the project indicates that it is likely to adversely impact a candidate species or species of concern, BR may wish to request technical assistance from this office.

Your interest in endangered species is appreciated. The Service encourages BR to investigate opportunities for incorporating conservation of threatened and endangered species into project planning processes as a means of complying with the Act. If you have questions regarding your responsibilities under the Act, please contact Cindy Bright or Jeff Dillon at (503) 231-6179. For questions regarding anadromous fish, please contact National Marine Fisheries Service, 525 NE Oregon Street, Suite 500, Portland, Oregon 97232, (503) 230-5400. All correspondence should include the above referenced file number.

Sincerely,


for Kemper M. McMaster
State Supervisor

Attachments
SP 078
cc: OFWO-ES
ODFW (nongame)
cc: Bureau of Reclamation

ATTACHMENT A

FEDERALLY LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES,
 CANDIDATE SPECIES AND SPECIES OF CONCERN THAT MAY OCCUR WITHIN
 THE AREA OF THE PRINEVILLE RESERVOIR, CROOKED RIVER PROJECT
 1-7-01-SP-078

LISTED SPECIESBirds

Bald eagle
 Canada lynx

Haliaeetus leucocephalus
Felis lynx canadensis

T
 T

PROPOSED SPECIES

None

CANDIDATE SPECIES

Oregon spotted frog

Rana pretiosa

SPECIES OF CONCERNMammals

Pygmy rabbit
 Pale western big-eared bat
 Small-footed myotis (bat)
 Long-eared myotis (bat)
 Fringed myotis (bat)
 Long-legged myotis (bat)
 Yuma myotis (bat)

Brachylagus idahoensis
Corynorhinus (=Plecotus) townsendii pallescens
Myotis ciliolabrum
Myotis evotis
Myotis thysanodes
Myotis volans
Myotis yumanensis

Birds

Tricolored blackbird
 Western burrowing owl
 Ferruginous hawk
 Greater sage-grouse
 Willow flycatcher
 Lewis woodpecker
 Mountain quail

Agelaius tricolor
Athene cunicularia hypugea
Buteo regalis
Centrocercus urophasianus
Empidonax traillii adastus
Melanerpes lewis
Oreortyx pictus

Amphibians and Reptiles

Northern sagebrush lizard

Sceloporus graciosus graciosus

Fish

Interior redband trout

Oncorhynchus mykiss gibbsi

Plants

Estes' artemisia
 Peck's long-bearded marioposa-lily
 Columbia cress

Artemisia ludoviciana ssp. *estesii*
Calochortus longebarbatus var. *peckii*
Rorippa columbiae

(E) - Listed Endangered

(T) - Listed Threatened

(CH) - Critical Habitat has been designated for this species

(PE) - Proposed Endangered

(PT) - Proposed Threatened

(PCH) - Critical Habitat has been proposed for this species

Attachment A, Page 4

Species of Concern - Taxa whose conservation status is of concern to the Service (many previously known as Category 2 candidates), but for which further information is still needed.

(CF) - Candidate: National Marine Fisheries Service designation for any species being considered by the Secretary for listing for endangered or threatened species, but not yet the subject of a proposed rule.

*** Consultation with National Marine Fisheries Service required.*

" U. S. Department of Interior, Fish and Wildlife Service, December 31, 1999, Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12

ATTACHMENT B
FEDERAL AGENCIES RESPONSIBILITIES UNDER SECTION 7(a) and (c)
OF THE ENDANGERED SPECIES ACT

SECTION 7(a)-Consultation/Conference

Requires:

- 1) Federal agencies to utilize their authorities to carry out programs to conserve endangered and threatened species;
- 2) Consultation with FWS when a Federal action may affect a listed endangered or threatened species to insure that any action authorized, funded or carried out by a Federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of Critical Habitat. The process is initiated by the Federal agency after they have determined if their action may affect (adversely or beneficially) a listed species; and
- 3) Conference with FWS when a Federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed Critical Habitat.

SECTION 7(c)-Biological Assessment for Major Construction Projects¹

Requires Federal agencies or their designees to prepare a Biological Assessment (BA) for construction projects only. The purpose of the BA is to identify proposed and/or listed species which are/is likely to be affected by a construction project. The process is initiated by a Federal agency in requesting a list of proposed and listed threatened and endangered species (list attached). The BA should be completed within 180 days after its initiation (or within such a time period as is mutually agreeable). If the BA is not initiated within 90 days of receipt of the species list, the accuracy of the species list should be informally verified with our Service. No irreversible commitment of resources is to be made during the BA process which would foreclose reasonable and prudent alternatives to protect endangered species. Planning, design, and administrative actions may be taken; however, no construction may begin.

To complete the BA, your agency or its designee should: (1) conduct an on-site inspection of the area to be affected by the proposal which may include a detailed survey of the area to determine if the species is present and whether suitable habitat exists for either expanding the existing population or for potential reintroduction of the species; (2) review literature and scientific data to determine species distribution, habitat needs, and other biological requirements; (3) interview experts including those within FWS, National Marine Fisheries Service, State conservation departments, universities, and others who may have data not yet published in scientific literature; (4) review and analyze the effects of the proposal on the species in terms of individuals and populations, including consideration of cumulative effects of the proposal on the species and its habitat; (5) analyze alternative actions that may provide conservation measures and (6) prepare a report documenting the results, including a discussion of study methods used, any problems encountered, and other relevant information. The BA should conclude whether or not a listed species will be affected. Upon completion, the report should be forwarded to our Portland Office.

¹A construction project (or other undertaking having similar physical impacts) which is a major Federal action significantly affecting the quality of the human environment as referred to in NEPA (42 U.S.C. 4332. (2)(c)). On projects other than construction, it is suggested that a biological evaluation similar to the biological assessment be undertaken to conserve species influenced by the Endangered Species Act.

Appendix G

County Ordinance 101


Prineville Reservoir Resource Management Plan and Master Plan: Final EA

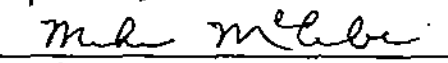
C. 1-2724
E. 18057IN THE COUNTY COURT OF THE STATE OF OREGON
FOR THE COUNTY OF CROOKIN THE MATTER OF PROTECTING)
THE PRINEVILLE RESERVOIR)
AND SURROUNDING AREA)
AND DECLARING AN EMERGENCY)ORDINANCE NO. 101
AMENDING
ORDINANCE NO. 34

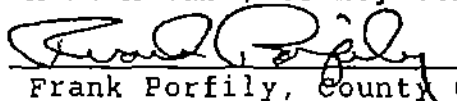
WHEREAS; Crook County is interested in updating Ordinance 34 and revising it to more closely fit the management of the Prineville reservoir;

THE COUNTY OF CROOK ORDAINS that Ordinance No. 34 is amended and shall be in the form shown as Exhibit A.

Dated this 12th day of April, 1995.


Fred Rodgers, County Judge


Mike McCabe, County Commissioner


Frank Porfily, County Commissioner

REVIEW AND APPROVED BY U.S. BUREAU OF
RECLAMATION

Dated this 7th day of April 1995.


U.S. BUREAU OF RECLAMATION, BY

Exhibit "A"
Ordinance 34 Amended by Ordinance 101

I. Purpose and Location:

The following regulations apply to and shall be enforced in the area now and hereafter referred to as the Prineville Reservoir Recreation Area to preserve the reservoir and the surrounding natural areas. This Ordinance shall apply to the Prineville Reservoir Recreation Area Crook County, Oregon, as set forth on the plat attached hereto, marked Exhibit "B" and by this reference made part hereof.

II. Prohibitions:

A. VEHICLES, VEHICLE USE AND PARKING

- (1) Motor vehicles shall not be operated on any trail or in any part of the reservoir area not constructed or designated for motor vehicle use, or on any road, trail or area specifically posted as closed to the public or closed to motor vehicle use. Motor vehicles include:
 - (a) motorcycles
 - (b) motor driven bicycles
 - (c) off road vehicles
 - (d) all terrain vehicles
 - (e) passenger cars
 - (f) pick up trucks
 - (g) any other type of motor driven conveyance
- (2) Motor vehicles, trailers or other vehicles shall not be parked in any area designated or posted as "no parking". Vehicles also shall not be parked on roadsides in such a manner as to obstruct the normal traffic flow or in such a manner as to create a traffic safety hazard, or as to restrict the free movement of two way traffic or the passage of emergency vehicles.

B. NOISE AND QUIET HOURS

- (1) The hours of 10pm to 6am are designated as quiet hours and visitors shall not disturb others by producing loud noise of any kind during these hours.
- (2) Visitors shall not operate or allow the use any noise-producing machine, vehicle, device or instrument in such a manner that it is disturbing to other reservoir area visitors during regular hours. Including, but not limited to:

- (a) motorcycles
- (b) chain saws
- (c) music or other noise producing devices

C. FIREARMS, WEAPONS AND HUNTING

- (1) Visitors shall not possess any loaded firearm in the State Park areas or the Prineville Resort area, except for recognized law enforcement officials and authorized employees of the State Park or Prineville Reservoir resort.
- (2) Visitors shall not, except during recognized game seasons authorized by the appropriate county, state or federal agency:
 - (a) Hunt, pursue, trap, kill, injure or molest any birds or animals or disturb their habitat;
 - (b) Discharge any firearm, pellet gun, bow and arrow, sling shot or any other weapon or device capable of injuring any person, bird or animal unless it is discharged in the lawful hunting of a game animal.

D. FIRES, LOCATIONS AND RESTRICTIONS

- (1) Fires shall not be left unattended. Fires shall only be made in appropriate fire rings or pits. Every fire shall be extinguished and the ashes covered by soil before the user leaves the reservoir area.
- (2) Fires shall not be allowed during times of declared fire restriction or closure periods. Fire closures and restrictions for the Prineville Reservoir Area are the same as those declared by the Oregon State Forestry Department for state and private lands.

E. DOGS AND OTHER ANIMALS

- (1) Dogs, cats or other animals of any kind shall not be allowed to run free. Dogs shall be maintained on a leash at all times and other animals shall be attended and under the control of the owner at all times.
- (2) Dogs and other animals are to subject to noise restrictions in section B. (1) and (2).

F. WOOD AND OTHER PLANT LIFE

- (1) Visitors shall not pick, cut, mutilate or remove any flowers, shrubs, foliage, trees, plant life or products of any kind whether dead or living from any of the reservoir area. (This includes gathering wood for fires. Fire wood must be brought in with the visitor).

G. BUILDINGS, SIGNS AND RECREATION AREA EQUIPMENT

- (1) Visitors shall not mutilate, deface, damage, or remove any bench, table, sign, marker, fence, monument, building or other structure or facility of any kind located within the reservoir area.
- (2) Visitors shall not post private signs on recreation area buildings, fences, sign posts, trees or other objects.

H. DUMPING TRASH, WASTE WATER AND SEWAGE

- (1) Visitors shall not dump or leave behind bottles, cans, waste, paper, garbage, gray water, sewage or refuse except in receptacles designated for that purpose.
- (2) Residential garbage, from local residences, shall not be dumped in recreation area dumpsters and trash receptacles by visitors or surrounding residents.

I. CLEANING FISH, DISHES

- (1) Visitors shall not use the public water supply hydrants/faucets to clean fish, dishes or other articles.

J. CAMPSITES, CAMPING AND CONDITIONS

- (1) Visitors shall not camp in areas posted or designated as "no camping areas".
- (2) Visitors shall not camp in fee camping areas without paying the appropriate fee.
- (3) Visitors are not permitted to camp in a camping location, either fee use or non-fee use, longer than 14 days, with the exception of the camp host designated by the BOR recreation area ranger.
- (4) Visitors shall not leave a campsite unattended for more than 24 hours.
- (5) Visitors in a group camp of greater than 25 persons shall designate a camp leader as a contact person for the recreation area ranger and law enforcement personnel.

III. Severability:

The provisions of this Ordinance are severable. If any section, sentence, clause, or phrase of this Ordinance is adjudged to be invalid by a court of competent jurisdiction, that decision shall not affect the validity of the remaining portions of this Ordinance.

IV. Enforcement:

- A. Violations of this Ordinance may result in the eviction of the violator(s) from the Prineville Reservoir Recreation Area Park and/or;
- B. This Ordinance may be enforced as provided by other County Ordinances. Violation of the provisions of this Ordinance are hereby declared nuisances and may be abated as provided by law.

V. Emergency:

The Prineville Reservoir Recreation Area and surrounding area require the immediate protection of Crook County. The Crook County Court hereby declares an emergency and this Ordinance shall be in full force and effect upon signing by the Crook County Court.

Appendix H

Tribal Correspondence

Letters and Meetings with Tribes

2000

December 14, 2000 Letter to General Manager, Department of Natural Resources, Confederated Tribes of the Warm Springs explaining the Prineville Reservoir Resource Management Plan Process and requesting the Tribe to designate a contact person for the process.

2001

January 25, 2001 Meeting at Warm Springs Reservation with Warm Springs Tribes natural resource specialists and BIA representative to introduce the Prineville Reservoir RMP process.

August 9, 2001 Meeting with members of the Confederated Tribes of the Warm Springs at Prineville Reservoir to discuss cultural resources in relation to the RMP process.

August 23, 2001 Letter to Wanda Johnson, Burns Paiute Tribe, explaining the Prineville Reservoir Resource Management Plan Process and requesting input and coordination on the RMP process.

August 23, 2001 Letter to Allen Foreman, the Klamath Tribes, explaining the Prineville Reservoir Resource Management Plan Process and requesting input and coordination on the RMP process.

September 24, 2001 Memorandum from Acting Director of Reclamation's Pacific Northwest Regional Office to the Area Director of the Bureau of Indian Affairs, Portland Area Office requesting information on any ITAs on or adjacent to Reclamation land at Prineville Reservoir.



IN REPLY
REFER TO:

PN-3906
LND-8.00

United States Department of the Interior

BUREAU OF RECLAMATION
Pacific Northwest Region
Lower Columbia Area Office
825 NE Multnomah Street, Suite 1110
Portland, Oregon 97232-2155

AUG 23 2001

Mr. Allen Foreman
Tribal Council Chairman
The Klamath Tribes
PO Box 436
Chiloquin OR 97624

Subject: Resource Management Plan Update for Prineville Reservoir, Crook County,
Crooked River Project, Oregon

Dear Mr. Foreman:

The Bureau of Reclamation (Reclamation) is preparing to update the Resource Management Plan (RMP) for Prineville Reservoir. Prineville Reservoir is located on the Crooked River in central Oregon about 15 miles southeast of the city of Prineville. The current RMP was completed in 1992 and was prepared as a 10 year management plan for the Reclamation-administered lands at Prineville Reservoir (reference enclosed maps). The RMP update process began this year, and we hope to have a completed plan by April of 2003. The update will include gathering data that has become available since the 1992 RMP and exploring alternatives to assist Reclamation in planning for the next 10 years of managing the resources under Reclamation's control.

Reclamation's goal in the original and updated RMP is to manage, protect, and enhance fish and wildlife habitat, natural, cultural, and recreational resources; to preserve the aesthetic quality and natural environment; and to promote the safe and healthful use of the reservoir area lands and water. We have enclosed a copy of our last news brief to help introduce you to this project.

An integral part of the RMP update process is working with Indian tribes that have treaty or other interests in the study area, coordinating with other agencies, and involving the public. Prineville Reservoir is situated on lands ceded by The Confederated Tribes of the Warm Springs Reservation (Warm Springs Tribes), who retain treaty rights on those lands. We were recently advised by the Warm Springs Tribes that the Klamath Tribes represent the Northern Paiute people who make their home on the Klamath Reservation but may have retained interests in the Prineville area. To aid in planning the RMP update, we are requesting your assistance to determine if there are resources of interest to your Northern Paiute members on lands around Prineville Reservoir. In particular, we would like to determine if you have knowledge of Indian sacred sites (per Executive Order 13007), archeological sites, or traditional cultural properties.

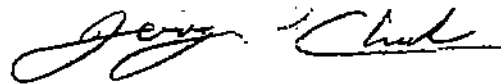
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important to the Northern Paiute. If you have knowledge of such sites or resources or have reason to believe they are present, please inform us so that we can begin more detailed discussions and further involve you and your staff in the RMP update study process. We can do this by phone, letter, or meeting, whichever you prefer.

Ms. Vicki Kellerman is Reclamation's lead for the study. I encourage you or your staff to call Ms. Kellerman at (208) 378-5326 on any matters regarding the RMP planning process. You may also address any correspondence concerning our request for information to Ms. Kellerman. We are also available to meet with you and your staff at Prineville Reservoir if you believe a visit will aid you in understanding the project and responding to our request for information.

Thank you for your assistance.

Sincerely,



Jerry D. Cheek
Acting Area Manager

Enclosures - 4

cc: Mr. Elwood Miller, Jr.
Director of Natural Resources
The Klamath Tribes
PO Box 436
Chiloquin OR 97624
(w/encls)

Mr. Gerald Skelton
Tribal Culture Department
The Klamath Tribes
PO Box 436
Chiloquin OR 97624
(w/encls)

bc: PN-6511, PN-3906, PN-3902, BFO-6100
(w/o encls)



IN REPLY
REFER TO:

PN-3906
LND-8.00

United States Department of the Interior

BUREAU OF RECLAMATION
Pacific Northwest Region
Lower Columbia Area Office
825 NE Multnomah Street, Suite 1110
Portland, Oregon 97232-2195

AUG 23 2001

Mrs. Wanda Johnson
Tribal Council Chairman
Burns Paiute Tribes
HC 71 100 Pasigo Street
Burns OR 97720

Subject: Resource Management Plan Update for Prineville Reservoir, Crook County,
Crooked River Project, Oregon

Dear Mrs. Johnson:

The Bureau of Reclamation (Reclamation) is preparing to update the Resource Management Plan (RMP) for Prineville Reservoir. Prineville Reservoir is located on the Crooked River in central Oregon about 15 miles southeast of the city of Prineville. The current RMP was completed in 1992 and was prepared as a 10 year management plan for the Reclamation-administered lands at Prineville Reservoir (reference enclosed maps). The RMP update process began this year, and we hope to have a completed plan by April of 2003. The update will include gathering data that has become available since the 1992 RMP and exploring alternatives to assist Reclamation in planning for the next 10 years of managing the resources under Reclamation's control.

Reclamation's goal in the original and updated RMP is to manage, protect, and enhance fish and wildlife habitat, natural, cultural, and recreational resources; to preserve the aesthetic quality and natural environment; and to promote the safe and healthful use of the reservoir area lands and water. We have enclosed a copy of our last news brief to help introduce you to this project.

An integral part of the RMP update process is working with Indian tribes that have interests in the study area, coordinating with other agencies, and involving the public. Prineville Reservoir is situated on lands ceded by The Confederated Tribes of the Warm Springs Reservation (Warm Springs Tribes), who retain treaty rights on those lands. We were recently advised by the Warm Springs Tribes that it is appropriate to invite the comment and participation of the Burns Paiute Tribe in the RMP update study process. Therefore, we are requesting your assistance to determine if there are resources of interest to the Burns Paiute tribal members on lands around Prineville Reservoir. In particular, we would like to determine if you have knowledge of Indian sacred sites (per Executive Order 13007), archeological sites, or traditional cultural properties

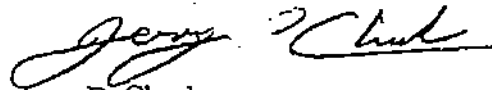
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important to the Northern Paiute. If you have knowledge of such sites or resources or have reason to believe they are present, please inform us so that we can begin more detailed discussions and further involve you and your staff in the RMP update study process.

Ms. Vicki Kellerman is Reclamation's lead for the study. I encourage you or your staff to call Ms. Kellerman at (208) 378-5326 on any matters regarding the RMP planning process. You may also address any correspondence concerning our request for information to Ms. Kellerman. We are also available to meet with you and your staff at Prineville Reservoir if you believe a visit will aid you in understanding the project and responding to our request for information.

Thank you for your assistance.

Sincerely,



Jerry D. Cheek
Acting Area Manager

Enclosures - 4

cc: Mrs. Linda Reed-Jerofke
Tribal Anthropologist
Burns Paiute Tribe
HC 71 100 Pasigo Street
Burns OR 97720
(w/encls)

bc: PN-6511, PN-3906, PN-3902, BFO-6100
(w/o encls)



IN REPLY
REFER TO:

PN-3906
LND-8.00

United States Department of the Interior

BUREAU OF RECLAMATION

Pacific Northwest Region
Lower Columbia Area Office
825 NE Multnomah Street, Suite 1110
Portland, Oregon 97232-2135

DEC 14 2003

Confederated Tribes of the Warm Springs
Attn: Robert Brunoe, General Manager
Department of Natural Resources
PO Box 1299
Warm Springs Oregon 97761

Subject: Request for Government-to-Government Meeting about the Prineville Reservoir
Resource Management Plan Update

Dear Mr. Brunoe:

The Bureau of Reclamation (Reclamation) is preparing an update of the Prineville Reservoir Resource Management Plan (RMP). Prineville Reservoir is located on the Crooked River in central Oregon about 15 miles southeast of the city of Prineville. The current RMP was completed in 1992 and was prepared as a 10-year management plan for the Reclamation-administered lands at Prineville Reservoir. The RMP update process will begin soon, and we hope to have a completed plan by April of 2003. The update will include gathering data that has become available since the 1992 RMP and exploring alternatives to assist Reclamation in planning for the next ten years of managing the resources under Reclamation's control. Reclamation's goal in the original and updated RMP is to manage, protect, and enhance fish and wildlife habitat, natural, cultural, and recreational resources; to preserve the aesthetic quality and natural environment; and to promote the safe and healthful use of the reservoir area lands and water.

An integral part of the update process is working with Indian tribes that have treaty or other interests in the study area, coordinating with other agencies, and involving the public. My staff and I would like to meet with you and your staff to discuss the interests of the Confederated Tribes of the Warm Springs in the RMP study area and its involvement in the study process. Particular topics we would like to discuss are knowledge of or concerns about treaty rights, Indian sacred sites, and traditional cultural properties in the study area. We will also form an ad hoc work group to help with the planning process. You are invited to designate someone to represent tribal interests on this group that will include agency representatives and other parties with particular interests in the Prineville Reservoir area. We anticipate a total of seven ad hoc work group meetings in Prineville, Oregon over the 2½ year planning process.

2

Anticipated Reclamation attendees would be myself; Vicki Kellerman, Project Leader and contact for the RMP; Carolyn Burpee Stone, RMP Coordinator; Chuck Korson, Indian Trust Asset Coordinator; and Lynne MacDonald, Regional Archeologist. We would travel to Warm Springs to meet with you at the tribal headquarters on a date that is mutually agreeable. I understand that you are available the week of January 22, and I will have Ms. Kellerman work with your secretary to find a mutually agreeable date that week. I encourage you or your staff to call Ms. Kellerman at (208) 378-5326 on any matters regarding this meeting or the RMP planning process. Thank you for your assistance.

Sincerely,



J. Eric Glover
Area Manager

Enclosures 1

Map with highlighted boundary

bc: Regional Director, Boise ID, Attention: PN-6511, PN 3906, PN-3902

(w/o encl to each)

BFO-6100

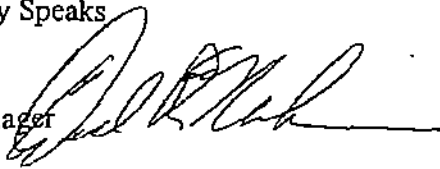
(w/o encl)

BFO-6100
LND-8.00

SEP 24 2001

MEMORANDUM

To: Area Director, Bureau of Indian Affairs
Portland Area Office
911 NE 11th Avenue, Portland, OR 97232-4169
Attention: Stanley Speaks

From: Dave R. Nelson
Acting Area Manager 

Subject: Request for Confirmation of Indian Trust Assets (ITA) - Prineville Reservoir
Resource Management Plan, Crooked River Project, Oregon

The Bureau of Reclamation (Reclamation) is currently in the process of updating the Resource Management Plan (RMP) for Prineville Reservoir. Prineville Reservoir is located on the Crooked River in central Oregon about 15 miles southeast of the city of Prineville. The current RMP was completed in 1992 and was prepared as a 10-year management plan for the Reclamation-administered lands at Prineville Reservoir. The RMP update process began this year, and will be exploring alternatives to assist Reclamation in managing the natural, cultural, and aesthetic resources under its control for the next 10 years.

Pursuant to the National Environmental Policy Act (NEPA), Reclamation will be preparing an Environmental Assessment for public review in 2002, and hopes to have a completed RMP by April 2003. As part of our NEPA compliance process and ITA policy issued on July 2, 1993, we are requesting information on whether there are any ITAs in the area of the proposed Federal action (see attached map).

We would appreciate you verifying whether the United States holds for any tribe in the area trust assets, including land, minerals, hunting and fishing, and/or water rights. If you have questions about this inquiry, please contact Mr. Chuck Korson at (541) 389-6541.

Attachment - 1

bc: PN-3906, PN-6511, PN-6519
(w/o att)



IN REPLY REFER TO:

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Northwest Region
911 N.E. 11th Avenue
Portland, Oregon 97232-4169



MEMORANDUM

TO: Area Manager
Bureau of Reclamation
Lower Columbia Area Office
825 NE Multnomah Street, Suite 1110
Portland, OR 97232-2135

FROM: Northwest Regional Director

SUBJECT: Indian Trust Assets Prineville Reservoir Area

BUREAU OF RECLAMATION OFFICIAL FILE COPY			ACTION MADE BY
TO	INIT	DATE	
1000	Rob	10/11/01	
3000	Cope	10/11/01	
6000	W/P	11/13/10	
FILE			

We recently received a Memorandum from your office concerning the identification of Indian Trust Assets in the Prineville Reservoir Resources Management Area. This Area was depicted on a map attached to the memorandum.

We have consulted the Northwest Regional Land Titles and Records Section and they have informed us that there is currently no Indian Trust Lands in the area.

The Prineville Reservoir lies in the area covered by the Treaty of June 23, 1855. In this Treaty of June 23, 1855 the Confederated Tribes of the Warm Springs Reservation reserved certain rights on the open and unclaimed lands of the United States. We understand that the Tribe is currently involved in the Prineville Reservoir Resources Management Area planning.

If you have any further questions on this issue, please contact Mr. Robert Fenton at (503)-231-6744.

Appendix I
U.S. Fish and Wildlife Service
Planning Aid Memorandum

Prineville Reservoir Resource Management Plan and Master Plan: Final EA



United States Department of the Interior

LND-800-

CRP

FISH AND WILDLIFE SERVICE
Oregon State Office
2600 S.E. 98th Avenue, Suite 100
Portland, Oregon 97266
(503) 231-6179 FAX: (503) 231-6195

BUREAU OF RECLAMATION
OFFICIAL FILE COPY

JAN 06 '03

TO	INIT	DATE
1000	MKD	1/8
1050	K	1/7
1010	CK	1/7
3000	AS	1/8
7900	CBS	1/09
3900	VK	1/9
CONTROL #: 3-131		
FOLDER #: December 31, 2002		

cy to LCA-1000
3902

Reply To: 7265.006
File Name: FinalRMP.wpd
TS No. 02-3287

Memorandum

To: Regional Director, U.S. Bureau of Reclamation, Pacific Northwest Region, Boise, Idaho

From: *for* State Supervisor/Deputy State Supervisor, Oregon State Office, Portland, Oregon

Subject: *Nancy K. Free*
Prineville Reservoir, Resource Management Plan, Planning Aid Memorandum

This is our Planning Aid Memorandum (PAM) describing the impacts on fish and wildlife resources from the draft Resource Management Plan for Prineville Reservoir located in Crook County near Prineville, Oregon. Our comments are provided under the authority of the Fish and Wildlife Coordination Act but do not constitute our formal comments under Section 2(b) of the Act (48 Stat. 401, as amended; 16 U.S.C., 661 et seq.), and are consistent with the intent of the National Environmental Policy Act. This memo is based upon information provided by the Bureau of Reclamation (Bureau) in the Prineville Reservoir Resource Management Plan- Draft EA Alternatives matrix dated February 21, 2002. Some minor modifications were also provided by Vicki Kellerman, the Bureau team leader.

This report has been coordinated with the Oregon Department of Fish and Wildlife (ODFW) and includes their input.

DESCRIPTION OF THE PROJECT AREA

Prineville Reservoir is located on the Crooked River in Crook County, approximately 15 miles southeast of Prineville, Oregon (Figure 1). The 150,216 acre-foot reservoir was created in 1961 when the Bureau constructed Arthur R. Bowman Dam. The project was authorized for the purposes of irrigation, flood control, and fish and wildlife. Currently, 68,273 acre-feet are allocated exclusively for irrigation and 60,000 acre-feet are allocated for the joint use of irrigation and flood control. However, 80,360 acre-feet are not yet contracted to any specific use. There are 8,490 acres of land at Prineville Reservoir that are under the jurisdiction of the Bureau. Of this total, 3,030 acres are covered by the reservoir at full pool, 5,460 acres are lands surrounding the reservoir. In addition to these lands, there are also 280 acres along the Crooked River downstream from Bowman Dam and 340 acres of flow easement lands along Crooked River immediately above the reservoir. At full pool (elevation 3,235 feet) the reservoir is about 14 miles long.

DESCRIPTION OF THE PROJECT

Intensive recreational use is creating serious problems in the Prineville Reservoir area. Habitat degradation in and around the reservoir is a significant problem. High levels of uncontrolled dispersed recreation and off-road vehicle (ORV) use are causing serious adverse impacts to wildlife and wildlife habitat. Such impacts include soil erosion, soil compaction, gullyng, and rutting. Removal of vegetation has also reduced available habitat. Vehicle use and intensive unregulated camping pressure along the reservoir shoreline have heavily damaged some areas. Some of the more seriously damaged areas are the steeper slopes leading down to the reservoir. Here, destruction of vegetation and badly disturbed soils create sedimentation problems in the reservoir during water runoff periods. Vehicles and other recreational activities also result in harassment of wildlife including big game, nesting raptors, and nesting waterfowl. Cattle grazing adversely affects some habitats outside the Prineville Reservoir State Wildlife Area (SWA) and in some of the designated recreational areas.

The Bureau is responsible for the management of the land and water resources associated with the Prineville Reservoir project. It is now in the process of preparing a Resource Management Plan (RMP) which, when implemented, will provide for public recreational uses of project lands and waters while protecting and improving natural resource values. The RMP will provide a 10-year framework to achieve this objective. Flow releases by the project are outside the scope of the RMP and therefore are assumed to remain unchanged. Currently the minimum releases occur during the winter storage period and are 75 cfs unless extreme conditions warrant otherwise. The Bureau has begun a study of the unallocated space in the reservoir and any possible changes in project operations would be evaluated in that study.

The Bureau has developed three RMP Alternatives. These include the No Action Alternative (Alternative A), the Natural Resource/Dispersed Recreation Alternative (Alternative B), and the Natural Resource Protection/Formal Recreation Emphasis Alternative (Alternative C). A description of each of these alternatives follows.

ALTERNATIVE A (No Action)

The No Action Alternative would not necessarily result in a "status quo" situation but would rather result in the continued management of the RMP study area as directed by the 1992 RMP.

Roads/Vehicle Access. Under this alternative a travel management plan using the "green dot" system would be implemented. A green dot on a sign would indicate a road is open to vehicle travel. All roads throughout the project area without the green dot would be closed to motorized travel. Many of the existing unauthorized roads around the reservoir would be physically closed with barriers and revegetated. Any vehicles found off designated open roads would be subject to citation. A seasonal closure from November 15 through April 15 would apply to the North Side Road in the SWA between Jasper Point and Old Field. The road between Old Field and Combs Flat Road would be closed between December 15 and March 15.

People driving vehicles on the exposed shoreline below the high water line would be subject to citations and fines. One exception to this policy is the area near boat ramps. ORV travel would be permitted within 500 feet of developed boat launch areas or areas specifically designated for boat launching or angling access.

Cattle Grazing/Fencing. Fencing would be constructed or improved to eliminate livestock from developed recreation areas, shorelines, riparian zones, and wetlands. Grazing within the SWA on non-Bureau of Land Management (BLM) administered areas would be determined annually by ODFW and the Bureau.

Campsites/Recreational Areas. The reservoir's southern shoreline from Roberts Bay to Long Hollow Creek would be managed as a "boat-in" day-use area only. To optimize wildlife management, no overnight use would be permitted. Designated primitive campsites within the SWA would include 15 at Juniper Bass, 8 at Cattle Guard, and 25 at Old Field. Owl Creek would have up to 12 primitive walk-in sites and a dock. Existing conditions would be maintained at the State Park Campground. However, the Park's proposed North Expansion Area would be developed into a high density campground with up to 100 sites. Roberts Bay-East would have 35 primitive campsites.

Fish and Wildlife Management. A Fish Management Plan for the project area would be developed and implemented cooperatively between the Bureau, ODFW, and the Fish and Wildlife Service (FWS). In addition, efforts would be carried out to improve winter flows for fish in Crooked River below Bowman Dam through the Prineville Reservoir Reallocation Study. Currently, summer minimum flows released into Crooked River from Prineville Reservoir during the irrigation season are around 200 cubic feet per second (cfs). However, during the water storage period, project authorization requires a minimum release of only 10 cfs. Until final decisions are made concerning reallocation of reservoir space and minimum flows, the Bureau plans to release a minimum flow during the winter of 75 cfs (65 cfs greater than the authorized 10 cfs) unless extreme circumstances require a different minimum flow release. Flows in the Crooked River downstream from the reservoir will be the same for all alternatives.

The Bureau, ODFW, BLM, and the Service would also cooperatively develop a Wildlife Management Plan. Overall wildlife objectives would include an emphasis on habitat improvement, diversity, and abundance. Livestock would be restricted from shoreline, riparian, and wetland areas. There would be a focus on natural resource management in the SWA.

Threatened and Endangered Species. The Bureau would comply with the Endangered Species Act regarding all RMP actions.

Boat Ramps. The existing County and Powder House Cove boat ramps would be improved. A new low water boat ramp east of the existing ramp at Prineville Resort would also be constructed if funding permitted. A two-lane concrete boat ramp and a parking area would be constructed at Roberts Bay-East.

ALTERNATIVE B

Alternative B represents an effort to create a balance between an increased level of natural resource protection and increased recreational development.

Roads/Vehicle Access. Enforcement of ORV regulations would be increased. Many of the existing unauthorized roads around the reservoir would be physically closed with barriers and revegetated. Any vehicles found off designated open roads would be subject to citation. This would apply to all areas not designated as roads including reservoir drawdown zones. The closure of the North Side Road would remain the same as in Alternative A.

Cattle grazing/Fencing. Grazing would be eliminated from designated recreation areas by fencing. There would be an emphasis on keeping livestock away from shoreline, riparian, and wetland areas. Boundary fences would be constructed where it was determined that there were conflicts with adjacent land use and recreation or resource protection needs. Examples of such potential areas would be Roberts Bay, the County boat ramp, and Bear Creek. In addition, existing fencing would be maintained and, if funds were available, new fencing would be installed to allow wildlife passage.

Campsites/Recreational Areas. The reservoir's southern shoreline from Roberts Bay to Long Hollow Creek would be managed as a "boat-in" day-use area only. To optimize wildlife management, no overnight use would be permitted. Owl Creek, Juniper Bass, Cattleguard, Old Field, and Combs Flat camping areas would remain as they are presently, unregulated without designated campsites. The State Park north expansion area would be developed with up to 10 cabins and a group camp of up to 20 sites. In addition, hiking and biking trails would be established. The existing State Park would expand the maintenance yard, improve the trail to Jasper Point, expand the overnight moorage facility to 20, construct a dump station, and provide housing for seasonal employees. At Jasper Point, a small maintenance yard would be constructed. A group day-use area with swimming, picnicking, and a shelter would be constructed at Antelope Creek. At Prineville Resort, additional cabins, developed campsites, and moorage space could be provided. Roberts Bay-East would have 50 designated campsites, a group camp, and a campground host.

Fish and Wildlife Management. The Bureau would cooperate with ODFW and other partners on aquatic habitat enhancement projects and periodic monitoring of fish populations. Efforts would continue in the Prineville Reservoir Reallocation Study to improve flows in Crooked River downstream from Bowman Dam. Currently, summer minimum flows released into Crooked River from Prineville Reservoir during the irrigation season are around 200 cubic feet per second (cfs). However, during the water storage period, project authorization requires a minimum release of only 10 cfs. Until final decisions are made concerning reallocation of reservoir space and minimum flows, the Bureau plans to release a minimum flow during the winter of 75 cfs (65 cfs greater than the authorized 10 cfs) unless extreme circumstances require a different minimum flow release.

There would be no Wildlife Management Plan; however, habitat enhancement and specific related projects would be initiated. Funding for natural resource management activities would be focused on the SWA in areas such as Old Field and Owl Creek. Illegal ORV use would be regulated through increased enforcement, signs, and physical barriers. The Prineville Reservoir Integrated Pest Management Plan, which includes noxious weed control, would be finalized and implemented.

Threatened and Endangered Species. The Bureau would comply with the Endangered Species Act regarding all RMP actions. In addition, *Artemesia ludoviciana* (a state-listed species) would be protected on all Bureau lands.

Boat Ramps. A new boat ramp would be constructed at Roberts Bay-West and the existing boat ramps at the County site and Powder House Cove would be improved. The boat ramp at Prineville Resort would be improved if funds were provided.

ALTERNATIVE C (Preferred Alternative)

Alternative C would provide the highest level of protection and enhancement measures for natural resources. It would also allow for the most focused and formalized development scenario for recreation.

Roads/Vehicle Access. The North Side Road between Jasper Point and Combs Flat Road would be closed from November 15 to April 15 to accommodate management needs for wildlife. This would be an additional four weeks of road closure between Old Field and Combs Flat Road. Enforcement of ORV regulations would be increased. This would apply to all areas not designated as roads, including reservoir drawdown zones.

A travel management plan using the "green dot" or a similar system would be implemented. This system would utilize signs to indicate which roads are open and which are closed to vehicle travel. In addition, many of the existing unauthorized roads around the reservoir would be physically closed with barriers and revegetated. Brochures that identify open roads and trails would be provided to visitors in the project area.

No new private access roads would be permitted in the SWA. New private access roads across Bureau lands would be limited to maintain the existing character and visual quality of the area.

Cattle grazing/Fencing. Boundary fences would be constructed where there are conflicts with adjacent land use, recreation, or resource protection needs. Examples of these conflicts can be observed at Roberts Bay, County Boat Ramp, and Bear Creek. Grazing would be eliminated in areas with sensitive resources such as Roberts Bay and the SWA. Other sensitive resource areas include wetlands, riparian zones, areas with a high occurrence of crytobiotic soils, recreation areas, cultural resource sites, and areas with threatened or endangered species. Resolution of these problems could also occur through coordinated improvement in management or termination of existing leases. Existing fences would be maintained and any new fences would be designed to allow wildlife passage as funding permitted. The installation of new fencing would be based on a prioritized plan of resource and conflict management needs. Fence crossings would be added as appropriate and boundary markers would be installed where fencing is not essential. The Bureau would work with BLM to revise allotment management plans affecting Bureau lands.

Campsites/Recreational Areas. The reservoir southern shoreline from Roberts Bay to Long Hollow Creek would be managed as a "boat-in" day-use area only. To optimize wildlife management, no overnight use would be permitted. However, at Roberts Bay-East there would be up to 120 new campsites and 15 cabins constructed. In addition, there would be 4 campground hosts, electricity, an RV dump station, flush toilets, and showers. At the adjacent Roberts Bay-West, an additional 20 primitive campsites would be developed. Day-use only would be allowed in the SWA outside of the designated campsites. Designated camps within the SWA would be at Owl Creek, Juniper Bass, Cattleguard, Old Field, and Combs Flat. Combs Flat would be a day-use area with a trail head and trail for non-motorized vehicles with connections to Primitive Road and BLM property. Owl Creek camp would have 12 primitive walk-in sites, a dock, and trail connections to Primitive Road and BLM land. Juniper Bass would have 15 primitive sites, a dock, and possibly trail connections. Cattle Guard camp would have 8 primitive sites, a dock, and possibly trail connections. Old Field camp would have 25 primitive sites, a dock, and potential trail connections. Camper registration would be required at all of the overnight campsites. Camp perimeters would be defined for all overnight and day-use camping areas in the SWA.

The State Park campground would expand the maintenance yard, improve the trail to Jasper Point, expand the overnight moorage facility to 20, construct a dump station, and provide housing for seasonal employees. A concession store, fishing pier, and 3 cabins would also be constructed. Intensive recreation development would occur at the State Park north expansion area with 80 campsites, 10 cabins, a group camp with 20 sites, and a dump station. Hiking and biking trails would also be provided.

At Jasper Point a small maintenance yard would be constructed. A group day-use area with swimming and picnicking areas, a shelter, a pier, and parking facilities would be provided at Antelope Creek.

At Prineville Resort additional cabins, developed campsites, and moorage space would be provided. In addition, group campsites, a day-use area, a trail, and improved maintenance facilities would be constructed.

Fish and Wildlife Management. A Fish Management Plan for the project area would be developed and implemented cooperatively between the Bureau, ODFW, and the Service. The Bureau would cooperate with ODFW and other partners on aquatic habitat enhancement projects and periodic monitoring of fish populations. Efforts would continue in the Prineville Reservoir Reallocation Study to improve flows in Crooked River downstream from Bowman Dam. Currently, summer minimum flows released into Crooked River from Prineville Reservoir during the irrigation season are around 200 cfs. However, during the water storage period, project authorization requires a minimum release of only 10 cfs. Until final decisions are made concerning reallocation of reservoir space and minimum flows, the Bureau plans to release a minimum flow during the winter of 75 cfs (65 cfs greater than the authorized 10 cfs) unless extreme circumstances require a different minimum flow release.

The Bureau, ODFW, BLM, and the Service would also cooperatively develop a Wildlife Management Plan. Overall wildlife objectives would include an emphasis on habitat improvement, diversity, and abundance. Specific vegetation management recommendations would be addressed as part of the management plan. The Prineville Reservoir Integrated Pest Management Plan, which includes noxious weed control, would be finalized and implemented. Efforts toward habitat restoration would be a part of this alternative. Restoration would include coordinating with BLM to control juniper densities. Livestock would be restricted from shoreline, riparian, and wetland areas. There would be a focus on natural resource management in the SWA. Unauthorized ORV use would be prevented by increased enforcement, signs, and physical barriers. Efforts would also be directed toward restoration of areas damaged by recreational and vehicle use.

Threatened and Endangered Species. The Bureau would comply with the Endangered Species Act regarding all RMP actions. In addition they would participate in the annual monitoring of bald eagle nests and winter roost areas, golden eagle nests, prairie falcon nests, and *Artemesia ludoviciana* sites.

Boat Ramps. Improvements would be made to the County Boat Ramp and the boat ramp at the Prineville Resort. New ramps would be constructed at Powder House Cove and Roberts Bay-West.

FISH AND WILDLIFE RESOURCES

WITHOUT THE PROJECT

The following discussion describes existing conditions in the project area.

FISH

Prineville Reservoir provides a year-round reservoir fishery. Game species include rainbow trout, largemouth and smallmouth bass, black crappie, and brown bullhead. Historically, both rainbow and cutthroat trout fingerlings were annually released into the reservoir. However, in 1987, the ODFW discontinued stocking cutthroat trout and now only releases about 150,000 rainbow trout fingerlings annually. Some natural production of rainbow trout occurs upstream in Crooked River.

Largemouth and smallmouth bass were planted in the reservoir in the 1960s. No further plantings have taken place and the population has sustained itself through natural reproduction. Brown bullhead and black crappie have been illegally introduced into the reservoir. Although they once provided a popular fishery during the late spring and summer, their overpopulation has resulted in a poor quality fishery.

Poor water quality, low nutrient levels, and substantial annual drawdowns limit fish production in the reservoir. Runoff water into Prineville Reservoir contains high amounts of sediment. Disturbance of highly erodible soils around the reservoir contribute heavily to the turbidity problem. Poor land use practices, primarily logging and grazing, and profuse ORV traffic, cause the soils to be easily washed away. Most of the silt and sediment is montmorillonite clay, much of which remains in suspension year-round. In suspension, the silts create high turbidity which reduces aquatic plant production. This limits the production of invertebrates which are a major food source for fish. The sediment that precipitates out smothers benthic lifeforms, further diminishing fish food supplies. Annual reservoir drawdowns dewater shallow food production zones, thereby further reducing available fish forage. Drawdowns early in the season can dewater bass spawning areas causing a reduced production level for that year. Bass populations are also limited by the lack of submerged vegetation or other structures which provides juvenile habitat in the shallow areas.

One of Oregon's finest rainbow trout fisheries occurs in Crooked River downstream from Bowman Dam. Flow releases from Prineville Reservoir during the irrigation season provide excellent habitat conditions for these fish. However, serious flow depletions can occur during water storage periods when the minimum flow drops to the authorized 10 cfs level. Streamflow studies have been conducted to determine more precisely the flows necessary to maximize aquatic life in this reach. Concurrently, the Bureau has been conducting a study of the unallocated storage space in Prineville Reservoir. Efforts are underway to utilize a portion of the unallocated space to improve streamflows for aquatic resources below the Reservoir. In the interim, the Bureau is releasing a minimum of 75 cfs, unless extreme conditions warrant otherwise.

WILDLIFE

The dry semi-arid climate in the project area produces 10 to 12 inches of precipitation annually. The dominant vegetative habitat in the Prineville Reservoir area is western juniper mixed with an understory of sagebrush, bitterbrush, and rabbitbrush. Where present, ground cover consists primarily of grasses such as Idaho fescue, wildrye, cheatgrass, and bluebunch wheatgrass. Perennial forbs are represented by western yarrow, milkvetch, and lupine. One small wetland area is located at the upper end of the reservoir and another even smaller one is located in the Roberts Bay area. The wetland area in the upper-reservoir supports emergent vegetation at full pool; however, as the water level drops, the wetland becomes dried out. The wetland in Roberts Bay is higher in elevation, flooded for an even shorter period of time, and of lower value as wildlife habitat.

Habitat conditions around the project area vary. Juniper cutting on BLM lands have resulted in improvements to understory vegetation. Modifications to livestock grazing practices have also

resulted in improved range and riparian conditions, although some problems remain. Over the last few years the Bureau, in cooperation with the ODFW, BLM, Ochoco National Forest, Crooked River Watershed Council, and others has implemented a noxious weed control program on the SWA. This program has resulted in improved habitat conditions by controlling large concentrations of noxious weeds such as perennial pepperweed, spotted knapweed, puncturevine, and Canada thistle.

Development of adjoining private lands, including housing, roads, fencing, etc., adversely impacts wintering deer and elk, and poses a threat to sensitive bird nesting sites. Recreational use on project lands has increased significantly, particularly activities associated with ORV's. ORV activities directly affect wildlife (harassment) as well as cause significant soil erosion and habitat degradation. Dispersed camping and other recreational activities around the shoreline have resulted in further impacts to wildlife habitat.

Mule deer are the most common big game species on and around the project area. Most of the project lands provide critical deer winter range. Use by Rocky Mountain elk has increased during the last decade. Most use occurs in the eastern portions of the project area, including the SWA, during the winter and early spring. The ODFW believes elk use this portion of the project lands as a travel corridor between the Maury and Ochoco wildlife management units. Some deer hunting occurs but there is not a major effort. Cougar use of the project lands has also increased, particularly along the south side of Prineville Reservoir. Cougar evidence and sightings are most prevalent during the winter when deer and elk numbers are highest. Pronghorn antelope are occasionally seen in the area but are not common.

Upland game includes primarily valley quail, mountain quail, and occasionally mourning dove. While some hunting for upland game species occurs in the reservoir area, it is not a significant activity.

Wintering waterfowl are commonly observed on the reservoir. Several hundred Canada geese as well as mallards, canvasbacks, goldeneyes, and other ducks utilize the reservoir as a wintering area. Some waterfowl hunting occurs during the winter but pressure is light. Canada geese, mallards, cinnamon teals, and other ducks use the shoreline habitat for nesting. The upper portion of the reservoir down to Roberts Bay is the area most utilized by waterfowl for nesting.

Furbearers include bobcat, beaver, muskrat, mink, and otter. Coyote are also common to the area. A small amount of trapping occurs on project lands, primarily for bobcat.

Bald eagles and golden eagles are often seen around the reservoir area. The bald eagle is listed as a threatened species in Oregon and is protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). Bald eagles utilize the area for wintering and both bald and golden eagles nest in the area. A bald eagle roost site is located in the eastern portion of the project lands. Recently, a new bald eagle nest has been located in the reservoir area on the north shore. Potential human disturbance of the nest is likely because of nearby public access. Peregrine falcons are occasionally seen but are uncommon. Other nongame species include

osprey, caspian terns, and shorebirds. In a normal water year shorebirds have good access to the mudflats from late summer through March.

The ODFW manages the upper reservoir area for fish and wildlife purposes under a 50-year license agreement issued by the Bureau. This area, known as the Prineville Reservoir State Wildlife Area (SWA), includes about 3,160 acres, 930 acres of which are water. Mule deer winter habitat protection and development is the primary objective for big game management. Among the important items in the diet of this deer wintering population is an excellent stand of four-wing saltbush located in the Old Field area. Improved habitat conditions could be achieved by restricting both recreational use and livestock grazing activities. Currently, dispersed unregulated camping occurs around 5 locations: Owl Creek, Juniper Bass, Cattle Guard, Old Field, and Combs Flat. General wildlife habitat development through fencing and vegetative plantings is also pursued in the wildlife area. Whether or not cattle grazing will be allowed within the SWA is determined annually by the ODFW and the Bureau. No authorized cattle grazing has occurred within the SWA since 1996.

The development of private land inholdings adjacent to Bureau lands, located at the eastern end of the SWA on the north and south sides of the reservoir, poses a threat to wildlife. Increased access and subdividing of these private lands can adversely affect wildlife. Control of human activity on and around these areas is necessary for successful wildlife management in the adjacent SWA.

WITH THE PROJECT

The following discussion describes impacts on fish and wildlife expected with each of the three alternatives.

FISH

ALTERNATIVE A

Under this alternative, aquatic habitat conditions in the reservoir area should improve to some degree. Drawdown level and sedimentation from soil erosion would continue to be the primary factors affecting the quality of fish habitat in the reservoir. A Fish Management Plan would be cooperatively developed by the ODFW, the Service, and the Bureau.

The existing reservoir operation would continue unchanged with this alternative. Annual reservoir drawdowns would dewater shallow food production zones and reduce available fish forage. Drawdowns early in the season would continue to dewater some bass spawning areas causing a reduced juvenile production level for that year. Reservoir level increases in some years in the spring can cool the warmer shallow water areas and negate any bass spawning that may have begun.

The control of ORV use, one of the primary sources of soil erosion, should result in reservoir water quality improving somewhat under this alternative. Implementation of the "green dot" road management system, closure of unauthorized roads with barriers, and the rehabilitation of closed roads would reduce soil erosion. The seasonal closure of the North Side Road would also

aid in reducing soil disturbances and turbidity. Controlled camping at Juniper Bass, Cattle Guard, Old Field, Owl Creek, and Roberts Bay-East would reduce the amount of soil disturbance now occurring with dispersed camping. As soils begin to revegetate and stabilize, less erosion would occur and sedimentation in adjacent aquatic habitat would be reduced. Some erosion problems would still occur, however, in the sensitive areas where cattle grazing continued.

Boat ramp construction activities at the County Boat Ramp, Prineville Resort, Powder House Cove, and Roberts Bay-East would create temporary increases in turbidity levels. Benthic organisms, a major fish food item, would likely be smothered if construction sediment volume in the water column was high. High turbidities would also be expected to temporarily decrease angling success in the vicinity of the construction areas. These impacts, however, would be only in the isolated areas by the ramps and benthic fauna would be restored from adjacent populations within a few months. Consequently, fish populations are not expected to be significantly impacted by actual ramp construction. In fact, the overall long-term impacts on fish habitat is expected to be beneficial. This is because improvement of existing ramps and construction of new ramps would provide the public better boat access to the reservoir. This improved access would reduce the number of random launchings scattered throughout the reservoir shoreline area that add to soil disturbance and turbidity problems. Although ramp construction at Roberts Bay would eliminate some bass spawning habitat, the possibility of random launching activities impacting spawning beds around the reservoir would be reduced with the improved designated boat ramps. If periodic dredging is necessary to maintain an open channel to the County boat ramp, some temporary adverse impacts to aquatic life would result from increased levels of turbidity.

ALTERNATIVE B

Aquatic habitat, overall, would remain the same or be somewhat degraded under Alternative B. Drawdown level and sedimentation from soil erosion would be the primary factors affecting the quality of fish habitat in the reservoir. A Fish Management Plan would not be included in this alternative.

The existing reservoir operation would continue unchanged with this alternative. Annual reservoir drawdowns would dewater shallow food production zones and reduce available fish forage. Drawdowns early in the season would continue to dewater some bass spawning areas causing a reduced juvenile production level for that year. Reservoir level increases in some years in the spring could cool the warmer shallow water areas and negate any bass spawning that may have begun.

Reservoir water quality would be expected to gradually deteriorate under this alternative. Without implementation of a road management system, unauthorized vehicle travel on closed roads and off of roads would continue to increase and contribute to soil erosion. In addition, unregulated camping at Juniper Bass, Cattle Guard, Old Field, Owl Creek, and Combs Flat would disturb highly erodible soils and create erosion problems. As runoff water carries the silt and sediment into the reservoir, it would contribute to the already high turbidity and sedimentation levels. In suspension, the silts create high turbidity which reduces potential aquatic plant production. This limits the production of invertebrates which are a major food

source for fish. The sediment that precipitates out smothers benthic lifeforms, further diminishing fish food organisms.

Some fish benefits would be anticipated with Alternative B. The Bureau would cooperate with ODFW and other partners on aquatic habitat enhancement projects. The delineation of campsites at Roberts Bay would help reduce soil erosion in that immediate area and the installation of barriers on some of the closed roads would reduce ORV travel which would also help stabilize soils.

Boat ramp construction and improvements at Roberts Bay-West, Powder House Cove, Prineville Resort, and the County boat ramp would create temporary increases in turbidity levels. Benthic organisms, a major fish food item, would be smothered if construction sediment volume in the water column was high. High turbidities would also be expected to temporarily decrease angling success in the vicinity of the ramps. These impacts, however, would likely be only in the isolated areas by the boat launch and benthic fauna would likely be restored from adjacent populations within a few months. Consequently, fish populations are not expected to be significantly impacted by actual ramp construction. In fact, the overall long-term impacts on fish habitat are expected to be beneficial. This is because the boat ramps would provide the public better boat access to the reservoir which would reduce the number of random launchings scattered along the reservoir shoreline.

ALTERNATIVE C

RMP actions under this alternative should result in an improvement of aquatic habitat in the project area. Drawdown level and sedimentation from soil erosion would be the primary factors affecting the quality of fish habitat in the reservoir.

The existing reservoir operation would continue unchanged with this alternative. Annual reservoir drawdowns would dewater shallow food production zones and reduce available fish forage. Drawdowns early in the season would continue to dewater some bass spawning areas causing a reduced juvenile production level for that year. Reservoir level increases in some years in the spring could cool the warmer shallow water areas and negate any bass spawning that, may have begun.

Reservoir water quality should improve under this alternative. Implementation of a road management system, closure of unauthorized roads with barriers, and the rehabilitation of closed roads would reduce soil erosion. Increased enforcement of ORV regulations and the seasonal closure of the North Side Road would also aid in reducing soil disturbances and turbidity. Controlled camping and designated campsites at Juniper Bass, Cattle Guard, Old Field, Owl Creek, and Combs Flat would reduce the amount of soil disturbance now occurring with dispersed camping. Providing 80 additional campsites at the State Park north expansion area should also reduce some of the dispersed camping now occurring around the reservoir. As soils begin to revegetate and stabilize, less erosion would occur and sedimentation in adjacent aquatic habitat would be reduced.

New boat ramp construction at Powder House Cove and Roberts Bay-West, and ramp improvements at the County Boat Ramp and potentially Prineville Resort, would create temporary increases in turbidity levels. Benthic organisms, a major fish food item, would be smothered if construction sediment volume in the water column was high. High turbidities would also be expected to temporarily decrease angling success in the vicinity of the construction areas. These impacts, however, would be only in the isolated areas by the boat launch and benthic fauna would likely be restored from adjacent populations within a few months. Consequently, fish populations are not expected to be significantly impacted by actual ramp construction. In fact, the overall long-term impacts on fish habitat are expected to be beneficial. This is because improvement of existing ramps and construction of new ramps would provide the public better boat access to the reservoir which reduces the number of random launchings scattered along the reservoir shoreline that add to soil disturbance and turbidity problems. Temporary adverse impacts to aquatic life could also occur in the future from increased levels of turbidity if periodic dredging is necessary to maintain an open channel to the County boat ramp.

Some bass spawning habitat would also be eliminated as a result of boat ramp construction at Roberts Bay-West. However, boater use of newly designated boat ramps would reduce the possibility of impact on spawning beds from random launching activities around the reservoir.

WILDLIFE

ALTERNATIVE A

Wildlife habitat conditions throughout the project area would remain the same or improve somewhat with this alternative. Implementation of a yet undeveloped travel management plan (Green Dot System) would reduce vehicle travel in sensitive areas. This would result in less wildlife harassment as well as soil and habitat damage. Placement of barriers on some of the closed roads and habitat restoration would help restore damaged habitat. In the remaining areas, unauthorized motor vehicle use would continue to degrade wildlife habitat and increase soil erosion. This process removes ground cover and increases the potential for further losses until soil stability is reestablished. The closure on the North Side Road would further reduce the human disturbance problem for wildlife, especially deer, during winter conditions. This would also reduce vehicle damage to the unimproved road that occurs during the winter period. Restricting motorized travel from below the high water line to boat launch areas only would protect much of the fragile shoreline zone and allow shorebird and waterfowl use of the area without human disturbance.

Gradual habitat recovery would occur in the areas where dispersed camping was controlled. These areas include Roberts Bay-East, Owl Creek, Juniper Bass, Cattle Guard, and Old Field where camping would be restricted to designated camp sites only.

The construction and improvement of fences to exclude livestock from riparian zones, shorelines, wetlands, and developed recreation areas would allow the restoration of natural habitat for wildlife. The management of cattle grazing within the SWA by the ODFW and Bureau should minimize grazing impacts on wildlife habitat in that area. Wildlife conditions throughout the

general project area should benefit from the implementation of a jointly prepared Wildlife Management Plan.

ALTERNATIVE B

Conditions for wildlife and wildlife habitat around the reservoir area would worsen with this alternative. Without implementation of a travel management plan to identify open and closed roads, motor vehicle use would increase in sensitive areas. This would result in wildlife harassment as well as soil erosion and habitat damage. This process removes ground cover and increases the potential for further losses until soil stability is reestablished. The exposed shoreline area below the high water line would continue to be adversely impacted by motor vehicles. Of particular concern are the fragile wetland areas near Old Field and Roberts Bay. The absence of a Wildlife Management Plan would also contribute to the overall decline in habitat conditions and increase in wildlife concerns under this alternative.

Dispersed unregulated camping at Owl Creek, Juniper Bass, Cattleguard, and Old Field would further reduce the value of remaining wildlife habitat. Destruction of vegetation and more soil erosion would result from uncontrolled camping and recreational uses.

Excluding livestock from designated recreation areas would allow the restoration of some natural habitat for wildlife. However, habitat in unfenced riparian, shoreline, and riparian areas would continue to be impacted by cattle grazing. Wildlife travel would be enhanced as new fences would be constructed to allow wildlife passage as funding permitted.

ALTERNATIVE C

Actions under this alternative would result in the greatest opportunity for improvements to wildlife habitat around the reservoir area. Implementation of a sign system to identify open and closed roads and construction of physical barriers to prevent vehicle traffic in closed areas would significantly aid in the protection of wildlife habitat. This would also reduce soil erosion and promote restoration of previously damaged vegetation. Habitat restoration would occur much sooner where rehabilitation measures are implemented in addition to physical barriers. The distribution of brochures describing road restrictions and increased enforcement of ORV regulations should also help reduce adverse impacts to habitat. Closing the North Side Road from Old Field to Combs Flat from March 15 to April 15 (four more weeks) and preventing new private access roads within the SWA would provide additional habitat and wildlife protection. Restricting motorized travel below the high water line to boat launch areas only would protect much of the fragile shoreline zone and allow wildlife, such as shorebirds and waterfowl, to use the area without human disturbance.

Development and implementation of a Wildlife Management Plan would address wildlife issues and concerns and provide direction for the protection, restoration, and improvement of habitat and its associated wildlife resources. The elimination of cattle grazing in sensitive habitat areas, such as wetlands, riparian zones, and the SWA, would allow those areas to recover and achieve their potential habitat value.

The designation of specific campsites at Owl Creek, Juniper Bass, Cattle Guard, and Old Field would benefit wildlife by allowing the recovery of habitat damaged by the currently unregulated dispersed camping practices. Allowing "boat-in" day-use only along the reservoir's south shore from Roberts Bay to Long Hollow Creek would also help protect wildlife habitat in that area.

Intensive recreational development at Roberts Bay-East would have both beneficial and adverse effects on wildlife resources. Development of up to 120 new campsites and 15 cabins, along with amenities such as flush toilets, showers, and electricity would concentrate large numbers of people in one small part of the reservoir area. A full campground would likely have over 400 people. Designated camping areas would reduce habitat impacts caused by campsite sprawl which currently takes place. However, activities of this number of people could cause adverse impacts to other habitats in the area. Nearby adjacent wetlands, which have already been damaged by recreationists, would be susceptible to further degradation. In addition, the presence of nesting bald eagles in the area raises the question about how much they may be affected by reservoir recreational activities such as power boats and gliders.

DISCUSSION

Implementation of any of the three alternatives described above would change conditions for fish and wildlife.

Alternative C would be the most beneficial plan for both fish and wildlife resources. Major efforts under this alternative to control ORV traffic should improve habitat and reduce soil erosion. Sign systems and physical barriers would significantly reduce motor vehicle damage to wildlife habitat. The one month extension of the North Side Road closure between Old Field and Combs Flat would help protect wildlife resources in that area. Grazing restrictions in sensitive habitat areas would promote revegetation, enhance soil stability, and improve the quality of wildlife habitat. The control of dispersed camping by developing designated campsites would also result in reduced erosion and restoration of some habitat. However, the proposed development of the Roberts Bay-East campground raises some wildlife concerns. Development of 120 campsites and 15 cabins could place 400 or more people in that area. Designating campsite spaces will reduce habitat impacts from uncontrolled dispersed camping; however, other nearby important habitats, such as wetlands, could be adversely affected. Protection of these habitats should be included in the development plans for the Roberts Bay campgrounds.

Development of the Roberts Bay area also causes concerns about potential impacts on bald eagles which presently utilize the area. Limited information is currently available to present definitive conclusions regarding eagle tolerance levels of various types of recreational uses. However, it is certain that some recreational activities affect bald eagles. Therefore, it would be beneficial to develop a comprehensive bald eagle management plan for Prineville Reservoir. This plan could be jointly developed by the ODFW, FWS, BLM, and the Bureau. The plan would provide a basis for policy controlling recreational activities that could affect bald eagles in certain areas of Prineville Reservoir.

Alternative A ("No Action") would more or less be a continuation of existing plans and practices. Actions such as implementing a travel management plan, fencing key habitat areas, and designating campsites, would somewhat improve conditions for fish and wildlife. Development of both Fish and Wildlife Management Plans would provide guidance for all activities affecting fish or wildlife in the reservoir area.

Alternative B would be the least desirable plan as it would result in the most severe impacts to wildlife and some adverse impacts on fish. Activities around the reservoir which now adversely affect fish and wildlife would persist or become worse. Dispersed recreational use and unregulated camping would continue and expand with very few controls. Without a travel management system, unauthorized vehicle travel on closed roads, off roads, and on the exposed shoreline below the high water line, would continue to increase causing more soil erosion and degradation to fish and wildlife habitat throughout the project area. Unregulated camping and ORV use would continue to degrade habitat in the SWA.

Alternative B would offer the least protection of habitat from cattle grazing activities. While there would be an emphasis on keeping livestock out of wetland, riparian, and shoreline areas, no fencing is planned except at designated recreation areas. Grazing would continue elsewhere unless it was determined there were conflicts with land use or resource protection needs. If such conflicts were identified, boundary fences would be constructed in those areas. In the absence of additional fences, cattle grazing would continue to adversely affect wildlife habitat in some areas. Impacts on wildlife habitat from authorized grazing in the SWA would not be a concern as it would only be permitted as agreed to by ODFW and the Bureau.

The above described adverse impacts to wildlife under Alternative B would be exacerbated by the fact that there would be no Wildlife Management Plan. In addition, there would be no Fish Management Plan to address fish concerns when planning and developing reservoir area activities.

Each of the three alternatives involve construction activities for features such as boat ramps, campsites, and road barriers, that would alter aquatic and terrestrial habitats. However, these impacts would be short term and the long term net effect would be beneficial. To minimize impacts on aquatic resources during boat ramp development activities, it is important that construction occurs during reservoir drawdown periods. When in-water work is necessary, it should be scheduled at a time which would cause the least impact. Normally, the best time for construction would be between July 1 and March 1. However, construction dates and plans should be coordinated in advance with ODFW.

Cattle grazing in the project area is an important factor affecting fish and wildlife habitat. To protect fish and wildlife resources, grazing activities within the SWA is now coordinated with the ODFW. Because grazing also affects fish and wildlife throughout the remaining reservoir area, the grazing management plans for the areas outside the SWA should be cooperatively developed by the Bureau, BLM, and ODFW.

Prior to the project, most of the area inundated by the reservoir provided deer winter range. Some of that area is exposed during the reservoir drawdown period, however, it now consists of barren shoreline with little or no vegetation. During the brief period after drawdown, before the substrate dries, the drawdown zone provides some shorebird habitat. However, except for that brief period, this area provides little or no other habitat value. While it may be difficult to successfully establish vegetation in the drawdown zone, there are upland habitats on Bureau lands near the reservoir that could be enhanced for wildlife. For example, several old fields on Bureau lands that had once provided good wildlife habitat have now declined in habitat value as they are encroached upon by juniper trees and other invading plant species. Management actions coordinated jointly between the Bureau, ODFW, and FWS could be implemented to restore habitat in these fields so they could provide some big game winter range and increased use by waterfowl. Habitat management actions could include burning, mowing, fertilizing, and reseeding with forage species.

Riparian vegetation is extremely limited in the reservoir area. The potential exists to establish riparian habitat in the Antelope Creek and Roberts Bay areas. Another possible area exists at Smallmouth Bay (located south of Juniper point). Construction of fences would exclude people, cattle, and vehicles from isolated areas and allow riparian vegetation to develop. This new habitat would provide significant wildlife benefits. Although wintering deer would utilize these areas to some extent, primary benefits would be for waterfowl and nongame animals. Fencing should include most of the Antelope Creek area. Further investigation of the Smallmouth Bay area would be necessary to determine the probability of success in establishing vegetative cover and to determine the best fence location. The Roberts Bay area would only be fenced outside the designated recreational areas. Locations and plans for all sites should be coordinated with the ODFW.

The effectiveness of wildlife management programs on the SWA may be threatened by the development of adjacent private lands which are surrounded by Bureau and BLM lands. The success of wildlife management in the SWA partly depends on activities and influences associated with these private lands. We suggest the Bureau, in cooperation with other agencies and groups, consider acquisition or conservation easements in these areas in an effort to control adverse factors affecting wildlife. These proposed actions could be further developed and evaluated in the Wildlife Management Plan.

The Crooked River downstream from Bowman Dam supports an excellent trout population and provides a top quality sport fishery for thousands of anglers. Adequate streamflows are necessary to maintain these values. Flow studies have been conducted to determine what flows are necessary to maintain aquatic life in this reach of Crooked River. This information is being incorporated into the Bureau's ongoing Prineville Reservoir Reallocation Study. In the interim, we recommend that the project operation provide a minimum of 75 cfs during water storage periods.

RECOMMENDATIONS

Following are seven recommendations which, when implemented, would protect or improve fish and wildlife resources in the Prineville Reservoir Area. These recommendations are applicable to any alternative selected as the Resource Management Plan. The intent of the first recommendation is to reduce potential losses from boat ramp construction. The remaining recommendations are listed to improve existing conditions for fish and wildlife. However, these improvements over existing conditions are not considered enhancement because compensation for habitat losses associated with the original project impact has not been provided. Until existing habitat values are brought up to that level present before construction of Bowman Dam, fish and wildlife improvements cannot be considered enhancement.

To protect and improve fish and wildlife resources in the Prineville Reservoir area, the Fish and Wildlife Service recommends that:

1. A comprehensive bald eagle management plan be developed for Prineville Reservoir. The plan would be jointly developed by the Bureau of Reclamation, Bureau of Land Management, Oregon Department of Fish and Wildlife, and Fish and Wildlife Service. The plan would include recommendations concerning levels or types of recreational activities that should be controlled in certain areas of the reservoir.
2. Boat ramp construction be performed during reservoir drawdown, probably between July 1 and March 1. The timing and design of boat ramp construction plans should be coordinated with ODFW.
3. ODFW be identified as one of the parties involved in developing grazing plans for all Bureau lands outside of the SWA.
4. Wildlife habitat improvement measures be implemented at several upland sites around Prineville Reservoir on Bureau of Reclamation lands. These habitat enhancement efforts, as generally described in this report, would be planned and accomplished through coordinated efforts by the Bureau of Reclamation, Oregon Department of Fish and Wildlife, and Fish and Wildlife Service.
5. Fences be constructed to protect and enhance riparian habitat around the non-recreational portions of Antelope Creek, Roberts Bay, and Smallmouth Bay. Details of this effort should be coordinated with the ODFW.
6. The Bureau of Reclamation, in cooperation with other agencies, evaluate measures to protect wildlife and habitat around private lands located within Bureau of Reclamation and Bureau of Land Management lands. Possible measures could include conservation easements and acquisitions.

7. A temporary minimum flow of 75 cfs be released from Bowman Dam during water storage periods. Upon completion of the Prineville Reservoir Reallocation Study, this minimum flow would be adjusted as necessary.

We appreciate the opportunity to work with you and provide input to your planning process. If you have any questions regarding this Planning Aid Memorandum, please contact Larry Rasmussen at (503) 231-6179.

