

# Owyhee Reservoir Resource Management Plan



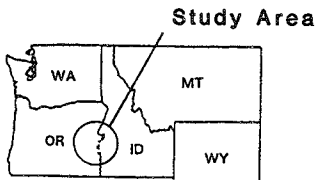
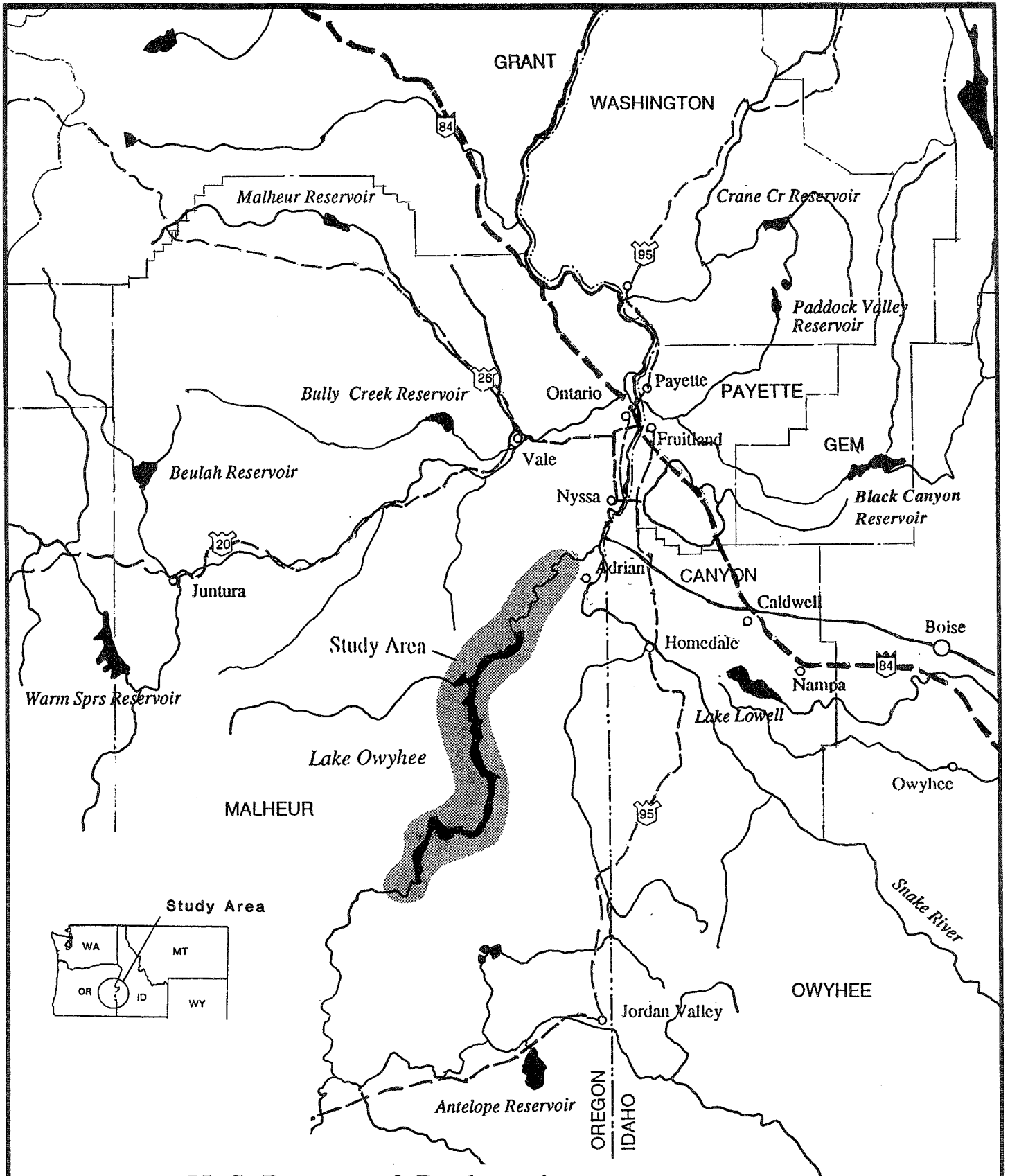
Bureau of Reclamation  
Pacific Northwest Region  
Central Snake Projects Office  
Boise, Idaho

April 1994

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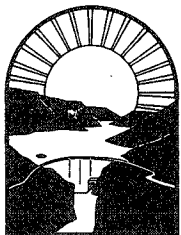
**U.S. Bureau of Reclamation  
Pacific Northwest Region  
Central Snake Projects Office**

**April 1994**



U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

**VICINITY MAP**



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**U.S. Bureau of Reclamation  
Pacific Northwest Region  
Central Snake Projects Office  
Boise, Idaho**

**April 1994**

**Prepared by the U. S. Bureau of Reclamation, Pacific Northwest Region,  
with contractual assistance from EDAW, Inc., Seattle, Washington.**



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# Chapter 1

## Introduction

The future management of the land and water resources administered by the Bureau of Reclamation (Reclamation) at, and in the vicinity of, Owyhee Reservoir (locally known as Lake Owyhee) is the subject of the Owyhee Reservoir Resource Management Plan (RMP). The RMP defines the resource management activities and guidelines needed to preserve, protect and enhance the outstanding public resource values which occur in the Owyhee Reservoir area.

Resource management agencies no longer can afford to make future resource management decisions on a piecemeal basis. Comprehensive resource management is essential if public interests and long-term resource objectives and needs are to be met. The Owyhee Reservoir area is an outstanding public resource which deserves nothing less than a coordinated and comprehensive RMP to guide future resource management activities in the area.

The Study Area for the Owyhee Reservoir RMP encompasses approximately 26,190 acres of land and 12,740-acres<sup>1</sup> of water surface administered by Reclamation. The Study Area is comprised of those lands originally acquired or withdrawn for the construction and operation of the Owyhee Project, a Federal Reclamation irrigation project authorized in 1926. The key feature of the Project is Owyhee Dam, a water storage and diversion structure located about 11 miles southwest of Adrian, Oregon.

The Study Area is adjacent to Owyhee Reservoir and portions of the Owyhee River system immediately above and below the reservoir (see Figure 1-1: Regional Location and Study Area map). For the purposes of this RMP, the Study Area is divided into four management units. These four units are:

**Lower Owyhee River:** This unit extends northward from Owyhee Dam downstream approximately 14.5 miles to the Siphon Site.

**Lower Owyhee Reservoir:** This unit extends from Owyhee Dam southward to the Pelican Point Airstrip/Carlton Canyon area.

**Upper Owyhee Reservoir:** This unit extends from the Pelican Point Airstrip/Carlton Canyon area southward to the headwaters of Owyhee Reservoir.

**Upper Owyhee River:** This unit extends from the headwaters of Owyhee Reservoir southward approximately 10 miles to Birch Creek. The upper Owyhee River area is located within the main Owyhee Wild and Scenic River corridor.

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<sup>1</sup>At Owyhee Reservoir full pool elevation (2670 feet).

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Lake Owyhee is a long, narrow reservoir located in a remote area of rugged and spectacular scenery. The reservoir measures about 52 miles in length and provides about 150 miles of shoreline. A variety of wildlife inhabit the Study Area including bighorn sheep, golden and northern bald eagles, antelope, pelicans, cormorants, and wild horses. The area experiences significant recreational use due to popular sport fisheries, spectacular scenery, and an interesting cultural history.

This chapter briefly discusses Reclamation's resource management policy, the purpose of preparing a RMP for the Owyhee Reservoir area, public involvement, the scope of this RMP, and a historic overview of the Owyhee Project.

## **1.1 POLICY**

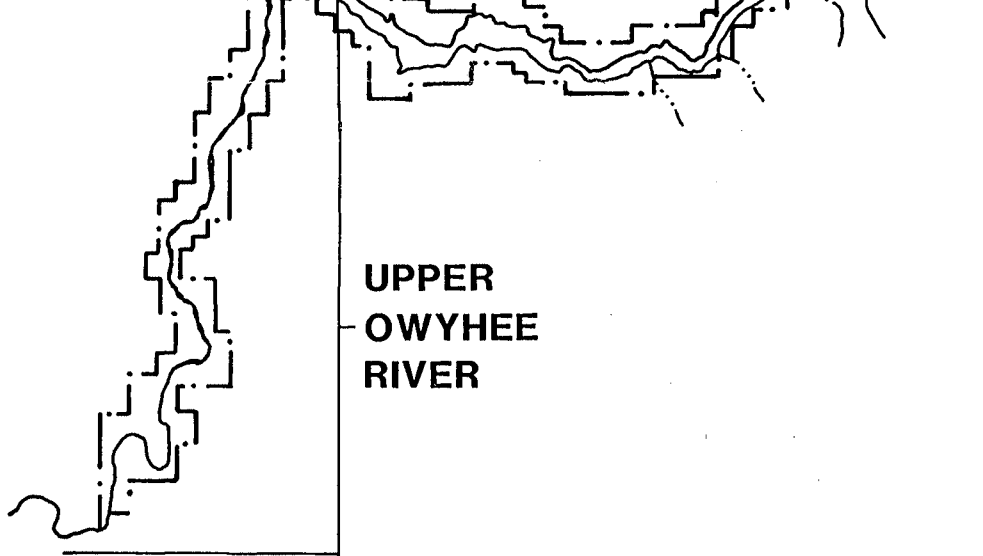
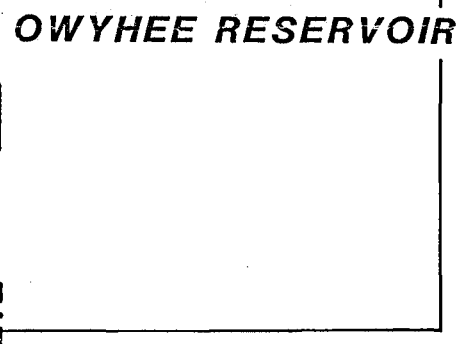
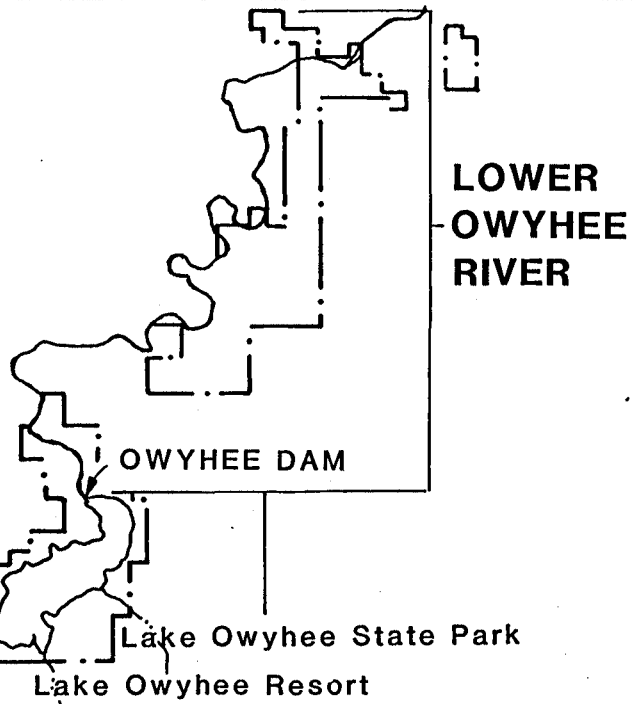
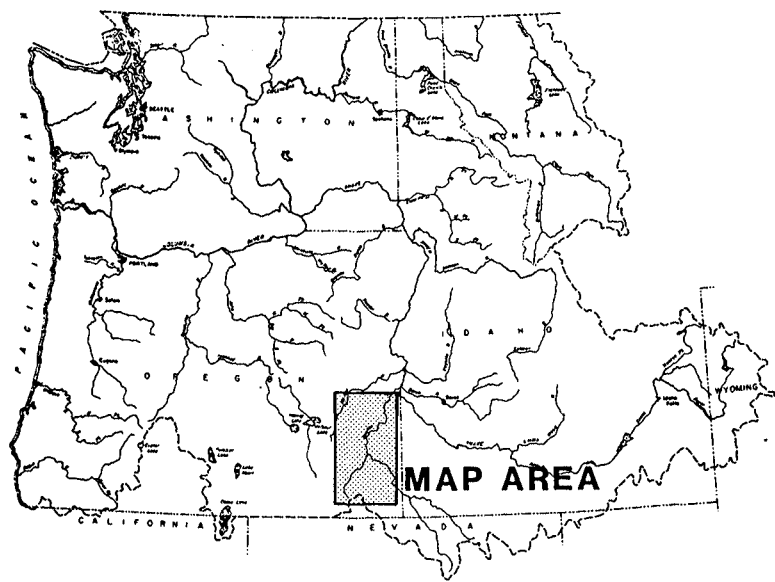
Reclamation's resource management policy is to provide a broad level of stewardship to ensure and encourage resource protection, conservation and multiple use. Resource management practices and principles are applied in accordance with existing laws, regulations and policies to provide for the protection of fish, wildlife, and other natural and cultural resources, public health and safety, public access, and a wide variety of outdoor recreational opportunities to accommodate the increasing public demand to utilize Reclamation's land and water areas.

## **1.2 PURPOSE OF PLAN**

This Resource Management Plan (RMP) provides a 10-year framework for the orderly and coordinated management of the land and water resources under the jurisdiction of Reclamation at and in the vicinity of Owyhee Reservoir. In cooperation with Reclamation's resource management partners including the Bureau of Land Management, Oregon State Parks, Oregon Department of Fish and Wildlife, Malheur County and the public, Reclamation aims to balance desired public recreational uses of project lands and waters while protecting and improving the natural, cultural and other resource values specific to the Owyhee Reservoir Study Area. This coordinated and balanced approach will preserve the project's primary purposes and provide safe and enjoyable experiences for the public.

Other purposes of the RMP are:

- 1) To provide a process for public involvement in resource management planning;
- 2) To incorporate in one document all pertinent information about the area, documenting existing uses and obligations;
- 3) To inventory and analyze area resources;
- 4) To identify land use suitability and capability;
- 5) To determine and establish resource management policies, objectives, responsibilities, and guidelines including environmental, public health, and safety commitments;
- 6) To define the responsibilities and authorities of entities involved in the management of the area; and

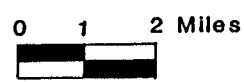


— Bureau of Reclamation Resource Management Area



U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**  
**REGIONAL LOCATION & STUDY AREA**

Figure 1-1



- 7) To identify pertinent agreements, special plans and studies.

The Owyhee Reservoir RMP will be reviewed, reevaluated, and revised in cooperation with all involved agencies to reflect changing conditions and management objectives on an as-needed basis. If a proposed modification to the RMP will significantly affect area resources or public use, opportunities for public involvement will be provided.

### **1.3 PUBLIC INVOLVEMENT**

Reclamation conducted an extensive public involvement program in conjunction with the RMP planning process. The program was organized to ensure representation and participation by all those interested in the future management of the Owyhee Reservoir resource area. To achieve full representation, the program was designed to reach a user population that was geographically scattered, diverse in points of view, and eager to participate in the RMP.

The public involvement program consisted of four primary elements: 1) newsletter and newsbrief mailings to approximately 1,000 agencies, organizations, media contacts and individuals who expressed an interest in receiving them; 2) public meetings/workshops; 3) formation of the Owyhee Task Force - an ad hoc work group composed of citizen and agency representatives; and 4) an interagency meeting to review the preliminary RMP alternatives. The efforts of the Owyhee Task Force combined with public and agency comment provided the framework used by the study team to develop the RMP.

The program began with a public meeting held in Ontario, Oregon on June 14, 1989. At that meeting, thirty interested citizens shared their ideas on the issues and opportunities which concerned them relative to the Owyhee Reservoir Study Area. The public issues, concerns and opportunities identified included:

- Impacts of the Plan on reservoir operations (irrigation, flood control, hydropower)
- Need for additional recreational development (campsites, trails, picnic sites, cabin sites, marinas, swimming areas, interpretive areas)
- Need for improved visitor services (emergency facilities, safety, law enforcement, drinking water, handicapped access, sanitation)
- Need for improved access (road improvements, signage, boat ramp additions, airstrip maintenance)
- Concerns about environmental quality and potential impacts (wildlife habitat, water quality, vegetation, cultural resources, scenic areas)
- Need for improved reservoir and river fisheries
- Concerns about impacts on or from adjacent land uses (wilderness, grazing, mining, wild horses, military flight training)
- Institutional constraints (reservoir operations, recreation liability, agency coordination)
- Financing (user fees, cost sharing)

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Reclamation published and mailed the first newsletter in October 1989. The newsletter presented the issues and concerns identified at the June 1989 public meeting; outlined the planning process; introduced the Owyhee Task Force; presented a brief history of the Owyhee Reservoir area; and provided a response sheet for public comments.

The Owyhee Task Force, composed of 19 concerned citizens and agency representatives from the U.S. Bureau of Land Management, Oregon Department of Fish and Wildlife, Oregon State Parks, Malheur County, State Marine Board, and the local irrigation districts, met regularly for over a year to develop a list of specific recommendations and management actions for the RMP. The group also developed a list of (1) specific problems, issues and concerns that needed to be addressed in the RMP, and (2) goals, objectives, and management actions specific to the issues and concerns identified.

The Task Force effort provided the primary framework used to define the scope of the RMP and produced site-specific recreation proposals for additional campsites, improved boat launching and day-use facilities, and designated boat-in campsites. The group also developed management recommendations for off-road vehicle use, livestock grazing, concessions, and the reservoir road system.

In November 1990, the first draft of RMP proposals and management recommendations were described in a second newsletter and presented for discussion and comment at two public workshops held in Ontario, Oregon and Boise, Idaho. The input received from the workshops and second newsletter response sheet helped Reclamation to refine the RMP goals and objectives and to formulate a meaningful array of RMP alternatives.

In March 1993, Reclamation sponsored an interagency meeting to receive input on a number of issues related to the RMP. Specifically, the participants commented on: 1) the land suitability and constraints analysis; 2) the RMP goals and objectives; 3) the results of field studies and recreation site disturbances; and 4) land use alternatives for recreation, visitor information, trails, cabin management, access and transportation, and grazing management.

Subsequent to this interagency meeting, a third newsletter was published by Reclamation. The newsletter presented three RMP alternatives including the preferred alternative, and provided notice of two public workshops to be held in April 1993 in Ontario, OR and Boise, ID. The purpose of these workshops was to fully present and discuss the RMP alternatives, to answer questions, and to gain an understanding of the public's problems and concerns about them.

A number of concerns were raised by the public. Of primary concern were: 1) the potential phase-out of all or some of the private cabins on the reservoir; 2) the potential phase-out of Reclamation's agricultural/grazing lease program; and 3) road closures within the Owyhee Wild and Scenic River corridor. Written comments on the three alternatives were received until May 7, 1993 and reiterated the three primary concerns described above.

The Draft Owyhee Reservoir RMP and Draft Environmental Assessment (EA) were formally released for public review and comment on November 12, 1993. The Draft RMP/EA was distributed to 260 individuals, organizations, and government agencies for a 45-day review period ending December 30, 1993. Copies were also sent to 27 news media, 7 congressionals, and 10 libraries.

The Draft EA discussed and evaluated the three RMP alternatives (Alternatives B, C and D) and the no action alternative (Alternative A). The preferred alternative (Alternative B) discussed in the Draft EA was the detailed proposal described in the Draft RMP.

Seventy-four comment letters were received by Reclamation on the Draft RMP/EA. Of this total, 56 were identical letters signed by different individuals and 18 were from other agencies (7) and individuals (11). These letters and Reclamation's responses to them are included in the Final EA.

A Fish and Wildlife Coordination Act Report (CAR) was prepared by the U.S. Fish and Wildlife Service (USFWS, October 1993). The CAR assessed the environmental impacts each RMP alternative would have on fish and wildlife resources in the Study Area. The report concluded that the overall impact on fish and wildlife would be beneficial under all the alternatives except "No Action" (Alternative A). The six recommendations included in the final CAR are incorporated into the preferred alternative/RMP for Owyhee Reservoir.

Reclamation also consulted with the USFWS in compliance with Section 7 of the Endangered Species Act. A biological assessment of the preferred alternative (Alternative B) determined that there would be no effect/not likely to adversely effect the threatened bald eagle or endangered peregrine falcon. The USFWS concurred with this determination in their biological opinion.

## **1.4 SCOPE OF PLAN**

The Owyhee Task Force summarized the RMP issues, concerns, and opportunities into six broad issue categories and developed goals for each category. These issues and goals provided the framework used by Reclamation to define the scope of the RMP.

### **1.4.1 Recreation and Visitor Services**

Goal: Optimize mixed use of Owyhee Reservoir project lands for recreation to meet future recreational demands and trends consistent with the existing character of the area.

Goal: Provide an appropriate range of information materials to increase public awareness of recreational opportunities, use restrictions, safety concerns, and natural and cultural resource values.

Goal: Provide appropriate support services and facilities to enhance the quality and safety of the recreation experience.

Goal: Provide a quality recreation environment.

### **1.4.2 Natural Resources**

Goal: Preserve, protect and maintain special natural and cultural resource values.

Goal: Manage wildlife habitat to protect and enhance game and non-game wildlife.

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Goal: Maintain Owyhee Reservoir water quality levels which are suitable for swimming, fish production and consumption, and aesthetically appealing.

### **1.4.3 Reservoir Operations**

Goal: Manage reservoir operations to ensure existing irrigation commitments are met. Where feasible and without affecting these commitments, meet other water resource needs in the resource area.

Goal: To the extent practicable, minimize liabilities associated with dam operation and maintenance.

### **1.4.4 Fisheries**

Goal: Improve and manage the reservoir fishery to enhance recreational fishing opportunities.

Goal: Provide a high-quality recreational fishery below Owyhee Dam.

### **1.4.5 Adjacent Land Uses**

Goal: Ensure that adjacent land uses and the Owyhee Reservoir RMP are compatible.

### **1.4.6 Access**

Goal: Provide better vehicular access to the reservoir.

Goal: Explore the potential of improving the Pelican Point airstrip to enhance recreation use of the reservoir.

More specific and detailed RMP goals and objectives are presented in Chapter 5. The RMP is based on these fundamental issues and management goals.

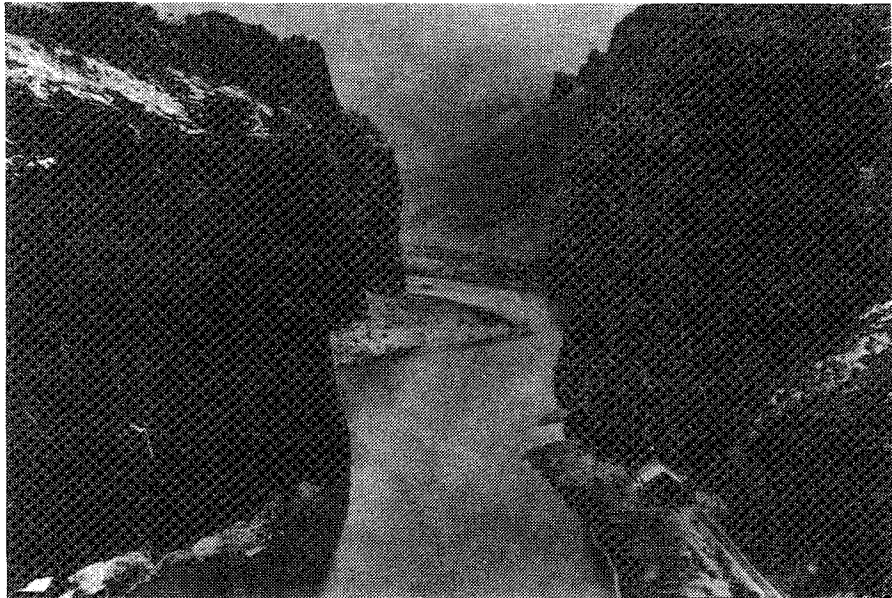
## **1.5 PROJECT HISTORY**

Named by young Hawaiians working for the Hudson Bay Company in the early eighteenth century, the Owyhee River has been used for irrigation for more than 200 years. Local residents learned to harvest the river's life-giving waters through the construction of diversion channels and canals.

Upon evaluating the projected agricultural potential of the region, the Secretary of the Interior recommended development of the Owyhee Project through the construction of a storage dam and canal system. President Calvin Coolidge approved the project on October 12, 1926. Work on the storage dam and canal system began in 1928, Owyhee Dam was completed in 1932, and the first water was delivered to project lands in 1935. At the time of its construction, 417-foot-high Owyhee Dam was the highest dam in the world.



In part, Owyhee Dam was built as a prototype for Hoover Dam, which was in the planning and design phase concurrent with the design and construction of Owyhee. Hoover Dam was envisioned to be of unprecedented size, and would require new construction methods for pouring and cooling concrete. Higher dams were being constructed in order to contain much larger bodies of water, so engineers were also interested in the mass needed to efficiently but safely withstand the water pressure.



*Photo 1-1: Looking Upstream at Owyhee Damsite.  
Photographic copy of historic photo, August 14, 1928.*

A 28-foot-square test section of Owyhee Dam was built using experimental mass concrete pouring techniques intended to remove heat from the interior of the concrete mass. Several galleries within Owyhee Dam still contain the equipment used during construction to monitor water pressure and the temperature and shrinkage rate of the cooling concrete. Project histories refer to the “experimental techniques” monitored with this equipment.

Owyhee Dam has a morning-glory type spillway controlled by a ring gate leading to a tunnel through the right abutment. Reclamation invented and patented the full circumference ring gate and Owyhee Dam was the first dam where the gate was utilized. Similarly, the freight elevator present inside the dam represents the first instance an elevator was built into a dam.

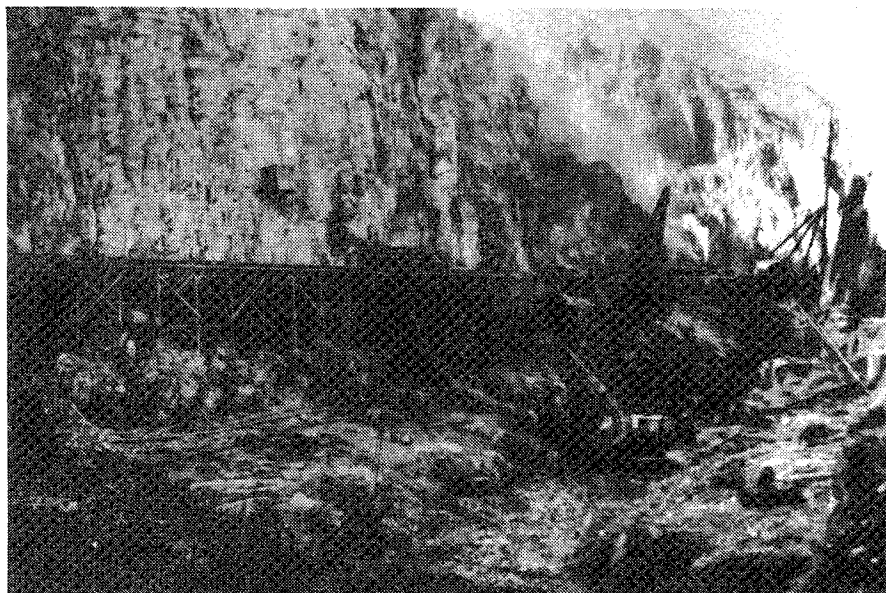
Owyhee Reservoir has a capacity of 1,120,000 acre-feet, with 715,000 acre-feet of storage space allocated for the irrigation of an area geographically known as the Malheur-Owyhee Uplands. The project provides irrigation water to 118,249 acres which encompasses 1,845 farm units and 8 towns in Oregon’s Malheur County and Idaho’s Owyhee County.



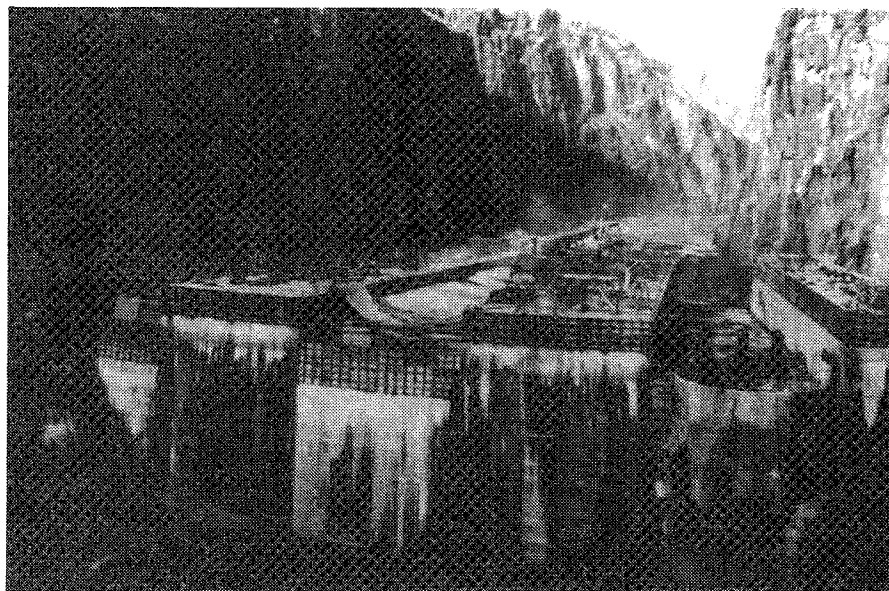
*Photo 1-2: Stripping East Canyon Wall of Loose Rock. Photographic copy of historic photo, September 22, 1928.*

Project works were transferred to the water users (represented by the Owyhee Irrigation District and the South Boards of Control), in 1952. Two years later, Owyhee Dam and related works were additionally transferred to the water users for operation and maintenance. Members of the Owyhee Irrigation District and the South Board of Control formed a Joint Committee that operates the dam and holds the Federal license for hydroelectric power generation.

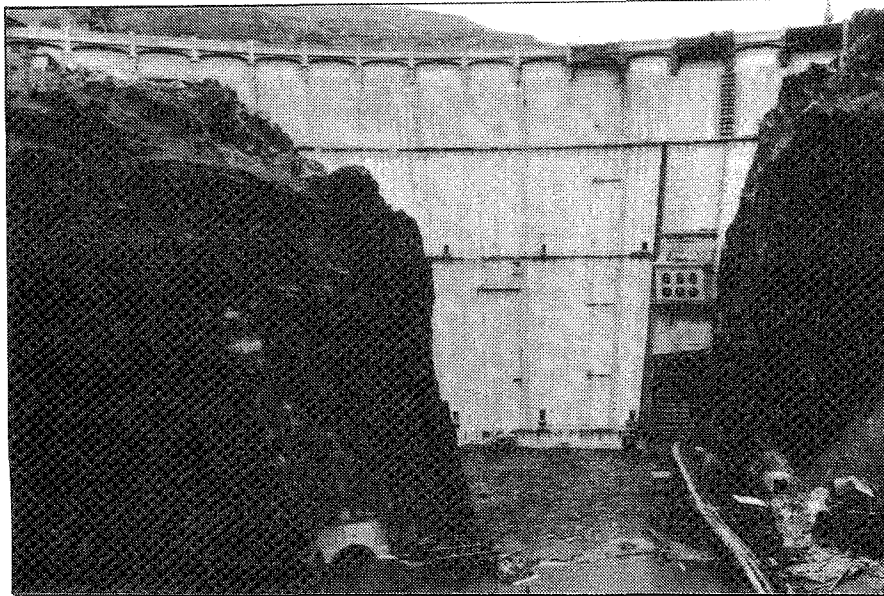
The Owyhee Project supplies water to more than 118,000 acres along the west side of the Snake River in Oregon and Idaho, and transformed the historic use of much of that land. The Oregon State Advisory Committee on Historic Preservation has stated that the Owyhee Project remains the state's historic irrigation project of greatest scope.



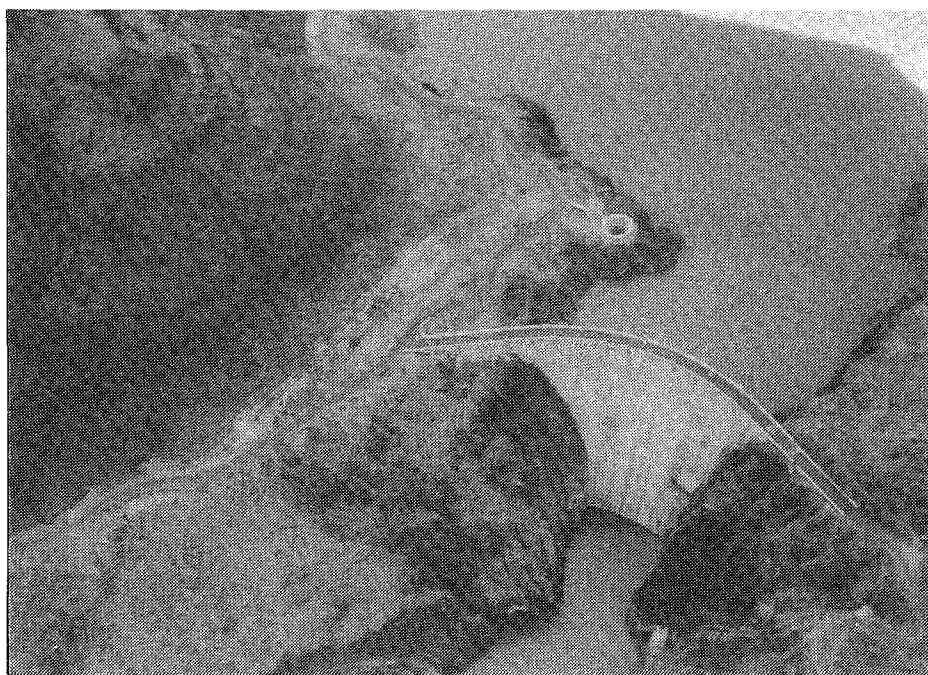
*Photo 1-3: Owyhee Dam Under Construction.  
Looking downstream from upper cofferdam showing crevice and keyway cutoff; also  
cableway control house and entrance adit. Photographic copy of historic photo,  
December 16, 1929.*



*Photo 1-4: Owyhee Dam Under Construction.  
Looking downstream from upper cofferdam, working on trash-rack structure under  
canvas. Photographic copy of historic photo, December 27, 1930.*



*Photo 1-5: Owyhee Dam Near Completion.  
Photographic copy of historic photo, June 3, 1932.*



*Photo 1-6: Aerial View of Owyhee Dam.*

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## Chapter 2

# Existing Resource Inventory

This chapter presents a general description of the Study Area's natural, cultural, and visual resources. A general description of the local and regional impact area relative to social and economic resources is also presented.

### 2.1 NATURAL RESOURCES

#### 2.1.1 Climate

The Study Area has a semiarid climate, characterized by hot, dry summers and cold winters. Precipitation is in the form of short, intense thunderstorms in the summer and frontal storms in the winter and spring.

Temperatures at Owyhee Dam typically range from a maximum of 107°F in the summer to a minimum of -16°F in the winter. The average length of the growing season in the area is 147 days. July and August are the warmest months of the year. The mean daily temperature in July is 94°F for the high and 54°F for the low. An average of 64 days each year have temperatures of 90°F or above. From late June until October, sunshine is nearly unending. The mean daily temperature from November through March is at or below freezing.

Total annual precipitation ranges from approximately 8.6 inches at the Owyhee Dam weather station (2,400 feet) to 25 inches at higher elevations along Lake Owyhee (>5,000 feet). Most of this precipitation occurs in December and January as snow. The months of July and August are normally the driest.

The low amount of precipitation received in the area limits the growth of many plant species. The effectiveness of the precipitation received is also reduced because air temperatures suitable for plant growth often do not occur while adequate soil moisture is available. A common situation is a warming trend sometime in March followed by a cooling off trend in April. This abnormality, coupled with winds that contribute to the drying action on soil at this time of year, further handicaps plant growth as they enter the growing season.

Wind intensity and prevailing direction at any point is determined by the surrounding terrain. Strong winds are usually aligned in the direction of the major storm movements. In reviewing the highest wind intensity of record, it was found that 60 percent of the storms had come out of the southwest. Light winds, those less than 12 miles per hour, outnumber strong winds; steering effects due to valley walls, mountain slopes, or other topographic features dominate their direction. As a rule, the area receives major storm movement from the west or northwest.

## 2.1.2 Topography

The region is a land of plateaus, deep canyons, buttes and mesas. Physiographic features in the Study Area consist of high lava plains, moderately dissected uplands, and deep canyons which slowly merge south into fault block mountains and broad graben valleys.

Lake Owyhee occupies a deep, rather narrow and winding canyon cut into a thick series of gently to steeply tilted layers of volcanic tuff, sediments, lava flows, and dikes. In places the canyon walls are very steep. Area elevations range from about 2,300 feet along the lower Owyhee River to isolated peaks above 5,000 feet adjacent to Owyhee Reservoir. In general, elevation increases toward the west and south to the Mahogany and Spring Mountain areas. South of Mahogany Mountain, the elevation declines as one nears Jordan Valley.

The arid, nearly treeless landscape is highly diverse. Broken plateaus, barren rocky ridges, cliffs, deep gulches and ravines dissect the area's rugged terrain. The result is a complex pattern of twisting drainage's separated by hills and ridges of varying strata, color, steepness and height. Colorful rock outcrops and rimrock areas are prevalent along Owyhee Reservoir. Over time, the soils and softer rocks have eroded, leaving the hard basalt, rhyolitic rock, and consolidated ash flows as colorful cliffs, spires, pinnacles and similar formations. The highest concentration of pinnacles and rock outcrops occur in and south of the Honeycombs/Leslie Gulch area.

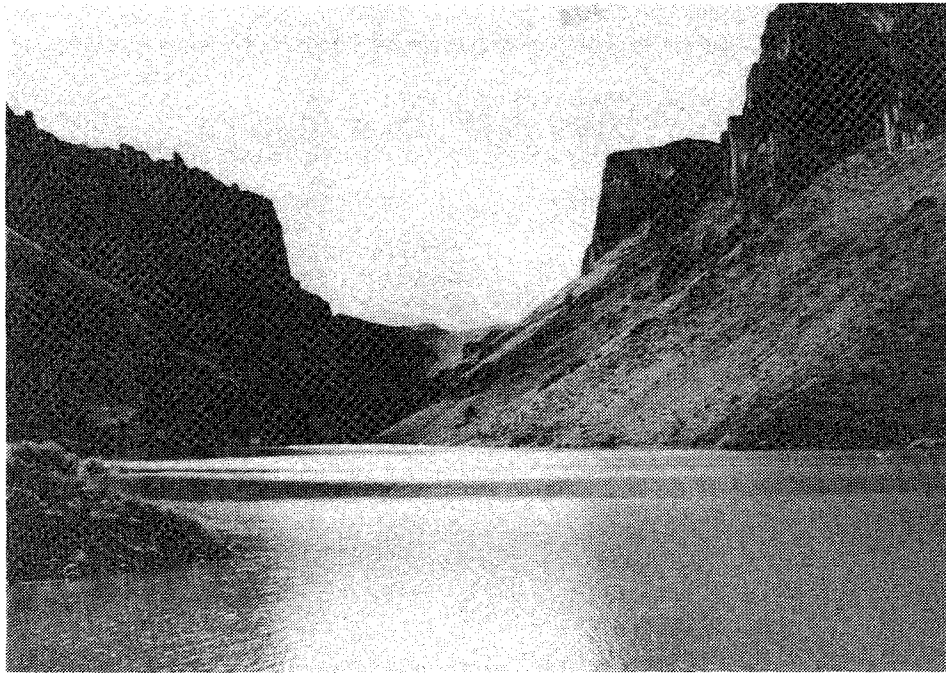
The area's abundant and varied geologic features create a landscape of stark beauty. Outstanding scenery is provided by the numerous outcrops, rims and pinnacles distributed throughout the area. These features are highly prevalent in the Honeycombs, Leslie Gulch, Painted Canyon, Three Fingers Gulch, and Carlton Canyon areas. Many of the exposed rock faces are dotted by spherical cavities, giving them a honeycomb or sponge-like appearance. Often these cavities widen to form caves and shelves which are overhung by fragile stone lips with smoothly flowing contours.

Slope and rockiness limits public access and use in much of the Study Area. Near Owyhee Dam, high cliffs towering to 1,800 feet above the reservoir have severely restricted access routes to the reservoir and adjacent land areas. This limited access directly affects water-oriented recreation and results in higher use along existing access routes. Recreation development often occurs in areas closely adjoining the reservoir since the steep topography away from the shoreline precludes access and development.

## 2.1.3 Geology

The Study Area is located within the Owyhee Upland physiographic province near the northeastern extremity of the Basin and Range province. The area is characterized by thick sequences of volcanic and fluviolacustrine sedimentary rocks and is the product of concurrent volcanism, erosion, sedimentation, and tectonism during the late Tertiary and Quaternary Periods. During this time, over 6000 feet of volcanic rock was extruded onto the surface in multiple eruptive events. These volcanic units typically formed lenses of intercalated basalt, rhyolite, ash-flow and air-fall tuff, and epiclastic sediments derived from volcanoes. Various modes of volcanism from fissure flows to phreatic explosions contributed to these deposits. Basalt, ash flows, and tuff constitute most of the volcanics. Thinly to thickly bedded sandstones, shales and conglomerates derived largely from erosion of local highlands interfinger with the volcanics (USBR, 1982).





*Photo 2-1: View East Toward Three Fingers Gulch.  
Slope and rockiness limits public access and use in much of the Study Area.*

Miocene age volcanism formed the structural foundation for later sediment accumulation. Faulting transformed the volcanic plateaus into several basins elongated north to south. Streams and rivers flowed into these closed basins and deposited sediments derived from the adjacent volcanic highlands. Intermittently, additional volcanic flows dammed stream courses impounding the water in lakes and ponds. These lakes and ponds acted as traps for deposition of alluvial sediments as well as organically-derived deposits such as diatomite. Sedimentary deposition in the basins began in late Miocene time, and continued with local volcanic interruptions into the Pliocene (5.3 to 1.9 million years ago). This deposition was interrupted by a series of sporadic thin flows of basalt and ash-flow tuffs (Kittleman et al., 1965 and USBR, 1982).

Tuffs and tuffaceous shales overlain by rhyodacite and basalt form the reservoir rim for 18 km (11 miles) upstream of the dam. Beyond this, tuffs, tuffaceous siltstones, shales and conglomerates predominate.

### **Paleontology**

The Study Area represents a distinct geologic district composed of a unique assemblage of sedimentary and volcanic rocks and fossils. Several Miocene age, fossil-bearing geologic formations occur at or near Owyhee Reservoir (see Table 2-1). Each of these formations represents deposition within a separate basin and contain fossil faunas and floras representing different ages, environments, and ecosystems (Kittleman et al., 1965).

Fossil-bearing rock units exposed on the margins of Owyhee Reservoir include the Sucker Creek, Owyhee Basalt, and Deer Butte formations. Quaternary colluvium and alluvium, locally exposed on the shoreline, may also contain fossil vertebrates in lenses

of fine-grained sediment. Of these formations, Sucker Creek is paleontologically the most famous.

Table 2-1: Fossiliferous Sedimentary Units Exposed at or Near Owyhee Reservoir.

Geologic Formation	Epoch
Deer Butte	Pliocene/Miocene
Grassy Mountain	Pliocene/Miocene
Owyhee Basalt	Miocene
Sucker Creek	Miocene

Ten miles east of Owyhee Reservoir, the Sucker Creek drainage has produced a diverse and abundant assemblage of fossil mammals and plants. On the reservoir's west side, the Deer Butte and Grassy Mountain formations are well known for their abundant well-preserved fossil mammals, fish, mollusks, and plants. The Owyhee Basalt has produced *Merychippus* (horse) and oreodont remains from a vitric tuff interbed four miles northeast of Owyhee Dam (Rimal and Schaller, 1981).

The sedimentary deposits of the Owyhee region contain abundant plant fossils that indicate a warm to cool temperate climate with annual precipitation in excess of 20 inches. During mid-Miocene, higher elevations were forested, oaks and grasslands dominated the slopes, and lakes and swamps occupied the lowlands (Concoran, 1965). Ancestors of modern mollusks and ostracodes, many species of fish and mammals such as horse, camel, deer, beaver, rhinoceros, elephant and oreodont occupied the area during the Miocene and Pliocene Epochs.

No published paleontological sites exist within one mile of the reservoir high water line nor has the area been systematically surveyed by professional paleontologists. Poor accessibility rather than lack of fossil-preserving geologic conditions is likely to account for the dearth in recorded sites. There is a strong possibility that significant fossil resources occur along the margin and under Owyhee Reservoir since the same stratigraphic units that bear fossils north, west and east of the reservoir are present within the Study Area. Several paleobotanical outcroppings are known to lake users and Reclamation personnel.

Geologic units considered highly paleontologically sensitive include volcanoclastic and clastic sediments deposited in fluvial and lacustrine systems (Biosystems, 1993). Sedimentary facies of both the Sucker Creek and Deer Butte formations meeting this description are exposed on the eastern shore between Owyhee Dam/Birch Creek and Cherry Creek/Three Fingers Gulch; and on the western shore from Dry Creek to the upstream end of the reservoir.

Areas of moderate paleontological sensitivity include much of the shoreline on both sides of the reservoir between the dam and Dry Creek in the Owyhee Basalt (interbedded soil horizons and tuffs), Quaternary alluvium at the Honeycombs, and colluvium at the most southerly end of the reservoir. Low sensitivity areas include the southeastern shoreline where rhyolite of the Sucker Creek formation is exposed from Three Fingers Gulch to Red Rock Basin (Wickstrom, 1993).

Predictions cannot be made for the presence of fossil resources under the waters of Owyhee Reservoir. The ground has not been mapped geologically and without this information the position of fossiliferous strata cannot be determined with accuracy.



## Geologic Hazards

Since 1969, periodic landslide monitoring of Lake Owyhee has been conducted by Reclamation. Most of the twenty landslides identified are relatively small with estimated volumes of several hundred thousand cubic meters or less (USBR, 1989). Upstream from Owyhee Dam, 4.4 to 10 kilometers (7 to 16 miles), there are three major landslides which have been listed in Reclamation's Landslide Register. These are: Dry Creek landslide, Fisherman's Cove landslide, and the Big Slide.

The Dry Creek landslide, the smallest of the three slides, is located about 4.4 km (7 miles) upstream of the dam on the west bank below the mouth of Dry Creek in the NE  $\frac{1}{4}$  Section 17, T23S, R44E. The slope occupies 5 acres and has an estimated volume of 500,000 cubic yards. No movement has been observed on the slide during the past 15 years.

The Fisherman's Cove landslide is on the east side of the reservoir in the NE  $\frac{1}{4}$  Section 9, T24S, R44E. The slide has an estimated volume of 1.5 million cubic yards and occupies 0.5 miles of shoreline.

The largest slide, known as the Big Slide, is located about 10 km (16 miles) upstream of the dam on the reservoir's west side. The volume of the slide is estimated to be 2 million cubic yards and occupies 20 acres with a reservoir frontage of about 1,500 feet. The slide extends from the reservoir up the hillside to the rim.

These three slides, all activated in the early 1950s, are still subject to recurrent movement. During dry years, these slides will likely be stable. Additional movement could occur when yearly precipitation is unusually heavy or rapid reservoir drawdown occurs. None of them pose any high risk to the public, the dam, or its appurtenances.

One summer cabin (Lot 31-E in Lot 3 of NE  $\frac{1}{4}$  NW  $\frac{1}{4}$  S4, T24S, R44E) is located on a small landslide north of the Fisherman's Cove landslide. Additional movement due to heavy precipitation or rapid reservoir drawdown could damage or eliminate this cabin and other nearby structures.

Although not reported in the landslide surveillance reports, there is a problem slide and rock fall area on the east side of the reservoir just upstream of the Tunnel No. 1 control structure. The control structure, located about 0.5-miles upstream from the dam, has been struck by isolated rock falls due to raveling of the slope, especially during freeze-thaw periods. This rock fall area transitions into a marginally stable slide-talus field. After heavy rainfall, mud flows and rock slides periodically necessitate closure of the County road leading to the Lake Owyhee State Park and Resort areas.

Several large mud-flow landslides are located at the upper end of the reservoir, 19-21 km (31-34 miles) from the dam. The largest of these is about 4.3 km wide, 5.6 km long, and has an estimated minimum volume of 1 cubic kilometer. This landslide appears to have pushed the Owyhee River slightly north of its original course. Landslide morphology is somewhat subdued and the surface is moderately dissected by ephemeral drainages, suggesting that the slide is not recent.

The reservoir area has been subjected to regional and local faulting, most of which is related to late Cenozoic tectonics. Faulting is present in close proximity to the dam site

on both the right and left side of the canyon in addition to the fault zone which traverses the dam foundation. Major regional faulting along the Snake River Plain is within 10 miles of Owyhee Dam.

The nearest known fault to Owyhee Dam is exposed about 1 km east of the right abutment. This fault is one of several north-trending faults that form the Owyhee Ridge fault system. This fault is not considered a source of earthquakes accompanied by coseismic surface displacement (USBR, 1989).

Historical seismic activity in eastern Oregon and southwestern Idaho has been sparse, poorly located, and poorly understood. There have been no historical earthquakes accompanied by coseismic surface displacement in this region. The regional seismic activity patterns are dominated by the central Idaho seismic belt and persistent activity of the Milton-Freewater area of northeastern Oregon. There is no documented relationship between historical seismic activity and mapped faults in the Study Area.

The Owyhee Uplands province is notable for the complete lack of recorded seismic activity. While it is probable that small earthquakes have gone unrecorded, it is clear that the rate of seismic activity in this province is extremely low. Therefore, reservoir induced seismic activity is not a potential hazard (USBR, 1989).

The reservoir and dam site do not appear to have been subjected to moderate or severe earthquake loadings since construction of the dam. The reservoir shoreline and canyon walls may be subjected to future seismic events but, until such time as a seismic evaluation for the area is performed, it is unknown whether significant seismic events could promote landslides or a seiche. The three major landslide areas upstream of Owyhee Dam are located at sufficient distance and are small enough in volume that any seismically induced failure would not produce a wave which would endanger the dam by overtopping. The narrow, sinuous form of Lake Owyhee would tend to attenuate any such seiche wave if created.

#### **2.1.4 Soils**

The most recent and comprehensive soils information for the Study Area is a 1969 Level IV soil survey report prepared by the Oregon State Water Resources Board. The soil "classification units" found in the Study Area include four survey "groups":

##### **1) Level to Sloping Soils of Older Fans and Terraces**

- Unit 5: sandy loam to loam
- Unit 51: loamy sand to sandy loam
- Unit 55: gravely loam to sandy
- Unit 56: clayey, shallow with hardpan

## 2) Upland Soils Over Soft Sediments

Unit 60: loamy, moderately deep

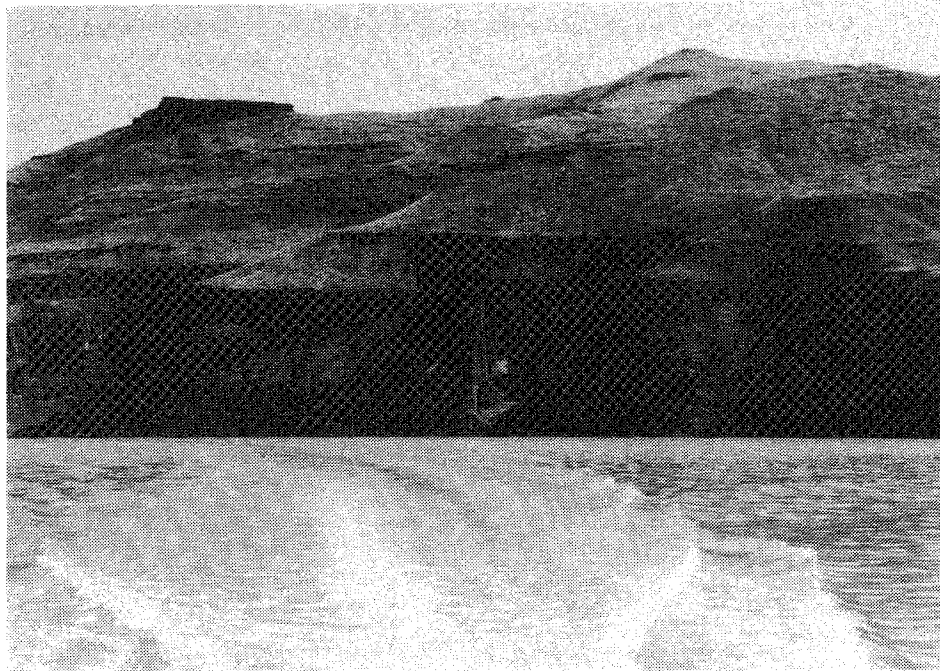
## 3) Light Colored Soils Over Hard Bedrock

Unit 75: loam, very stony, shallow  
 Unit 76: clayey, very stony, shallow  
 Unit 77: loamy, rocky, very shallow  
 Unit 79: loamy, deep, wind deposited

## 4) Miscellaneous Land units

Unit 94: soft, raw sediments, low slope  
 Unit 96: steep rock land  
 Unit 98: soft, raw sediments, steep  
 Unit 99: bare lava flows  
 Unit Gb: Garbutt Series - silt loam  
 Unit Mc: Unnamed Series - silty clay loam  
 Unit Ny: Nyssa - silt loam

Soils along the lower Owyhee River are predominantly in specific slope groups of Units 75, 76 and 96. Soils along Owyhee Reservoir and the upper Owyhee River are predominantly Units 60, 96 and 98 (see Figure 2-1: Soils). For each of these primary soil types, Table 2-2 provides a brief summary of their soil characteristics. More detailed soil descriptions are included in Appendix A--Soil Interpretations Record.



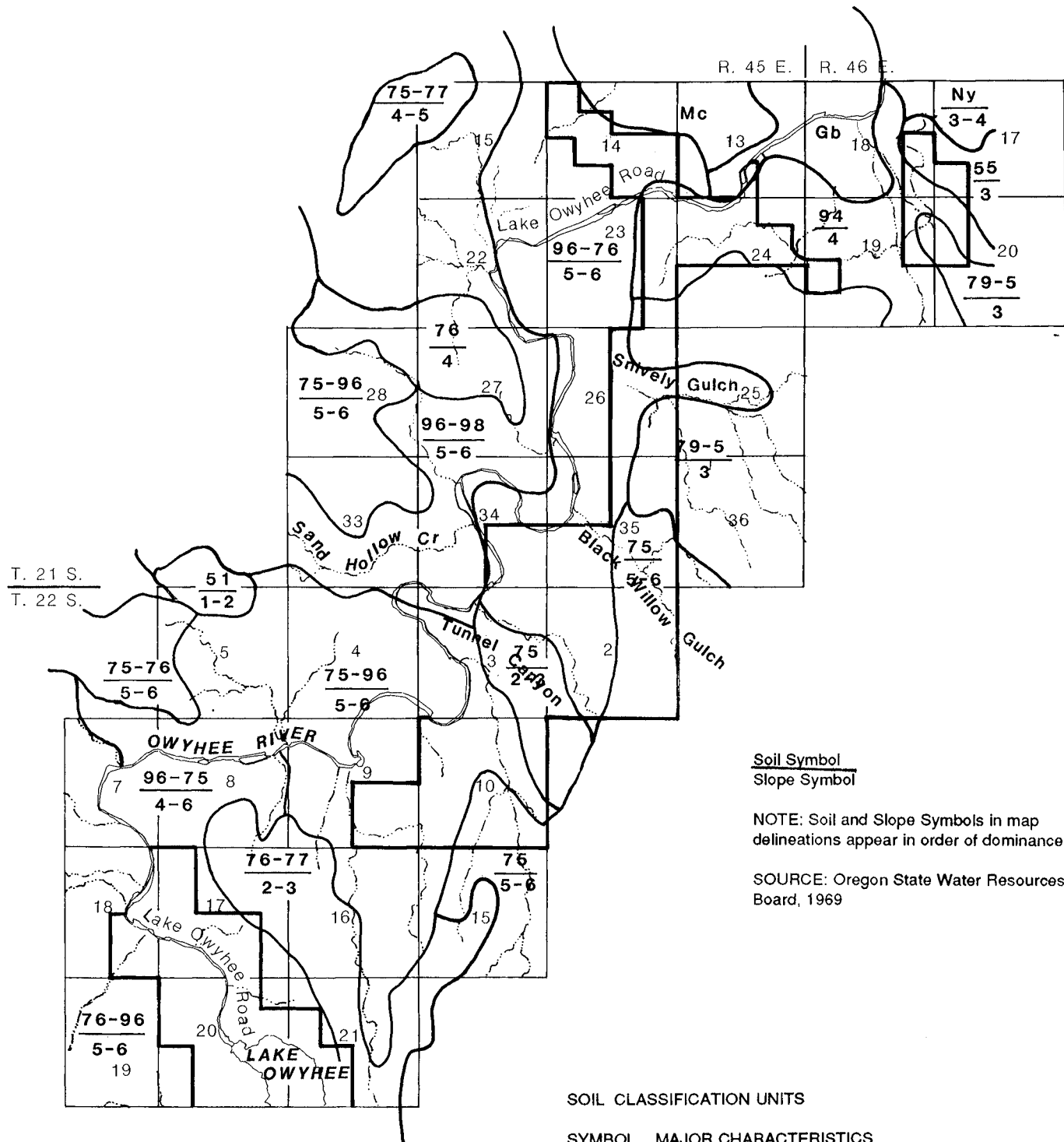
*Photo 2-2: View East Toward Wild Horse Basin.  
 Soils in the Study Area are predominantly shallow, rocky and poorly developed.*

Table 2-2: Soil Types and Soil Characteristics, Owyhee Reservoir and Vicinity.

Map Unit	Soil Type	Slope (%)	Depth to Bedrock	Erosion (K-factor)	Soil Characteristics
56	Buffaran	0-30	> 60"	.05-.32	shallow, stony/clayey loam with hardpan; formed in alluvium derived from mixed rock sources; slow permeability; well drained; slow to rapid runoff; on fan piedmonts, mountain valley fans, and ballenas.
75	Calzacorta	3-20	11-19"	.10-.17	shallow, very stony loam over basalt bedrock; formed in mixed colluvium and alluvium weathered from basalt; moderate permeability; well-drained; slow to medium runoff; soils on gently undulating to rolling lava plateaus and on steep faulted and dissected terrain; elevations 2,500 to 4,200 feet.
76	Ruckles	1-80	10-20"	.15	shallow, very stony clay loam; formed in loess and colluvium from basalt and tuff; slow permeability; well-drained; soils on hills and canyon side slopes; elevations 1,200 to 3,800 feet.
96	Rock Outcrop	0-100	N/A	N/A	consists of exposures of bare hard bedrock other than lava flows and rock-lined pits; consist mainly of unweathered volcanic and metamorphic rock, but includes some sedimentary rock.
98	Badland	1-200	0-3"	Active	moderately steep to very steep barren land dissected by many intermittent drainage's cut into soft geologic material ordinarily not stony; runoff is very rapid; erosion is active.
60	Brogan	10-65	20-40"	.37-.43	moderately deep, fine silt/clay loam; formed in loess over lacustrine sediments; moderate permeability; well-drained; runoff is medium on gentle slopes/ rapid on steeper slopes; on north-facing terrace fronts and uplands.
77	Bakeoven	0-90	4-12"	.05-.10	very shallow, rocky loam; formed in mixed alluvium, loess and residuum weathered from basalt; moderately slow permeability; well-drained; soil may be ponded for short periods; on ridgetops, benches, side slopes, and plateaus underlain by basalt.

Source: U.S. Soil Conservation Service.

# LOWER OWYHEE RIVER



Soil Symbol  
Slope Symbol

NOTE: Soil and Slope Symbols in map delineations appear in order of dominance.

SOURCE: Oregon State Water Resources Board, 1969

## SOIL CLASSIFICATION UNITS

**SYMBOL MAJOR CHARACTERISTICS**  
Level to sloping soils of older fans & terraces  
5 sandy loam to loam  
51 loamy sand to sandy loam  
55 gravelly loam to sandy  
56 clayey, shallow/hardpan

Upland soils over soft sediments  
60 loamy, moderately deep

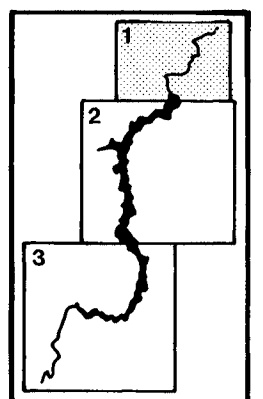
Light colored soils over hard bedrock  
75 loamy, very stony, shallow  
76 clayey, very stony, shallow  
77 loamy, rocky, very shallow  
79 loamy, deep, wind deposited

Miscellaneous land units  
94 soft, raw sediments, low slope  
96 steep rock land  
98 soft, raw sediments, steep  
99 bare lava flows  
Gb Garbutt Series - silt loam  
Mc Unnamed Series - silty clay loam  
Ny Nyssa - silt loam

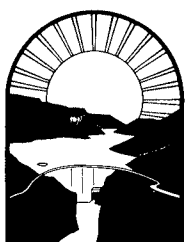
## SLOPE GROUP

Symbol	Dominant Slope Range (percent)
1	0-3 nearly level
2	3-7 gently sloping
3	7-12 sloping
4	12-20 moderately steep
5	20-35 steep
6	35-60+ very steep

— Bureau of Reclamation Resource Management Area



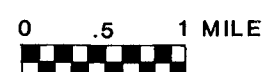
KEY MAP



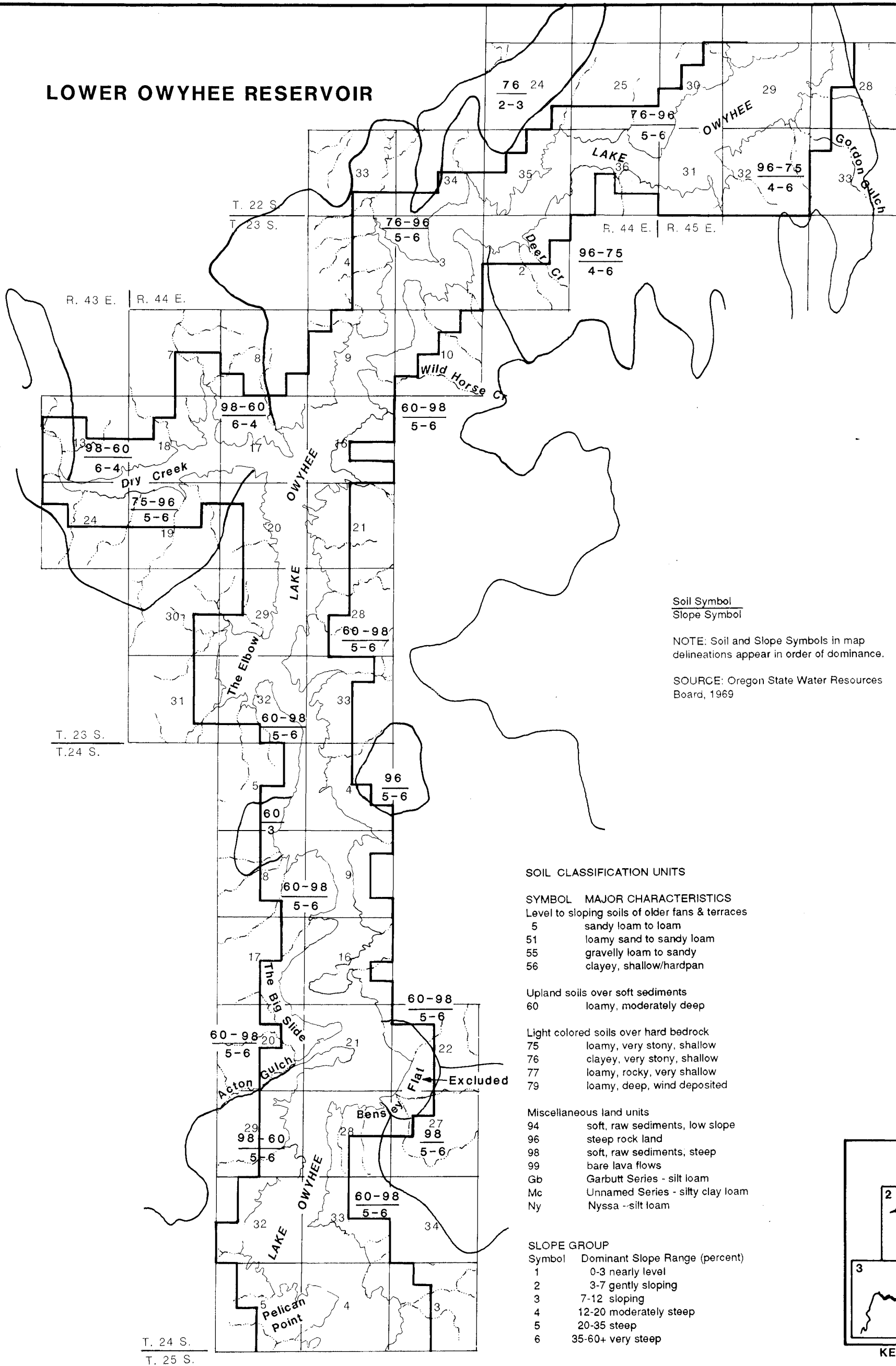
U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

**SOILS**  
Figure 2-1

1 of 3



# LOWER OWYHEE RESERVOIR



Soil Symbol  
Slope Symbol

NOTE: Soil and Slope Symbols in map delineations appear in order of dominance.

SOURCE: Oregon State Water Resources Board, 1969

### SOIL CLASSIFICATION UNITS

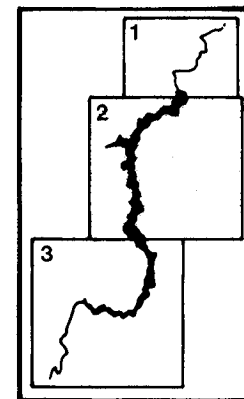
**SYMBOL MAJOR CHARACTERISTICS**  
 Level to sloping soils of older fans & terraces  
 5 sandy loam to loam  
 51 loamy sand to sandy loam  
 55 gravelly loam to sandy  
 56 clayey, shallow/hardpan

Upland soils over soft sediments  
 60 loamy, moderately deep

Light colored soils over hard bedrock  
 75 loamy, very stony, shallow  
 76 clayey, very stony, shallow  
 77 loamy, rocky, very shallow  
 79 loamy, deep, wind deposited

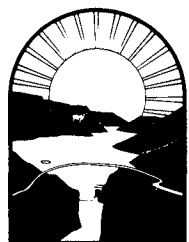
Miscellaneous land units  
 94 soft, raw sediments, low slope  
 96 steep rock land  
 98 soft, raw sediments, steep  
 99 bare lava flows  
 Gb Garbutt Series - silt loam  
 Mc Unnamed Series - silty clay loam  
 Ny Nyssa -silt loam

**SLOPE GROUP**  
 Symbol Dominant Slope Range (percent)  
 1 0-3 nearly level  
 2 3-7 gently sloping  
 3 7-12 sloping  
 4 12-20 moderately steep  
 5 20-35 steep  
 6 35-60+ very steep



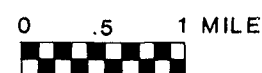
KEY MAP

— Bureau of Reclamation Resource Management Area

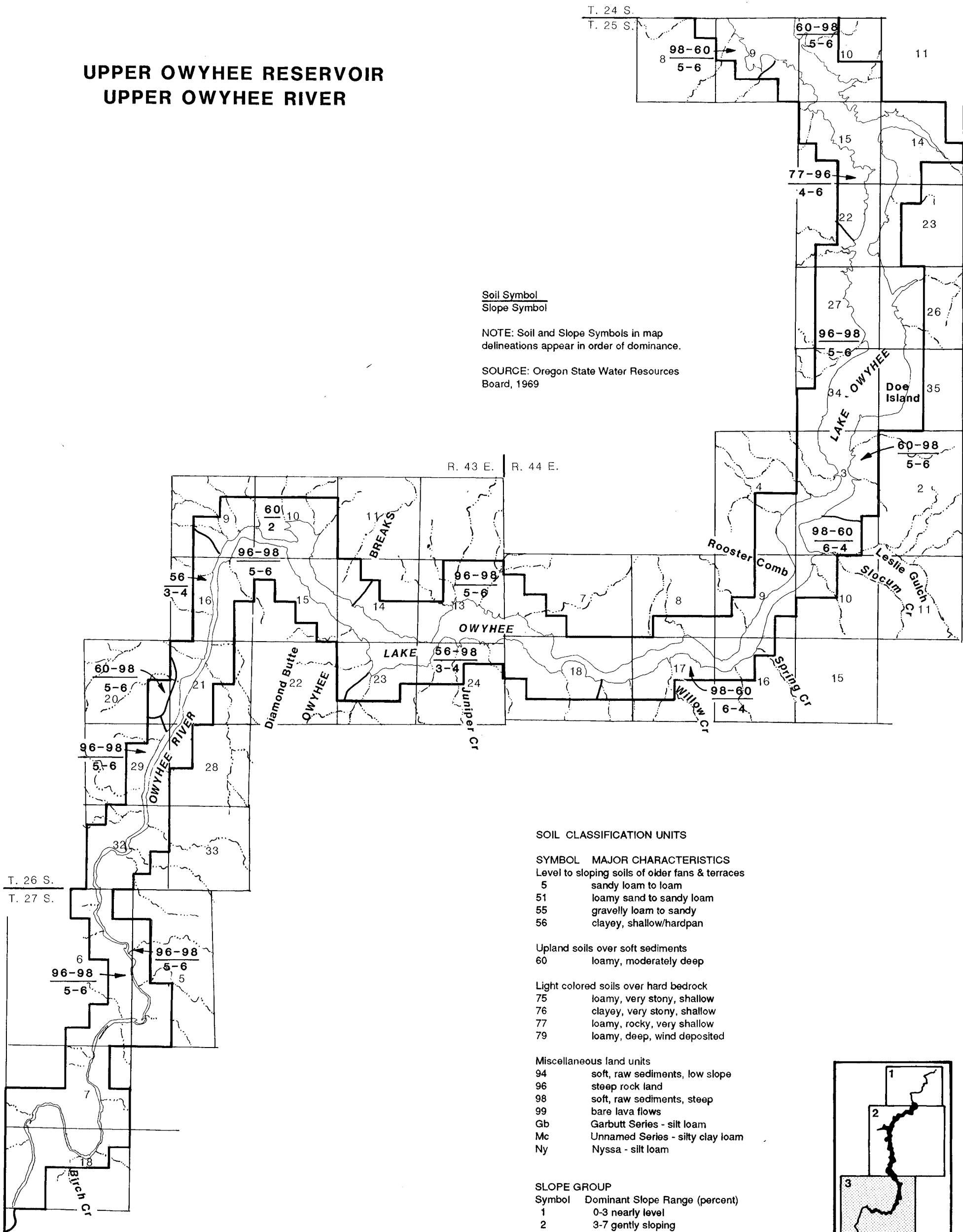


## U. S. Bureau of Reclamation OWYHEE RESERVOIR RMP

### SOILS Figure 2-1



# UPPER OWYHEE RESERVOIR UPPER OWYHEE RIVER



Soil Symbol  
Slope Symbol

NOTE: Soil and Slope Symbols in map delineations appear in order of dominance.

SOURCE: Oregon State Water Resources Board, 1969

### SOIL CLASSIFICATION UNITS

SYMBOL MAJOR CHARACTERISTICS  
Level to sloping soils of older fans & terraces

- 5 sandy loam to loam
- 51 loamy sand to sandy loam
- 55 gravelly loam to sandy
- 56 clayey, shallow/hardpan

Upland soils over soft sediments

- 60 loamy, moderately deep

Light colored soils over hard bedrock

- 75 loamy, very stony, shallow
- 76 clayey, very stony, shallow
- 77 loamy, rocky, very shallow
- 79 loamy, deep, wind deposited

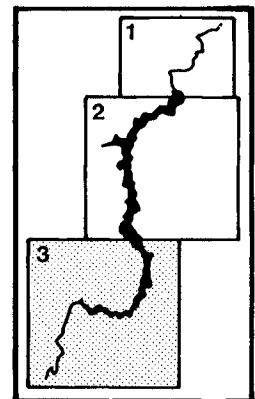
Miscellaneous land units

- 94 soft, raw sediments, low slope
- 96 steep rock land
- 98 soft, raw sediments, steep
- 99 bare lava flows
- Gb Garbutt Series - silt loam
- Mc Unnamed Series - silty clay loam
- Ny Nyssa - silt loam

### SLOPE GROUP

Symbol Dominant Slope Range (percent)

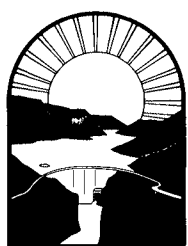
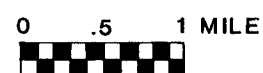
- 1 0-3 nearly level
- 2 3-7 gently sloping
- 3 7-12 sloping
- 4 12-20 moderately steep
- 5 20-35 steep
- 6 35-60+ very steep



KEY MAP

— Bureau of Reclamation  
Resource Management Area

3 of 3



U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

**SOILS**  
Figure 2-1

In general, area soils are shallow, rocky, and poorly developed. When soils are shallow (depth to bedrock is generally less than 20 inches) and stony, they are generally not suitable or severely limited for septic tank absorption fields, building site development, intensive recreation development, irrigation, or construction materials (i.e., road fill, sand, and gravel). However, isolated terraces may possess the soil depths and characteristics suited for site-specific land use activities.

### 2.1.5 Mineral/Material Resources

Outside of the casual collecting of various types of chalcedony, no mineral resource production has occurred in the lower Owyhee River canyon. Potentially valuable geothermal resources in the area remain undeveloped. The Snively Hot Spring and Deer Butte Spring are active hot springs with temperatures high enough to be used in direct heating applications (DOGAMI, 1989).

Semiprecious gemstones in the form of agate and jasper are the main nonmetallic resources found in the area. Brightly colored chalcedony and agate mantles the basalt surface in some areas. The arkosic sands exposed in Sand Hollow and on Tunnel Creek may be a silica sand resource (DOGAMI, 1989).

Unconsolidated and generally poorly sorted deposits of gravel, sand and silt occur in the floodplain. In the past, local highway and irrigation districts have extracted small deposits of sand and gravel to meet various operation and maintenance needs. Along the lower Owyhee River, gravel material sites are located on both BLM and Reclamation administered lands at or near Sites B, C and D.



*Photo 2-3: View of Talus Deposit on Lake Owyhee Road.  
This large talus deposit located immediately north of Tunnel Canyon is actively used by the local highway district for road construction and repair.*



East of the river along Tunnel Canyon and the North Canal are several gravel sites actively used by the Owyhee Irrigation District for project operation and maintenance. These sites are located on Reclamation withdrawn lands.

A large talus deposit located just north of Tunnel Canyon near Site C is actively used by the local highway district for road maintenance operations. The material site is located on withdrawn lands and within a permanent 100-foot right-of-way easement granted by Reclamation to Malheur County. The easement provides for the construction, reconstruction, and maintenance of Lake Owyhee Road. Continued talus removal by undercutting could result in a massive landslide. Such a failure poses a significant safety hazard since the talus deposit is located next to Lake Owyhee Road.

Reclamation withdrawn lands in the Study Area are termed "withdrawals under the first form." First form withdrawals are not subject to location for mining purposes unless specifically open to mineral entry and location by the Secretary of the Interior. Consequently, no mineral exploration or development has occurred on these withdrawals. Exploration and mining activities cannot be actively pursued unless the withdrawals are either relinquished (restored to the public domain) or open to mineral entry by the Secretary of the Interior.

Material resources (i.e., sand and gravel) on withdrawn lands are reserved for project purposes. The Owyhee Project irrigation districts actively use several gravel sites located on Reclamation withdrawn lands east of the lower Owyhee River canyon for project operation and maintenance activities.

### 2.1.6 Vegetation

Shrub-steppe plant communities dominate the landscape. Within these larger communities are plant associations and habitats related to specific environmental conditions and land forms: desert shrub and shrub-steppe plant communities of the uplands; riparian and desert shrub plant communities of the canyons and gullies with intermittent streams; riparian and wetland plant communities of perennial rivers, streams, low lying areas, springs, drainage and irrigation ditches; and vegetation related to agricultural, residential and recreational areas.

Big sagebrush communities dominate nearly every vegetation mosaic. The Wyoming big sagebrush/bluebunch wheatgrass (*Artemisia tridentata wyomingensis/ Agropyron spicatum*) association is the most widespread. Other common grass associates include Idaho fescue, squirreltail, Sandberg's bluegrass, Thurber's needlegrass, Indian ricegrass, wild rye, and cheatgrass. The abundance and distribution of the grass associates varies with regard to slope, elevation and aspect (exposure) as well as with range condition. Pure stands of Idaho fescue and bluebunch wheatgrass often occupy steeply sloped or rimrock areas with Idaho fescue being more abundant in higher, moister habitats.

Shrubs common to the general area include: big sagebrush, low sagebrush, rabbitbrush, antelope bitterbrush, currant, red osier dogwood, and wild rose. Important shrub species that occur less frequently are snowberry, greasewood, serviceberry, mountain mahogany, spiny hopsage, four-wing saltbrush, broom snakeweed, horsebrush, and purple sage.

On the flats just above the upper Owyhee River, the alkaline soils support a salt desert shrub mosaic. These communities are most common where interior drainage and old lake beds are typical. The dominant shrubs include greasewood, shadscale, and spiny

hopsage. Grasses commonly associated with these communities are saltgrass, wild rye and Indian ricegrass. Salt desert shrub communities are intermingled with upland communities dominated by big sagebrush and serve as important winter range for big game animals.

The big sagebrush/grass association is most vigorous on north facing slopes and on deep soil sites. The low sagebrush/grass association primarily occurs on ridge tops that have a shallow, rocky soil profile at intermediate and high elevations. Common grass associates with low sagebrush include Sandberg's bluegrass and Idaho fescue. A well defined edge can usually be found between the low sagebrush and big sagebrush/grass association due to differences in soil type and depth.

Some of the more common herbaceous perennials (forbs) include: phlox, Indian paintbrush, arrowleaf balsamroot, penstemon, desert parsley, buckwheat, pepperweed, yarrow, hawksbeard, buttercup, lupine, arrowleaf biscuitroot, and locoweed. Common weedy forbs include tumble mustard, Russian thistle (tumbleweed) and cocklebur.

Cheatgrass, an exotic, is a very widespread grass associate throughout the Study Area that has invaded the range where native perennials have been overused and/or eliminated. There is little evidence that cheatgrass will relinquish a site once occupied due to its highly competitive ability.

Most upland plant communities easily accessible to livestock and near the reservoir's shoreline are now dominated by big sagebrush, cheatgrass, and undesirable species such as tumbleweed, tumbledustard, cockleburs, curlycup gumweed, woolly mullein, and annual sunflower. Rabbitbrush is also a common dominant in severely overused areas and on abandoned agricultural land. Where better range conditions exist, bluebunch wheatgrass, wild rye, squirreltail, and needlegrass occur.

Riparian vegetation occurs along the major perennial streams as well as some intermittent streams within the Study Area. Riparian zones also occur in association with seeps, springs, meadows, and in isolated locations along the margin of Owyhee Reservoir. The presence of water and alluvial soils are the primary attributes that distinguish these ecosystems from upland communities.

Cottonwood, coyote willow, hawthorn, and chokecherry are the dominant tree and shrub species found in the area's narrow riparian zones. In isolated areas along the Owyhee River, juniper and hackberry also occur. Numerous species of meadow grasses, sedges, rushes and forbs occupy the riparian understory. Greasewood dominates in the alkaline riparian areas.

Riparian vegetation along the upper Owyhee River is limited by the periodic high volume flow of water during spring runoff. As a result of high flows, flexible herbaceous plants predominate. In the Birch Creek riparian zone, alder, currant, mock orange, clematis and willow occur in pockets down to the Owyhee River. Riparian areas along the upper river are showing vegetative recovery from historically heavy livestock use (BLM, 1989).

Most riparian ecosystems (the streams and adjacent lands they influence) contain wetlands. The wetland classification system of the U.S. Fish and Wildlife Service (Cowardin, 1979) and the wetland types present in the Study Area are discussed in the following section (see "Wetlands"). The Clean Water Act provides these wetlands regulatory protection from discharges of dredged or fill materials and other pollutants.

Non-wetland portions of riparian areas are outside the regulatory protection of the Act (EPA, 1991).

Excluding those rangelands used for livestock grazing, existing agricultural lands within the Study Area are few. Along the lower Owyhee River, there are two private land parcels currently used for hay production. Along the upper Owyhee River, abandoned alfalfa pastures at the Morrison (Pinnacles) Ranch have been invaded by a diversity of weedy species. There are no agricultural lands adjacent to Owyhee Reservoir. (Note: Grazing as an "agricultural" use is discussed separately in Chapter III - Existing Land Use and Management).

Vegetation associated with residential, commercial, and recreational use consists primarily of locust, poplar, elm, Russian olive, and cottonwood trees. Most tree plantings are clustered to provide shade during the hot, dry summer months. For the purpose of vegetative mapping, those tree plantings clearly associated with human occupation and use (i.e., private home sites, cabin sites, Lake Owyhee State Park, Lake Owyhee Resort, Government Camp) were interpreted and mapped as "shelterwood."

Volcanic ash (tuff) deposits, such as those in the vicinity of Leslie Gulch and Slocum Creek, afford unique habitats where endemic plant species have evolved. Several of these plants are candidate species (Category 2 status) under study for possible Federal listing under the Endangered Species Act. The eight "Special Status" plants identified in or near the Study Area are listed in the "Special Status Species" section of this chapter.

### **2.1.7 Wetlands**

In general terms, wetlands occur where water saturation is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. The single feature that most wetlands share is a soil or substrate that is at least periodically saturated with or covered by water. The term wetland includes a variety of areas that fall into one of five categories: (1) areas with hydrophytes and hydric soils, such as those commonly known as marshes, swamps, and bogs; (2) areas without hydrophytes but with hydric soils; (3) areas with hydrophytes but non-hydric soils; (4) areas without soils but with hydrophytes; and (5) wetlands without soil or hydrophytes such as gravel bars or rocky shores without vegetation (Cowardin, 1979). [Note: Hydrophytes are plants growing in water or in soil too waterlogged for most plants to survive. Hydric soils are characterized by, relating to, or requiring an abundance of moisture].

In conjunction with the development of this RMP, Reclamation funded the U.S. Fish and Wildlife Service (USFWS) to identify, map and classify the wetland types found within the lower Owyhee River canyon. These tasks were accomplished by the USFWS primarily through aerial photo interpretation and field verification.

The mapping of wetlands in the Study Area was limited to the lower Owyhee River canyon for the following reasons: (1) this portion of the Study Area contains the greatest concentration of wetlands, (2) these wetlands are the most susceptible to damage from existing and potential human activities in the Study Area, (3) the canyon is a designated "Watchable Wildlife" area, and (4) limited funding.



*Photo 2-4: View of the Lower Owyhee River.  
Much of the land adjacent to the lower Owyhee River consists of ecologically rich wetland/riparian habitats.*

Within the lower Owyhee River canyon two wetland systems were identified and classified. For each system, the applicable subsystem and classes are described below.

### **Riverine Systems**

Based on the USFWS “Classification of Wetlands and Deepwater Habitats of the United States”(Cowardin, 1979), riverine wetlands within the lower Owyhee River canyon are classified as follows:

System:	Riverine
Subsystem:	Upper Perennial
Classes:	Aquatic Bed Open Water/Unknown Bottom

Riverine systems include all wetlands and deepwater habitats contained within a channel. This system is bounded on the landward side by upland, by the channel bank, or by wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens (Cowardin, 1979).

In upper perennial subsystems, the gradient is high, water velocity fast, and water flows throughout the year. The substrate consists of rock, cobbles or gravel with occasional patches of sand. The fauna are characteristic of running water and there are few or no planktonic forms. There is very little floodplain development.

“Aquatic Bed” wetlands and deepwater habitats are dominated by plants that grow principally on or below the surface of the water since they require surface water for optimum growth and reproduction. They develop best in permanent water or under

conditions of repeated flooding. Plant species are either attached to the substrate or float freely in the water (Cowardin, 1979).

“Open Water/Unknown Bottom” is the mapping classification used when the substrate bottom is unknown. This mapping category is appropriately used when aerial photographs do not sufficiently depict the substrate bottom.

### **Palustrine Systems**

Palustrine wetlands within the lower Owyhee River canyon are classified as follows:

<b>System:</b>	Palustrine
<b>Subsystem:</b>	None
<b>Classes:</b>	Scrub-Shrub
	Unconsolidated Shore
	Emergent
	Forested

Palustrine systems include all non-tidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens. These wetlands are situated shoreward of lakes, river channels, or estuaries; on river flood plains; in isolated catchments; or on slopes. They may also occur as islands in lakes or rivers (Cowardin, 1979). Palustrine systems contain no subsystems.

“Scrub-Shrub” wetlands are dominated by woody vegetation. Plant species include true shrubs, young trees, and trees or shrubs that are small due to the presence of water. This class may represent a successional stage leading to forested wetlands.

“Unconsolidated Shore” wetlands are characterized by substrates lacking vegetation except for pioneering plants that become established during brief periods when growing conditions are favorable. Land forms such as beaches, bars and flats are included in this class. The substrate and water regime determines the plant and animal communities present.

“Emergent” wetlands are characterized by erect, rooted, herbaceous hydrophytes (excluding mosses and lichens). These wetlands are dominated by perennial plants and are known by such names as marsh, meadow and slough.

“Forested” wetlands include woody vegetation at least 6 meters tall (20 feet) and moisture is relatively abundant. They typically possess an overstory of trees, an understory of young trees and shrubs, and a herbaceous layer.

Based on the wetlands mapped and classified by the USFWS within the lower Owyhee River canyon, acreages for each wetland type were estimated (see Table 2-3). The abbreviation following each wetland type corresponds to the classification system used on the detailed “Wetlands” map produced for the RMP on Reclamation’s Geographic Information System (GIS). Copies of the wetlands map are available from Reclamation on a request basis. A partial riparian/wetland species list for the lower river area is provided in Table 2-4.

Table 2-3: Wetland Types and Acreages, Lower Owyhee River.

Wetland Type	Mapping Symbol	Acreage
Riverine/Upper Perennial/Open Water	(R3OW)	244.1
Riverine/Upper Perennial/Aquatic Bed	(R3AB)	19.9
Palustrine/Scrub-Shrub	(PSS)	113.1
Palustrine/Unconsolidated Shore	(PUS)	4.1
Palustrine/Emergent	(PEM)	16.3
Palustrine/Forested	(PFO)	32.2

Source: Bureau of Reclamation, Pacific Northwest Region, Geographic Information System (GIS).

Table 2-4: Partial Riparian/Wetland Species List, Lower Owyhee River.

Common Name	Scientific Name
coyote willow	<i>Salix exigua</i>
peach leaf willow	<i>Salix amygdaloides</i>
cottonwood	<i>Populus sp</i>
elm	<i>Ulmus sp</i>
russian olive	<i>Eleagnus angustifolia</i>
hackberry	<i>Celtis reticulata</i>
woods rose	<i>Rosa woodsii</i>
cattail	<i>Typhus latifolia</i>
hardstem bulrush	<i>Scirpus acutus</i>
sedge	<i>Carex sp</i>
rush	<i>Juncus sp</i>
bur-reed	<i>Sparganium sp</i>
rabbitfoot grass	<i>Polypogon monspeliensis</i>
saltgrass	<i>Distichlis stricta</i>
hellebore	<i>Veratrum</i>
goldenrod	<i>Solidago sp</i>
mullein	<i>Verbascum thapsus</i>
w. mugwort	<i>Artemisia ludoviciana</i>
stinging nettle	<i>Urtica lyallii</i>
willowweed	<i>Epilobium sp</i>
curly dock	<i>Rumex crispus</i>
burdock	<i>Arctium minus</i>
blue verbena	<i>Verbena hastata</i>

Source: U.S. Fish and Wildlife Service, February 1992.

## 2.1.8 Fish

The Oregon Department of Fish and Wildlife (ODFW), through a Memorandum of Understanding with Reclamation, provided information and expertise on fish and wildlife resources in the RMP Study Area. Most of the information contained in this section was taken from the 1991 ODFW report to Reclamation. Other references are cited separately.

Within the RMP Study Area, fishery resources are described for (a) Owyhee Reservoir, (b) lower Owyhee River, and (c) upper Owyhee River. The lower Owyhee River extends

northward from Owyhee Dam approximately 14.5 miles to the Siphon site and the upper Owyhee River extends southward from the headwaters of Owyhee Reservoir approximately 10 miles to Birch Creek.

### **Owyhee Reservoir**

Owyhee Reservoir is long and narrow with steep banks and an average depth of 81 feet at full pool. Although the reservoir is large (12,740 acres), only 4 percent of the reservoir surface area is 10 feet or less in depth (Johnson et al 1985). These limited shallow areas are important for crappie and bass spawning and the production of primary food organisms (plankton). Young fish feed on zooplankton, insects, and smaller fish. As they grow, their diet shifts to larger aquatic organisms and fish.

General management objectives for Owyhee Reservoir are (1) to provide a recreational fishery, and (2) to increase the understanding of the reservoir's biology to optimize game fish production. The current management emphasis is on warmwater species such as largemouth bass, black crappie, channel catfish, and yellow perch. Secondary emphasis is on maintaining a limited fishery of smallmouth bass, brown bullhead, and trout. Although the traditional management emphasis is on game species, ODFW is also directed "to maintain all species of wildlife at optimum levels and prevent the serious depletion of any indigenous species" (Oregon Revised Statutes 496.012).

Introduction of largemouth bass, crappie, and yellow perch began soon after reservoir impoundment (1930s). Channel catfish and smallmouth bass have persisted in the reservoir after being stocked in the 1960s and 1970s. Kokanee were stocked in the 1930s and coho in the 1930s, 1960s and 1970s; however, these introductions were unsuccessful.

Past and present game fish species found in Owyhee Reservoir are listed in Table 2-5. General spawning areas for the principal warmwater game fish currently found in Owyhee Reservoir are shown on Figure 2-2, "Fish and Wildlife."

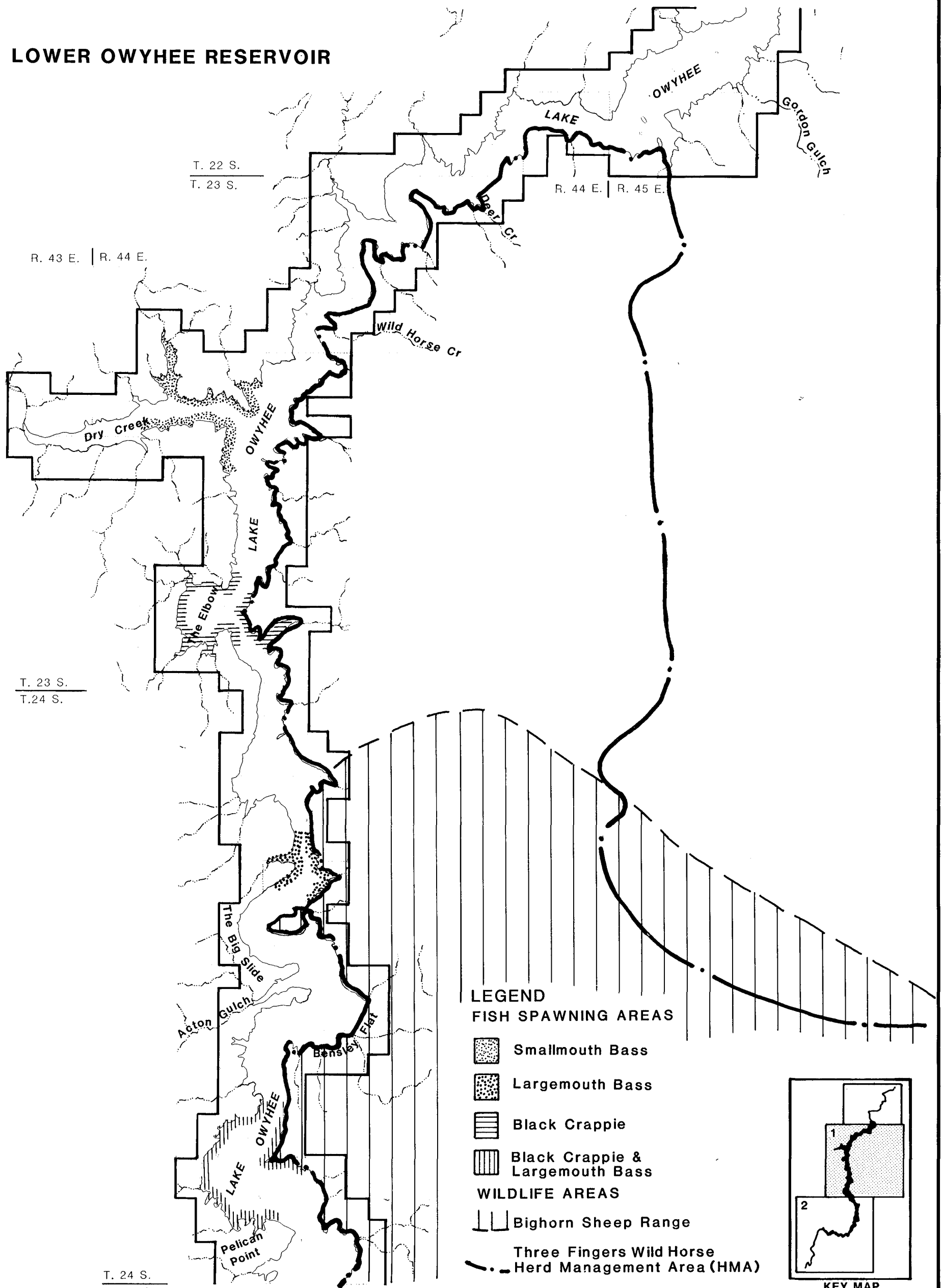
Black crappie are the most common game fish found in Owyhee Reservoir and most prevalent from Owyhee Dam upstream to Leslie Gulch. Crappie prefer areas of large broken rock or submerged vegetation at a depth of 15 feet or less. In winter, crappie tend to school at depths from 30 to 50 feet with broken rock and inflow from warmer springs. Crappie typically spawn between Dry Creek and Three Fingers Gulch in shallow bays with a gravel or rock substrate.

Largemouth bass inhabit areas of submerged broken rock, rock wall, and vegetation in depths from 5 to 25 feet. Spawning areas are located on shallow gravel points between Dry Creek and Leslie Gulch. A preferred temperature range of 60 to 75 degrees F may limit where largemouth are found. Like black crappie, largemouth bass also seek deeper water in the winter.

Smallmouth bass are found in habitat generally similar to largemouth, but are more common in the reservoir's upper end and in the Owyhee River just above the reservoir. Adult fish prefer deep pools with large broken rock; juveniles use areas with aquatic vegetation and rocky rubble for cover.

Channel catfish, like smallmouth bass, are present because of stocking efforts. Catfish are found throughout the reservoir in all types of habitat at depths of 2 to 35 feet. Caverns among large boulders 2 to 8 feet below the surface are typical channel catfish

**LOWER OWYHEE RESERVOIR**



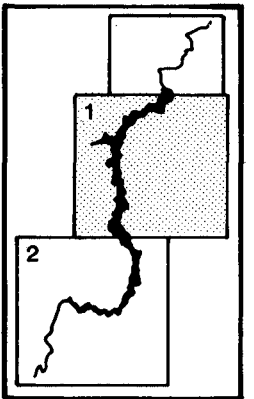
**LEGEND**

**FISH SPAWNING AREAS**

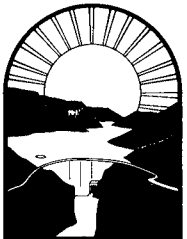
- Smallmouth Bass
- Largemouth Bass
- Black Crappie
- Black Crappie & Largemouth Bass

**WILDLIFE AREAS**

- Bighorn Sheep Range
- Three Fingers Wild Horse Herd Management Area (HMA)
- Bureau of Reclamation Resource Management Area



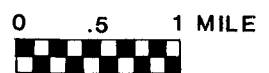
KEY MAP



U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

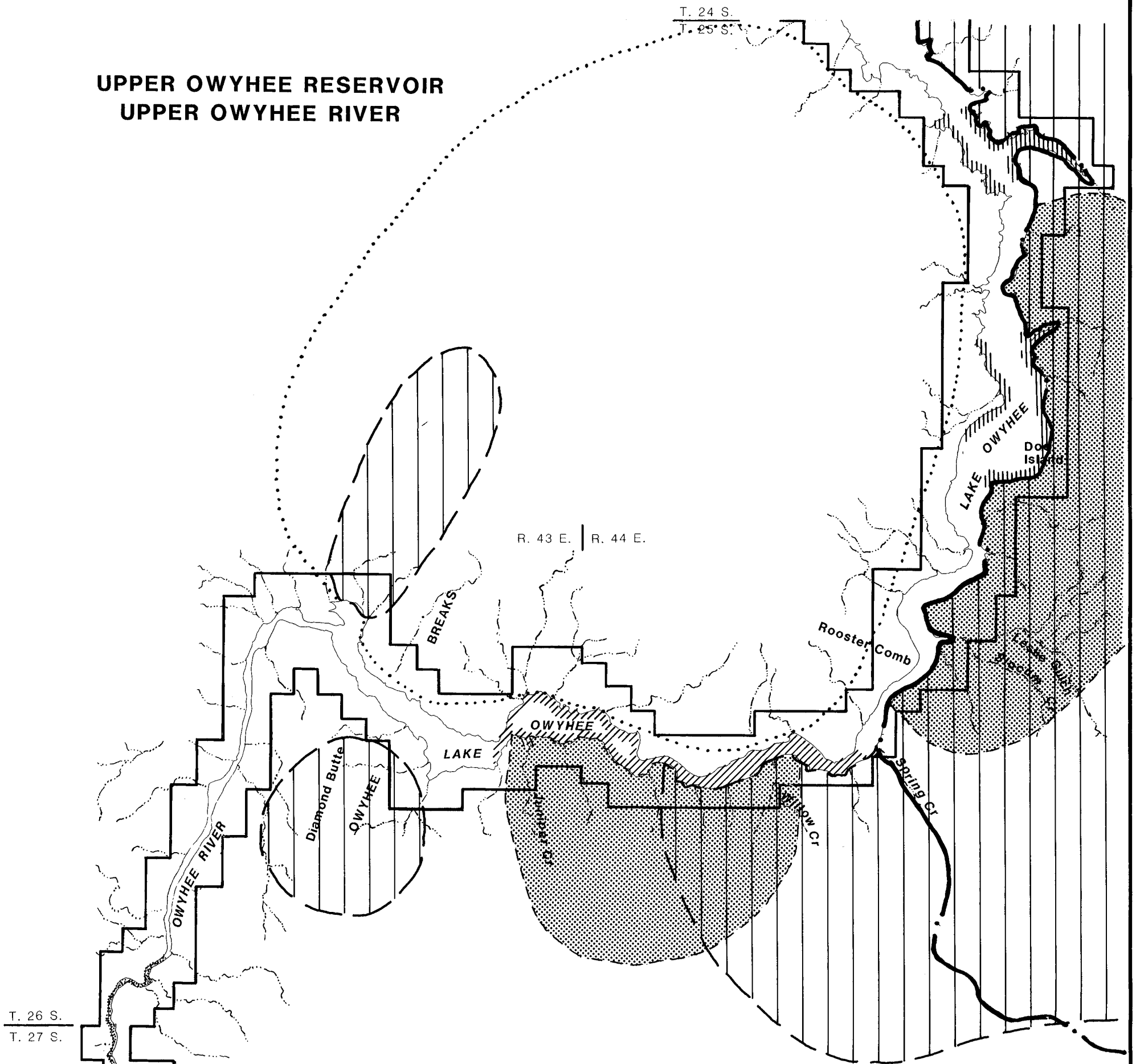
**FISH AND WILDLIFE**

Figure 2-2





**UPPER OWYHEE RESERVOIR  
UPPER OWYHEE RIVER**



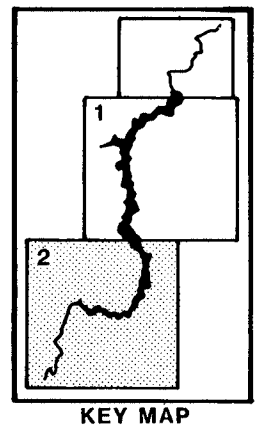
**LEGEND**

**FISH SPAWNING AREAS**

- Smallmouth Bass
- Black Crappie & Largemouth Bass
- Channel Catfish & Largemouth Bass

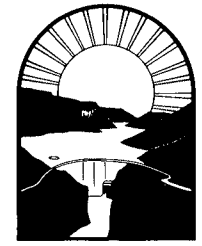
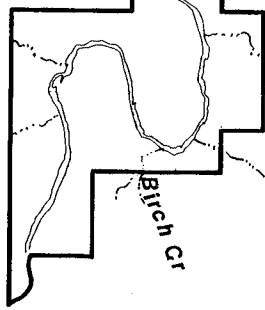
**WILDLIFE AREAS**

- Bighorn Sheep Range
- Potential Bighorn Sheep Range
- Three Fingers Wild Horse Herd Management Area (HMA)
- Deer Winter Range
- Bureau of Reclamation Resource Management Area



KEY MAP

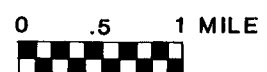
T. 26 S.  
T. 27 S.



U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

**FISH AND WILDLIFE**

Figure 2-2



spawning sites. Areas of broken rock suitable for spawning are present between Leslie Gulch and Indian Hot Springs.

Yellow perch and brown bullhead occur throughout the reservoir. Like other game species, perch are associated with submerged vegetation or rock cover, while bullheads are most common in bays or flats with a silt bottom. Perch generally spawn on aquatic vegetation in shallow bays; juveniles prefer rock rubble or vegetation in 2 to 6 feet of water; and adults are found on points or in areas with submerged large, broken rock and submerged trees in 5 to 20 feet of water.

Rainbow trout are likely redband stock from the Owyhee River and tributary streams such as Dry Creek. Redband trout are a Federal Candidate Category 2 species and an Oregon State-listed sensitive species. Although few in number, trout inhabit most areas of the reservoir. Beginning in late May or early June, limited spawning may occur in Dry Creek and the Owyhee River.

Nongame fish are also listed in Table 2-5. In general, these species occur throughout the reservoir in a variety of habitats. Northern squawfish, carp, and largescale suckers can be found in rock, sand, and mud bottoms in deep and shallow water. Bridgelip suckers and chiselmouth prefer broken rocky habitat near the shoreline in water less than 15 feet deep. Speckled dace and redband shiners occur but have been seldom encountered in sampling by ODFW because of their small size and heavy predation by other fish. Tadpole madtoms, a small member of the catfish family, show up occasionally in ODFW sampling. These fish were probably introduced into the Snake River system with channel catfish and brown bullhead.

A systematic shoreline habitat survey has been completed by the ODFW. In cooperation with the U.S. Fish and Wildlife Service and Reclamation, the ODFW is also conducting research to determine what factors limit reservoir bass and crappie populations. Additional habitat information gathered through this study effort will be used by the ODFW and Reclamation to assist in implementing appropriate management programs and activities to maintain and enhance the reservoir fishery.

Fluctuating water levels, particularly in June during spawning, can impact fish production. Drops in water level can force parent fish off the nest, or if too severe, expose the nest. Changes in depth or temperature from rising reservoir levels can also impact fish species that spawn at specific depths and temperatures. ODFW does not have data to support a direct correlation between reservoir fluctuation and spawning success, but studies elsewhere have documented impacts.

Information on the quantity and quality of the food supply for fish in Owyhee Reservoir is very limited. Information on zooplankton (which provides forage for young fish) gathered in 1988 and 1989 indicated primary plankton production is fair to average compared to other lakes in Oregon. Most plankton are produced in the first 10 feet of water or in shallow areas which are lacking at the reservoir.

Table 2-5: Fish Species Found in Owyhee Reservoir, Past and Present.

Common Name	Scientific Name	Present	Past
<b>Game Fish</b>			
<u>Trout</u>			
	Family—Salmonidae		
Cutthroat trout	<i>Oncorhynchus clarki</i>		X <sup>1</sup>
Steelhead trout	<i>Oncorhynchus gairdneri</i>		X <sup>2</sup>
Coho salmon	<i>Oncorhynchus kisutch</i>		X <sup>1</sup>
Rainbow trout	<i>Oncorhynchus mykiss</i>	X	
Kokanee	<i>Oncorhynchus nerka</i>		X <sup>1</sup>
Chinook salmon	<i>Oncorhynchus tshawytscha</i>		X <sup>2</sup>
<u>Catfish</u>			
	Family—Ictaluridae		
Black bullhead	<i>Ictalurus melas</i>		X
Brown bullhead	<i>Ictalurus nebulosus</i>	X	
Channel catfish	<i>Ictalurus punctatus</i>	X	
<u>Sunfish</u>			
	Family—Centrarchidae		
Largemouth bass	<i>Micropterus salmoides</i>	X	
Smallmouth bass	<i>Micropterus dolomieu</i>	X	
Black crappie	<i>Pomoxis nigromaculatus</i>	X	
<u>Perch</u>			
	Family—Percidae		
Yellow perch	<i>Perca flavescens</i>	X	
<b>Nongame Fish</b>			
<u>Minnow</u>			
	Family—Asticidae		
Chiselmouth	<i>Acrocheilus alutaceus</i>	X	
Common carp	<i>Cyprinus carpio</i>	X	
Northern squawfish	<i>Ptychocheilus oregonensis</i>	X	
Speckled dace	<i>Rhinichthys osculus</i>	X	
Redside shiner	<i>Richardsonius balteatus</i>	X	
<u>Sucker</u>			
	Family — Castostomidae		
Bridgelip sucker	<i>Catostomus columbianus</i>	X	
Largescale sucker	<i>Catostomus macrocheilus</i>	X	
<u>Catfish</u>			
	Family Ictaluridae		
Tadpole Madtom	<i>Noturus gyrinus</i>	X	

Common and scientific names of fish are based on: Robins, C.R., Chairman, 1980; *A List of Common and Scientific Names of Fish from the United States and Canada*, 4th edition; American Fisheries Society (Committee on Names of Fish) Special Publication 12, Bethesda, Maryland.

<sup>1</sup> Stocked - historically absent in the Owyhee drainage.

<sup>2</sup> Historically present in the Owyhee drainage.

Source: Oregon Department of Fish and Wildlife.

Past and recent studies have shown elevated mercury levels in fish tissues, water, and sediment from Owyhee Reservoir. Although fish do not routinely exhibit symptoms of chronic mercury poisoning at mercury levels high enough to pose a human health hazard, mercury concentrations in tissues of some older fish have exceeded the FDA limit for human consumption. A detailed discussion of reservoir mercury contamination is presented in the water quality section of this chapter.

Owyhee Reservoir provides a popular warmwater fishery from April through October. Use is highest in May and June and gradually declines until a small increase occurs in September and October. In 1991, non-tournament boat anglers made an estimated 5,095 trips, bank anglers 1,026 trips, and bass tournament anglers 511 trips (ODFW, 1991b) to the reservoir between Memorial Day and the end of July.

Creel data gathered from 1952 through 1988 revealed the following trends.

- Black crappie dominated the catch during most years, although the harvest rate has declined since the 1970s.
- Largemouth bass were the second most numerous species caught in the 1950s and 1960s.
- Brown bullhead appeared more in the catch during the 1970s along with channel catfish which were more prominent during the 1980s.
- Smallmouth bass began to appear in the catch in the late 1980s.
- Rainbow trout and perch are present in small numbers.
- The number of anglers creeled has declined from an average of 641 during the 1950s to an average of 191 in the 1980s.
- With the exception of 1984 which had the highest catch rate, there has been a general decline in the rate of fish/angler and fish/hour.

During the spring and summer of 1988, an intensive creel survey was conducted on Owyhee Reservoir. The purpose of the survey was to describe biological characteristics of the fish population, to complement other inventory data, and to characterize the fishery. The creel survey showed that about 51 percent of all reservoir anglers come from Idaho, 28 percent from western Oregon, and 15 percent from eastern Oregon and the local area. The average catch rate during the survey period was 2.6 fish/angler and 0.7 fish/hour.

Most anglers targeted on black crappie (48.2%) with largemouth bass and channel catfish ranking second and third (26.3% and 20.3%), respectively. Black crappie made up the greatest percentage (67.3%) of total species caught followed by channel catfish (23.7%) and largemouth bass (6.4%). In 1991, channel catfish and largemouth bass were caught in nearly equal numbers (ODFW, 1991).

The smallmouth bass fishery appears to be increasing as anglers have been catching more smallmouth in recent years. Yellow perch and rainbow trout appear in the creel in small numbers. Perch are probably more important as a forage species since they do not grow big enough to be sought by anglers. Much of the trout fishing is probably done in the winter when trout concentrate near the dam.

The former limit of 12 bass per day of which only 5 could be over 17 inches was changed in 1988 to 5 per day with no more than 3 over 15 inches and 10 in possession. The current trout limit is 10 per day with a 6-inch minimum, no more than 5 over 12 inches, and of these no more than 2 over 20 inches. There is no limit on crappie, catfish, or yellow perch.

Since the 1950s, the reservoir fishery has experienced fluctuations in species composition, size of fish caught, and catch rate. There has been a general downward trend in catch rate and size of fish, especially black crappie.

There are many complex factors and relationships that may be influencing fish populations and angler activity. Among these are timing and degree of reservoir drawdown, changes in fishery composition with the emergence of smallmouth bass and channel catfish, increased pressure from bass tournaments, and the development of other warmwater fisheries.

### **Lower Owyhee River**

Within the RMP Study Area, the lower Owyhee River extends 14.5 miles from Owyhee Dam downstream to the Siphon Site and extends some 28 miles from the dam to its confluence with the Snake River. ODFW's management goal is to provide a quality trout fishery and utilize nongame fish for forage. The primary management objective is to provide a recreational fishery for the angling public.

Cold reservoir releases provide water temperatures suitable for trout. Consequently, the 16-mile river reach from Owyhee Dam to the Owyhee Ditch Diversion is managed as a trout fishery and popular with anglers. Because spawning habitat is limited, approximately 20,000-40,000 fingerling (3-inch-long) rainbow trout (Oak Springs stock) are stocked in late spring to maintain a consumptive fishery. Fingerling brown trout were released in 1990 and 1991 on an experimental basis.

Trout stocking began in 1938 with the release of brook and rainbow trout. Rainbow stocking, both fingerling and catchable size, continued nearly every year until 1980. Since then, ODFW has stocked trout fingerlings exclusively. There have been no direct observations of trout spawning, but ODFW biologists have noted 3-4 inch fish in fall surveys believed to have been spawned naturally the previous spring.

Rainbow trout primarily occur from Snively Hot Springs upstream to Owyhee Dam. The highest concentrations are in the coolest water (50° F or less) near the dam where they prefer the deeper riffle areas and upper ends of pools with deep channels, large broken rock, and a moderate current.

The major limiting factor to trout production below Owyhee Dam is low streamflows during the nonirrigation season (mid-October to April) when reservoir releases are discontinued to store reservoir inflow. Streamflows during the nonirrigation season, except for flood releases, are composed of leakage at the dam and inflow from natural springs, intermittent tributaries, and irrigation drains. These sources provide an average flow of about 8 to 10 cubic feet per second (ft<sup>3</sup>/s). Generally, the nonirrigation season ends when high flood or irrigation releases begin in the spring.

Low flows below Owyhee Dam during late fall and winter limit the development of a self-sustaining trout fishery and a good warmwater fishery due to a lack of pools deep enough to allow fish to survive in freezing conditions. For the fish that do survive, their growth rates are reduced due to reduced habitat. With habitat limited to the deeper pools, competition for food and space increases and the fish become more vulnerable to the angler.

The Owyhee Irrigation District provided a minimum flow of 20 ft<sup>3</sup>/s during the 1989-1990 nonirrigation season. However, no long-term agreement is in place to provide streamflows for fish. Assured streamflows during the nonirrigation season would increase the amount of habitat available to carry over fish from one season to the next and provide flows for fall spawning rainbow trout. Fish that did carry over would grow to a larger size.

Minimum flows ranging from 10 to 35 ft<sup>3</sup>/s depending on location and month were proposed to the Oregon Water Resources Board in 1969 (Fortune and Thompson, 1969), but none were adopted (see Table 2-6). ODFW's best professional estimate of an appropriate streamflow is 50 to 75 ft<sup>3</sup>/s. An Instream Flow Incremental Methodology (IFIM) study would be needed to verify an appropriate streamflow level.

Table 2-6: Recommended Minimum Flows (feet<sup>3</sup>/second) for Fish, Lower Owyhee River.

<b>Location River Mile (RM)</b>	<b>Jan-Feb</b>	<b>Mar</b>	<b>Apr-Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sept</b>	<b>Oct</b>	<b>Nov-Dec</b>
4.25	15	25	25	25	25	25	10	10
10.7	10	10	15	15	15	15	10	10
13.8	10	15	25	25	25	25	10	10
27.9	10	15	35	35	30	30	10	10

Source: Fortune and Thompson, 1969.

Below the Owyhee Ditch, the river is managed for warmwater species since water temperatures are less favorable to trout survival. Anglers fish for a variety of species including smallmouth bass, channel catfish, brown bullhead, largemouth bass, bluegill, black crappie, yellow perch, and an occasional trout. Angler numbers and catch are somewhat sparse due to limited access and poor water quality.

Warmwater game fish were introduced to the lower river from reservoir spill and from movement up the Owyhee from the Snake River. Habitat is suitable for natural production and warmwater species are not stocked except after a nongame fish treatment project or natural die-off. Past and present game and nongame fish species found in the lower Owyhee River are listed in Table 2-7.

Bass and crappie are most numerous below Snively Hot Springs and tend to inhabit areas with deep slow moving water and submerged rocks or vegetative structure. Channel catfish occur in nearly all areas of the river including riffle areas. Brown bullhead are found from the dam to the Snake River in slow moving water with a mud substrate.

Nongame species (i.e., suckers, chiselmouth, northern squawfish, speckled dace) make up a substantial portion of the fish population. Spawning occurs in shallow areas during the spring and early summer depending on the species. When nongame fish populations

Table 2-7: Fish Species Found in the Lower Owyhee River, Past and Present.

Common Name	Scientific Name	Present	Past
<b>Game Fish</b>			
<b>Sturgeon</b>			
White sturgeon	Family -- Acipenseridae <i>Acipenser transmontanus</i>		X
<b>Trout</b>			
Steelhead trout	Family -- Salmonidae <i>Oncorhynchus gairdneri</i>		X
Rainbow trout	<i>Oncorhynchus mykiss</i>	X	
Chinook salmon	<i>Oncorhynchus tshawytscha</i>		X
Mountain whitefish	<i>Prosopium williamsoni</i>	X	
Brook trout	<i>Salvelinus fontinalis</i>		X
<b>Catfish</b>			
Family — Ictaluridae			
Black bullhead	<i>Ictalurus melas</i>		X
Brown bullhead	<i>Ictalurus nebulosus</i>	X	
Channel catfish	<i>Ictalurus punctatus</i>	X	
<b>Sunfish</b>			
Family — Centrarchidae			
Pumpkinseed sunfish	<i>Lepomis gibbosus</i>	X	
Warmouth	<i>Lepomis gulosus</i>	X	
Bluegill	<i>Lepomis macrochirus</i>	X	
Black crappie	<i>Pomoxis nigromaculatus</i>	X	
Smallmouth bass	<i>Micropterus dolomieu</i>	X	
Largemouth bass	<i>Micropterus salmoides</i>	X	
<b>Perch</b>			
Family — Percidae			
Yellow perch	<i>Perca flavescens</i>	X	
<b>Nongame Fish</b>			
<b>Minnows</b>			
Family — Astycidae			
Chiselmouth	<i>Acrocheilus alutaceus</i>	X	
Common carp	<i>Cyprinus carpio</i>	X	
Northern squawfish	<i>Ptychocheilus oregonensis</i>	X	
Longnose dace	<i>Rhinichthys cataractae</i>	X	
Speckled dace	<i>Rhinichthys osculus</i>	X	
Redside Shiner	<i>Rhinichthys balteatus</i>	X	
<b>Suckers</b>			
Family — Castostomidae			
Bridgelip sucker	<i>Catostomus columbianus</i>	X	
Largescale sucker	<i>Catostomus macrocheilus</i>	X	
<b>Catfish</b>			
Family — Ictaluridae			
Tadpole Madtom	<i>Noturus gyrinus</i>	X	

Common and scientific names of fish are based on: Robins, C.R., Chairman, 1980; *A List of Common and Scientific Names of Fish from the United States and Canada*, 4th edition; American Fisheries Society (Committee on Names of Fish) Special Publication 12, Bethesda, Maryland.

Source: Oregon Department of Fish and Wildlife.

reach unacceptable levels, the river is chemically treated (most commonly with rotenone) to reduce nongame fish which compete with trout for food and space. After treatment, the river is stocked with legal-sized trout to provide an immediate fishery. Past chemical treatments in 1967, 1970, and 1988 occurred when nongame fish populations reached unacceptable levels and streamflows were low enough to economically eliminate substantial numbers of fish.

A 1964 fish habitat survey noted high turbidity below River Mile 13 due to irrigation return flows and low flows during the nonirrigation season as limiting factors for fish. In 1978, a Malheur County Water Resources Committee survey identified the lower 7 miles as turbid and heavily silted because of irrigation return flows.

A 1978 fish population survey found (1) most of the riverbanks to be well vegetated and very stable, and (2) good water quality upstream of the Owyhee Ditch as evidenced by large numbers of game fish and other sight feeders. The lack of appreciable fish and fish habitat damage from high reservoir releases in 1984, releases which caused substantial crop damage in the lower 10 miles of river, further indicated that the riparian (streamside) vegetation was in good condition.

Riparian vegetation is important in stabilizing streambanks, maintaining cool water temperatures, and providing shade and cover for fish. Riparian degradation can occur through improper grazing of livestock, fill and removal activities, and through natural causes. Although ODFW has no direct authority over riparian habitat in the lower river, the agency encourages the BLM to control livestock numbers and timing of grazing on public land. ODFW works with private landowners through Coordinated Resource Management Plans and access agreements to improve riparian vegetation on private land.

From 1983 to 1991 water temperatures were monitored below Owyhee Dam to determine if water releases through the Owyhee Dam Powerplant penstocks are warmer than traditional releases through the needle valve 100 feet lower in the water column, and what effect this may have on the trout fishery. This study determined that the effects to fish were minimal.

### **Upper Owyhee River**

The upper Owyhee River reach is a perennial stream extending about 10 miles from the headwaters of Owyhee Reservoir upstream to Birch Creek. Squawfish, chiselmouth, shiners, dace, and bridgelip and coarsescale suckers are native to the river. The native redband trout also exists. The redband trout is a Category 2 candidate for protection under the Endangered Species Act. Work is underway to determine if pure strain redbands still exist in the Owyhee River.

If the presence of the Category 2 redband trout is confirmed, the fishery resource within the Wild and Scenic River reach above Owyhee Reservoir may be rated outstandingly remarkable. To receive this rating, fish values are judged on the relative merits of either fish populations, habitat, Native American cultural use, or a combination of these. The outstandingly remarkable rating criteria established for fish are as follows.

- 1) The river is internationally, nationally, or regionally an important producer of resident and/or anadromous fish species. Of particular significance is the presence of wild stocks, and/or federal, state listed, or candidate threatened,



endangered or sensitive species. Diversity of species is an important consideration and could lead to a determination of outstandingly remarkable.

- 2) The river provides (or has the potential to provide) exceptionally high quality habitat for wild stocks and/or federal, state listed, or candidate threatened, endangered or sensitive species. Diversity of habitat is an important consideration and could, in itself, lead to a determination of outstandingly remarkable.

The river supports a variety of warmwater game fish including channel catfish, black bullhead, yellow perch, whitefish, and smallmouth bass. The ODFW successfully introduced the channel catfish, smallmouth bass, and other spiny ray fish. Rainbow trout were stocked in the past but have not survived because of scarce spawning gravel, warm water, and competition from nongame species including squawfish and suckers. Bass populations have been increasing in recent years but catfish are still the most abundant.

## 2.1.9 Wildlife

Information on wildlife resources within the RMP Study Area was provided by the ODFW under a Memorandum of Understanding with Reclamation (ODFW 1991, 1992). Other references are cited separately.

### Game Species

The Study Area is located within ODFW's Owyhee Big Game Management Unit (Owyhee Unit) which includes over 3,000 square miles in the east central portion of Malheur County. The Owyhee River and Reservoir traverses 124 miles across the Owyhee Unit and provides an extended ecotone or "edge effect" which contributes greatly to wildlife diversity, carrying capacity, and distribution in the adjacent uplands.

The extent of this wildlife "zone of influence" varies depending on the wildlife species being discussed, but is generally defined by the RMP Study Area and those adjacent lands inhabited by wildlife that depend on the Owyhee River and Reservoir for their primary source of water. The zone of influence extends along both sides of the Owyhee River and Reservoir and includes (1) the extensive Owyhee Ridge area, Tongue-Black Rocks, and the greater Honeycombs/Leslie Gulch area on the east side of the reservoir, and (2) the Red Butte-Table Mountain area, Oxbow Basin, and the area east of Dry Creek Buttes on the west side. The area also extends on either side of the river downstream to Snively Hot Springs.

Guzzlers have been installed by the BLM on ridgetops on the reservoir's east side between Spring Creek and the Honeycombs as well as in the vicinity of Three Fingers Gulch. ODFW has installed 11 guzzlers on Owyhee Ridge. Although use of these water structures by wildlife has not been monitored nor their effectiveness determined, the ODFW does not consider habitat improvement for wildlife a pressing need at this time and no new projects have been identified. However, there may be opportunities to enhance riparian habitat through improved livestock management (ODFW, 1991).

## Mule Deer

Mule deer are generally well distributed throughout the Study Area, especially during summer, although their relative abundance is influenced by the availability of water, late summer forage, and escape cover. Animal densities are influenced by the availability of forage and water in summer and by weather conditions and snow cover during winter. Escape cover is primarily provided by topographic features such as rimrocks and canyons.

Wintering deer around Owyhee Reservoir generally are dispersed or in small groups. Major concentrations occur in the area bounded by Craig Gulch, Steamboat Ridge, Leslie Gulch, and Owyhee Reservoir where up to 750 animals have been counted. From Leslie Gulch south to the vicinity of Watson, there are an estimated 300 deer that are concentrated at Gin Basin, The Tongue, and Black Rocks. The "Fish and Wildlife" maps included in this RMP (see Figure 2-2) show the general location of important deer winter range in the Study Area.

During normal winters deer do not frequent the lake shore, but stay at higher elevations to take advantage of south-facing slopes. Severe winter conditions will move weakened deer down onto slopes along the reservoir and to the lower river near Tunnel Canyon. Mortality from coyotes is increased during severe winters when deer, especially fawns, are chased onto the frozen reservoir and preyed upon.

ODFW management objectives for mule deer are based on factors such as available deer habitat, observed deer densities, harvest by hunters, and reported crop damage. ODFW conducts deer population surveys in December to determine the population entering the winter after hunting season and again in March to determine numbers surviving the winter and assess whether management objectives are being met. December surveys from 1980 to 1989 showed an average ratio of 13.7 bucks per 100 does with a high of 23/100 and a low of 9/100. The management objective during this period was 15 bucks/100 does.

The Owyhee Unit contains approximately 5,000 mule deer (about 1.7 deer/square mile), which meets ODFW's management objective. Yearly population fluctuations are mostly the result of fawn survival and loss of older animals to severe winters.

The Owyhee population has remained relatively stable from 1980-1989. During this period an average of 54 fawns per 100 does have entered the winter with an average over-winter survival rate of 66 percent. These fawn losses are considered fairly typical. Oregon mule deer studies indicate that fawn mortalities are the result of several causes with coyote predation being the most common.

Prior to 1991, the Owyhee Unit was managed as a general hunt season for mule deer with no limit on the number of hunters. Harvest was regulated by length of season and numbers of bucks available. The hunting season ranged from 5 to 12 days long during the 1980-1989 period. For this same period, an average of 1,608 hunters harvested an average of 654 bucks per year during the general season.

Beginning in 1991, a controlled buck deer hunt was implemented in the Owyhee Unit with 1,200 permits issued (no more than 5 percent to nonresidents) through a drawing. Objectives for the change are to increase the post hunting season buck/doe ratio to 15 or greater/100 does and to increase the quality of the hunt.

### California Bighorn Sheep

California bighorn sheep, a Federal Candidate Category 2 species for listing under the Endangered Species Act, were reintroduced to the Owyhee drainage with the release of 17 animals at Leslie Gulch in 1965 and 15 animals to Painted Canyon and 16 to Red Butte in 1987. These reintroductions established a population that had been absent for over 50 years as a result of exposure to domestic sheep diseases and uncontrolled hunting.

ODFW's primary management direction is to reintroduce California bighorn sheep into remaining suitable habitats and maintain as many healthy and viable herds as possible. The possibility of establishing enough herds to remove concern under the Endangered Species Act is questionable since the majority of historic habitat is no longer suitable because of human intrusion and other habitat degradation.

The present bighorn population in the Owyhee Reservoir zone of influence is estimated at 225 animals. Bighorn sheep are generally found in the most rugged terrain available where they feed on grasses and shrubs. Present bighorn use adjacent to Owyhee Reservoir extends approximately 19 miles on the east bank from River Mile 43 to 62 with the greatest concentration (approximately 175 animals) occurring between the Honeycombs south to Watson Cemetery. On the west side, the Red Butte herd uses the area between River Mile 65 and 66. ODFW expects the Red Butte herd to eventually expand their range to include the Rooster Comb and North/South Table Butte areas. The "Fish and Wildlife" maps included in this RMP (see Figure 2-2) show the general location of existing and potential bighorn sheep range in the Study Area.

ODFW biologists have noticed stagnation of the bighorn population and high lamb mortality in the Leslie Gulch area. Lungworm, an endemic organism known to cause high mortality in bighorn lambs, has been documented in the Leslie Gulch herd. It is speculated that lungworm may be a means of self-limiting population control and this mechanism may be limiting or reducing the Leslie Gulch herd and causing stagnation. Predation and other causes of lamb mortality may be affecting the herd as well.

In an effort to reduce the Leslie Gulch bighorn population and counteract stagnation, sheep have been relocated from Leslie Gulch to other suitable habitat in Oregon and Nevada. To date there has been little or no response in lamb survival in the Leslie Gulch herd to this population reduction.

Bighorn sheep offer a quality wildlife viewing opportunity at Owyhee Reservoir. For most outdoor enthusiasts, the sighting of bighorn sheep is an uncommon, gratifying experience. Bighorns can frequently be spotted from the reservoir and from the Leslie Gulch Road which provides one of the best opportunities to observe California bighorns in Oregon. Viewing opportunities are best during the summer and fall.

### **Other Game Species**

Pronghorn antelope generally inhabit the sagebrush plateaus beyond the zone of influence since they are not dependent on Owyhee Reservoir as are mule deer and bighorn sheep. Consequently, antelope use within the Study Area is an uncommon occurrence.

Cougar or mountain lion are present, but observed infrequently in the Owyhee Reservoir zone of influence. Recent evidence of their presence were found upstream from Iron Point and the remains of a cougar-killed bighorn sheep were found in Leslie Gulch. A

population figure is not available for the zone of influence, however an estimate of one animal per 100 square miles has been made for ODFW's Malheur District. Limited cougar hunting (2-5 permits) has occurred since 1988 in the East High Desert Unit which includes the entire Owyhee Unit; however, no cougars have been taken.

Within the Study Area are several species classified as furbearers and regulated by the State. Those present in low numbers in riparian habitats along the Owyhee River include beaver, muskrat, river otter, and mink. Common unregulated furbearers associated with riparian areas or adjacent uplands include raccoon, bobcat, and coyote. Other less common unregulated species found in both riparian and upland areas are striped skunk, spotted skunk, long-tailed weasel, and badger.

Common upland game birds include chukar, California quail, and mourning dove. The exotic chukar partridge was introduced to eastern Oregon in 1951. The Owyhee drainage provides some of the best chukar habitat in the western United States where introduced populations have flourished. Chukars prefer arid canyons and steep hillsides near a perennial water supply. Their diet consists of both plants (leaves, seeds and fruits) and insects, with cheatgrass used most frequently. The best chukar habitat contains good grass cover with scattered shrubs, principally sagebrush.

Chukar populations are heavily influenced by weather and may fluctuate considerably from year to year. Distribution in the Owyhee Reservoir area has been good in recent years, but numbers are low due to severe winters followed by several years of drought which has reduced the quality of nesting and brooding cover.

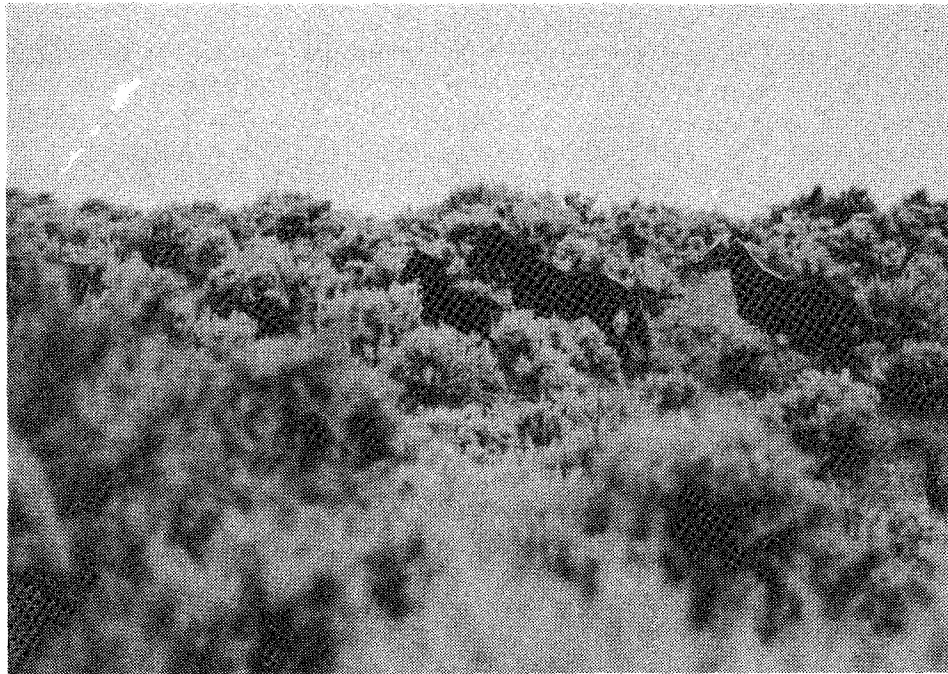
A variety of waterfowl make sporadic use of Owyhee Reservoir. The most prominent waterfowl species are common mergansers and migrant diving ducks such as lesser scaup, common goldeneye, bufflehead, and ringneck duck that use ice-free areas in the winter. Usually there are several hundred migrant diving ducks that winter on the reservoir, feeding mostly on aquatic insects. Common mergansers are normally year-round residents that forage on abundant fish.

A lack of shallow water precludes much use by dabbling ducks (i.e., mallard, teal, pintail, and widgeon) except for resting. Some Canada geese breed at the reservoir and others are attracted to the green feed available below the high water line following reservoir drawdown.

### **Nongame Species**

Riparian and upland habitats in the Study Area support a wide variety of nongame species. The ODFW compiles and maintains databases from several sources for species and their habitat associations.

Common birds associated with reservoir shoreline and riparian habitats include great blue heron, killdeer, belted kingfisher, and several species of swallows. Typical birds occurring in either riparian or upland habitats are American crow, American robin, black-billed magpie, brown-headed cowbird, European starling, northern flicker, western kingbird, western meadowlark, and white throated swift.



*Photo 2-5: Wild horses.  
Wild horses can be seen along the lower reservoir's eastern shoreline.*

Numerous rock cliffs, spires, and rimrock areas throughout the Study Area provide excellent nesting habitat for a wide variety and high density of raptor species including golden eagles and prairie falcons. Raptors such as the red-tailed hawk, northern harrier, great horned owl, and turkey vulture are also common in riparian and upland habitats.

Twenty to thirty northern bald eagles (Federally listed as threatened in Oregon) use the Owyhee River and Reservoir area for wintering. Some birds winter on Owyhee Reservoir as long as open water persists. During fall and spring, bald eagles pass through the Study Area.

Mammals which occur in the Study Area include Nuttall's cottontail, domestic wild horse, and several species of rodents and bats. Some of the more common amphibian species observed are Great Basin spadefoot toad, western toad, and Pacific treefrog. Excellent and abundant reptile habitat supports a varied population of lizards including the western fence lizard, whiptail, collared lizard, horned lizard, and side blotched lizard. Common snakes include gopher snake, racer, and western rattlesnake.

The Three Fingers Wild Horse Herd Management Area (HMA) is located partially within the Wild Horse Basin, Honeycombs, and Slocum Creek Wilderness Study Areas (WSAs). Management objectives are to maintain between 75 and 150 wild horses in the HMA. Approximately once every four years, the excess animals are gathered by riders on horseback and helicopter. The trap site is located on the south boundary road of the WSA in Road Canyon. Wild horse sightings are common along the reservoir's east shoreline from Wild Horse Creek south to Cherry Creek.

### **Watchable Wildlife Program**

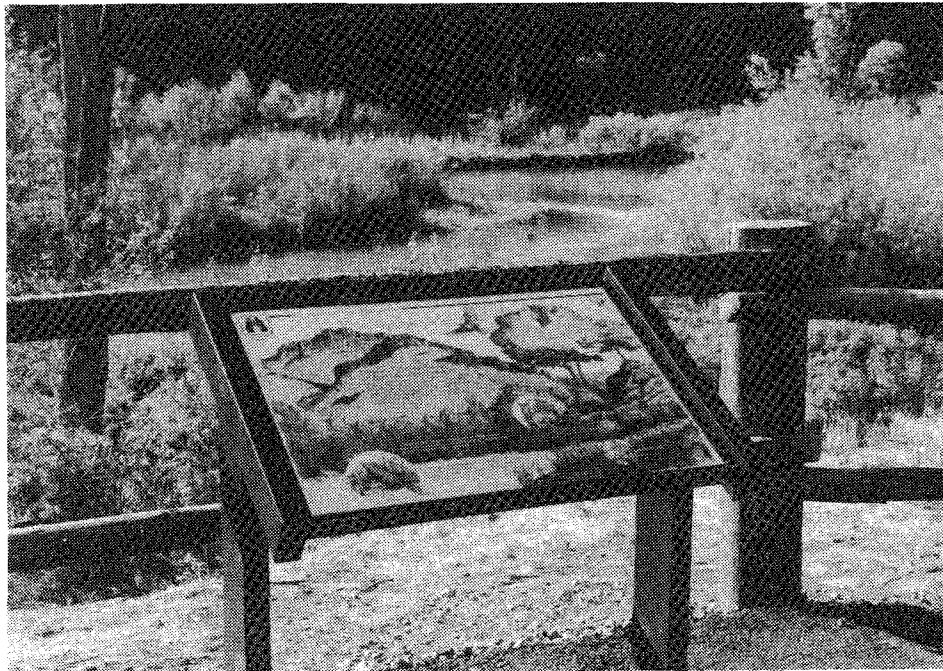
Initiated on December 3, 1990 under the direction of Defenders of Wildlife, representatives of 13 organizations (including Reclamation and the BLM) gathered in Washington, D.C. to sign a Memorandum of Understanding pledging to cooperate in

carrying out a Watchable Wildlife Program. The Program is a cooperative, nationwide effort to build on the public interest in wildlife to achieve a better future for it.

For decades, Federal, state and private agencies and organizations have worked in their own way to conserve wildlife. Business people are recognizing the economic potential of wildlife watching and thoughtful individuals everywhere have seen the need to preserve our diverse biological resources. All these entities have joined together under the banner of "Watchable Wildlife."

Partners in "Watchable Wildlife" are seeking to achieve three immediate goals: (1) enhance wildlife viewing opportunities, (2) provide education about wildlife and its needs, and (3) promote active support of wildlife conservation. The program aims not only for enjoyment of wildlife but also for increasing the public's understanding of their habits, their relation to the environment, and wildlife management principles. Consequently, interpretation of wildlife and its habitat is a central component of the program. The program's ultimate goal is to help maintain viable populations of all native animal species by building effective, well-informed public support for conservation.

In response to this initiative, the BLM established the Lower Owyhee Canyon Watchable Wildlife Area (LOCWWA). Similar to the lower Owyhee River Study Area, the boundaries of the LOCWWA extend from Owyhee Dam downstream to the Siphon Site (River Mile 14) and incorporates the entire canyon viewshed (rim to rim). Watchable Wildlife Areas (WWAs) are selected for their wildlife, safe access, and ability to accommodate visitors without disturbance of animals or their environment. Brown highway signs with a binoculars logo indicate the location of individual wildlife viewing sites.



*Photo 2-6: LOCWWA "Gateway" Site.  
The LOCWWA "Gateway" site includes interpretive signage providing information about wildlife in the area.*

The LOCWWA is a cooperative effort between the BLM, Malheur County, and Reclamation. The program is intended to introduce canyon visitors to the area's quality wildlife resource and to foster a greater public awareness and appreciation of this resource. The interagency commitment to LOCWWA will also aid in improved wildlife management and resource protection.

In July 1992, the BLM constructed an interpretive site just south of the Siphon Site to serve as the "gateway" to the LOCWWA. The site overlooks a reach of the Owyhee River that offers excellent opportunities for viewing the canyon's varied fauna and flora. Site facilities include a graveled, chip-sealed parking area; a "barrier-free" vault toilet; "barrier-free" asphalt paths leading to two picnic tables; interpretive displays; and fencing. Brochure dispensers for basic literature were also installed.

The interpretive portion of the program will introduce "Watchable Wildlife" themes including recognition and understanding of the area's basic wildlife habitats. Wildlife location and identification are other interpretive themes.

### 2.1.10 Special Status Species

Tables 2-8 and 2-9 list special status species that may occur in the RMP Study Area. Federally listed and candidate species were provided by the U.S. Fish and Wildlife Service (USFWS) and state listed and sensitive species were provided by the ODFW and Oregon Natural Heritage Program personnel. The Oregon Heritage Program maintains the primary database of special status species for the State of Oregon. The database was used to identify the general location of known special status plant and animal species within or near the Study Area (see Figure 2-3, "Special Status Species").

Table 2-8: Special Status Plant Species, Owyhee Reservoir RMP.

Species	Scientific Name	Status	
		Federal	State
Mulford's milk-vetch	<i>Astragalus mulfordiae</i>	C2	C
Weak milk-vetch	<i>Astragalus solitarius</i>	C2	
Sterile milk-vetch	<i>Astragalus sterilis</i>	C2	C
Cronquist's stickseed	<i>Hackelia cronquistii</i>	C1	
Grimy ivesia	<i>Ivesia rhypara var rhypara</i>	C2	C
Packard's stickleaf	<i>Mentzelia packardiae</i>	C2	T
Ertter's ragwort	<i>Senecio ertterae</i>	C1	T
Owyhee clover	<i>Trifolium owyheense</i>	C2	C

T = Threatened

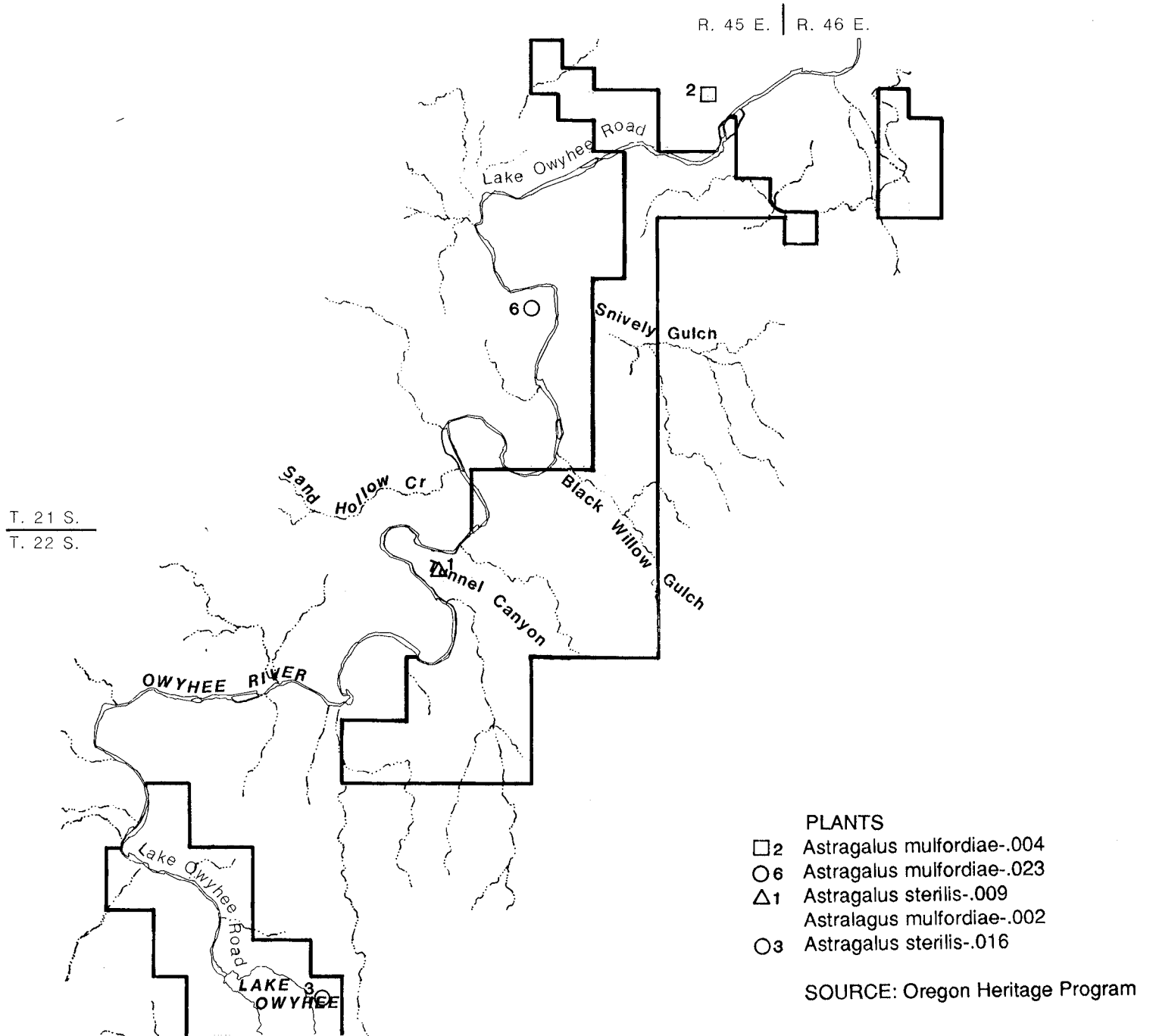
C = Candidate

C1 = Candidate Category 1 - Taxa for which the U.S. Fish and Wildlife Service has sufficient biological information to support a proposal to list as endangered or threatened.

C2 = Candidate Category 2 - Taxa for which existing information may warrant listing, but for which substantial biological information to support a proposed rule is lacking.

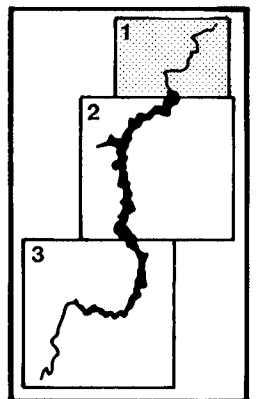
Source: U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife, Oregon Natural Heritage Program.

# LOWER OWYHEE RIVER



## LEGEND

- Located under the mark
- △ Located within 1 mile
- Located within 6 miles
- Bureau of Reclamation Resource Management Area



KEY MAP

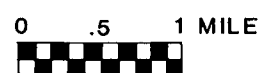


U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

**SPECIAL STATUS SPECIES**

Figure 2-3

1 of 3



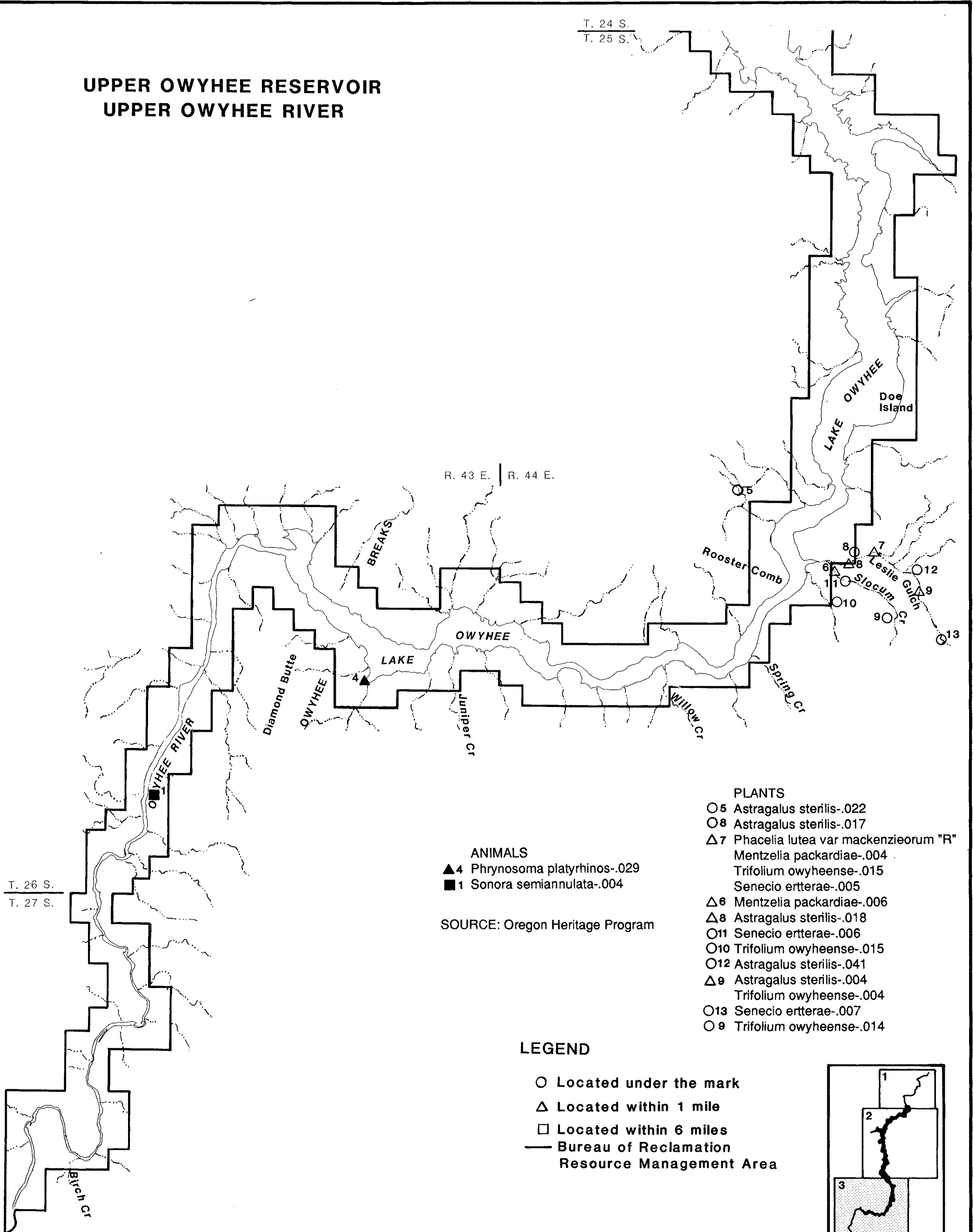


**UPPER OWYHEE RESERVOIR  
UPPER OWYHEE RIVER**

T. 24 S.  
T. 25 S.

R. 43 E. | R. 44 E.

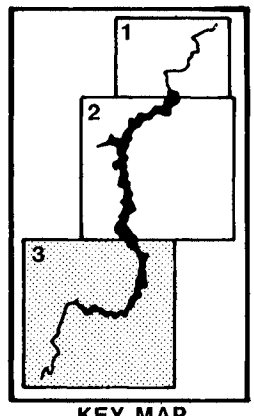
T. 26 S.  
T. 27 S.



**ANIMALS**  
 ▲ 4 Phrynosoma platyrhinos-.029  
 ■ 1 Sonora semiannulata-.004  
 SOURCE: Oregon Heritage Program

- PLANTS**
- 5 Astragalus sterilis-.022
  - 8 Astragalus sterilis-.017
  - △ 7 Phacelia lutea var mackenzieorum "R"  
Mentzelia packardiae-.004  
Trifolium owyheense-.015  
Senecio erterae-.005
  - △ 6 Mentzelia packardiae-.006
  - △ 8 Astragalus sterilis-.018
  - 11 Senecio erterae-.006
  - 10 Trifolium owyheense-.015
  - 12 Astragalus sterilis-.041
  - △ 9 Astragalus sterilis-.004  
Trifolium owyheense-.004
  - 13 Senecio erterae-.007
  - 9 Trifolium owyheense-.014

- LEGEND**
- Located under the mark
  - △ Located within 1 mile
  - Located within 6 miles
  - Bureau of Reclamation Resource Management Area

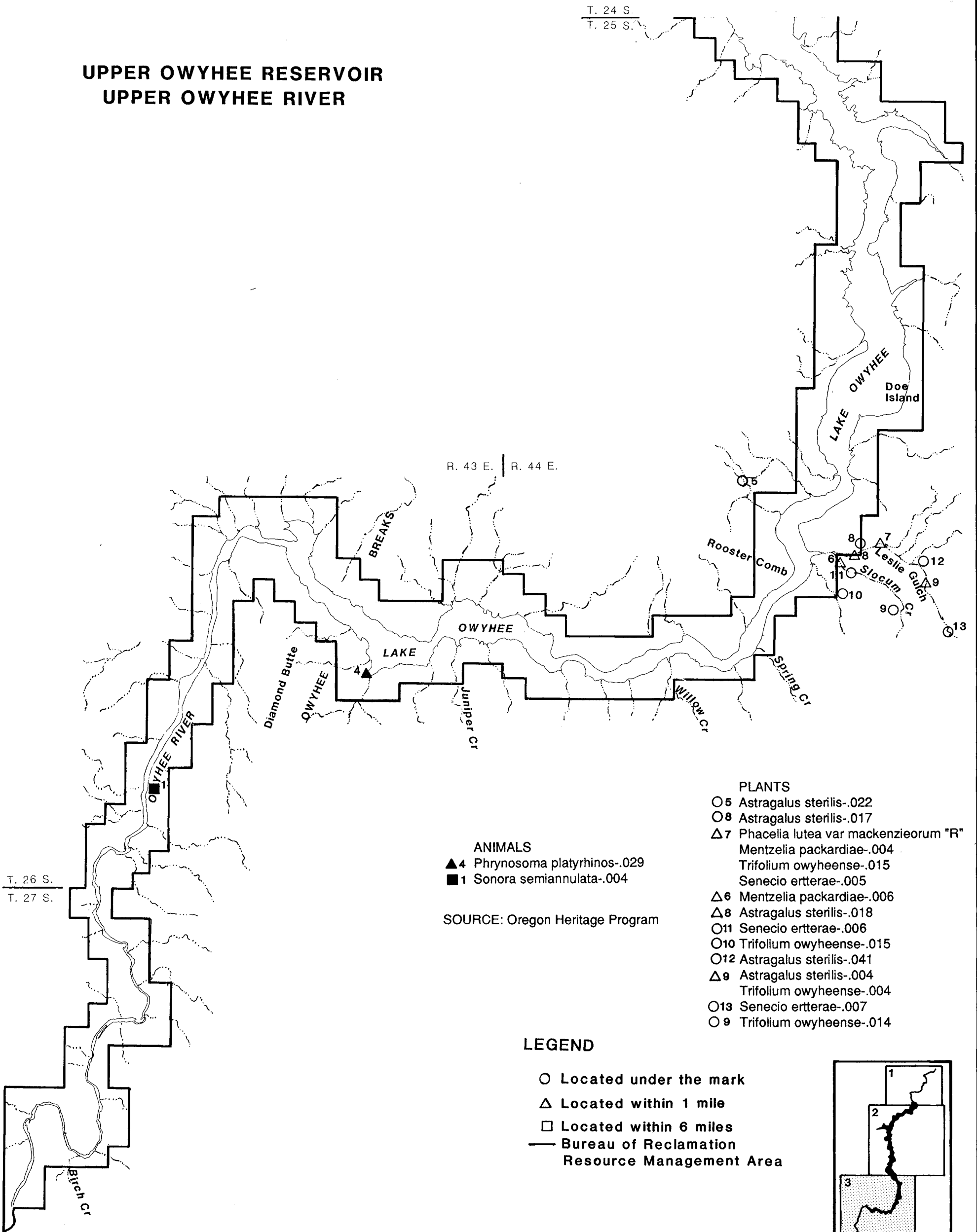


U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**  
**SPECIAL STATUS SPECIES**  
 Figure 2-3

3 of 3  
 0 .5 1 MILE



**UPPER OWYHEE RESERVOIR  
UPPER OWYHEE RIVER**



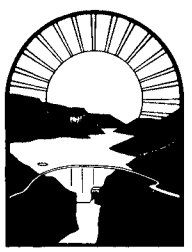
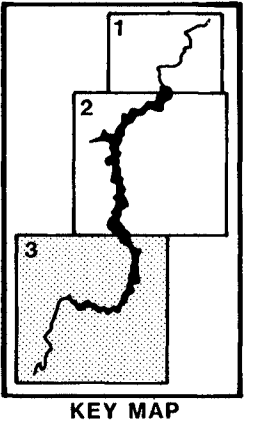
- ANIMALS**  
 ▲ 4 *Phrynosoma platyrhinos*-.029  
 ■ 1 *Sonora semiannulata*-.004

SOURCE: Oregon Heritage Program

- PLANTS**  
 ○ 5 *Astragalus sterilis*-.022  
 ○ 8 *Astragalus sterilis*-.017  
 △ 7 *Phacelia lutea* var *mackenzieorum* "R"  
     *Mentzelia packardiae*-.004  
     *Trifolium owyheense*-.015  
     *Senecio erterrae*-.005  
 △ 6 *Mentzelia packardiae*-.006  
 △ 8 *Astragalus sterilis*-.018  
 ○ 11 *Senecio erterrae*-.006  
 ○ 10 *Trifolium owyheense*-.015  
 ○ 12 *Astragalus sterilis*-.041  
 △ 9 *Astragalus sterilis*-.004  
     *Trifolium owyheense*-.004  
 ○ 13 *Senecio erterrae*-.007  
 ○ 9 *Trifolium owyheense*-.014

**LEGEND**

- Located under the mark
- △ Located within 1 mile
- Located within 6 miles
- Bureau of Reclamation Resource Management Area



U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

**SPECIAL STATUS SPECIES**

Figure 2-3

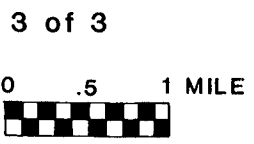


Table 2-9: Special Status Wildlife Species, Owyhee Reservoir RMP.

Species	Scientific Name	Status	
		Federal	State
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	T
Peregrine falcon	<i>Falco peregrinus</i>	E	E
Ferruginous hawk	<i>Buteo regalis</i>	C2	S
Western sage grouse	<i>Centrocercus urophasianus phaios</i>	C2	
California bighorn sheep	<i>Ovis canadensis californianus</i>	C2	
Long-billed curlew	<i>Numenius americanus</i>	C3C	
American white pelican	<i>Pelicanus erythrorhynchos</i>		S
Bank swallow	<i>Riparia riparia</i>		S
Barrow's goldeneye	<i>Bucephala islandica</i>		S
Bufflehead	<i>Bucephala albeola</i>		S
Burrowing owl	<i>Athene cunicularia</i>		S
Grasshopper sparrow	<i>Ammodramus savannarum</i>		S
Greater sandhill crane	<i>Grus canadensis tabida</i>		S
Horned lark	<i>Eremophila alpestris</i>		S
Snowy egret	<i>Egretta thula</i>		S
Swainson's hawk	<i>Buteo swainsoni</i>		S
Western bluebird	<i>Sialia mexicana</i>		S
Yellow-billed cuckoo	<i>Coccyzus americanus</i>		S
Pygmy rabbit	<i>Brachylagus idahoensis</i>	C2	S
Pallid bat	<i>Antrozous pallidus</i>		S
Townsend's big-eared bat	<i>Plecotus townsendii</i>	C2	S
Northern leopard frog	<i>Rana pipiens</i>		S
Spotted frog	<i>Rana pretiosa</i>	C2	S
Desert collared lizard	<i>Crotaphytus insularis (bicinctores)</i>		S
Desert horned lizard	<i>Phrynosoma platyrhinos</i>		S
Western ground snake	<i>Sonora semiannulata</i>		S

E = Endangered

T = Threatened

S = Sensitive

C = Candidate

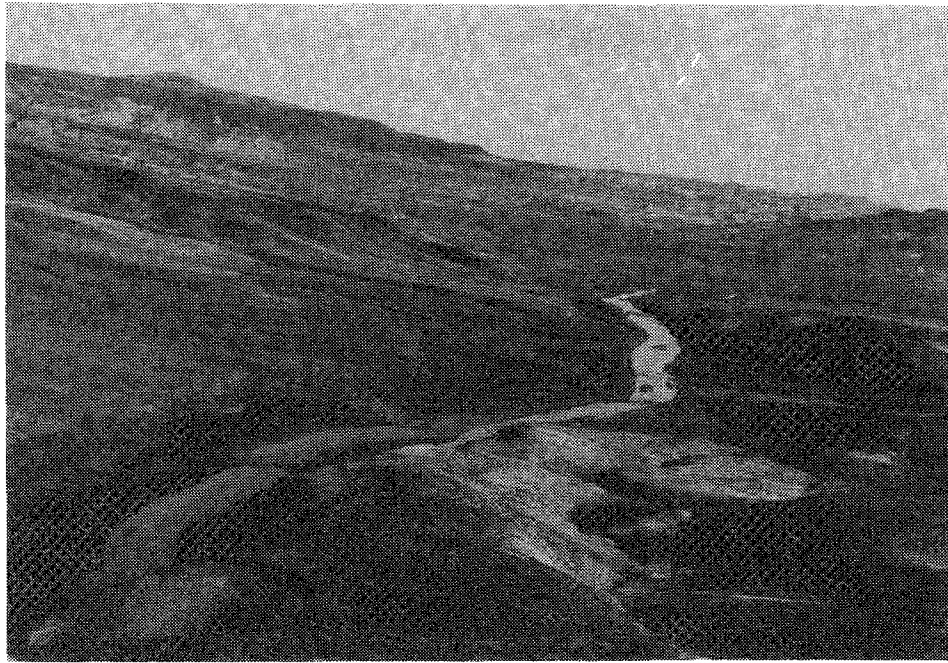
C2 = Category 2 species are those for which existing information may warrant listing, but for which substantial biological information to support a proposed rule is lacking.

C3C = Candidate Category 3C are species that have proven to be more abundant or widespread than was previously believed and/or those that are not subject to any identifiable threat.

Source: U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife, Oregon Natural Heritage Program.

### 2.1.11 Wild and Scenic Rivers

The National Wild and Scenic Rivers Act (PL 90-542) was enacted in 1968 to provide Federal protection for certain of our country's remaining free-flowing rivers. Rivers included in the system benefit from the protective management and controlled development for which the Act provides. The objectives for designating a river include: (1) to preserve and maintain existing resource values; (2) to preserve them for the use and enjoyment of present and future generations; and (3) to make accessible to the public, through appropriate development, the river and those values which have been preserved.



*Photo 2-7: Aerial View of Upper Owyhee River.  
The upper Owyhee River area is part of the main Owyhee Wild and Scenic River system.*

The Act establishes three wild and scenic river classifications — wild, scenic, and recreational. Each classification has specific attributes and management objectives to ensure appropriate management. “Wild” provides the highest level of protection and “recreational” the least.

In 1984, Congress designated 120 miles of the main Owyhee River from the Oregon-Idaho border downstream to Owyhee Reservoir (excluding the 14-mile Rome Valley reach from China Gulch to Crooked Creek) as “wild.” Wild rivers are defined by the Act to include:

Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watershed or shorelines essentially primitive, and waters unpolluted. These represent vestiges of primitive America.

The primary management emphasis for “wild” river areas is to protect the values which make it outstandingly remarkable while providing river-related outdoor recreation opportunities in a primitive setting. The outstandingly remarkable values recognized by Congress for the main Owyhee River are recreational, cultural, geologic, wildlife and scenic. These outstanding values are what the managing agencies are mandated to “protect and enhance” and they become the standards by which river management actions are judged.

The Vale District has developed a final Wild and Scenic River Management Plan for the Main, West Little and North Fork Owyhee Rivers (BLM, 1993). Within the main Owyhee River corridor, the BLM administers the 110 river miles above Birch Creek and Reclamation the 10 river miles from Birch Creek downstream to the headwaters of

Owyhee Reservoir. The river corridor lands administered by Reclamation are acquired or withdrawn for the Owyhee Project.

### **2.1.12 Hydrology**

Items discussed in this section include surface water supply, and reservoir and river operations.

#### **Surface Water Supply**

The Owyhee River drains about 11,160 square miles above Owyhee Dam. Annual runoff above the dam is quite variable and averages about 755,000 acre-feet per year. The lowest runoff of record was 187,500 acre-feet in 1959; the highest was 2,670,915 acre-feet in 1984. However, the 1993 runoff is expected to set a new record. Spring snow melt from the upper basin generally characterizes the runoff. However, rainstorms over large areas in the basin also cause significant runoff. Owyhee Reservoir inflow is partially regulated by Wildhorse and other smaller reservoirs in the upper watershed.

Owyhee Reservoir has a total capacity of 1,120,000 acre-feet (elevation 2670) and an active capacity of 715,000 acre-feet (elevation 2590.2 to 2670) with the total amount allocated to irrigation water use. The reservoir when full measures about 52 miles in length, averages about 2,000 feet in width, and has a surface area of 12,740 acres. Water quality in the reservoir meets all the requirements for an irrigation water supply.

#### **Reservoir and River Operations**

Irrigation is the only authorized function of the Owyhee Project and water conservation is the primary operating criteria. However, flood control operations are carried out to the extent possible without jeopardizing irrigation water supplies.

Highly erratic runoff from the Owyhee basin requires some type of flood control operation. Informal flood control allocation curves have been developed with a goal of limiting the flow of the Owyhee River below Owyhee Dam to 8,000 ft<sup>3</sup>/s. These allocation curves require a minimum of 70,000 acre-feet of vacant space from the end of the irrigation season through the end of February and more space beginning in January if forecasts predict such a need. Large flood releases may be passed downstream from February through May when runoff forecasts indicate a need to provide flood control space. However, forecasts for the Owyhee basin generally show large errors and the North Board of Control is reluctant to make early flood releases that could endanger filling the reservoir. River flows in the 28-mile reach below Owyhee Dam can vary tremendously when spring runoff results in spillway use. On some occasions the goal of limiting flows below Owyhee Dam to 8,000 ft<sup>3</sup>/s has not been met and flows have temporarily reached 18,000 to almost 22,000 ft<sup>3</sup>/s.

During the irrigation season (April to mid-October) releases through the dam are relatively stable. Average irrigation releases are highest in June (313 ft<sup>3</sup>/s) and generally continue into October (56 ft<sup>3</sup>/s). Monthly irrigation releases average about 8,000 acre-feet (daily average of 130 ft<sup>3</sup>/s) and normally range from 100-200 ft<sup>3</sup>/s per day. Because

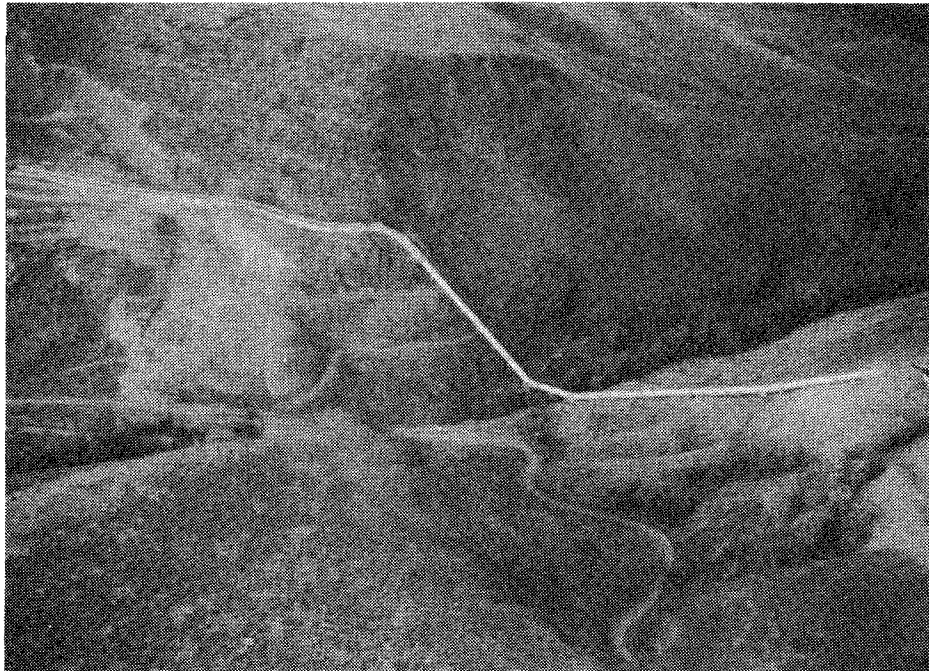
of downstream irrigation diversions, irrigation releases through the dam outlet works do not represent river flows for the entire downstream portion.

The diversion dam for the Owyhee Ditch Company, about 14 miles upstream from the river's mouth, diverts all water but leakage occurs during much of the summer. Irrigation return flows provide some flow in the river beginning about 2 miles below the diversion.

The flow from Owyhee Dam is normally shut off from mid-October until as early as the end of January or as late as the end of March when releases are made to accommodate anticipated spring runoff. Flows during the shutoff period are limited to leakage at the dam (2-3 ft<sup>3</sup>/s) and inflow from natural springs, intermittent streams, and irrigation drains in the lower river.

Principle water withdrawals from the reservoir are made through Tunnel No. 1. The 1939-1992 average annual release through the diversion tunnel is 440,049 acre-feet and monthly releases average 74,000 acre-feet (daily average of 1,230 ft<sup>3</sup>/s).

Irrigation water for about 35,000 acres in the lower project is supplied by four main pumping plants and five small pumping plants located on the Snake River. Since water from the Snake River supplements the Owyhee basin supply, the amount pumped from the Snake River varies inversely with the Owyhee basin supply. The average amount pumped from the Snake River is about 145,000 acre-feet per year.



*Photo 2-8: Aerial View of Owyhee Project Facilities.  
Water from Owyhee Reservoir is transported via a system of siphons and canals to  
118,000+ acres of farmland in Oregon and Idaho.*

### 2.1.13 Water Quality

Beneficial uses of water are established by the Oregon Water Resources Commission pursuant to ORS 468.020. Oregon Administrative Rules (OAR) Chapter 340, Division 41, Rule 842 lists the beneficial uses for which water quality is to be protected in the Owyhee basin. They are:

- Public Domestic Water Supply
- Industrial Water Supply
- Irrigation
- Livestock Watering
- Water Contact Recreation
- Aesthetic Quality
- Boating
- Fishing
- Resident Fish and Aquatic Life
- Salmonid Spawning
- Salmonid Rearing
- Anadromous Fish Passage
- Wildlife and Hunting
- Hydropower

The Oregon Environmental Quality Commission adopted rules and water quality standards necessary to protect these recognized beneficial uses. In practice, water quality standards are set at levels to protect and support the most sensitive uses: fish, aquatic life, and domestic water supplies.

A number of water quality parameters have criteria values as regulatory standards for the Owyhee River. These parameters include temperature, pH, dissolved oxygen, fecal coliform bacteria, and dissolved chemical substances. In addition, parameters such as chlorophyll and *enterococcus* bacteria have non-regulatory criteria values and total phosphorus has a guideline concentration (DEQ, 1988). Water quality standards for the Owyhee Basin are contained in OAR 340-41-842 to 855.

The Oregon Department of Environmental Quality (DEQ) is the state agency that administers Oregon's water quality program. DEQ is required under the Clean Water Act to prepare a biennial status report on Oregon's water quality and the pollution control programs being used to protect, maintain, and restore water quality.

Limited studies have been made on the water quality in Owyhee Reservoir. More detailed water quality studies have been conducted on the lower Owyhee River due to past and continuing water quality problems in the lower river. Irrigation and grazing have commonly been associated with the non-point source problems identified in the basin.

#### Owyhee Reservoir

Water quality samples taken at Owyhee Reservoir as part of the National Eutrophication Survey (EPA, 1978) showed the reservoir to be the most eutrophic (rich in dissolved nutrients such as phosphates) of the eight Oregon lakes sampled. The survey showed that the reservoir was nitrogen limited and burdened by high phosphorus loading from the upper watershed.

The 1988 Oregon Statewide Assessment of Non-point Sources of Water Pollution gave the reservoir a "moderate" pollution rating for most of its length and "severe" in the upper end of the reservoir due to pesticide, suspended solids (turbidity), and algae bloom problems (DEQ, 1988). The effect of these pollution factors on the reservoir fishery has not been studied in detail, but likely is limiting production.

Sporadic water temperature data collected between 1957 and 1970 show the reservoir to be thermally stratified into two distinct thermal layers. Thermal stratification occurs as water in the upper reservoir layer is warmed during the spring and summer creating a thermocline that can extend to a depth of 50 to 70 feet. A thermocline is a layer in a thermally stratified body of water that separates an upper warmer lighter oxygen-rich zone from a lower colder heavier oxygen-poor zone.

Temperatures in the upper layer may reach as high as 90 degrees Fahrenheit, while the bottom layer, below 36 feet, may be 30 degrees cooler. The area of rapid temperature decline (thermocline) inhibits nutrient mixing and often results in oxygen depletion in the lower layer. Because the reservoir is eutrophic, high summer temperatures in the upper layer stimulate algae production. Algae blooms are a common occurrence during summer.

Dissolved oxygen (DO) has been sampled on occasion in conjunction with temperature monitoring. The data suggest a stratification of DO with warming of the surface water layer. However, factors in addition to temperature (i.e. inflow and outflow, reservoir morphology, photosynthesis, and wind) affect the concentration of DO both spatially and temporally from year to year.

Secchi disc readings which measure water clarity and the presence of suspended solids are generally less than 2 feet. Measurements range from 3 inches at Watson Crossing to 80 feet at the State Park. "Murky," "muddy," and "murky/algae" are typically used to describe water clarity, particularly in the upper reservoir area.

Past and recent studies have shown elevated mercury levels in fish tissues, water, and sediment from Owyhee Reservoir (ODFW, 1992). The primary source of this mercury is derived from naturally occurring mercury deposits in the rocks and soils as well as its past use in upper Owyhee basin mining operations (i.e. Jordan Creek).

Certain microorganisms have the ability to convert the inorganic forms of mercury present in water and sediment to toxic methyl or dimethyl mercury. Toxic methylmercury will accumulate in aquatic food chains and be biomagnified up the food chain since it is readily absorbed by algae and other aquatic plants later eaten by fish.

Owyhee Reservoir fish were first analyzed for mercury in 1971. The sampling was initiated after Idaho Fish and Game personnel reported elevated mercury levels in fish samples taken from Jordan Creek. Consequently, ODFW collected fish for mercury analysis from Antelope Reservoir, which stores water from Jordan Creek, and Owyhee Reservoir. Mean mercury concentrations in the fish sampled from Owyhee Reservoir ranged from 0.36 - 2.32 parts per million (ppm). The FDA standard of 1.0 ppm applies to fish as food for human consumption.

Based on these findings, the ODFW issued a news release announcing the results of the mercury analysis and advice from the State Public Health Officer concerning the amount of fish that could safely be consumed. The public was advised that there would likely be



no harm to healthy, nonpregnant adults from eating up to three pounds of fish a week from Antelope and Owyhee Reservoirs.

Attention was focused on mercury contamination again in 1987. ODFW collected fish samples from Owyhee and Antelope Reservoirs, and Upper Cow Lakes. The analysis showed elevated mercury levels in Owyhee and Antelope Reservoirs and low levels in Cow Lakes. Owyhee Reservoir mercury levels exceeded the FDA limit of 1.0 ppm in 4 of 5 fish samples. Results were forwarded to the Oregon Health Division (OHD).

More testing was undertaken in the summer of 1989 using a much larger sample size. Results from Antelope Reservoir and Jordan Creek clearly exceeded the FDA standard. A decision was made to post advisories and discontinue fingerling trout stocking programs at these locations. The Owyhee Reservoir results showed that methylmercury composed greater than 99 percent of the total mercury in all fish sampled. Two of five smallmouth bass, ages 4 and 5, each had total mercury levels of 1.16 ppm with the average concentration below the FDA limit.

The U.S. Environmental Protection Agency (EPA) has recently issued fish tissue guidance for mercury. Prior to this time, EPA had no tissue guidance and the prevailing standard was the FDA's 1.0 ppm food tolerance limit. The OHD has adopted the new EPA guidance (0.6 ppm) as the threshold of concern for sport-caught fish.

The more conservative guidance is based on new evidence that fetuses and pregnant women are at risk for neurological injury at levels considerable lower than the FDA standard recognizes. Therefore, the OHD warns that pregnant women, nursing women, and children up to six years of age should not consume any fish from Owyhee Reservoir. Children older than six years and healthy adults should limit their consumption to no more than one-half pound of fish six times a year (approximately one meal every other month).

As a whole, fish from Owyhee Reservoir generally violate the 0.6 ppm guidance. Consequently, the OHD will be issuing a warning and advisory including a request to ODFW for notices in the next issue of Oregon's fishing guide and posting of warnings around the reservoir. Because fishing is a popular activity, catch-and-release fishing will be encouraged.

Mercury contamination is the most serious water quality problem in Owyhee Reservoir. Mean mercury levels in the water and sediments may not be high enough to pose a human health hazard, but levels in fish tissues are often above the FDA and EPA limit for human consumption. The fact that methylmercury bioaccumulates in tissue suggests that a closer look at mercury levels in older fish targeted by anglers and a periodic testing/monitoring program be conducted.

Many of the water quality problems in Owyhee Reservoir are due in part to naturally occurring conditions in the watershed. As such, control of the factors contributing to reservoir water quality degradation are difficult to address and require a watershed approach. Improved vegetative cover throughout the watershed would significantly lessen sediment input into the reservoir.

### **Owyhee River**

Water quality data have been collected from two locations by DEQ, Reclamation, and the U.S. Geological Survey. These stations are on the lower Owyhee River near Owyhee

(RM 2.9) and below Owyhee Dam (RM 27.9). The summer is of greatest interest as it is the period with the lowest flow (least amount of dilution for pollutants), highest temperatures, and greatest recreational usage.

Water quality between Owyhee Dam and the Siphon Site is generally affected by elevated nutrient levels which stimulate eutrophication and algae blooms. Below the Owyhee Ditch (located about 1.5 miles downstream from the Siphon Site), water quality degenerates significantly to the Snake River.

Streamflows below the Owyhee Ditch are very low and primarily made up of irrigation return flows high in salinity (the alkaline soils in the area are high in sodium, sulfates, and carbonates), sediment, and nutrient loads. Irrigation return flows transporting phosphorous-laden sediment create algae problems during the summer season. These conditions adversely affect the production and survival of game fish and most nongame fish in the lower river.

The 1978 assessment of non-point water quality problems in Malheur County listed the Owyhee River below the Owyhee Ditch to have "severe" problems with sedimentation and nuisance algae, and "moderate" problems with elevated stream temperature, excessive debris, and water withdrawal. Soil erosion, a major problem on crop and pasture land in the northeastern part of Malheur County, results in high sediment loads entering the lower Owyhee River and other local surface waters. Nutrients and pesticides are attached to these irrigation return flow sediments. For a short distance upstream of the Owyhee Ditch, the river was rated "moderate" for nuisance algae and water withdrawal, and moderate for elevated water temperature and excessive debris (Malheur County, 1978).

Owyhee Basin data collected between 1978 and 1980 were summarized in the *Malheur County Non-point Source Water Quality Management Planning Program Final Report* (Malheur County, 1981). The study identified four types of problems and the areas where these problems occurred. During periods of high runoff, loading rates of all parameters were highest with excessive suspended solids and high fecal coliform levels at almost all study stations.

**Suspended Solids:** Levels higher than other basin sites were measured at the lower end with highest values occurring from June through August. Upper basin sites had high values during periods of high runoff (winter). Streambank erosion aggravated in some areas by livestock and poor farming practices were identified as a major cause of high suspended solids. Naturally occurring fine soils and/or steep slopes also added to the sediment problem.

**Fecal Coliform:** Most basin sites were within standards except for the site near the mouth. All values at that site were above the standard (mean of 200 organisms per 100 ml) with highest values occurring from June to October. Improper locations of feedlots (on or too close to waterways or in areas that periodically flood) and improper disposal of wastes from dairies and feedlots were identified as the major sources. Elevated values in the headwaters indicated that livestock and wildlife on the rangeland may also be a source.

**Nitrates:** Significant increases occurred near the mouth. Lowest levels occurred at the beginning of the irrigation season (April to June), increased steadily from June through October, and peaks occurred from November through January as nitrates continued to migrate to the river in return flows. Excessive loss of fertilizers and breakdown of animal waste were identified as probable sources.

**Phosphorous:** Headwater sites showed elevated concentrations. The lower basin showed elevated values especially from May through September. Growth of weeds in drainage ditches and excessive algal growth in sections of natural waterways were noted. Loss of fertilizers and sediment were identified as probable sources.

During 1988, the DEQ identified and rated water quality impacts affecting beneficial uses of waters within the Owyhee Basin. DEQ's findings were published in the *1988 Oregon Statewide Assessment of Non-point Sources of Water Pollution* report (DEQ, 1988). The report identified many reaches as having non-point source problems impacting water quality, fisheries, aquatic habitat, and water contact recreation. Many reaches were identified to have non-point source problems with turbidity, low dissolved oxygen, nutrient loading, sediment, streambed structure, and low flow volumes affecting aquatic biota. The report also identified heavy grazing by livestock on rangeland as the probable cause and the main source of non-point pollution affecting fish and other aquatic organisms, wildlife, water recreation, and streamside aesthetics (BLM, 1992).

The 1988 report gave the lower Owyhee River an overall rating of "severe" from the mouth (RM 0) upstream to Owyhee Dam (RM 28). The basin status summary report provided the following information for the lower river: (a) uses for aquatic life, boating and fishing are threatened by pollution from metals and pesticides from RM 0 to 3, (b) contact recreation is not supported because of pollution from fecal coliform bacteria (rated severe) from RM 0 to 18 and aesthetics are not supported because of pollution from nutrients and suspended solids, and (c) aesthetics are threatened by pollution from nutrients between RM 18 and 28 (DEQ, 1988).

Modifications of beneficial uses (recognizing that salmonid fish rearing and spawning do not exist below the Owyhee Ditch) were recommended and adopted by the Environmental Quality Commission based on the study. Modification of standards, based on conditions that would exist after the implementation of Best Management Practices, was also recommended. Revised water quality standards for non-point source pollution in the basin are currently in draft form and should be finalized soon.

Temperature monitoring between 1983 and 1991 by Hosey and Associates below Owyhee Dam was designed to evaluate the operational effects of the Owyhee Powerplant on the trout population in the lower river. Monitoring was suspended following data collection in 1991 when it was decided that effects on fish were minimal.

## **2.2 CULTURAL RESOURCES**

In 1992, BioSystems Analysis, Inc., under contract with Reclamation, completed a Class I cultural resource overview of the Study Area (Wickstrom, 1993). The purpose of the Class I overview was to identify known historical, archeological, and paleontological resources, and to indicate areas where unrecorded resources might be present. Preliminary contacts were also made with the Burns Paiute Tribe to determine if resources of traditional value to the Tribe are present. The following discussion is primarily a synopsis of information discussed in greater detail in the Class I report. The report is on file with Reclamation in Boise and the BLM in Vale.

### **2.2.1 Prehistoric and Protohistoric Period Resources**

Owyhee Reservoir is located in an area that is peripheral to both the Great Basin and Columbia Plateau geographic and cultural areas. Human occupation of this area began as much as 14,000 years before present (BP). Figure 2-4 shows the locations of sites excavated in eastern Oregon and southern Idaho that contribute most significantly to understanding area prehistory. Table 2-10 outlines the various cultural chronologies created using excavation data.

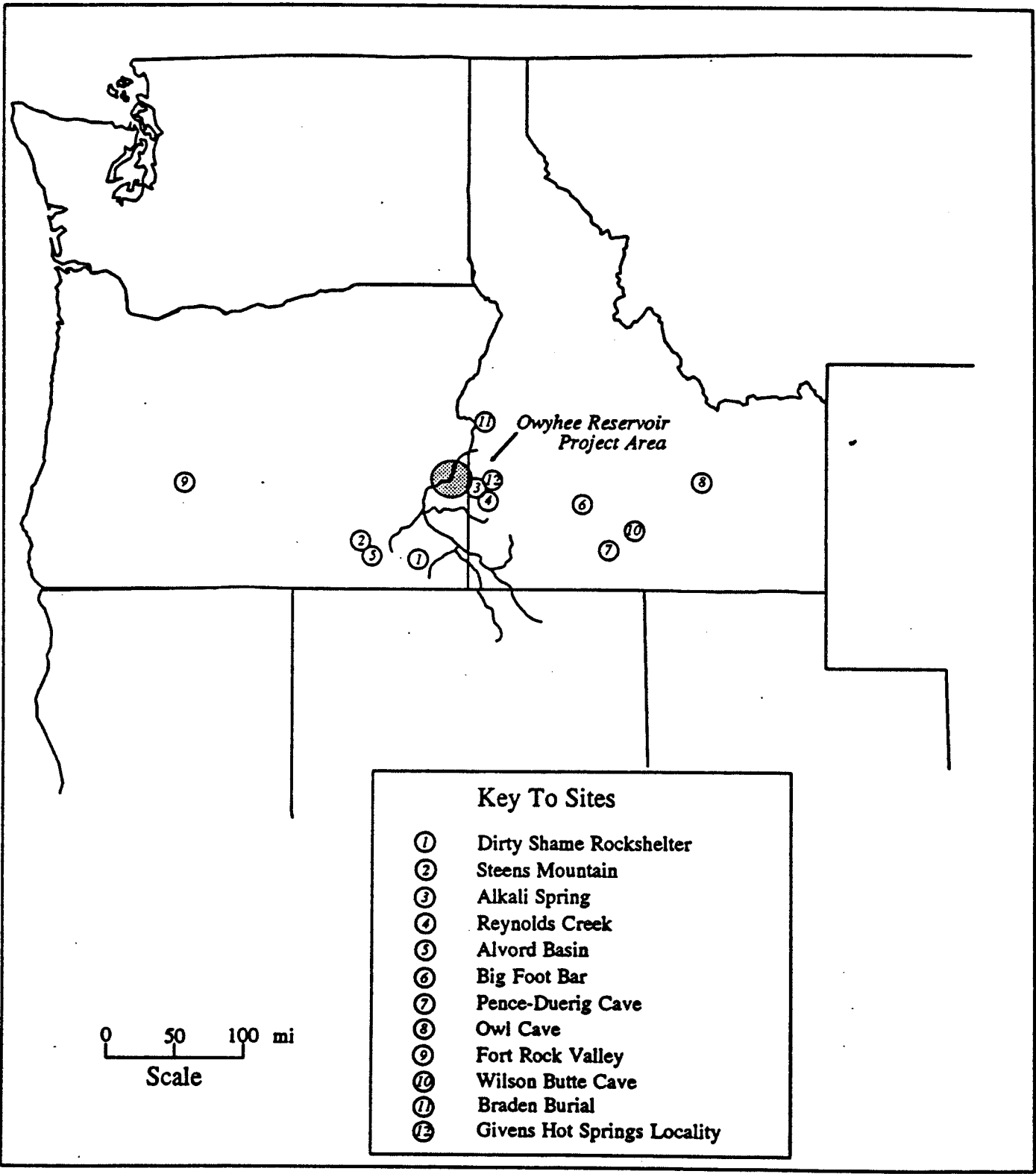
During the last 14,000 years, the climate and ecology of the Study Area has drastically changed. At the end of the Pleistocene, large pluvial lakes were present in eastern Oregon and elsewhere in the Great Basin, supporting rich plant, animal, and waterfowl communities. However, by about 7,000 BP, a general warming trend had started, which over a period of centuries largely dried up these lakes and affected the kind, numbers, and locations of plant and animal resources. Human populations have been continually adjusting their adaptive strategies in response to the changes in their environment.

Archeological investigations indicate that, throughout prehistory, area occupants were mobile hunter-gatherers, but the foraging systems changed in response to environmental conditions. Excavations in the Fort Rock Basin, the Alvord Basin, at Dirty Shame Rockshelter in the Owyhee uplands, and elsewhere in eastern Oregon and southwestern Idaho hint at general economic and social patterns.

Paleo-Indian cultures, present by as early as 14,000 BP, practiced a high-mobility procurement strategy that focused upon large game hunting. There is little evidence of intensive utilization of lake resources, although manos found at Fort Rock sites indicate that some processing of plant foods or materials occurred.

By about 11,000 BP a marked change in the prehistoric foraging strategy seems to have occurred, and most investigated basin sites share characteristics representative of what is termed the Western Pluvial Lakes Tradition. Cultural patterns consistent with this tradition continued until about 7,000 to 8,000 BP.

The Western Pluvial Lakes Tradition consists of a broad-based foraging strategy that is oriented toward the pluvial lakes and marshes. Both waterfowl and plant materials assume a larger role in the economy, but game is still the principal food source. Evidence from the Alvord Basin indicates that populations may have become less mobile, maintaining base camps on the lakes and marshes from which they made seasonal trips to nearby areas to hunt or collect plants. Population increased in the basin/lake areas, and there appears to have been little use of upland areas. Residents began to weave plant materials into sandals and baskets, and Elko points are present, indicating that populations may have moved into the area from more-southern portions of the Great Basin.



Location of major archaeological site areas in southern Oregon and southwestern Idaho.



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**Figure 2-4 Location of Major Archeological Site Areas in Southern Oregon and Southwestern Idaho.**





Table 2-10: Prehistoric Chronology for the Northern Great Basin

	Heizer & Hester 1978:154 <i>Northern Gr. Basin</i>	Jennings 1988:115 <i>Great Basin</i>	Bedwell 1973 <i>Fort Rock Basin</i>	Alkins et al. 1977 <i>Dirty Shame Rockshelter</i>	Butler 1986 <i>Snake and Salmon River Area</i>	Pettigrew 1984 <i>Alvord Basin</i>	Gruhn 1981 <i>Wilson Butte Cave</i>	Meade 1990 <i>Western Snake River Basin</i>
	Late Prehistoric	Late Archaic	?	?	(Shoshone)		?	Equestrian For.
AD 1000	Rose Spring Eastgate		?	Zone I	--- Late ---		Wilson Butte VI Dietrich Phase	
0		Middle Archaic		Zone II	(Fremont)	Full Archaic	?	Semi-Sedentary Foraging
BC 1000			Fort Rock IV	(hiatus)			Wilson Butte V	
2000	Great Basin Archaic				Archaic			
3000			(hiatus)			Transitional Archaic		
4000		Early Archaic		Zone III/IV			Wilson Butte IV	
5000	Altithermal? Mazama		Fort Rock III	Zone V			Wilson Butte III	Broad Spectrum Foraging
6000							Wilson Butte II	
7000	Western Pluvial Lakes Tradition		Fort Rock II	Zone VI	Plano	Western Pluvial Lakes Tradition		
8000							Wilson Butte I	
9000		Pre-Archaic			Folsom			
10,000	Fluted Point Tradition?		Fort Rock I		Clovis	Paleo-Indian		
11,000					↑			
12,000					Early Big Game Hunting Period			
13,000								

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By about 7,000 BP, a warmer climatic trend began to affect basin environments. Many of the rockshelter and open sites in the Fort Rock and Alvord Basins were abandoned from about 7,000 to 5,000 BP, and the Dirty Shame Rockshelter was abandoned from 5,900 to 2,800 BP. It appears that basin residents largely relocated to upland areas, focusing their subsistence activities around springs, or to valleys with perennial streams. It is during this time that the Owyhee River valley may have become the focus of more intensive use (Pullen, 1976). At many of the archeological sites from this period, ground-stone tools become more common indicating that plant foods assume a more important, perhaps even primary, role in the diet. Small mammals such as rabbit and marmot were hunted with much less emphasis on deer and other large game.

Around 5,000 BP, climatic conditions became somewhat cooler and wetter, restoring some of the basin marshes at least on a seasonal basis. Human populations again used the basin area, but never as intensively as before. Foraging strategies continued to emphasize plant foods and small game. Around 2,000 BP, the bow and arrow came into use, and by 1,000 BP, Numic peoples such as the Paiute and Shoshone moved into the area. The horse, introduced about 300 years ago, extended the foraging range of area residents.

Ethnographic records indicate that, at the time of European contact, the Northern Paiute and the Shoshone were the principal occupants of the Owyhee River area and east-central Oregon. They practiced a mobile hunting and gathering lifestyle likely consistent with those practiced in the basin for many thousands of years. They occupied river valleys seasonally to harvest anadromous fish and plant foods. During other seasons, they foraged upland areas and streams.

Some bands wintered in the river canyons and harvested salmon in the spring. In early summer when salmon runs ended, family groups traveled to upland areas to harvest wild root and seed materials and hunt small animals. In the fall, these groups moved higher into the mountains to harvest berries and hunt game. In the late fall, they moved back to the river where they hunted deer, fished, and collected mussels.

In the 1850s, the influx of EuroAmerican settlers began in eastern Oregon. In 1872, following repeated conflicts between the Indians and newcomers, the Malheur Reservation was established at Fort Harney to accommodate all Oregon Paiutes and selected Northern Shoshone groups. The reservation was abolished in 1882 and many Indians either settled on allotted lands near Burns, Oregon, or relocated to Fort McDermitt or the Duck Valley Reservation. The Burns Valley Paiute today occupy a small reservation near Burns.

Little information is available about prehistoric or protohistoric use of the middle Owyhee River valley, the RMP Study Area. Most information comes from a 1976 survey by BLM archeologist Reg Pullen of lands within the Owyhee River canyon from Crooked Creek to the upper end of the reservoir. The results of Pullen's and other surveys are discussed below under "Prior Cultural Resource Investigations."

### **2.2.2 Historic Period Resources**

In 1811, members of a Pacific Fur Company party passed through southeastern Oregon en route to Fort Astoria. They were the first EuroAmericans to enter the Owyhee area. In 1813, a Company member returned to establish a fur post on the Malheur River. This post was destroyed by Indians in January 1814.



A Northwest Fur Company post built on the Malheur River in 1819 soon burned. In the 1820s and 1830s, various fur parties trapped in the area. John Work lead a party up the Owyhee River through the Study Area in 1830-1831. In the late 1830s, emigrants using the Oregon Trail began to pass through Malheur County in the vicinity of present-day Vale, Oregon. The Meeks Cutoff continued west along the Malheur River from Vale. It is unlikely, however, that either the fur trappers or emigrants had a significant affect on the Owyhee area.

The first settlers in Malheur County were miners, drawn by gold strikes in the Blue Mountains in 1862. Gold camps and towns were located along the Owyhee River and in the Owyhee Mountains southeast (upstream) of the Study Area. Soon, ranches and farms were established in eastern Oregon and western Idaho to supply the miners. In the 1870s, homesteads were established along many of the rivers in anticipation of access to eastern markets via railroad. The railroad reached eastern Oregon in 1883.

Farming in Malheur County began primarily to grow hay for the livestock industry. By necessity, farming concentrated in the river bottoms, supported by small irrigation diversions. Generally, several farmers would work together to construct a river diversion and ditches to irrigate fields next to the river.

Initial settlement within the Study Area began in 1893 when four individuals staked claims in the vicinity of the future town of Watson (Watson was located in the upper end of Owyhee Reservoir). Additional settlers continued to arrive and in 1898-99 a post office was established and the Watson School District organized. The Watson area continued to draw settlers through the early years of the 20th Century. Most settlers were small farmers and ranchers. Principal crops were alfalfa and grass hay to feed cattle and sheep. Farmers built diversion dams, water wheels, and ditches to irrigate their fields; remnants of some are still visible today.

In 1924, the Bureau of Reclamation was authorized to construct the Owyhee Project. In 1932, Reclamation completed construction of Owyhee Dam, which provides irrigation water to 118,000 acres. The reservoir inundated 14,000 acres, including the community of Watson. The last residents left the area in 1936, most moving to nearby communities. Since that time, recreational activities and livestock grazing have been the principal land use activities within the Study Area. Identified historic site locations within the RMP Study Area are shown on Figure 2-5.

### **2.2.3 Traditional Resources**

During the Class I study, BioSystems contacted the Burns Paiute Tribe to identify potential concerns regarding traditional values and sacred sites that might occur within or near the Study Area. Mrs. Minerva Soucie was the point of contact. She indicated that tribal members had no specific knowledge of traditional resources located in the Study Area. However, she requested that the Burns Paiute Tribe be kept informed of Reclamation's plans and actions at the reservoir. Mrs. Soucie indicated that human burials might be expected to occur in talus slopes at the base of canyon walls. Biosystems also notified other tribes by letter of the study, requesting similar information. The other tribes did not respond. However, Reclamation assumes that they may have an interest in area archeological and traditional resources, and will make further contacts if future actions warrant consultation.

## 2.2.4 Prior Cultural Resource Investigations

Most lands in the Study Area have not been surveyed for cultural resources. Surveyed areas contain 26 recorded sites (see Table 2-11), of which 21 are prehistoric sites, three have prehistoric and historic components, and two are exclusively historic period sites. Areas immediately adjacent to Reclamation land also contain recorded and unrecorded prehistoric and historic sites.

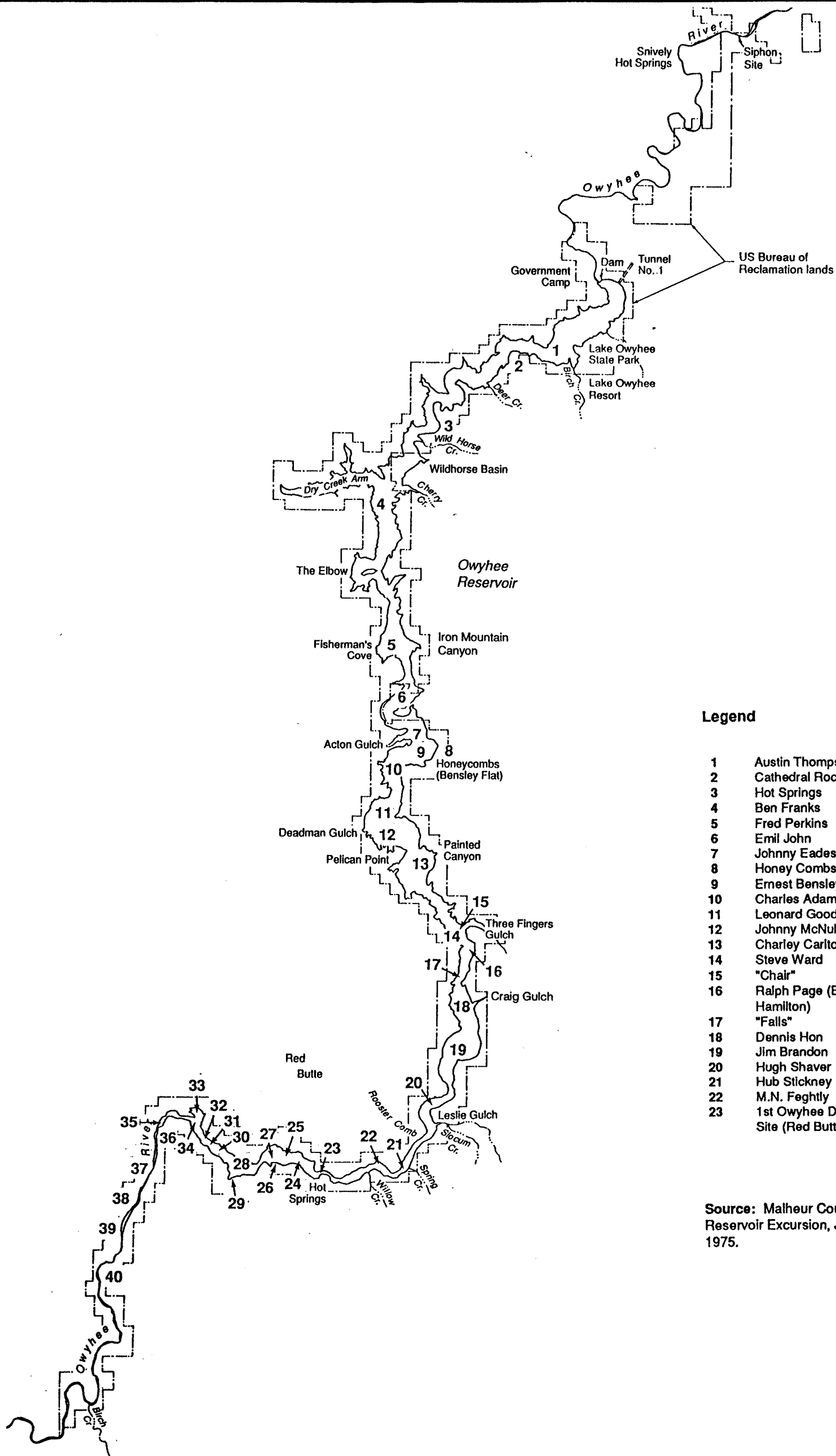
Six surveys have been completed on Reclamation lands, but only one is of significance. Four of the surveys covered very limited areas and did not result in recordation of sites. In a fifth small inventory, two rock shelters were recorded by BLM archeologist Beth Walton on Reclamation lands below Owyhee Dam. No report was prepared of the survey (which was conducted in response to reports of vandalism of the rock shelters), but site forms were prepared and are on file with the BLM, Reclamation, and State Historic Preservation Office (SHPO).

The one significant study completed to date on Reclamation land is the 1976 survey by BLM archeologist Reg Pullen, which included Reclamation lands at the upper end of the Study Area (Pullen, 1976). The survey was conducted in conjunction with designation of the area as a Federal Wild and Scenic River. Pullen primarily focused on terraces adjacent to the river, but also sampled other areas to obtain a more complete understanding of existing resources. No test excavations were completed.

Pullen recorded 102 sites. Twenty-two sites (ORML83, ORML100; 35ML177, ML178, ML179, ML180, ML181, ML182, ML184, ML185, ML186, ML190, ML191, ML192, ML193, ML194, ML195, ML196, ML197, ML198, ML199/601, ML201) lie on Reclamation lands within the upper portion of the Study Area. Site types recorded include (in order from greater to lesser frequency of occurrence) lithic manufacturing stations, open campsites with surficial deposition, rock shelters, open campsites with midden deposits (sometimes stratified), petroglyph/pictograph stations, and historic structures. The site forms also mention additional unrecorded historic structures.

Pullen noted that all of the identified prehistoric site types usually occurred in close proximity and utilized the valley bottom/canyon wall ecozones within his survey area. This pattern is consistent with those observed elsewhere in the northern Great Basin. Pullen interpreted that different site types may represent different activity-specific or seasonal aspects of a groups' settlement and procurement system. Pullen also noted various correlation between sites and environmental features. Large stratified open sites were usually situated on river bars with nearby low ridges that may have provided protection from northerly winds. They were also frequently located near rock shelters, near features that provided easy access to the canyon rim, and near springs. Pullen hypothesizes that residents preferred to obtain their drinking water from springs, and that the rock shelters were used concurrently with adjacent open sites. Open sites and rock shelters contained both flaked and groundstone tools, indicative of both game and plant material procurement and processing. Lithic manufacturing sites often were located on ridges or benches near outcrops of cryptocrystalline (chert) rock and often in proximity to game trails.

Using stylistic analysis of surface-visible projectile points, Pullen hypothesizes that, from 9,500 to 5,900 BP, the Owyhee River valley was used seasonally with emphasis on a few specific resources (which are not defined). From 5,900 to 2,700 BP, Pullen found no evidence of the river valley being used at all. Area use was reestablished by 2,700 BP and appears to have supported a larger population. Using Pullen's survey data, the BLM



**Legend**

1	Austin Thompson	24	John & George Palmer
2	Cathedral Rock	25	Carl Feghtly (Jack Anderson)
3	Hot Springs	26	Watson Cemetery
4	Ben Franks	27	H. A. Lage
5	Fred Perkins	28	Everett Fretwell
6	Emil John	29	1st Watson Post Office
7	Johnny Eades	30	Fred Palmer
8	Honey Combs	31	Watson School House No. 32
9	Ernest Bensley	32	Watson Bridge
10	Charles Adams	33	Frank Palmer
11	Leonard Goodwin	34	Miller Page
12	Johnny McNulty	35	Bill Hammond
13	Charley Carlton	36	Frank Beach (Jerome Bridges)/ Last Watson Post Office
14	Steve Ward	37	Bud Mattingly
15	"Chair"	38	Hutton Symes
16	Ralph Page (Bob Hamilton)	39	Carl Symes
17	"Falls"	40	Barney Harrol (Island Ranch)
18	Dennis Hon		
19	Jim Brandon		
20	Hugh Shaver		
21	Hub Stickney		
22	M.N. Feghtly		
23	1st Owyhee Dam Site (Red Butte)		

Source: Malheur County Historical Society; Owyhee Reservoir Excursion, Joe Beach, "Boatmaster," May 31, 1975.



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**Figure 2-5 Historic Site Locations Identified by Joe Beach, Malheur County Historical Society.**



has determined that prehistoric archeological resources present along the upper Owyhee River meet the criteria to be ranked as an "outstandingly remarkable" resource within the Wild and Scenic River management area (BLM, June 1992).

The Class I historic records review indicates that a large number of early homesteads, farms, and ranches were present within the Owyhee River canyon, particularly above Leslie Gulch in the Watson vicinity. Pullen recorded or noted a number of potentially significant historic sites during his survey. Most appear to represent early 20th Century farming and ranching. Pullen noted several historic sites with standing structures above high water (including two with sandstone houses) and remnants of historic irrigation practices (including diversion dams, water wheels, and ditches) used to water fields next to the river.

The BLM has acquired in fee title two land parcels that include historic ranching features within the upper Owyhee River area. Both parcels (the Birch Creek Ranch and the Morrison (Pinnacles) Ranch) are located within the wild and scenic river management area. The BLM has assigned an "outstandingly remarkable" rating to the historic-period resources located along this river reach. An evaluation of the Birch Creek Ranch indicates it to be an historic landscape and structural complex that is eligible for listing on the National Register. The Oregon SHPO has concurred with BLM's determination of Birch Creek's eligibility to the National Register.

Owyhee Dam, itself, is an historic structure. Consultations between Reclamation and the SHPO have determined that the dam is eligible for listing on the National Register of Historic Places. A nomination form has been prepared and will be forwarded to the Keeper of the National Register for review. In 1991, Historic American Engineering Record documentation was completed of the dam by Renewable Technologies, Inc., under contract with Reclamation.

### **2.2.5 Potential for Unrecorded Cultural Resources**

Pullen's survey indicates that unrecorded prehistoric sites, representing the full range of previously recorded site types, can be expected to occur in the unsurveyed portion of the Study Area. Much of the reservoir shoreline is very steep, particularly from Owyhee Dam south to The Elbow, and perhaps has limited potential to contain significant habitation sites. However, these areas could still contain petroglyph/pictograph stations, and perhaps lithic manufacturing stations or talus slope burials. Spring locations within these steep areas could also have small prehistoric camp sites or historic period cabin sites.

Other areas around the reservoir characterized by more gentle slopes may have a high potential to contain unrecorded sites of all types. Based upon information derived from topographic sheets, this includes the area from Birch Creek downstream to about 1 mile below Watson; the upper end of Dry Creek Arm; Iron Mountain Canyon; the mouths of Craig and Spring Canyons and Leslie Gulch; and Pelican Point. Bensley Flat should contain sites, but informal visits to that location by Reclamation archeologists have identified only a few isolated finds. Unrecorded prehistoric sites are certain to be present below the dam.

Table 2-11: Recorded Cultural Resources Sites.

Site No.	Field Designation	Site Description	Elevation (feet)
OR-ML-83	P-83	homestead	2680
OR-ML-100	P-100	historic (Island Ranch)	2680
35-ML-177	P-77	stratified rockshelter	2760
35-ML-178	P-78	campsite	2720
35-ML-179	P-79	cave/rock shelter	3300
35-ML-180	P-80	historic/campsite	2720
35-ML-181	P-81	stratified campsite	2720
35-ML-182	P-82	stratified? campsite	2740
35-ML-184	P-84	rockshelter	3000
35-ML-185	P-85	historic/campsite	2700
35-ML-186	P-86	rockshelter	3000
35-ML-190	P-90	stratified campsite	2700
35-ML-191	P-91	stratified campsite	2700
35-ML-192	P-92	manufacturing station	2780
35-ML-193	P-93	historic/campsite	2660
35-ML-194	P-94	campsite	2710
35-ML-195	P-95	stratified rockshelter	2840
35-ML-196	P-96	petroglyph	2720
35-ML-197	P-97	petroglyph	2680
35-ML-198	P-98	campsite/lithics	2680
35-ML-199*	P-99	campsite	2680
35-ML-201	P-101	stratified campsite	2680
35-ML-505	-	stratified campsite	2320
35-ML-506	-	rockshelter	2720
35-ML-508	TZ-1	petroglyph/campsite	2680
35-ML-601*	-	stratified campsite	2680

Table 2-11: (continued)

Site No.	Field Designation	Site Description	Elevation (feet)
The following sites are located on BLM lands adjacent to the Study Area:			
35-ML-216	124R/1	lithic scatter	3020
35-ML-217	124R/2	lithic scatter	4020
35-ML-218	124R/3	temporary campsite	3380
35-ML-282	-	lithic scatter	3400
35-ML-293	-	lithic scatter/historic	4640
35-ML-295	-	lithic scatter	3639

\* Sites 35-ML-199 and -601 probably are one and the same. Sudman submitted a revised site form (using Pullen's field notes and original site form) in 1991 to the Oregon SHPO where it was assigned a new trinomial. It is unclear whether she actually visited the site, although her plotted site location differs from that reported by Pullen. Either there are actually two sites or either Pullen's or Sudman's plotted location is incorrect.

An unrecorded petroglyph site is reported by Loring and Loring (1982) as site 233.

Two unrecorded petroglyph sites are reported by Cressman (1937), Loring and Loring (1982, site 234), and Day (1989) within BLM lands near the Study Area.

Sites recorded by Reg Pullen in 1976 all have temporary site designations beginning with a "P." Site 35-ML-508 was recorded by Reclamation archaeologist Terry Zontek who assigned a temporary site designation of "TZ-1." Sites 35-ML-216, -217, and -218 were recorded by Archeological-Environmental Research Corporation in 1978; these sites were assigned temporary designations 124R/1, 124R/2, and 124R/3.

Pullen's survey and BioSystems' research indicates that a large number of unrecorded historic sites are likely to be present in the vicinity of Watson, up the Dry Creek Arm, and perhaps elsewhere around the reservoir where there are springs or small terraces. The Watson Cemetery and several early 20th Century farm and ranch sites remain above high water, and remnants of historic irrigation systems are visible in that area and at Dry Creek.

Before the reservoir was completed, Reclamation sold for removal or dismantled structures associated with the town of Watson, farms, and ranches. However, archeological remnants of many of these features may still be present. If the archeological remnants retain sufficient integrity, then they may represent a significant site complex.

The dam construction camp was located immediately below Owyhee Dam. Some original buildings still stand, although some have been modified. The camp is now used to house families of dam operations personnel. Archeological remnants may be present representing construction or operations activities. The camp may be eligible to the National Register due to its association with construction of a significant structure (Owyhee Dam). If archeological deposits remain that would interpret construction or operations camp events, it may also be eligible to the National Register under criterion d.

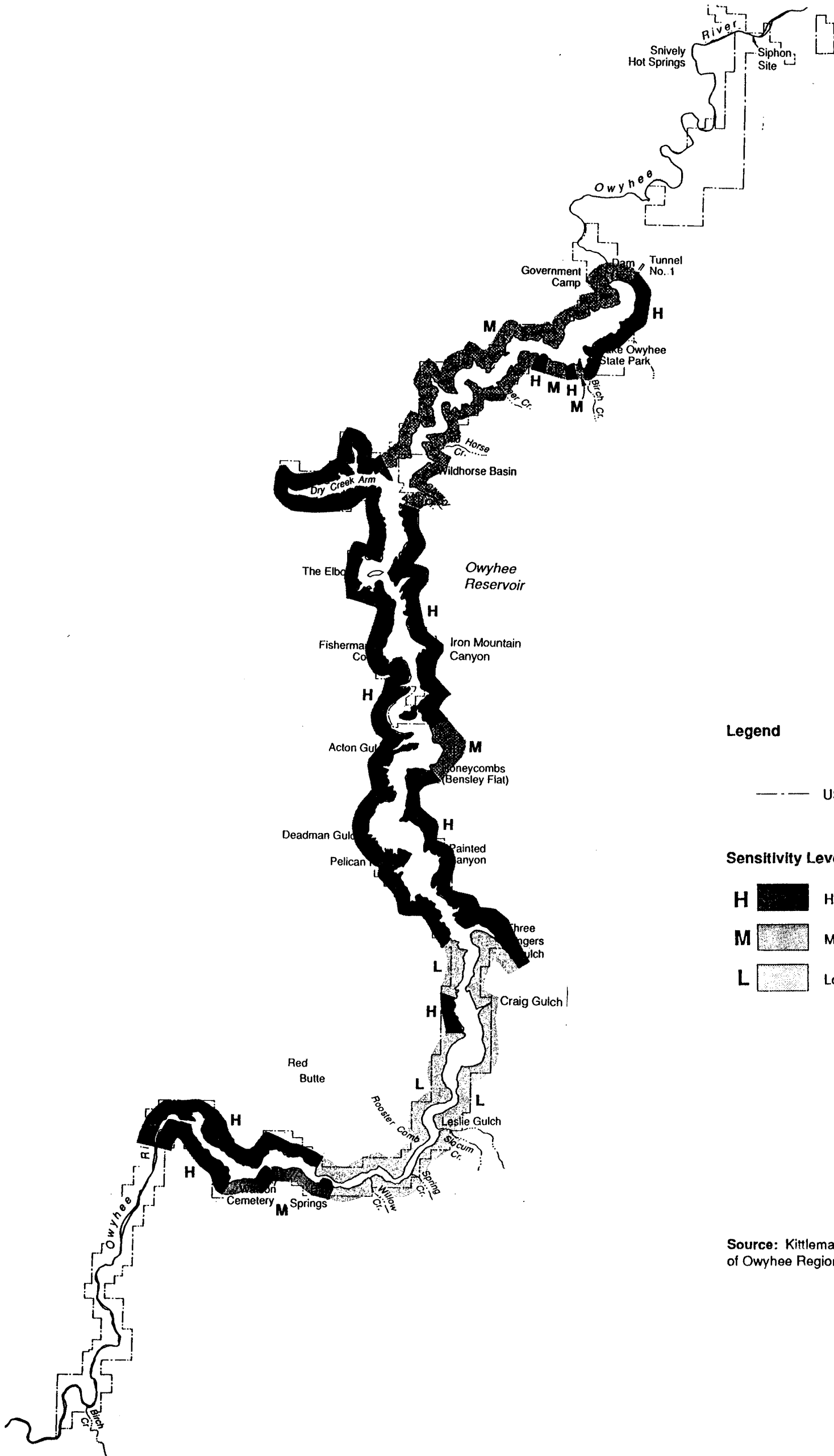
## 2.3 PALEONTOLOGICAL RESOURCES

Information about paleontological resources is derived from an overview prepared by Kenneth R. Thiessen in the Class I inventory (Wickstrom, 1993). Thiessen's information was derived from a review of area literature and conversations with persons knowledgeable about area geology and paleontology. Geologic maps of the reservoir area were used to determine what rock units are exposed along the shoreline, and which of these are fossiliferous.

Thiessen made a preliminary assessment of the probability for occurrence of paleontological resources around the reservoir, based upon these geologic maps (see Figure 2-6). Thiessen indicates that much of the reservoir margins have a high or moderate probability to contain paleontological materials. Thiessen was not able to make a field examination of the reservoir margins to test or verify his assessments.

Prior paleontological investigations on BLM lands in the general vicinity of Owyhee Reservoir have produced important plant and animal fossils from middle Miocene to early-middle Pliocene age formations (16.5 to 3.4 million years ago). Paleontological localities have been recorded in the Blackjack Hills a few miles northeast of the dam; in the hills about 4 miles west of the reservoir in the Dry Creek vicinity; and about 10 miles east of the reservoir in the Rockville vicinity and along Succor Creek.

Most of the fossil materials are visible in the exposed Deer Butte, Grassy Mountain and Sucker (Succor) Creek formations, and in tuff interbedded in Owyhee Basalt formations. They represent a distinct geologic district composed of a unique assemblage of sedimentary and volcanic formations and fossils. Each fossil-bearing formation represents deposition within a separate basin and contains fossil faunas and floras representing different ages, environments, and ecosystems. The Sucker Creek formation is famous for a diverse and abundant assemblage of fossil mammals, fish, reptiles, and plants from the Barstovian land mammal "age" of the Miocene Epoch. The Deer Butte



**Legend**

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**Sensitivity Levels**

- H** High sensitivity
- M** Moderate sensitivity
- L** Low sensitivity

Source: Kittleman and others, 1967. Geologic Map of Owyhee Region, OR.



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**Figure 2-6 Paleontologic Sensitivities for Margin of Owyhee Reservoir.**





and Grassy Mountain formations have yielded fossils from the Pliocene/Miocene Epoch including invertebrates, fish, and plant materials, and small mammals from the Grassy Mountain formation. The Deer Butte formation yields materials from the Blancan/Hemphillian land mammal age, and Grassy Mountain from the Hemphillian/Clarendonian age. The Owyhee Basalt also provide Barstovian age large mammal fossils.

No systematic survey of paleontological resources has been completed at Owyhee Reservoir. However, Thiessen indicates that all of the formations discussed above are exposed at or near the reservoir. In addition, Quaternary-age colluvium and alluvium, locally exposed on the shoreline, may contain fossil materials in lenses of fine-grained sediment. One paleontological locality (Owyhee Canal, BLM 22-45-2, UO2408) has been recorded on Reclamation lands below the dam. This yielded merychippus (horse) and oreodont remains from a vitric tuff interbed in the Owyhee Basalt formation (Rimal and Schaller, 1981). Also, Reclamation personnel have observed two unrecorded fossil flora deposits on the shoreline, one located on either side of the reservoir in the Pelican Point vicinity. They are exposed only at low water and are bedded in a grey, hard, shale-like rock.

## 2.4 VISUAL RESOURCES

The Study Area contains rugged and spectacular scenery characterized by steep rocky slopes, deep ravines, tall buttes, and fragmented canyons broken into spires and intricately eroded walls. The soils range in color from light brown to bright orange-brown. The varied nature of the landscape is further enhanced by a vegetative mosaic of open sagebrush, bunchgrass and riparian plant communities.

Although some roads, ways and trails, campsites, and other man-made developments are present, the overall visual quality of the area is very high. The area generally depicts a natural high desert wilderness setting highly suitable for primitive and unconfined wilderness recreation. The visual resource is considered an outstandingly remarkable and very pleasing resource by most observers.

Elevations in the Study Area range from about 2,300 feet along the lower Owyhee River to isolated peaks above 5,000 feet adjacent to Owyhee Reservoir. In general, elevations increase toward the west and south to the Mahogany and Spring Mountain areas. South of Mahogany Mountain, the elevation declines near Jordan Valley.

The BLM has classified the area as a Class II Visual Resource Management (VRM) Area. This classification requires that management activities be designed and located to blend into the natural landscape and not to be visually apparent to the casual visitor. According to BLM guidelines, the following actions should be discouraged within Class II areas: new roads and support needs (stockpiles and quarries); utility roads (power, gas, water, telephone); off-road vehicle use; and mining. Structures are to incorporate the lines, colors, and materials of the natural landscape. Required roads are to be concealed by vegetation, follow natural landforms, and be seeded as soon as possible following any construction. The BLM expects to administer lands adjacent to the Study Area to perpetuate landscape conditions as they currently exist.

## Lower Owyhee River

The lower Owyhee River meanders through a canyon of striking visual quality comprised of steep mountains, cliffs, and gently sloping hillsides. The canyon features good quality riparian (streamside) habitats that support a wide range of plant and animal species. Upland habitats adjacent to the river are sagebrush dominated communities at the foot of sheer basaltic cliffs. These cliffs are dissected by numerous side canyons that lead to extensive higher elevation uplands beyond.

The canyon floor is characterized by a riparian corridor that follows the river. The riverbanks are predominantly well vegetated and stable, providing a sharp contrast to the surrounding arid and stark landscape. Uplands immediately above the river are typical of the arid sagebrush /grassland communities found throughout the region. Bends in the river are around flat alluvial terraces that immediately rise to the cliffs of the canyon walls.

The river is paralleled by Lake Owyhee Road, the primary access road leading to Owyhee Dam and Reservoir. Malheur County and the State of Oregon are currently evaluating whether Lake Owyhee Road should be designated a State Scenic By-Way.



*Photo 2-9: Aerial View of the Lower Owyhee River.  
The lower Owyhee River meanders through steep canyons and rugged terrain.*

The northern boundary of the Study Area includes a partial view of the Owyhee Siphon. The siphon is an unpainted steel, cylindrical pipe (about 4 feet in diameter) that extends east-west under Lake Owyhee Road. The siphon transfers North Canal irrigation water across the lower Owyhee River canyon.

Visual impacts from dispersed recreational use, especially dispersed vehicle use, are readily apparent. Localized impacts in the form of braided, unauthorized "two-track" secondary roads are common; and damage due to wet season use is particularly evident. The use of four rock and gravel borrow sites within the floodplain (two on BLM lands and two on Reclamation lands) has adversely impacted the canyon's visual quality and infringed on sensitive riparian resources.

Increased beaver activity is becoming a significant factor in local tree damage and mortality. Several large cottonwoods near the Siphon Site have been lost as well as many others throughout the canyon area.

Past livestock operations have damaged streamside and upland vegetation. Long-term recovery is expected since most livestock grazing now occurs at higher elevations cut off from the river by rimrock or fences. Most livestock use is currently not within the canyon's viewshed (BLM, 1992).

There are numerous turnouts on Lake Owyhee Road which provide excellent opportunities for viewing the river's riparian habitat, wildlife, and surrounding landscape. Overall, the area's streambanks are well vegetated, a good riparian overstory is present, and very little streambank erosion or undercutting has occurred. Algae and turbidity problems due to poor instream flows during the nonirrigation season continue to affect the river's aesthetic appeal.

Private land holdings in the river corridor form a contrasting mosaic of farms and pastures, interspersed with idle or dryland areas. Large "shelterwood" trees grow near the various farmsteads.

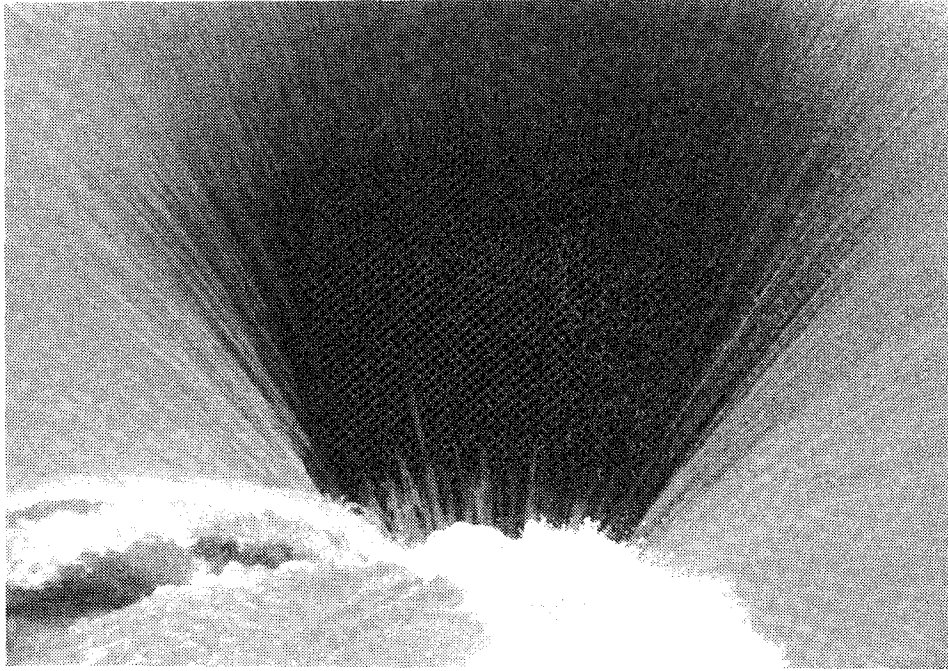
Near Owyhee Dam the landscape includes steep canyons, agricultural fields, and gently sloping open hillsides. At Owyhee Dam, the canyon becomes very narrow, and includes dramatic rock outcroppings. Lake Owyhee Road climbs steeply along the eastern side of the canyon up to the crest of Owyhee Dam.

Owyhee Dam is an immense and impressive structure, creating a dramatic division between the river and Owyhee Reservoir. The dam is a concrete-arch structure which, at the time of construction, was the highest dam in the world. The dam rises 417 feet and is 623 feet across. A road along the top of the dam provides pedestrians an excellent view of the reservoir and the river canyon below.

### **Owyhee Reservoir**

Southeast of the dam, the "glory hole" spillway is controlled by a floating ring gate. During spill events, the "glory hole" provides a fascinating sight and sound for visitors. Many people visit the reservoir when the spillway is in operation to see and experience the huge whirlpool created by the spillway. A concrete walkway and high chain link fence extends out to an observation point almost directly above the glory hole. Visitors can stand above the huge intake pipe and feel the power of rushing water.

The Owyhee Reservoir viewshed consists largely of very steep, rugged terrain and open water. Broken plateaus, barren rocky ridges, cliffs, deep gulches and ravines dissect the stark landscape. Over time, erosion has left the hard basalt, rhyolitic rock, and



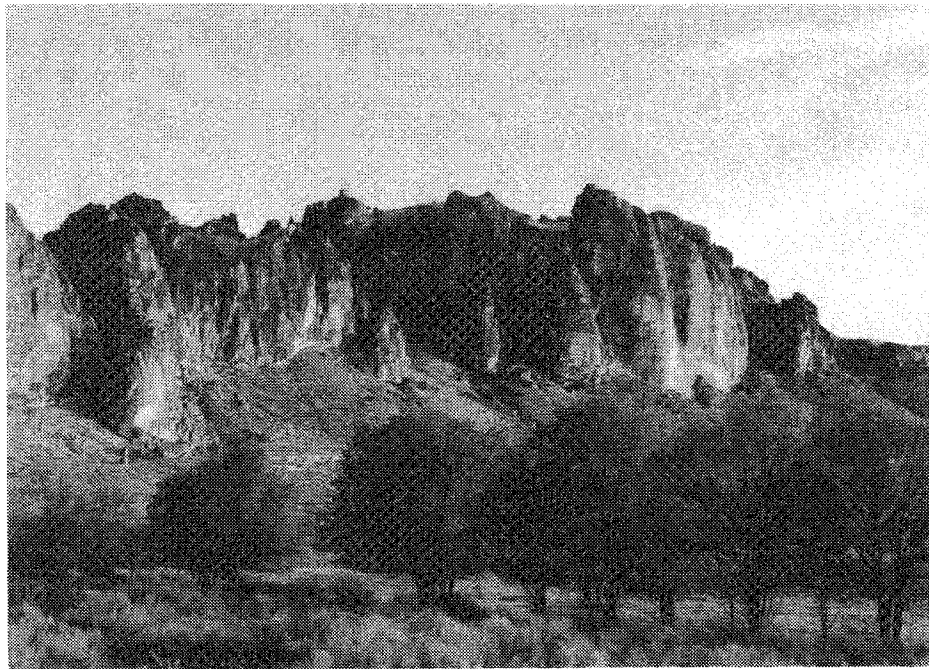
*Photo 2-10: The "Glory Hole."  
During spill events, the "glory hole" provides a fascinating sight and sound for visitors.*

consolidated ash flows as colorful cliffs, spires, pinnacles and similar formations. Colorful rock outcrops and rimrock areas are prevalent throughout the reservoir area.

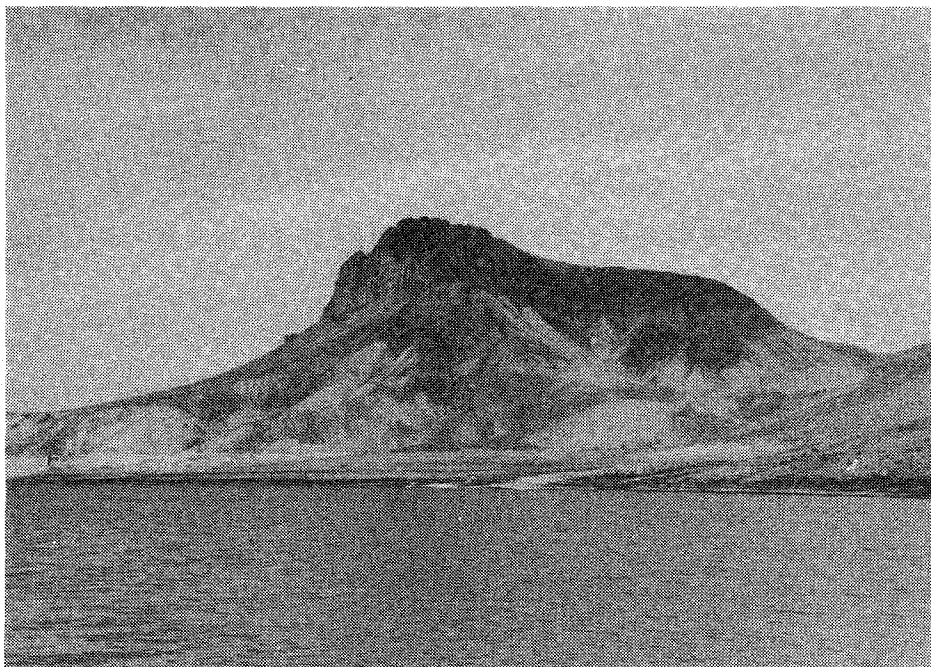
The highest concentration of pinnacles and rock outcrops occur on the east side of the reservoir between the Honeycombs and Leslie Gulch. Some of the most outstanding visual features include the Honeycombs, Leslie Gulch, Painted Canyon, Three Fingers Gulch, and Carlton Canyon.

A number of peaks and buttes are visually dominant from the water. These include Burnt Mountain, Nanny's Nipple, Saddle Butte, North Table Mountain, The Honeycombs, and Diamond and Red Buttes. There are also numerous canyons and gulches that extend away from the reservoir which provide a dramatic sense of depth and immense scale to the rugged topography.

One particularly outstanding visual resource is the Honeycombs located immediately east of Bensley Flat. The Honeycombs escarpment rises about 1,100 feet above Bensley Flat to produce one of the major scenic attractions on the reservoir. The Honeycombs geologic complex is a spectacular area of rugged canyons formed by the erosion of volcanic tuff. The cliffs and spires are due to the great thickness and uniformity of the volcanic tuff and its relative resistance to weathering. Multi-colored ridges, hills, pinnacles, and steep-walled canyons are intersected by intermittent streams and drainages. A number of rock faces are riddled by spherical cavities of various sizes, giving them a "honeycomb" or sponge-like appearance. Often these cavities widen to form caves and shelves which are overhung by fragile stone lips with smooth contours. Rock outcrops, rims, and pinnacles similar to those in the Honeycombs can also be found to the south in Painted and Carlton Canyons.



*Photo 2-11: The Honeycombs.  
The Honeycombs rise 1,100 feet above Bensley Flat to produce one of the major scenic attractions on the reservoir.*



*Photo 2-12: Nanny's Nipple.  
Nanny's Nipple (4,053 ft.), south of the Dry Creek Arm, is a prominent visual element within the Study Area.*

Further south the reservoir turns west. The profile of the surrounding viewscape becomes wider and less dramatic as the landscape changes from high mountains and steep canyons to rolling hills and more gentle slopes. Due to the low water elevation in recent years, wide expanses of flat open land were exposed.

Because of its remote location, there are very few signs of human use and development in the reservoir area. The most visually apparent uses include: cabins; a primitive airstrip at Pelican Point; a small resort; a camping and day use area at Lake Owyhee State Park; and four boat ramps with nearby parking. Except for the Leslie Gulch boat ramp, shoreline development is limited to the north half of the reservoir.

In an average water year, reservoir drawdowns average about 33 feet by late summer/early fall to meet project irrigation needs. At lower water elevations, extensive mud flats and bare earth are exposed particularly at the upper (south) end of the reservoir and in the Dry Creek Arm. During years of persistent drought (such as from 1986-1992), exposed bottom sediments below the high water line become heavily invaded by cockleburs and other noxious weeds and annuals.

A persistent high water line surrounds the reservoir. In some areas, the exposed soils and rock substrate below the high water line are lighter in color due to the settling of sediments previously suspended in the water column. Successive drops in reservoir levels produces a “staircase” effect in steep areas that contain significant amounts of gravel and loose rock.



*Photo 2-13: View Southeast from Deadman Gulch toward Carlton Canyon. Successive drops in reservoir levels produce a “staircase” effect in steep areas.*





*Photo 2-14: Aerial View of the Upper Owyhee Reservoir Area.  
The landscape in the upper reservoir area changes to rolling hills and more gentle slopes.*

### **Upper Owyhee River**

The upper Owyhee River reach extends from Birch Creek north to the reservoir and is included in the Owyhee Wild and Scenic River system. The viewshed consists largely of gently sloping hillsides with talus and bands of rimrock on many of the steeper slopes, isolated cliffs, and buttes. This portion of the Study Area is generally not as dramatic as the reservoir and lower Owyhee River areas.

The landscape along the river is relatively flat and supports a rich, well vegetated riparian area. At Birch Creek, the abandoned pastures and Morrison Ranch complex operated by the BLM is harmonious with the surrounding setting. Along both sides of the river are unmaintained primitive roads which lead to Birch Creek. These roads are a visual intrusion within the wild and scenic river corridor.



*Photo 2-15: Aerial View of Morrison Ranch.  
The Morrison (Pinnacles) Ranch at Birch Creek is accessible by a BLM maintained road.*

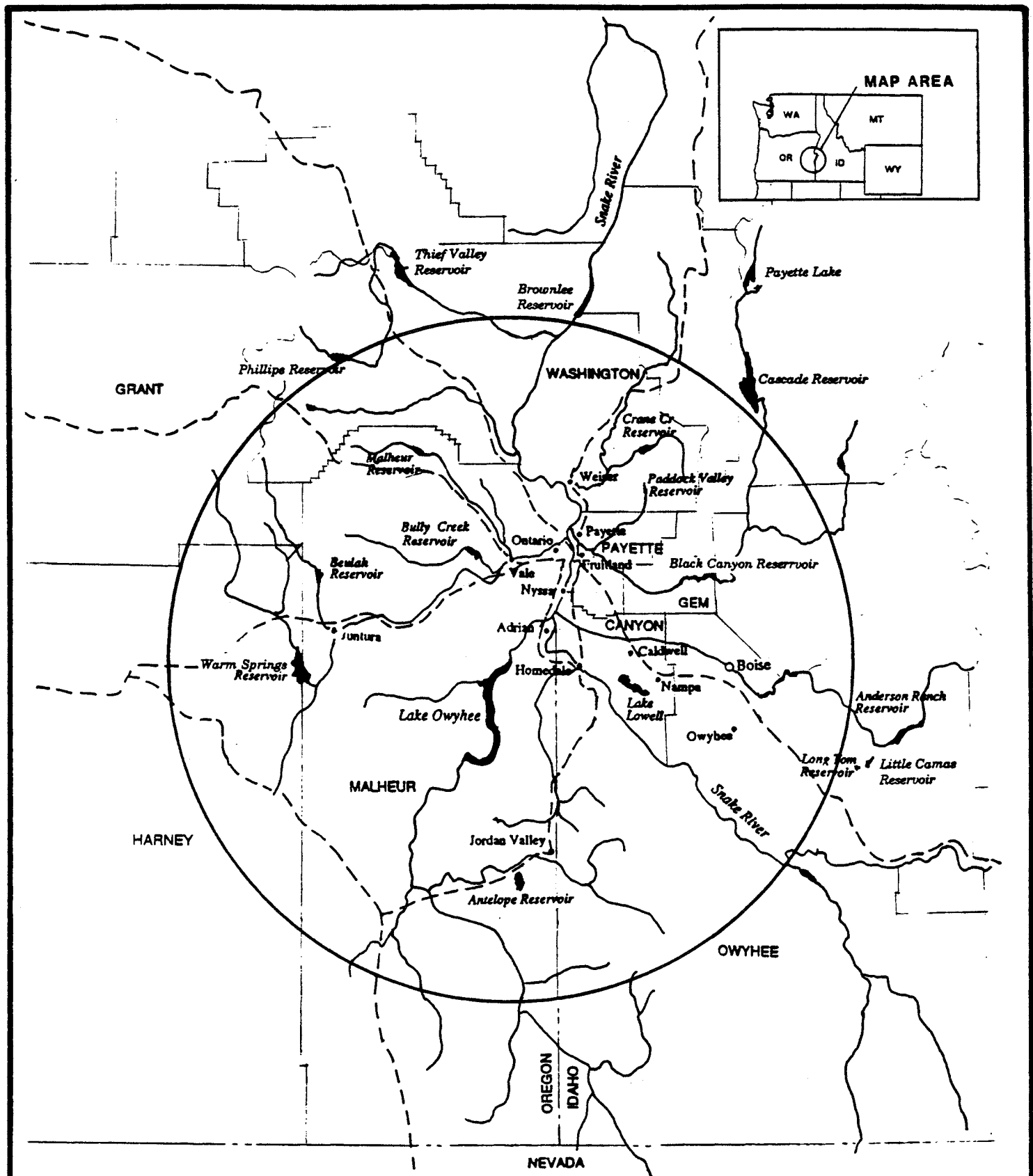
## 2.5 ECONOMIC AND SOCIAL RESOURCES

This section provides an overview of the regional factors influencing the Study Area. These factors are described in terms of regional demographic, economic, and social conditions.

Due to relatively sparse populations in eastern Oregon and western Idaho, Reclamation has defined an "Area of Influence" related to the economic and social resources surrounding Owyhee Reservoir. This Area of Influence includes those counties in Idaho and Oregon which are within 2-1/2 hours driving time of the reservoir (see Figure 2-7). Under this definition, the cities and counties in Oregon and Idaho with population centers that meet this criteria are:

<b>State/County</b>	<b>Cities and Towns</b>
<u>Oregon</u>	
Malheur	Adrian, Nyssa, Ontario, Vale, Jordan Valley
Grant	John Day
Harney	Burns, Hines
<u>Idaho</u>	
Ada	Boise
Canyon	Caldwell, Nampa
Payette	Fruitland, Payette
Owyhee	Homedale
Washington	Weiser





U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

**AREA OF INFLUENCE**

Figure 2-7





## 2.5.1 Demographic Profile

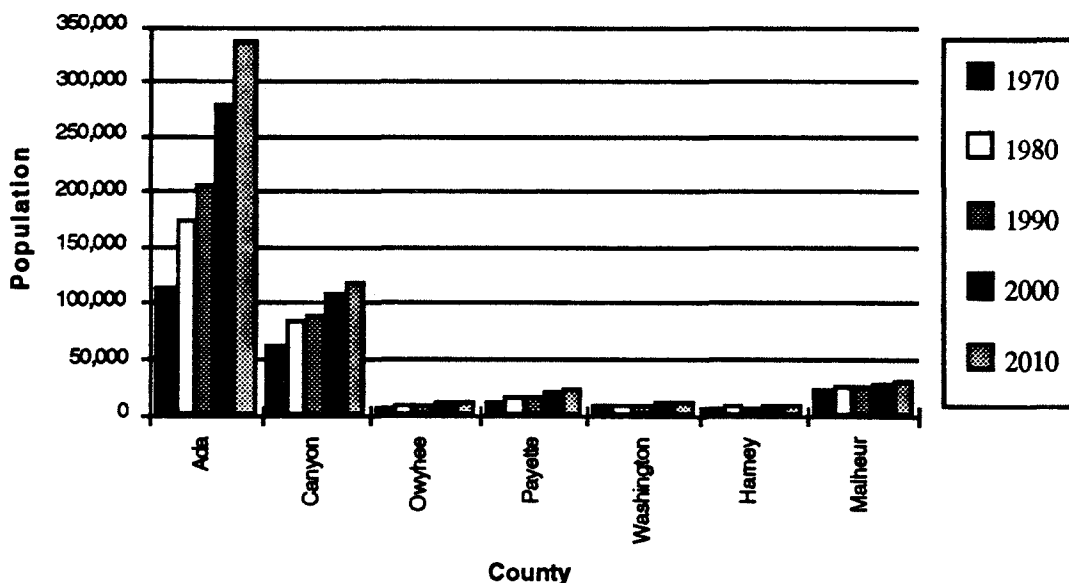
### Population

From 1970 to 1990, the population within the Area of Influence increased by 56 percent. Most of this growth occurred in the Boise metropolitan area with an increase of 83 and 47 percent, respectively, in Ada and Canyon counties. Owyhee and Payette counties experienced moderate growth rates of 31 and 32 percent, respectively. Washington, Grant and Malheur County populations all increased by 12 percent while Harney County decreased by 2 percent.

Between 1990 and 2010, the future population within the Area of Influence is projected to increase by 49 percent (approximately 185,000 people). Ada County, which is forecast to grow by 64 percent, will absorb the majority of this population increase. During this same period, Canyon County is expected to increase by 33 percent; Owyhee, Payette and Washington counties between 33 and 38 percent; and Grant, Harney and Malheur counties by about 15 percent. Figure 2-8 provides an overview of historical and forecast county population trends within the Area of Influence.

Population estimates for cities within the Area of Influence are available for the years 1988 and 1990 only. Based on these estimates: 1) Burns, Caldwell, and Nampa experienced very modest increases (less than 100 people); 2) Boise and Weiser experienced moderate increases; and 3) Adrian, Hines, John Day, Nyssa, Ontario, Vale, Fruitland, Homedale, and Payette experienced population declines. Table 2-12 provides an overview of city population estimates within the Area of Influence.

Figure 2-8: Historical and Forecast County Population Trends in Area of Influence.



Source: Idaho Power Company.

Table 2-12: Population Estimates for Cities in the Area of Influence.

City	1988	1990
<b>Oregon</b>		
Adrian	150	131
Burns	2,835	2,913
Hines	1,485	1,452
John Day	2,130	1,836
Nyssa	2,760	2,629
Ontario	9,720	9,392
Vale	1,615	1,491
<b>Idaho</b>		
Boise	200,700	205,775
Caldwell	18,340	18,396
Fruitland	2,630	2,400
Homedale	2,250	1,963
Nampa	28,320	28,365
Payette	5,700	5,592
Weiser	4,440	4,571

Source: U.S. Census Bureau.

## Housing

Information on housing in the Area of Influence was obtained from the Idaho Power Company (IPC). Compared to the U.S. average, IPC's service area (which includes the Area of Influence except for Oregon's Grant County) will continue to experience a high rate of growth in household construction (see Table 2-13). Most of this construction can be attributed to the continued rapid growth occurring in the Boise metropolitan area.

During the 1970 to 1980 period, household growth in the IPC service area experienced an average annual growth rate of 4.33%. For this same period, the corresponding rate of growth in the U.S. was 2.5% per year. In the forecast period (1990-2010), it is projected that the number of households in Idaho and eastern Oregon will increase faster than the national average (see Table 2-13).

Table 2-13: Average Annual Rate of Growth of Number of Households (1970-2010)

	1970-1980	1980-1990	1990-2000	2000-2010
Service Area	4.33%	1.94%	2.52%	1.93%
U.S.	2.45%	1.50%	1.31%	1.20%

Source: Idaho Power Company.

## 2.5.2 Economic Setting

This section provides a brief overview of the economic setting within the Area of Influence. Because economic data for each county is limited and sometimes inconsistent, this section uses an economic forecast prepared by the Idaho Power Company (Idaho Power Company, 1991). This section contains an analysis of personal income; a review of employment trends in Idaho and eastern Oregon; and a brief profile of each county in the Area of Influence.

## Personal Income Per Capita

Between 1970 and 1980, growth in personal income in Idaho and eastern Oregon was considerably higher than the national average. The average annual rate of growth in real personal income is forecast to be slightly higher than the national average through the year 2010 (see Table 2-14).

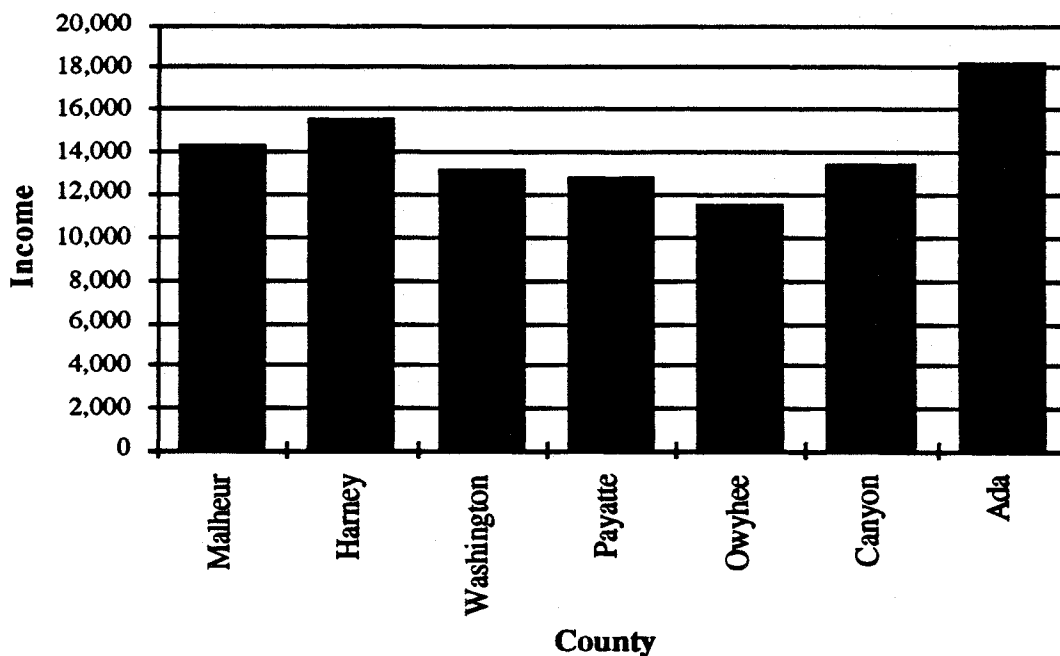
Table 2-14: Average Annual Rate of Growth of Real Personal Income (1970-2010)

	1970-1980	1980-1990	1990-2000	2000-2010
Service Area	5.21%	2.97%	2.63%	2.94%
U.S.	3.01%	2.96%	2.17%	2.22%

Source: Idaho Power Company.

Per capita income for each county in the Area of Influence varies considerably due to the diversity between rural and metropolitan areas. Ada County, which includes the city of Boise, has the highest per capita income, averaging a little over \$18,100 for 1990 (in 1991 dollars). Owyhee County has the lowest per capita income, averaging only \$11,500 for 1990. The 1990 per capita income for each county except Grant is shown in Figure 2-9.

Figure 2-9: Personal Income Per Capita (1990).



Source: Idaho Power Company.

## Employment

Employment in the Area of Influence is largely dependent on lumber, ranching, and agriculture. In the past, these basic industries have experienced severe economic impacts from national and international economic policies as well as changes in the domestic market.

The lumber industry outlook has not improved over recent forecasts. Forecasts indicate that the drastic decrease in lumber employment has ended, and a slow decline will continue. This will provide a relatively stable base for manufacturing employment improvements.

Agriculture continues to experience a decline at the modest rate of 0.3% per year. This is consistent with, but slower than, the national agricultural employment trend which is declining at a rate of 1.22% per year.

Recent mining proposals may also have an impact on employment in the Area of Influence. Active proposals located near Owyhee Reservoir include an expansion to the Delamar Silver Mine near Silver City, Idaho and the development of the Grassy Mountain site 5 miles west of Owyhee Dam. Both of these proposals are located on BLM land and would extract gold using cyanide heap leach methods.

Total employment in Idaho and eastern Oregon has been growing at a rate greater than the national average. This increase can be attributed primarily to the growth in non-agricultural job opportunities in the greater Boise metropolitan area, particularly in the computer and building products industries. Employment growth was notably strong in the 1970s when total employment grew more than twice the national average. Employment growth is forecast to increase at rates higher than the national average through the year 2010 (see Table 2-15).

Table 2-15: Average Annual Rate of Growth of Total Employment<sup>1</sup> (1970-2010)

	1970-1980	1980-1990	1990-2000	2000-2010
Service Area	5.39%	2.19%	2.86%	2.22%
U.S.	2.35%	1.96%	1.11%	1.14%

Source: Idaho Power Company

<sup>1</sup> Total employment includes manufacturing, wholesale and retail trade, finance, insurance and real estate, contract construction, services, and agriculture.

## County Profiles

Following is a brief discussion of each of the counties in the Area of Influence, their location relative to Owyhee Dam, and their primary employment base.

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## Oregon

### *Malheur County*

About 75 percent of Malheur County is Federal land. The BLM is the primary land manager in the county. About 94 percent of the county is rangeland and used primarily for domestic livestock (cattle and sheep) grazing.

There are two Reclamation Projects in Malheur County: the Owyhee Project (118,000 acres), and the Vale Project (35,000 acres). Irrigated crops are the foundation for the agricultural economy. Major crops are alfalfa hay, onions, sugar beets, potatoes, sweet corn, seed crops, mint, wheat and barley. Over 5 percent of the nation's onions (fresh and frozen) are shipped from the county. Frozen potato products, frozen and canned sweet corn, beet sugar, and peppermint oil are processed in the county.

Water-based recreation is a major contributor to the economy. The five reservoirs supporting recreation are Owyhee, Bully Creek, Beulah, Warm Springs, and Malheur. The first four were constructed by Reclamation and the last is a private reservoir constructed by the Orchard Irrigation District. Of these, Owyhee is the largest.

Adrian, located about 11 miles northeast of Owyhee Dam, is the closest town to Owyhee Reservoir. Both the Owyhee and Vale Irrigation Districts have their operating headquarters in Adrian.

Nyssa is located 12 miles south of Ontario and 25 miles north of Owyhee Dam. The major employers are a sugar beet processing plant (the only such plant in Oregon) which employs up to 750 people during the peak season, and a sweet corn canning plant which employs up to 350 people. Other major businesses include: fresh onion packing and shipping sheds, fertilizer blending plants, a grain elevator, and seed conditioning.

Ontario, located about 37 miles north of Owyhee Dam, is the largest city in the county. Like Nyssa, Ontario's employment base centers on food processing. Ore-Ida Foods, employing nearly 1,000 people, is the largest shipper of onions in the Nation. Various other food processing and packing operations are significant local employers. Ontario serves as the primary retail trade center for Malheur, Harney, and Grant Counties. Because of its close proximity to Idaho and the fact that Oregon has no sales tax, the city also receives business from neighboring Idaho counties.

Vale, located about 28 miles northwest of Owyhee Dam, is the county seat. The BLM District Office located here has 135 permanent employees. Vale is located in a "Known Geothermal Resource Area." Hot springs east of town are used to heat a mushroom growing operation; commercial greenhouses which produce tomatoes, cucumbers and other vegetables; a meat packing plant; and a corn drying operation.

### *Grant County*

Major industries in Grant County are forestry, agriculture (cattle), and recreation. The county includes portions of four national forests which supply logs for local saw mills and forage for livestock operations. It shares with Harney County the largest Ponderosa pine forest in the Nation. The Fossil Beds National Monument is also located in Grant County.

### *Harney County*

Harney County is the largest county in Oregon. Its principal industries are forestry, wood products manufacturing, and cattle. The Malheur National Wildlife Refuge is also located in Harney County. Burns and Hines are the two largest communities. Major employers include two wood products manufacturing companies, an onion processing plant (operated by the Pauite Indian Tribe), and the BLM.

## Idaho

### *Ada County*

With a population of more than 200,000 people and significant growth in the past 10 years, Ada County is a major contributor to Idaho's economy. Although agriculture is important, non-agricultural activities are predominant.

The Boise metropolitan area is becoming increasingly urbanized with manufacturing, government, retail trade, and service industries. Boise is located about 85 miles northeast of Owyhee Dam. As the capital city of Idaho, Boise is the largest city in the State and headquarters for all State agencies. Several Federal agencies are located in Boise including the Bureau of Reclamation's Pacific Northwest Regional Office and Central Snake Projects Office which is responsible for the administration and management of Owyhee Reservoir. Boise is the only metropolitan city in the Area of Influence. Several large corporations have their headquarters in Boise. The major employment industries are computer chip and components manufacturing, and wood products.

### *Canyon County*

Canyon County is located west of Ada County and borders the State of Oregon along the Snake River. Principal cities include Caldwell and Nampa. Major employers include sugar beet refineries, meat and potato processing, travel trailer and mobile home manufacturing, and semi-conductor assembly and production.

### *Payette County*

Payette County has predominantly an agricultural economy based largely on the production and processing of fruits, potatoes, and onions. The two principal towns are Fruitland and Payette, both located on the Snake River.

### *Owyhee County*

Owyhee County is the second largest county, by area, in the state of Idaho. The two principal industries are agriculture and the mining of precious metals. Raising cattle and sheep is the predominant agricultural activity and 85% of the county is rangeland. About 33,000 acres of land are irrigated with water from Owyhee Reservoir.



## *Washington County*

The major industries in Washington County are agricultural, wood products (windows, buildings, trusses, etc.), mobile home manufacturing, tourism, food processing, and gypsum mining. Weiser, the largest town in Washington County, is located 20 miles north of Ontario.

### **2.5.3 Local Services and Utilities**

Electrical, water, sewage, and solid waste collection services are very limited in the Study Area. These services are primarily available near Owyhee Dam at Lake Owyhee State Park, Lake Owyhee Resort (Resort), and Government Camp. Fire protection, law enforcement, and medical services are provided by various agencies.

#### **Electrical Service**

Idaho Power Company provides electrical service to the Government Camp, Resort and State Park areas. At Lake Owyhee State Park, 20 amp electrical service is available for recreational vehicles (RVs) at the McCormack campground. Although this was the standard amperage in the past, many vehicles now require 30 amps. To upgrade the service to 30 amps would require rewiring the entire park. The state has no plans to do so until funds become available. The Resort also provides electrical hookups for RVs. There is no electrical service at Leslie Gulch or the cabin sites.

#### **Water Supply**

There are three pressurized public water supply systems near the dam. They serve the State Park, Resort, and Government Camp. The Resort and State Park systems utilize nearby springs as their water supply and have small storage reservoirs and small diameter distribution lines. The Government Camp system consists of a well with a submersible pump, a small pressure tank, and distribution lines.

Although there have not been any bacteriological problems, the system serving the State Park is chlorinated. The supply of spring water, in combination with a 10,000 gallon storage reservoir, has satisfactorily met past demands. The existing system is unlikely to meet additional demands without a new source of supply or added storage capacity.

The resort's water supply is unchlorinated. If future chlorination is required, an increase in reservoir size (presently 6,500 gallons) will be needed to provide proper disinfection contact time. During the month of August, the resort has to curtail lawn watering in order to meet present levels of demand. The existing system cannot be expected to meet additional demand should the resort expand its operations.

Records on the size and depth of the Government Camp well cannot be located although personnel at the dam believe it to be about 100 feet deep. The system has been able to serve present demand since the storage cistern system located on a hillside above the dam was abandoned and replaced with a pressure tank. On several occasions, the water level has reportedly dropped below the siphon when the pump was running continuously to fill the cistern.

There is no potable water at Leslie Gulch. Spring Creek, located about 1.3 miles south of the Leslie Gulch boat ramp, is a potential potable water supply for the recreation site. Most of the water used at the cabin sites is brought in by boat, pumped from the reservoir, or provided from individual wells.

### **Sewage Disposal**

The McCormack Campground (Lake Owyhee State Park) and Lake Owyhee Resort have individual sewage disposal systems consisting of a septic tank and drainfield. Gordon Gulch Park (a day use area), Snively Hot Springs, and the LOCWWA "Gateway" Interpretive Site have new vault toilets which are pumped out on a regular basis.

The sewage system at McCormack Park consists of a pump station and septic tank. State Park personnel report that the system was installed around 1970 and appears to be operating properly. The system was designed to handle existing waste loads. Any campground expansion would require additional treatment facilities.

The Resort's disposal system is located between the convenience store and lake. Although it met current standards when constructed in 1976, it is marginal by present Oregon Department of Environment Quality standards. The existing system would need to be expanded to properly treat additional waste loads.

Malheur County maintains a boat launch and parking area about 1/4-mile southeast of the dam. Portable vault toilets are provided and maintained under contract during the recreation season (usually from May to September).

Sanitary facilities at Leslie Gulch consist of two single-unit vault toilets which are maintained by the BLM. Sanitary facilities at the cabin sites consist of pit toilets which are constructed and maintained by each cabin owner.

### **Solid Waste**

Garbage is collected daily at the State Park and hauled to the county landfill once a week or as needed. The Resort provides dumpsters which are emptied by contract hauler every other week or as needed.

Garbage service at Leslie Gulch is provided by the BLM. Pick-up is typically biweekly during the peak recreation season and as needed during the rest of the year. Trash pick-up at other BLM facilities in the Study Area (i.e. Snively Hot Springs and the Lower Owyhee Canyon Watchable Wildlife "Gateway" Interpretive Site) is weekly or as needed.

The Owyhee Irrigation District is responsible for garbage collection at Government Camp.

### **Fire Protection**

The Adrian Rural Fire District has the responsibility of responding to fire emergencies in the vicinity of Owyhee Dam (Government Camp, Resort, and State Park). The District estimates it would take about 30 minutes to respond to a call. Although there have been a

few vehicle fires on Lake Owyhee Road which the District has responded to, there has never been a fire at any of the three primary areas which require their services. Because of the lack of accessibility by vehicle and distance, the District would be unable to respond to a fire at the cabin sites.

The Adrian Rural Fire District has no full-time employees. It is an all-volunteer department with a roster of 15 persons. Their equipment consists of a 750 gallon/minute pumper truck and a 3,100 gallon tanker truck.

The BLM is the primary agency responsible for providing fire protection on Federal lands in and adjacent to the Study Area.

### **Law Enforcement**

Law enforcement services in rural areas are primarily provided by the Malheur County Sheriff and Oregon State Police. The BLM, Oregon State Parks, Oregon Marine Patrol, and Oregon Department of Fish and Wildlife (ODFW) also provide varying levels of law enforcement services in and adjacent to the Study Area.

The Malheur County Sheriff's Department is empowered to enforce all Oregon Statutes. This generally occurs within Malheur County, however, they do have authority to cross county lines within the state. County sheriff activities are coordinated with Federal and state law enforcement agencies and assisted by the public. The response time from Vale, where the county sheriff's office is located, to the vicinity of Owyhee Dam is about 40 minutes. However, whichever law enforcement agency has an officer closest is generally responsible for responding to emergency calls.

State Police are empowered to enforce all Oregon statutes without limitation by county or other political subdivisions. State Police enforce state laws and rules including those adopted by the State Marine Board, Oregon Parks and Recreation, and ODFW. State Police activities are coordinated with local and Federal law enforcement agency personnel.

The Oregon State Marine Board regulates the use of watercraft on waterways throughout the state. The Board has the authority to adopt rules governing the operation of recreational watercraft including the ability to adopt special regulations relating to the operation of boats including the establishment of designated speeds and prohibition of the use of motorboats for the protection of fish and wildlife at the request of the ODFW (BLM, 1992). State boating laws and operating rules are enforced by the county sheriff's department and State Police.

The Marine Board contracts for local enforcement services and provides the necessary funding for marine patrol staff, equipment, and training. In addition to law enforcement, marine patrols conduct safety inspections, place and maintain uniform waterway markers and navigational aids, and provide search and rescue services.

The ODFW is responsible for developing and administering fish and wildlife regulations affecting all lands within the state. ODFW monitors angling, hunter effort and harvest, and proposes regulatory changes as needed to ensure optimum numbers of fish and wildlife are maintained.

A county marine deputy sheriff patrols Owyhee Reservoir at least one day a week from April 1 through October 30. The reservoir is so large that there is seldom any reported conflicts between water/jetboat skiers and other boaters. Only one boat operator has been cited for being drunk over the last seven years, and, in 1991, the first fatality on the reservoir in more than four years occurred when a swimmer drowned (Anderson, 1992). A marine deputy patrols the reservoir area one to three times a week. Responsibilities include: boat inspections, responding to emergencies, and towing boats that have broken down or run out of gas. There are about three to four burglaries reported by cabin owners each year.

Currently, there are no speed limits on the reservoir. However, around all boat docks and launch ramps there is a "no wake" zone which extends for 200 feet.

The BLM has law enforcement authority and provides periodic law enforcement patrols and services along the lower and upper Owyhee River and at Leslie Gulch.

### **Medical Services**

Medical services including emergency services and ambulance transport is provided by the Nyssa Volunteer Ambulance Service. Response time can range from 30 minutes to an hour (Mirey, 1992)

## **2.5.4 Regional Recreation Profile**

Due to its strategic location, Owyhee Reservoir provides recreational opportunities to a far greater population than generated from the immediate area. To determine the external recreational demand requires an understanding of the overall patterns of recreation use as established by recent recreational use studies.

### **State Comprehensive Outdoor Recreation Plan (SCORP)**

The most detailed analyses of outdoor recreation demand in the Pacific Northwest are contained in the Pacific Northwest Outdoor Recreation (PNOR) Survey (Oregon State University, 1989). This project was funded by the states of Washington, Idaho and Oregon and the data derived provides the basis for each State Comprehensive Outdoor Recreation Plan (SCORP).

Each of the three northwestern states that contributed to the PNOR survey prepared a state-specific 1990 SCORP. This document is required to be updated every five years and is a requisite for the receipt of federal outdoor recreation funding. The prime purpose of the document is to determine recreation demands, supply, and needs in SCORP planning areas. These studies identify the existing supply and projected demand for recreation sites or development. Although based on statistically reliable sampling methods at the State or broad regional level, the SCORP provides only limited information at the specific site level.

By reviewing the basic data for each of the three states, it is possible to estimate the recreational demand within a certain region. This provides an indication of where demand originated and the anticipated growth for 60 outdoor recreation activities. These

data are based on Activity Occasions, defined as the number of times an individual participated in an activity during a 24-hour period or a reasonable amount of that time.

For the purposes of this document, only those activities known to occur regularly within the Study Area are reviewed. As a prelude to this analysis a broad review of the overall Tri-State recreation data was made to define the major generators of recreation activity destined to southeast Oregon. This initial review indicated that a high percentage of recreational activities occurring in southeastern Oregon were generated from adjacent regions of Oregon, primarily from the west and north, and also by recreationists from neighboring Idaho. A general appraisal of use patterns by state of origin follows.

### Oregon

Located within Oregon SCORP District 11 (District 11) which includes Lake, Malheur, and Harney counties, Owyhee Reservoir attracts visitors from a large geographic area. Although District 11 includes Lake County to the west and excludes Grant County to the north, the District 11 data are representative of the Area of Influence. Table 2-16 shows recreation activity occasions by Oregon residents within District 11 for the years 1987 and 2000.

The 1990 Oregon SCORP provides estimates of regional population, recreation participation, recreational activity growth, and recreational needs for the years 1987 and 2000. According to the Oregon SCORP, about 78 percent of the RV campers are from Oregon with 45 percent originating from the Portland metropolitan area; 60 percent of the tent campers are from Oregon, primarily the southwest; and 44 percent of the anglers are from adjacent Oregon regions to the north and west.

Table 2-16: Recreation Activity Occasions by Oregon Residents within Oregon SCORP District 11 (1987-2000).

Activity	1987	2000	Growth %
Camping	629,697	850,502	+33
Swimming	71,544	89,298	+25
Fishing	345,510	415,212	+20
Waterskiing	55,787	64,922	+16
Boating	90,512	112,775	+25
Hunting	140,878	145,874	+3

Source: Recreational Needs Bulletin, Oregon SCORP (1991).

### Idaho

To determine recreational activities originating in Idaho and occurring in District 11 requires the use of the original PNOR survey data. The PNOR survey identifies how recreation activities originating in Idaho are distributed in District 11.

Idaho SCORP District 3, the primary contributor to District 11's recreation activity occasions, includes the ten counties of southwestern Idaho: Adams, Valley, Payette,

Gem, Washington, Canyon, Ada, Boise, Elmore and Owyhee. The District includes the Boise metropolitan area. The data shown in Table 2-17 is in addition to the Oregon District 11 activity occasions shown in Table 2-16.

Table 2-17: Estimates of Recreation Activity Occasions Originating Within Idaho SCORP District 3 and Taking Place in Oregon SCORP District 11 (1987-2000).

Activity	1987	2000	Growth %
Camping	138,312	140,387	+2
Swimming	69,649	76,377	+10
Fishing	188,722	206,161	+9
Waterskiing	54,080	59,304	+10
Boating	59,368	66,481	+10
Hunting	47,383	48,463	+2

Source: Pacific Northwest Outdoor Recreation Study, Oregon State University (1989).

A composite by percentage of both Oregon and Idaho recreation use in District 11 is shown in Table 2-18. These data are derived from published and unpublished SCORP data for both Oregon and Idaho. Idaho-based recreationists represent a significant portion of the users within District 11 and at Owyhee Reservoir.

Table 2-18: Distribution of Idaho and Oregon Recreational Activity Occasions within Oregon SCORP District 11 (1987-2000).

Activity	1987		2000	
	Oregon	Idaho	Oregon	Idaho
Camping	82%	18%	86%	14%
Swimming	53%	47%	54%	46%
Fishing	62%	38%	65%	35%
Waterskiing	51%	49%	52%	48%
Boating	62%	38%	65%	35%
Hunting	75%	23%	75%	25%

Source: Pacific Northwest Outdoor Recreation Study, Oregon State Outdoor Recreation Plan and Appendices, Idaho State Outdoor Recreation Plan and Appendices.

## Regional Recreation Projections

Projections of recreation activity occasions in District 11 must be tempered by the fact that these activities occur in a district with many competing recreational resources. As a practical matter, however, some types of recreation at Lake Owyhee can be described as unique within District 11, while other activities can be engaged in at a wide variety of locations. The criterion here is the availability of the resource within the region and the degree of dispersion of recreationists.

The potential use of a recreation facility for each of the six recreation activities most likely to occur at Lake Owyhee is discussed below. For District 11, Table 2-19 portrays the projected growth anticipated between 1987 and 2000 in total recreation activity occasions, and Table 2-20 describes the recreation facility supply, use, and relative need during this period.

Table 2-19: Total Recreation Activity Occasions and Projected Growth Within Oregon SCORP District 11 (1987-2000).

Activity	1987	2000	Projected Growth
Camping	768,009	990,889	29%
Swimming	141,193	165,675	17%
Fishing	543,232	621,373	16%
Waterskiing	109,867	124,226	13%
Boating	149,880	179,256	20%
Hunting	188,261	194,337	3%

Source: Pacific Northwest Outdoor Recreation Study, Oregon State Outdoor Recreation Plan and Appendices, Idaho State Outdoor Recreation Plan and Appendices.

### Camping

With a 29% increase, camping is projected to be the highest growth activity within District 11. In 1987, over 60% (about 460,000) of these activity occasions were RV camping, of which 25% originated in Idaho. Table 2-20 indicates that on a use/supply ratio basis, additional campsites are rated as the highest need in District 11.

### Swimming

With an anticipated 17% increase in regional use, swimming is a dispersed activity that can take place at any suitable site in District 11. Existing swimming opportunities at Lake Owyhee are considered sufficient to meet future needs.

### Fishing

Fishing activity is expected to increase by about 16 percent in District 11. For this activity, about 36 percent is bank fishing and 64 percent is boat fishing. Bank fishing is a dispersed activity which can take place at any suitable location that provides this

**Table 2-20: Oregon SCORP District 11 Facility Supply, Use, and Relative Need (1987-2000)**

Facility	Supply	Activity Occasions		% of Total State Use		% of Increase	Need Ranking out of 8 Oregon Regions <sup>3</sup>
		1987	2000	1987	2000	1987-2000	
Camping (campsites)	881	768,009	990,884	5%	4.5%	29%	1st highest need
Off-Road Vehicles (trail miles)	0 <sup>1</sup>	276,206	349,897	4%	4%	26%	1st highest need
Picnicking (Tables)	432	200,161	234,752	4%	4%	17%	3rd highest need
Boat Ramps (lanes)	32	282,000 <sup>2</sup>	341,000 <sup>2</sup>	3%	3%	21%	5th highest need
Cross Country Ski (trail miles)	0 <sup>2</sup>	7,910	9,730	1%	1%	23%	3rd highest need

<sup>1</sup> No off-road vehicle trails are designated in District 11. ORV use is occurring on undesignated trails.

<sup>2</sup> Data for Oregon SCORP District 11 only. No comparable Idaho data.

<sup>3</sup> This regional need ranking is based on the calculated use per facility as derived from the Oregon SCORP.



resource. About 40 percent of the bank anglers in District 11 are from Idaho, who are expected to use the closest opportunity to their origin.

Boat fishing in District 11 is projected to increase by about 26 percent. A major portion of this activity is anticipated to occur at Lake Owyhee due to the lack of alternative bodies of water in the district which can meet this need. Other lakes in the area are either of insufficient size, experience water quality problems, or lack a fishery resource. Idahoans are significant users due to their proximity to the area. Approximately 40 percent of the boat fishing which occurs in District 11 originates in Idaho.

The planning implication for Lake Owyhee is the potential demand for additional boat ramps (lanes). District 11 is listed in the Oregon SCORP as having the fifth highest need for additional boat ramps out of the 8 state SCORP districts.

### Waterskiing

Waterskiing is expected to increase by about 13% within the district. Over 50% of the waterskiers using area lakes and reservoirs are from Idaho. Although some minor lakes/reservoirs are used for this activity in District 11, the proximity of Lake Owyhee to Idaho, together with the suitability of the area for this activity, should attract a high percentage of the total waterskiing activity occasions. Some competition may be experienced from the nearby Brownlee Reservoir. Planning implications of this use will be similar to the swimming activity--water quality and user safety.

### Boating

Boating is anticipated to increase by about 20% within District 11. Over 60% of the boating activity originates in Idaho. As with boat fishing, a major proportion of this activity is anticipated to occur at Lake Owyhee as few comparable areas exist within District 11, and the area is fairly close to Idaho. District 11 is listed as having the fifth highest need for additional boat launch lanes out of the 8 SCORP districts.

### Hunting

Hunting is a dispersed activity that is expected to increase only 3%. Because this activity is seasonal and limited by the availability of the resource, the planning implications for Lake Owyhee are minor.

### Other Activities

Table 2-21 shows other facilities that affect the Study Area. There are an estimated 432 picnic tables in District 11. Demand is expected to increase by about 17%, which represents the third highest need out of the 8 state SCORP districts.

The Oregon and Idaho SCORPs also identified two uses taking place in District 11 with no facilities being designated. No cross country trails are designated in the District, but about 80,000 users engaged in the activity on unmarked trails. This activity is expected to increase by about 23% in the District, and cross country ski trails are ranked as the 3rd highest need.

Additionally, 276,206 activity occasions occurred for off-road vehicles in 1987. This activity is expected to increase by about 26% and ranked as the 1st highest need in District 11.

### **Other Recreation Opportunities in the Area of Influence**

In addition to Owyhee Reservoir, there are several other large reservoirs and lakes located within the Area of Influence which potentially could accommodate a portion of the projected increase in recreation demand. Table 2-21 lists the major water oriented recreational opportunities in the Area of Influence. Not included in this table are numerous small lakes and rivers with minimal facilities.

Of the areas listed in Table 2-21, Anderson Ranch, Arrowrock and Lucky Peak Reservoirs are part of the Boise River System. During the summer irrigation season, Arrowrock is first lowered, followed by Anderson Ranch and Lucky Peak. The recent six year drought has been a strain on the reservoir system's recreation resource, with 1992 being the worst year on record for low reservoir levels.

Lucky Peak is the most popular recreation site within the Boise River System due to its very close proximity to the city of Boise. Lucky Peak Reservoir is primarily a day-use recreation area with boat-in camping. The lake is 12 miles long, has 45 miles of shoreline, and 3,019 surface acres. Discovery State Park below Lucky Peak Dam is the most visited state park in Idaho.

During years with normal rainfall, the reservoir reaches full pool in early June. A full pool is maintained until the end of August when levels drop quickly. Facilities include 11 boat launch lanes and 173 picnic tables. An estimated 90% of the visitors to Lucky Peak live within 25 miles. Peak attendance occurs during the summer months. In 1992 there were roughly 450,000 visitors. Because of this heavy use, Lucky Peak is near its recreation carrying capacity (Beck and Baird, 1993).

Anderson Ranch Reservoir was constructed on the South Fork of the Boise River in 1950. It has 50 miles of shoreline and 4,740 surface acres of water at full pool. Anderson is surrounded by steep rolling hills covered by sagebrush, bitterbrush, grasses and aspen. This steep terrain limits the potential for development of recreational facilities in some areas.

Recreation visits to Anderson Ranch Reservoir in 1991 totaled around 68,000. The major draw to this area is fishing, as it is one of the more popular kokanee fisheries in southern Idaho. Facilities include a resort with restaurant, RV hookups, and an RV dump station located at the upper end of the reservoir. There is potential for increased recreation use and development at Anderson Ranch Reservoir. This potential is dependent upon improved access and boater facilities as well as water supply. The water level at Anderson Ranch Reservoir is held as long as possible before increased releases are made to maintain water levels at Lucky Peak. Recreation potential may be increased by development of boat-in camps (Beck and Baird, 1993).

Arrowrock Reservoir is located about 20 miles from Boise on the Boise River. It is immediately above Lucky Peak Reservoir in a steep rolling landscape. The reservoir provides about 3,150 surface acres of water at capacity. The reservoir is narrow, being only 1,500 feet wide on average.

Table 2-21: Recreational Facilities at Lakes and Reservoirs in Area of Influence.

Lake/ Reservoir	Management/ Ownership	Launch Lanes	Picnic Tables	Camping Spurs	Expansion Potential
<b>OREGON</b>					
Beulah	MC/USBR	0	0	0	limited
Bully Creek	MC/USBR	2	2	32	good
Malheur	MC/Private	1	0	0	limited
Owyhee	BLM/OSPR/USBR/MC	10	56	40	limited
Phillips Lake	USFS/USBR	6	90	82	good
Thief Valley	USBR/FS	1	12	10	limited
Unity	USBR	2	17	30	limited
Warm Springs	BLM/USBR	1	2	0	poor
Brownlee	BC/BLM/IDPR/IPC	13	117	342	good
<b>IDAHO</b>					
Anderson Ranch	USFS/USBR	9	0	103	limited
Arrowrock	USFS/USBR	2	0	1	good
Black Canyon/Montour	USBR	8	108	13	poor
Crane Creek	IDFG	0	0	0	poor
Horsethief	IDFG	1	0	0	limited
Lake Lowell	FWS/USBR	5	24	0	poor
Lost Valley	USFS	1	0	43	limited
Lucky Peak	IDPR/USFS/COE	11	173	0	limited
Mann Creek	USBR	1	12	10	poor
Paddock	Private	1	0	0	poor
Warm Lake	USFS	3	8	39	poor

**Abbreviations:**

BC	Baker County
BLM	Bureau of Land Management
FWS	Fish and Wildlife Service
IDFG	Idaho Department of Fish & Game
IDPR	Idaho Department of Parks & Recreation
IPC	Idaho Power Company
MC	Malheur County
OSPR	Oregon State Parks and Recreation
COE	Army Corps of Engineers
USBR	Bureau of Reclamation
USFS	Forest Service

Source: Bureau of Reclamation

Recreation visits at Arrowrock Reservoir totaled approximately 15,000 in 1991. Recreation has been especially poor in recent years due to the continued drought. The water level at Arrowrock is generally lowered first for irrigation in order to maintain water levels at Lucky Peak. Fishing is relatively poor due to the extreme fluctuations in water levels and temperature. Recreation facilities are minimal with only one 3-unit pack-in/pack-out campground available. Given improved access and boater facilities, there is good potential for increased recreational use.

Brownlee Reservoir is another reservoir that is comparable in size to Owyhee Reservoir. Located north of Owyhee on the Oregon-Idaho border, this reservoir is a popular recreation area especially for boating, fishing, and camping. There are four agencies managing recreation facilities along its shoreline: Baker County, BLM (Vale and Boise Districts), Oregon Department of Parks and Recreation, and Idaho Power Company.

Baker County manages Hewitt Park and the recently developed Holcum Park on Brownlee Reservoir. Hewitt Park facilities include 2 launch lanes, 20 picnic tables and 43 camping spurs. Holcum Park was opened in May of 1992 and is primarily a day-use facility with 2 launch lanes, parking, and 5 picnic tables. Future expansion plans include restrooms, a fish cleaning station, camping hook-ups, and landscaping (R. Morrow, Baker County, 9/21/93).

The BLM manages both the Spring and Steck recreation sites on Brownlee. The Spring recreation site includes 2 launch lanes, 17 picnic tables, and 34 camping spurs (mostly group sites). In 1991, the recreation site was expanded and improved with a new parking lot, boat ramp, restrooms, and access road. The Spring recreation site is at capacity and there are no plans to expand it further (J. Meyer, BLM, 9/23/93). The Steck recreation site contains 2 launch lanes, a boat dock, 33 camping spurs, and approval to build 4 single-vault toilets. Future plans include 28 more camping spurs, 6 additional vault toilets, 5 picnic shelters (with tables), and expanded boat launch facilities.

Fairwell Bend State Park is managed by the Oregon Department of Parks and Recreation. Facilities include 2 launch lanes, 75 picnic tables, and 96 camping spurs. Expansion plans include 40 additional camping spurs, a designated swimming area, showers, water and electrical hookups, and a day-use area (L. Gruis, ODPR, 9/17/93).

Idaho Power Company manages the Woodhead recreation site on Brownlee. Facilities include 2 launch lanes, 134 camping spurs, a day use area with 75 picnic tables, and a 64-vehicle parking lot. Expansion plans include 60 to 80 more camping spurs, a fish cleaning station, showers, and restrooms (D. Wood, Idaho Power Company, 9/17/93).

Of the remaining lakes and reservoirs, there are few opportunities to provide additional facilities. Lake Lowell, which is located between the cities of Nampa and Caldwell, is shallow (38 feet at the deepest point) and located within a National Wildlife Refuge. Warm Lake is fully developed and at capacity with 3 launch lanes, 8 picnic tables, and 39 camping spurs. Expansion at Black Canyon is limited due to terrain constraints. Crane Creek and Mann Reservoirs, like Arrowrock, have early and/or significant drawdowns making them unsightly, inaccessible, and poor for fishing. Paddock Reservoir and Malheur Reservoir are restricted by private ownership. Horsethief Reservoir is so heavily used (despite the lack of facilities) that the fishing pressure keeps the size of the fish small. Improvements are planned for Lost Valley Reservoir, but the number of facilities will be minor due to the limited amount of space available for development. Malheur

County has recently made improvements to the facilities at Beulah. There is some fishing and hunting at Beulah although facilities are minimal.

In conclusion, a majority of the reservoirs within the Area of Influence are presently used at or near capacity. As such, there is little opportunity for new facility development or to accommodate additional recreation demand.

### **Malheur County Tourism Planning**

In addition to recreation opportunities at lakes and reservoirs in the Area of Influence, tourism development plans by Malheur County also have an effect on recreation use at Lake Owyhee. The Malheur County Economic Department has developed a tourism master plan (Malheur County, 1992) to promote the region's rich history, natural resources and cultural diversity. The emphasis of the plan is on promoting a true "western" experience through such themes as festivals, improved community appearance, wide open spaces and working ranches.

The plan has identified a number of goals to promote tourism opportunities. These include:

- 1) Providing amenities for capturing the senior market.
- 2) Expanding the area's existing festivals to serve as "destination events."
- 3) Promoting tourism through information centers and interpretive kiosks.
- 4) Developing a written tour guide to assist visitors in experiencing the County's many attractions and experiences.

While all of the goals potentially could increase recreation use of the Study Area, the tour guide could have the most significant effect. This guide is planned to be designed to follow various loop tours and be used as a self-guided driving tour, marking attractions, historic, agricultural, geologic and ecological landmarks.

The Lake Owyhee Road is one of the loop tours the County is planning to market. It has been nominated for state designation as a Scenic By-Way. If approved, Lake Owyhee Road would be identified as a scenic route on maps and other visitor information materials, including the tour guide. This designation would increase exposure of the Study Area on a national level.

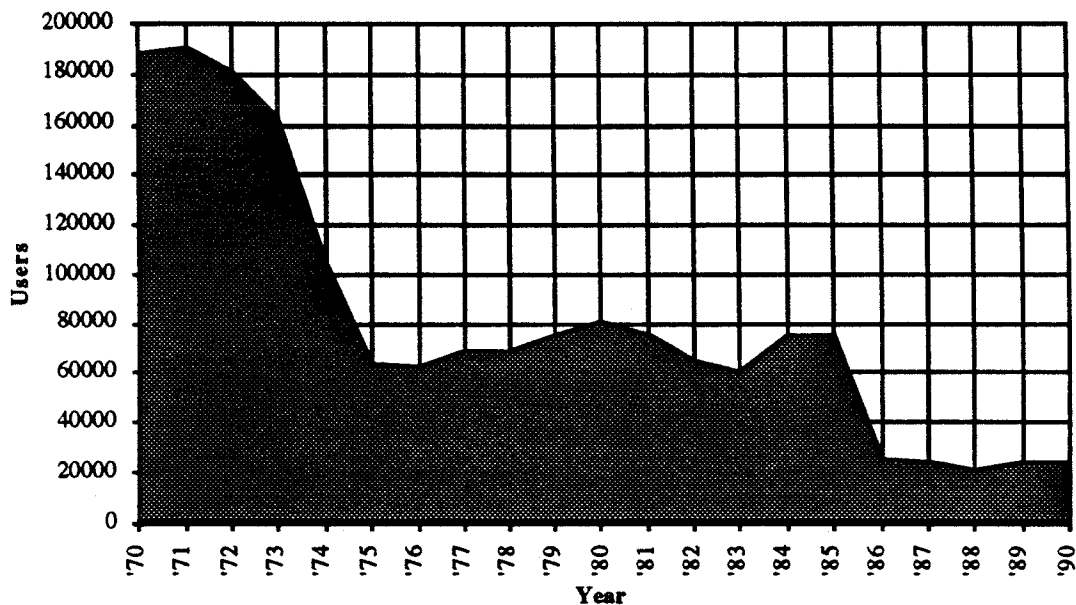
### **Owyhee Reservoir Recreation Demand**

The annual number of recreationists at Owyhee Reservoir has been steadily declining since 1971 (see Figure 2-10). The decline may in part be attributed to a decline in fish size and catch rates, and the conversion of Bully Creek Reservoir in 1973 to warmwater fish production which became the area's top crappie producer in 1980.

Another factor contributing to the decline in recreational use is the fluctuation in reservoir water surface elevation. Due to a prolonged drought, the 1992 reservoir elevation was at its lowest point in 12 years. Using the month of June as a benchmark, the 1992 reservoir surface elevation was 2,596 feet, 59 feet below the average elevation for the past 12 years and 74 feet below the high water line of 2,670 feet (See Figure 2-11). Such a substantial drop in reservoir elevation has a significant adverse effect on the quality of the recreation experience. As boat ramps become increasingly distanced from the reservoir water

surface elevation, boat launch and retrieval operations become increasingly difficult to negotiate. Additionally, the barren shoreline is unattractive, reducing the aesthetic quality of the area for picnicking, bank fishing, swimming, and other day use activities.

Figure 2-10: Owyhee Reservoir Annual Recreation Use Counts (1970-1990).



Source: Bureau of Reclamation.

The Oregon Department of Parks and Recreation has statistics on camper nights at all of their camping facilities. Camper nights include regular individual/family occupied campsites, camper occupied overflow areas, hiker/biker campers, and group camp users. Annual totals are from July 1 to June 30 of each year.

Over the past nine years, camper nights at McCormack have ranged from 6,425 in 1988-89 to 10,837 in 1982-83. The average number of camper nights is approximately 8,250 per year (see Figure 2-12). Camper nights have decreased moderately over the 1982-1991 time period, which may be attributed in part to low reservoir levels in recent years.

Use figures at the park typically coincide with fishing conditions at the reservoir. When angling success is good, visitation increases. According to recreation data collected by the Oregon Parks Department, visitors primarily come from (in descending order); Southwest Idaho (Ada County), Portland, Ontario, and other areas within the Area of Influence.

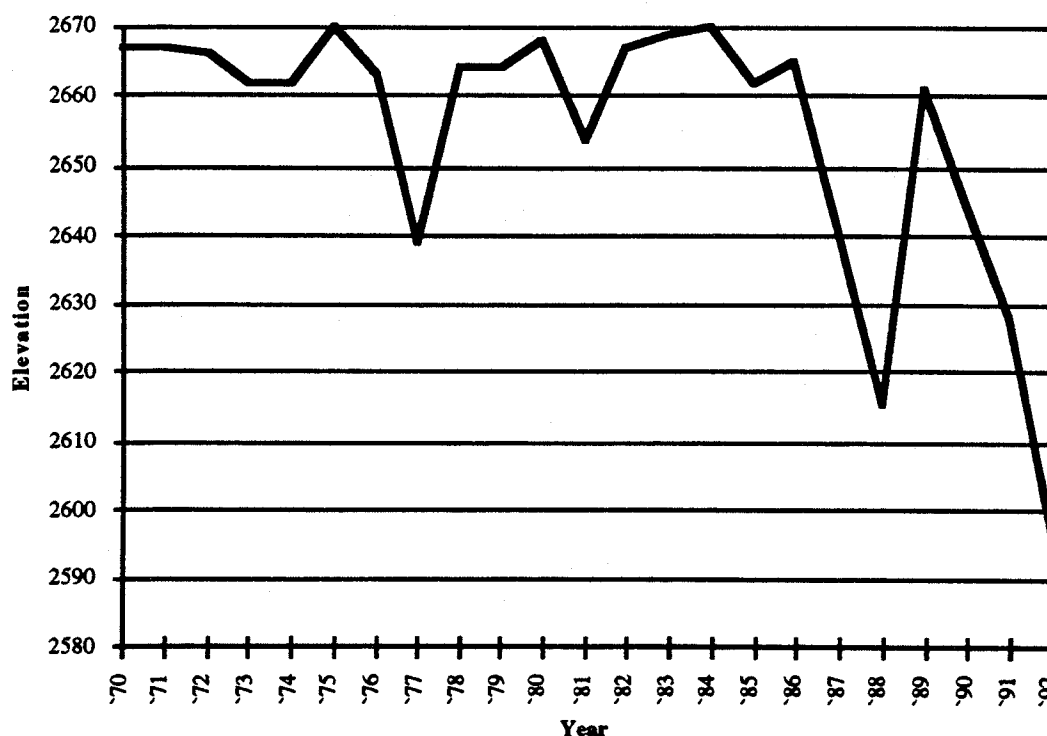
On rare occasions, the campground at McCormack becomes full and the Gordon Gulch day use area is used for overflow camping. Data on monthly use are kept by park personnel. Peak use occurs during the months of June, July and August when the campground is occupied at about half capacity (see Figure 2-13).

There are several factors which influence Owyhee Reservoirs' relatively low recreation use. Recent drought conditions and poor fishing opportunities have resulted in lower use figures in recent years. These conditions are expected to improve over time and lead to gradual increases in recreation use. However, other factors which will not change may also affect recreation use and visitation.

The factors which contribute to Owyhee Reservoirs' unique and attractive quality and experience also tend to discourage use. These factors include the reservoir's remote location within District 11, extremely rugged landscape, and limited road access. These factors likely contribute to use levels below the carrying capacity of the facilities and resources available.

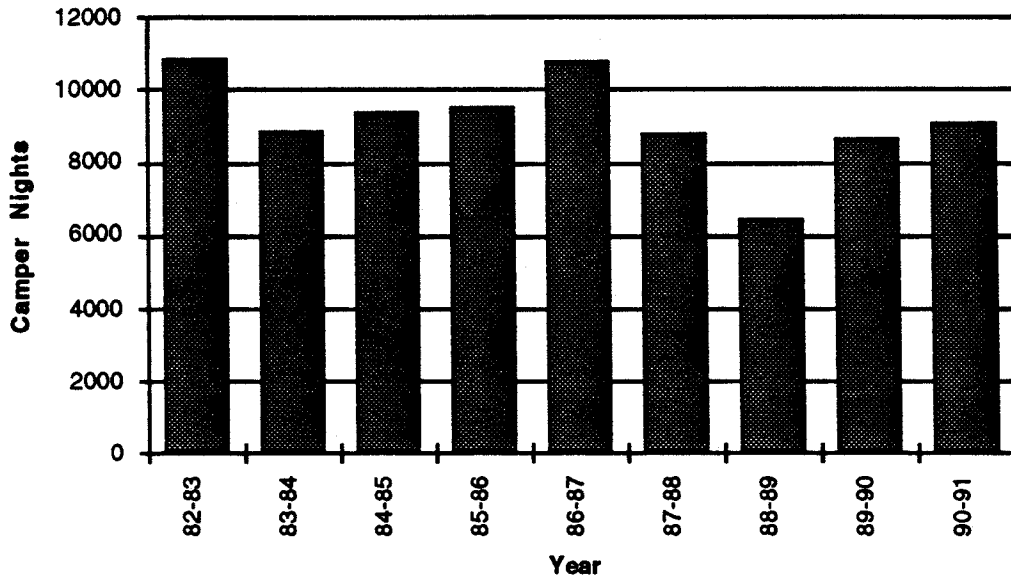
In spite of growth trends predicted for several activities in District 11, developed facilities at Owyhee Reservoir are presently underutilized and can accommodate additional use. Given the size of the reservoir, the land and water resource environmentally suited for recreation use can also accommodate more users than presently occur without significantly affecting the visitor experience or causing resource damage. As recreation demand grows throughout District 11, Owyhee Reservoir may remain relatively unaffected by growth while other lakes and reservoirs currently at their carrying capacity are further degraded and impacted by increased use.

Figure 2-11: Annual End of Month (June) Water Elevation for Owyhee Reservoir (1970-1992).



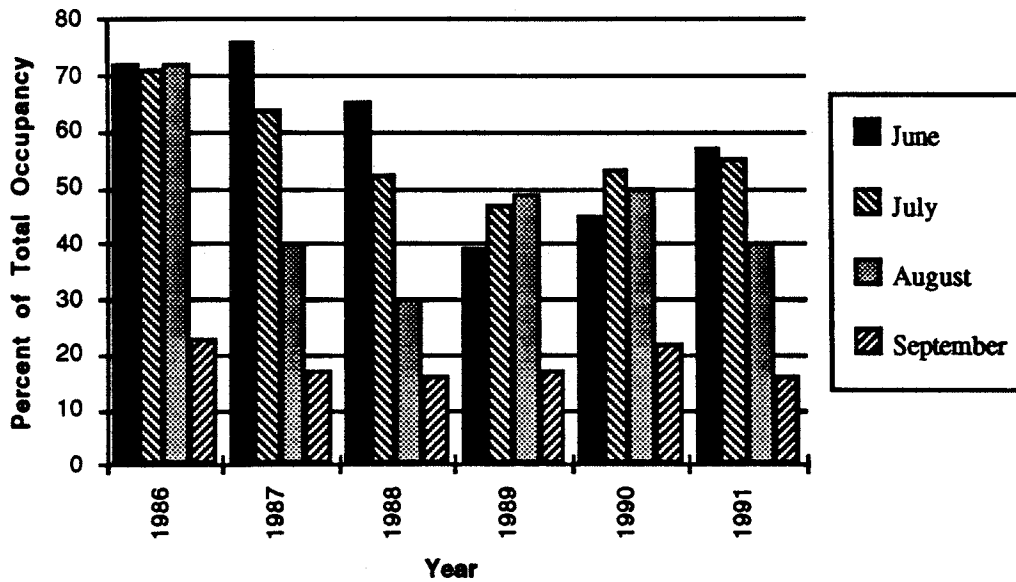
Source: Bureau of Reclamation.

Figure 2-12: Total Annual Camper Nights at Lake Owyhee State Park (1982-1991).



Source: Oregon State Parks and Recreation Department.

Figure 2-13: Seasonal Occupancy at McCormack Campground, Lake Owyhee State Park (1986-1991).



Source: Oregon State Parks and Recreation Department.



## Chapter 3

# Existing Land Use and Management

Reclamation lands within the RMP Study Area encompass approximately 26,190 acres. Of this total, about 23,487 acres are withdrawn and 2,703 acres are acquired (fee title) lands. The "Land Status/Land Ownership" map (see Figure 3-1) identifies which lands were acquired in fee title or withdrawn for project purposes and remain under Reclamation administration. Private, State, BLM acquired, and Reclamation Withdrawn/Restoration Requested lands are also depicted.

Reclamation's Central Snake Projects Office (CSPO) is responsible for day-to-day administration and management at Owyhee Reservoir. CSPO, in close coordination and cooperation with resource management partners in the Study Area (i.e. BLM, Oregon State Parks, Oregon Department of Fish and Wildlife, Malheur County), will be responsible for implementing the RMP.

The following sections briefly describe existing land use agreements, land management activities, and historical use patterns in the RMP Study Area. Existing land use conditions are important to consider in formulating future land use allocation and management actions for the area. Reclamation land use activities are discussed prior to those on adjacent BLM administered lands.

### 3.1 LAND USE AGREEMENTS

Most land use activities within the Study Area are authorized and managed under specific land use agreements with Reclamation. The primary instruments utilized are license agreements, lease agreements, right-of-way easements, and special use permits. When management responsibilities are transferred to another government agency or involve interagency coordination, a Memorandum of Understanding (MOU) or Memorandum of Agreement (MOA) is typically utilized. Figure 3-2 identifies Reclamation's existing land use agreements within the Study Area.

#### 3.1.1 Lake Owyhee State Park License Agreement

After completion of Owyhee Dam in 1937, local residents began to use the reservoir for recreational activities. The potential economic benefits of recreation were soon recognized and lobbying started for a shoreline park. In 1958, Reclamation issued a 50-year license agreement to the State of Oregon acting through the State Highway Commission (Commission) for the administration of recreational areas at Owyhee Reservoir.

Under the license agreement, exclusive jurisdiction and control was transferred to the Commission to administer 850 acres for recreational purposes. The transferred lands include those lying above the reservoir high waterline in the W <sup>1</sup>/<sub>2</sub> SW <sup>1</sup>/<sub>4</sub> of Section 28;

the SE  $\frac{1}{4}$  NE  $\frac{1}{4}$  of Section 31; all of Section 32; and the NW  $\frac{1}{4}$  NW  $\frac{1}{4}$  of Section 33 within Township 22 South, Range 45 East. With the transfer of these lands to the State Highway Commission, Lake Owyhee State Park was established.

The license authorizes the Commission to construct, maintain, and operate roads, trails, docks and other marine facilities, water supplies, communications, camp and picnic grounds, and other facilities and services incident to recreation use. The Commission can also issue and administer licenses and permits to regulate these activities and concession contracts under which public services are made available in the area. The license expires in 2008.



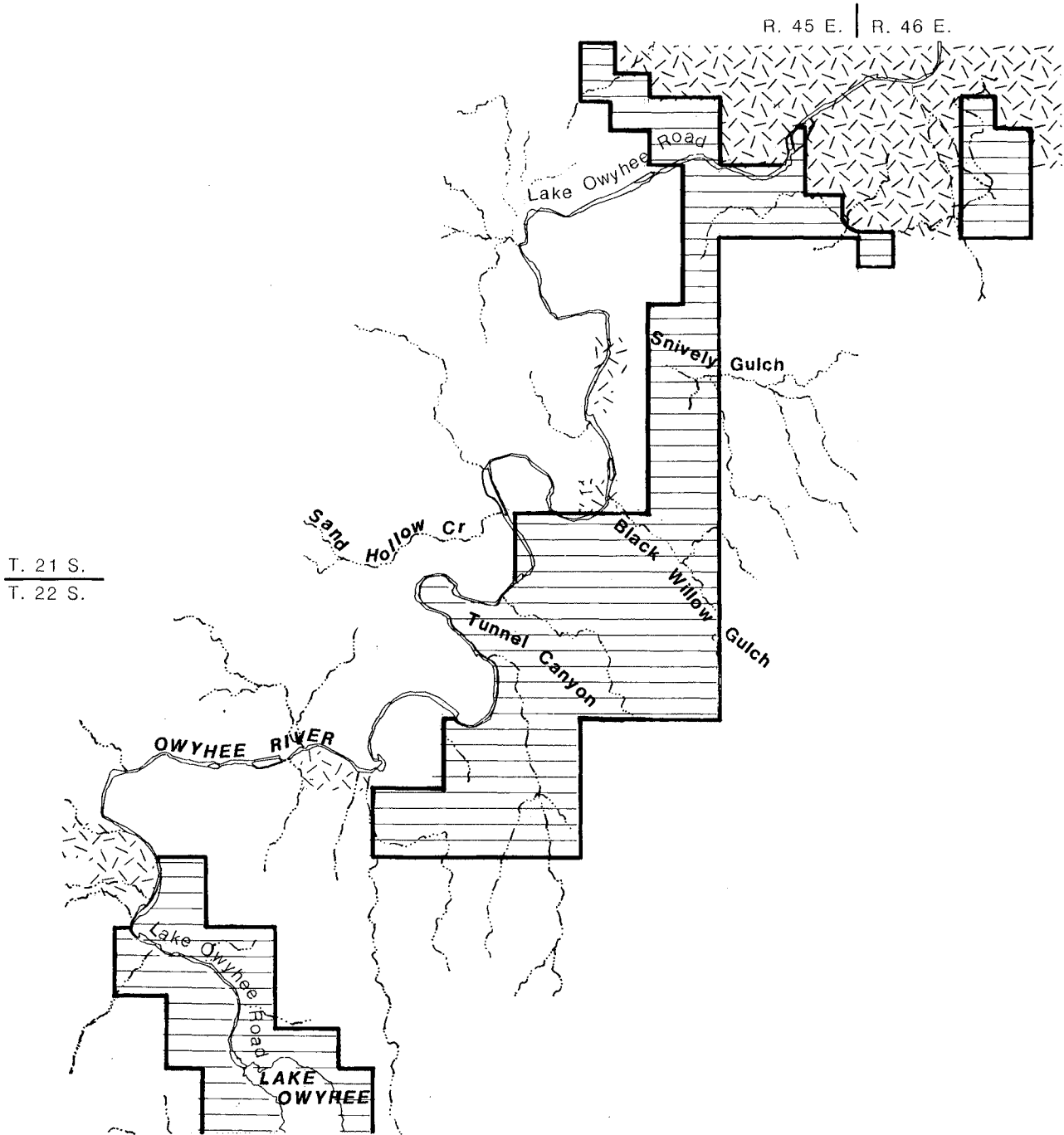
*Photo 3-1: Lake Owyhee State Park.*

*Lake Owyhee State Park facilities include RV hook-ups, restrooms, showers, and fish cleaning stations.*





Initially, the State Park (locally known as Cherry Creek or McCormack Park) consisted of a day-use picnic area only. In 1960 a portion of the upper park area was converted to camping use to meet the growing demand for overnight facilities. In 1961 the Oregon State Highway Commission contributed \$80,000 to Malheur County for paving 17 miles of Lake Owyhee Road along the lower Owyhee River. The State also spent \$65,000 for rebuilding the county road from Owyhee Dam to the State Park. In 1973-1974 the primitive boat ramp located at McCormack Park was relocated at a cost of \$21,000.

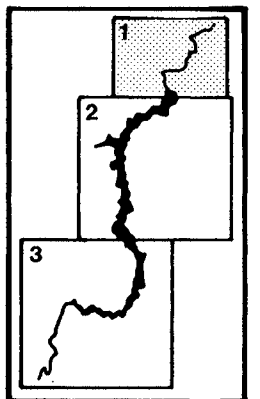
In July 1974, the Oregon Department of Transportation, Highway Division, entered into a Supplemental Cost Sharing Agreement with Reclamation for recreation development and improvements at the State Park. The primary need was to separate conflicting day and overnight use activities at the Cherry Creek site. McCormack Park was refurbished as an overnight use facility and day-use activities (picnicking) were established at Gordon Gulch at a cost of \$220,000. Reclamation's share was limited to \$100,000 under the Federal Water Project Recreation Act (P.L. 89-72). This development resulted in 38 picnic sites at Gordon Gulch and 40 camping sites at McCormack. While title to the

# LOWER OWYHEE RIVER

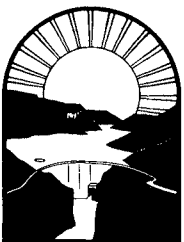


## LEGEND

-  Reclamation Withdrawn
-  Private
-  BLM
-  Bureau of Reclamation Resource Management Area



KEY MAP

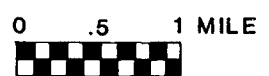


U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

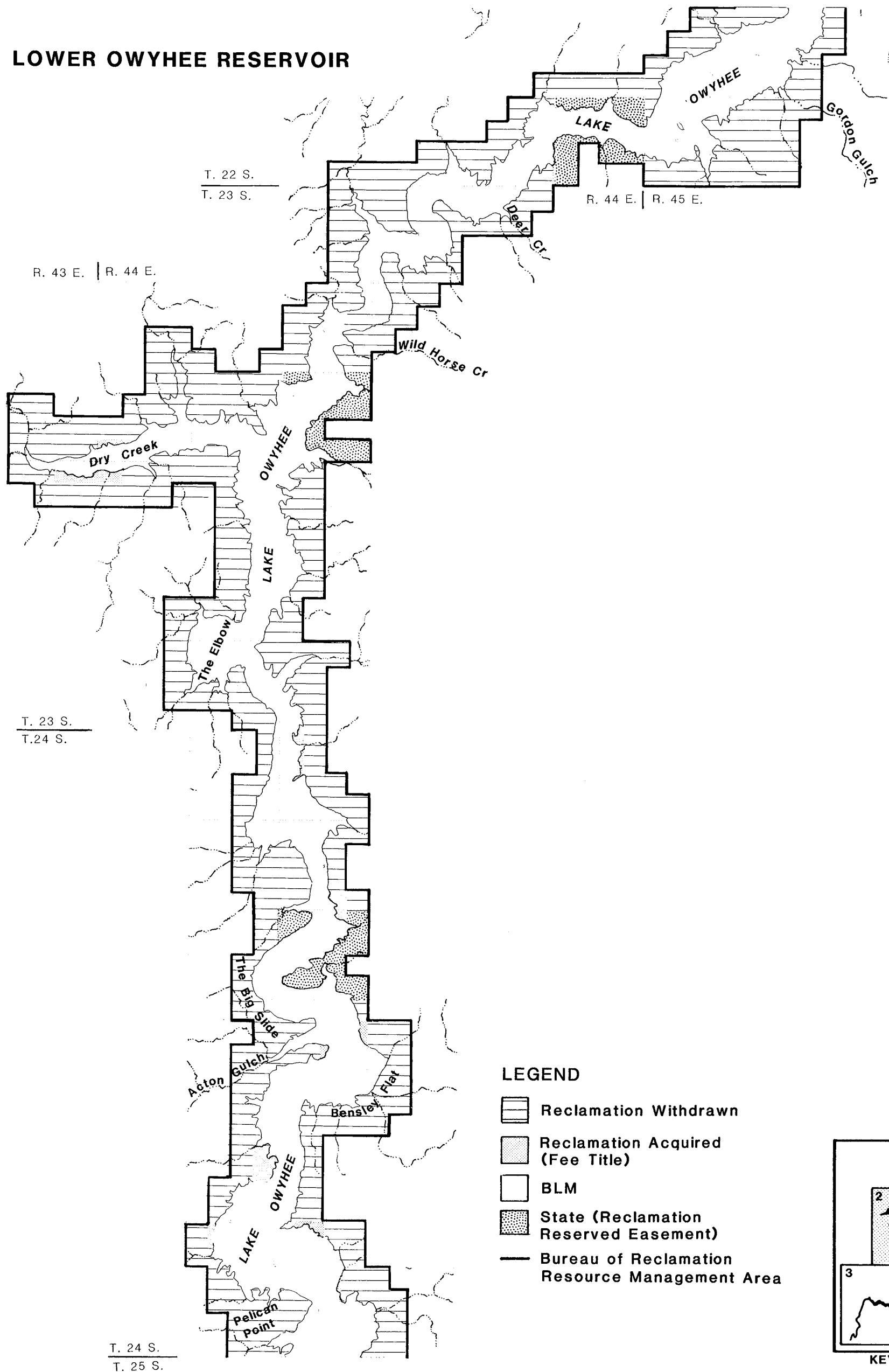
## LAND STATUS / LAND OWNERSHIP

Figure 3-1





1 of 3

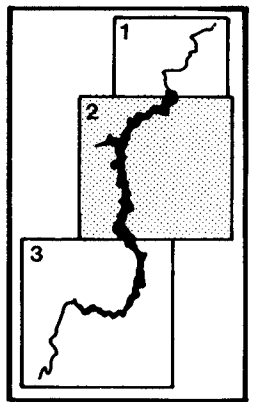


# LOWER OWYHEE RESERVOIR

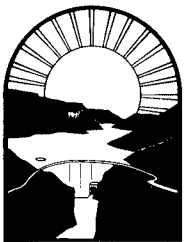


## LEGEND

-  Reclamation Withdrawn
-  Reclamation Acquired (Fee Title)
-  BLM
-  State (Reclamation Reserved Easement)
-  Bureau of Reclamation Resource Management Area



KEY MAP

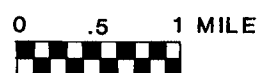


U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

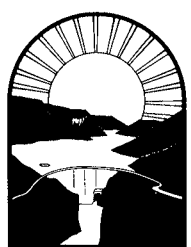
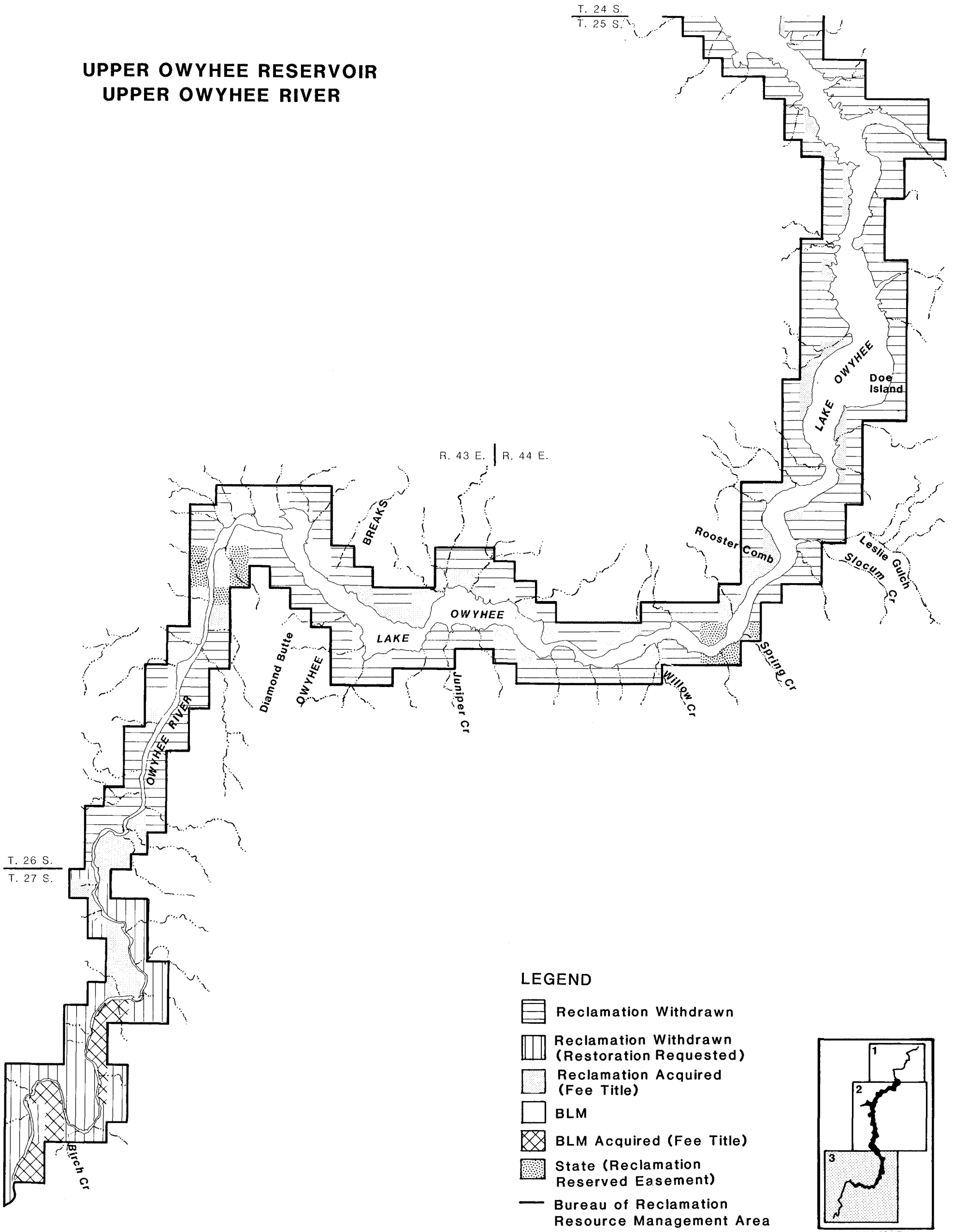
**LAND STATUS / LAND OWNERSHIP**

Figure 3-1

2 of 3



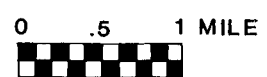
**UPPER OWYHEE RESERVOIR  
UPPER OWYHEE RIVER**



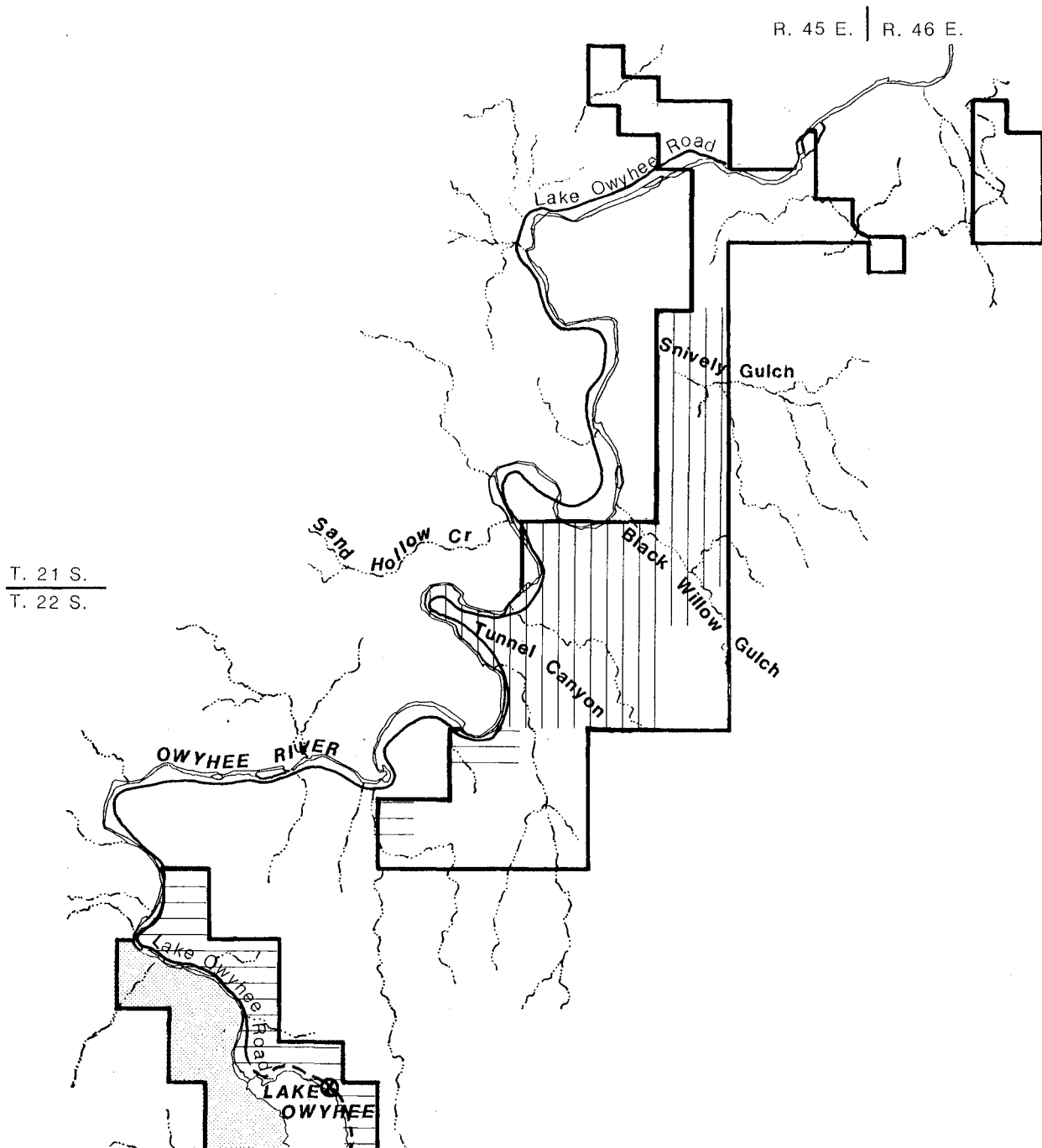
U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

**LAND STATUS / LAND OWNERSHIP**

Figure 3-1



# LOWER OWYHEE RIVER

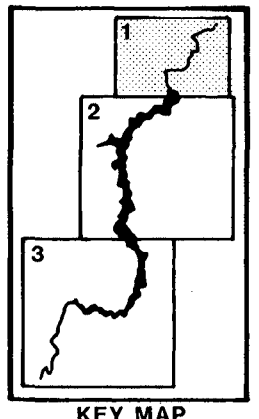


## LEGEND

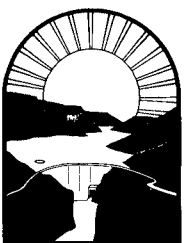
- ⊗ Malheur County Special Use Permit
- 100' Road Right-of-way Easement
- - - 75' Road Right-of-way Easement
- Bureau of Reclamation Resource Management Area

## GRAZING LEASES

- Gary Cleaver/Keith Cameron 89 AUMs
- Floyd Derrick 48 AUMs
- Gary Cleaver 25 AUMs East / 91 AUMs West



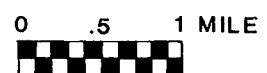
KEY MAP



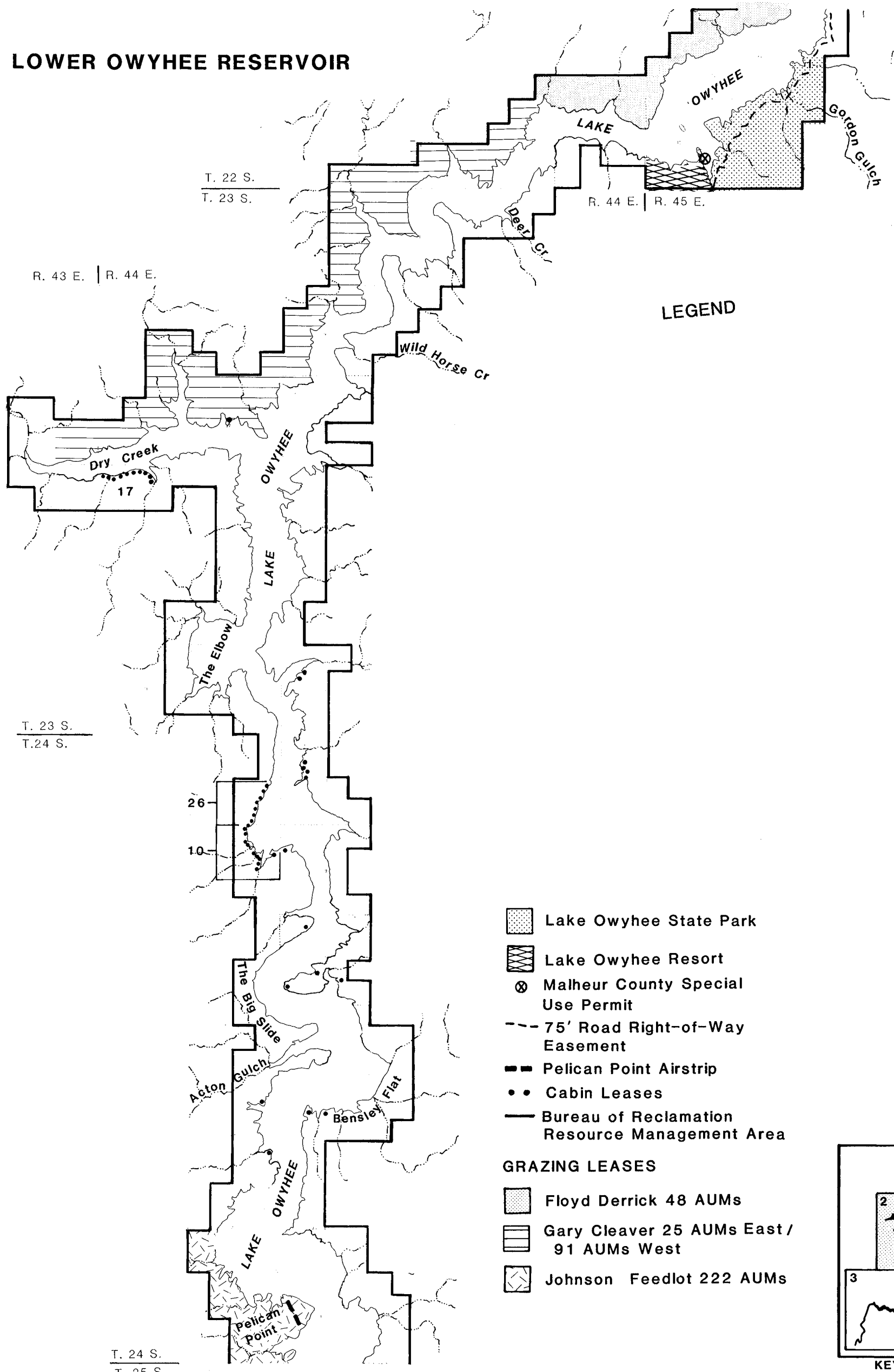
U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

## EXISTING LAND USE AGREEMENTS











Figure 3-2

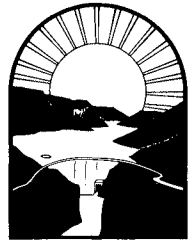
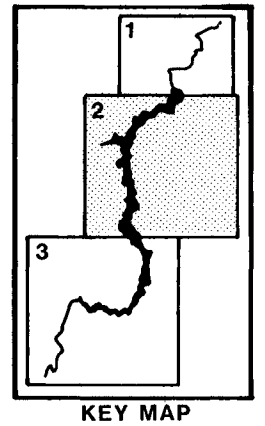


# LOWER OWYHEE RESERVOIR

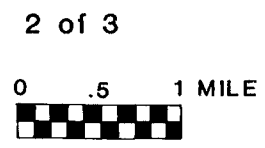


## LEGEND

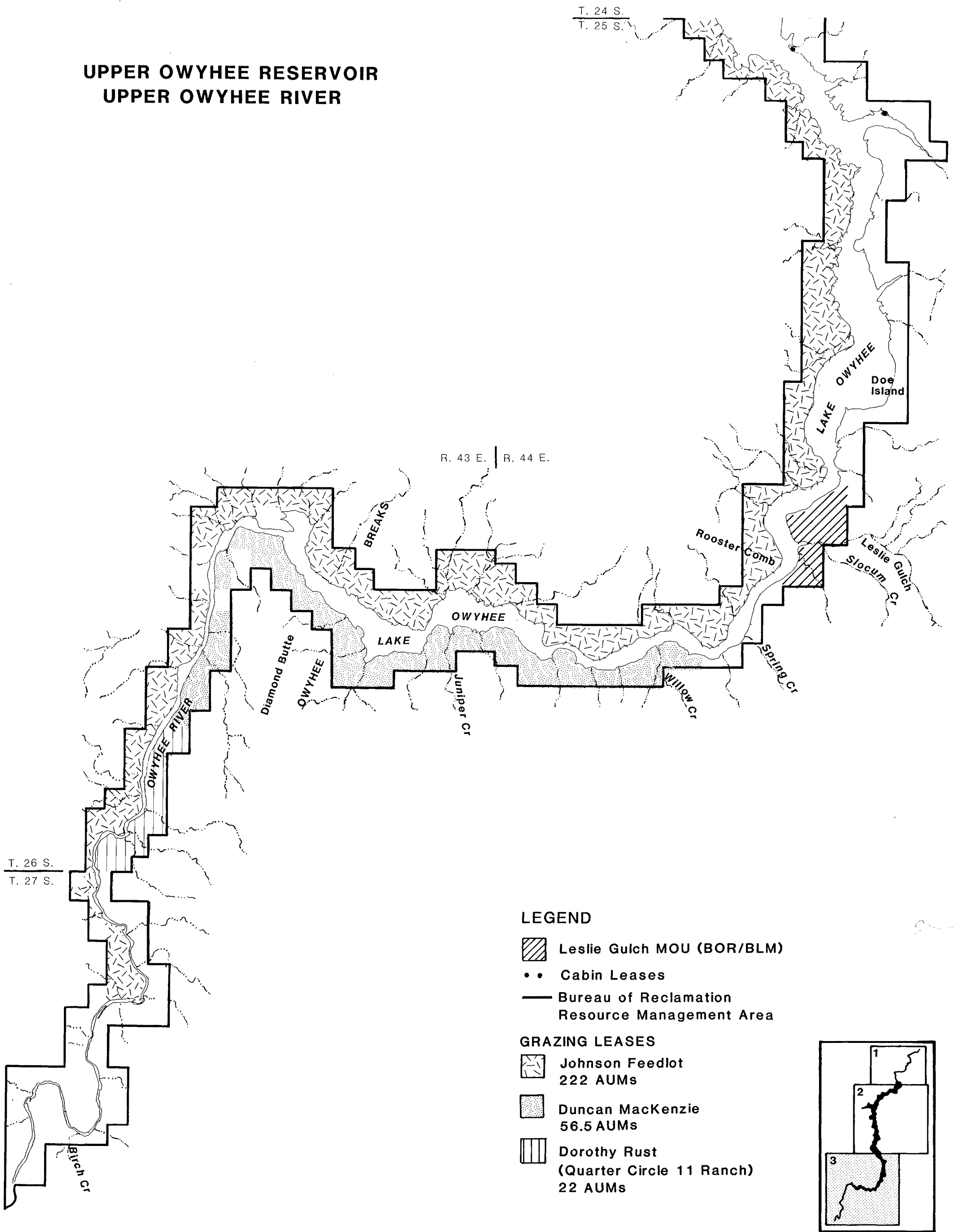
-  Lake Owyhee State Park
  -  Lake Owyhee Resort
  -  Malheur County Special Use Permit
  -  75' Road Right-of-Way Easement
  -  Pelican Point Airstrip
  -  Cabin Leases
  -  Bureau of Reclamation Resource Management Area
- GRAZING LEASES**
-  Floyd Derrick 48 AUMs
  -  Gary Cleaver 25 AUMs East / 91 AUMs West
  -  Johnson Feedlot 222 AUMs






U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**  
**EXISTING LAND USE AGREEMENTS**  
 Figure 3-2






**UPPER OWYHEE RESERVOIR  
UPPER OWYHEE RIVER**

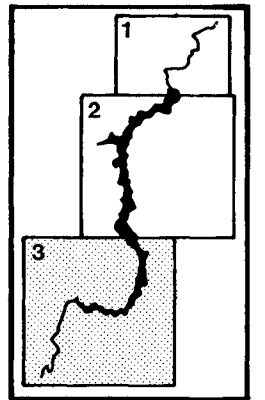


**LEGEND**

-  Leslie Gulch MOU (BOR/BLM)
-  Cabin Leases
-  Bureau of Reclamation Resource Management Area

**GRAZING LEASES**

-  Johnson Feedlot  
222 AUMs
-  Duncan MacKenzie  
56.5 AUMs
-  Dorothy Rust  
(Quarter Circle 11 Ranch)  
22 AUMs



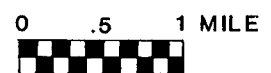
KEY MAP



U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

**EXISTING LAND USE AGREEMENTS**

Figure 3-2





resultant improvements remains with the United States, operation and maintenance is the state's responsibility.

### **3.1.2 Lake Owyhee Resort Lease Agreement**

In February 1954, Reclamation entered into a 50-year lease agreement with Lake Owyhee Resort, Inc. for a commercial recreational concession on Owyhee Reservoir. The original lease authorized the occupation of approximately 140 acres located in "...that portion of the South half of Section thirty-one (31), Township twenty-two (22) South, Range forty-five (45) East" above elevation 2,670 feet (the high waterline). The corporation was authorized to use the described property to construct and maintain cabins, lodges, stores, recreational facilities, boat ramps, repair and service facilities, and other improvements related to establishing a complete resort area. In addition, an access road and water supply works were authorized for construction in Sections 31 and 32 (T22S, R45E). The lease agreement required Reclamation approval prior to the construction or placement of any structures, buildings, or improvements on the premises.

Construction followed shortly for what was locally known as the Cherry Creek Resort. The resort at first provided parking and little else. Water, electricity, and septic facilities followed in the 1960s when a cafe and lounge were constructed.

In 1979 the lease agreement was amended to facilitate lessee financing for additional improvements and to incorporate updated lease terms. Lease payment to Reclamation was set at \$300 per year from 1979 through 1983 and the greater of \$300 or three percent (3%) of gross revenues thereafter. The remaining lease period was extended to 30 years with the lease expiring in the year 2009. The lease was reassigned in the fall of 1979 to the current lessees. Additional resort improvements and developments were completed shortly thereafter.

The resort caters to fishermen, boaters, and hunters and is a primary destination for many visitors. Spring (March through June) is the busiest season and winter is the slowest. Business is reduced during the hot summer months with a sharp resurgence in the fall due to cooler weather and hunting season opportunities.

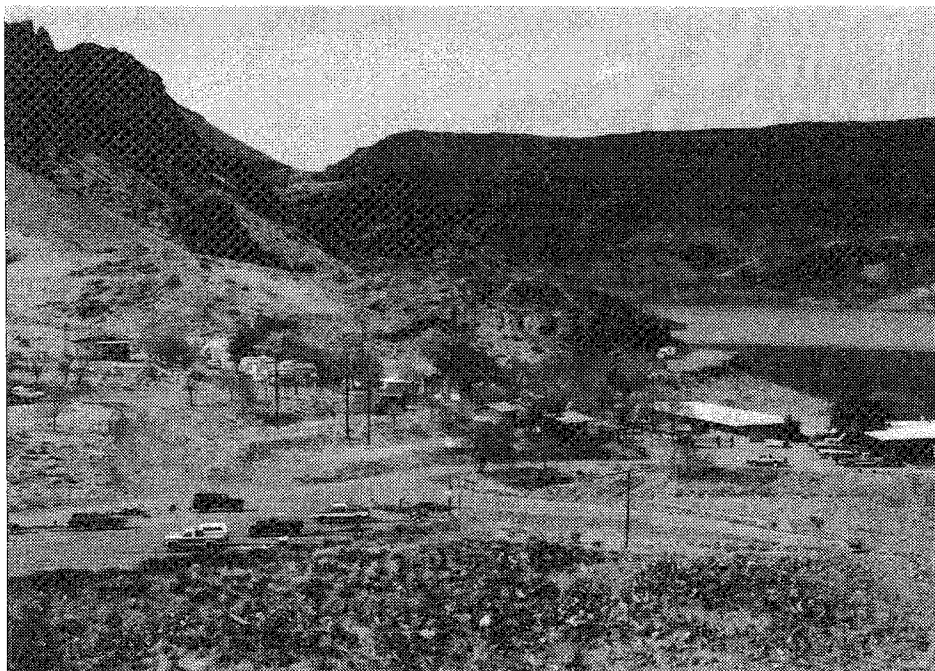
Current facilities located on the leased premises include: a convenience store, an 11-room motel, 36 trailer spaces with full hookups, 30 trailer spaces with water and electricity, boat dock moorage, 7 cabins, one restroom building, and a 1,150 square foot (2 bedroom) home. Since 1979 an additional 4 cabins, 3 large permanent mobile homes, approximately 20 permanently installed smaller trailers (some with decks, porches, etc.) and a horse corral were constructed within the lease area.

In 1991 Reclamation undertook a renegotiation of the lease agreement with the lessee to incorporate clarified lease terms and conditions. In particular, the new lease improves upon financial reporting requirements, fee structure and payments, facility construction/Master Planning, and the phasing out of permanently placed mobile homes, trailers, and recreational vehicles other than those used by management and employees by January 1, 1997. All other overnight recreation sites are required to have a 14-day maximum stay limit.

The new agreement dated September 18, 1992 continues to lease the same premises located in Section 31 and provides for the operation and maintenance of the access road and water supply pipeline across Section 32. In addition, the right of the concessionaire to construct, operate and maintain public boat docks, boat ramps, and other public marine

facilities extending into the waters of Owyhee Reservoir is permitted provided they are used in connection with the leased area and are included as part of an approved Master Plan. The lease expires on December 31, 2001.

The construction of any additional land or water-based facility improvements (i.e. docks, moorage, water craft storage) requires a Master Plan. The Master Plan shall cover both existing and future developments and be prepared by a qualified planner. The plan shall show the location of all buildings, paving, utilities, and other structures and no construction shall begin until site plans, construction specifications and drawings are approved by Reclamation in writing. All new utilities which serve the concession's facilities shall be placed underground.



*Photo 3-2: Lake Owyhee Resort.  
Resort facilities include a small general store, laundry services, and lodging.*

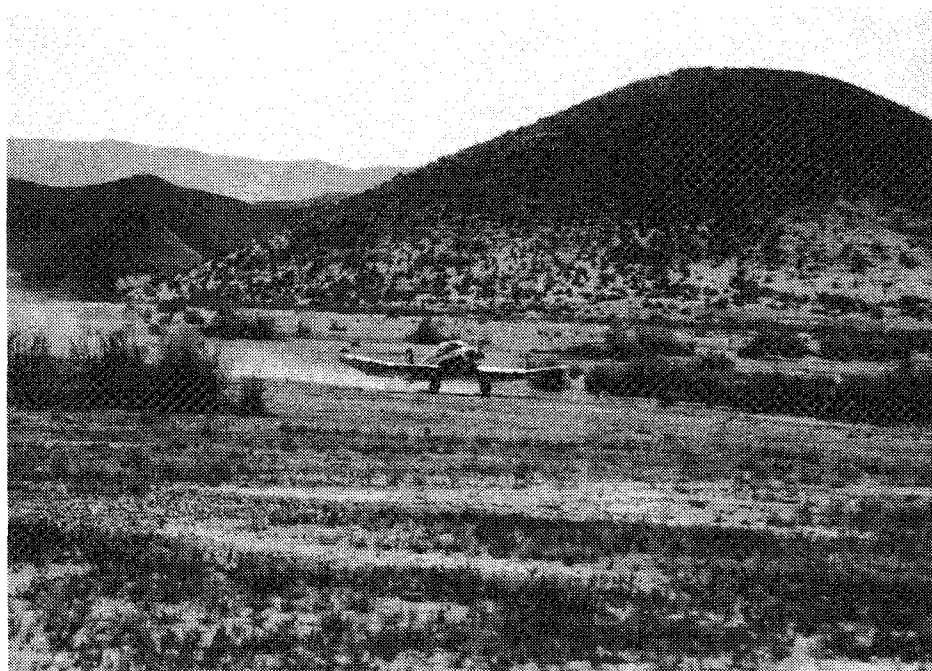
### **3.1.3 Pelican Point Airstrip License Agreement**

A 25-year license agreement authorizing the development, operation and maintenance of the Pelican Point Airstrip located near the mouth of Deadman Gulch was executed on December 17, 1957. The agreement covers a 9.4-acre "strip of land 200 feet wide and 2,040 feet long, lying in the SW  $\frac{1}{4}$  NW  $\frac{1}{4}$  and NW  $\frac{1}{4}$  SW  $\frac{1}{4}$  of Section 4, Township 25 South, Range 44 East." The initial agreement between Reclamation and the State of Oregon, acting through the Oregon State Board of Aeronautics, expired in 1982.

Reclamation renewed the license to operate and maintain the airstrip on August 12, 1982 for an additional 25-year term. The license specifically prohibits on the premises: 1) any business or recreation concessions except those necessary and proper for the efficient use of the area as an aircraft flight strip, and 2) the construction or placement of any buildings, storage facilities, or other facilities that are not compatible with or unnecessarily detract from the natural attractiveness of the area.

The airstrip was constructed in 1958 and maintained in 1967 and again in 1978. The heavy equipment (dozer and scraper) used during these maintenance efforts was delivered by jeep trail down Deadman Gulch. Since that time, the jeep trail and surrounding area have been included within BLM's 51,800-acre Dry Creek Buttes Wilderness Study Area (WSA).

The Deadman Gulch jeep trail became impassable between 1958 and 1967 and again between 1967 and 1978. Consequently, the access route failed to meet the BLM's Wilderness Inventory Handbook definition of a road when the BLM designated the WSA. This technicality is important since existing "roads" are open but "trails" and "ways" are closed to motor vehicle use within WSAs under BLM's *Interim Management Policy and Guidelines for Lands Under Wilderness Review* (BLM, 1987).



*Photo 3-3: Pelican Point Airstrip.*

*The airstrip is a popular "fly-in" location for pilots seeking a remote recreation experience.*

### **3.1.4 Leslie Gulch Memorandum of Understanding (MOU)**

In 1970 the BLM called to Reclamation's attention the sanitation problem at Leslie Gulch caused by fish cleaning. This problem significantly increased after reconstruction of the Succor Creek Road sharply increased recreation use at the popular Leslie Gulch site. By 1973, visitor use at Leslie Gulch was 10,991 recreation-days. Peak season three day accumulations of fish offal would total 200-300 pounds.

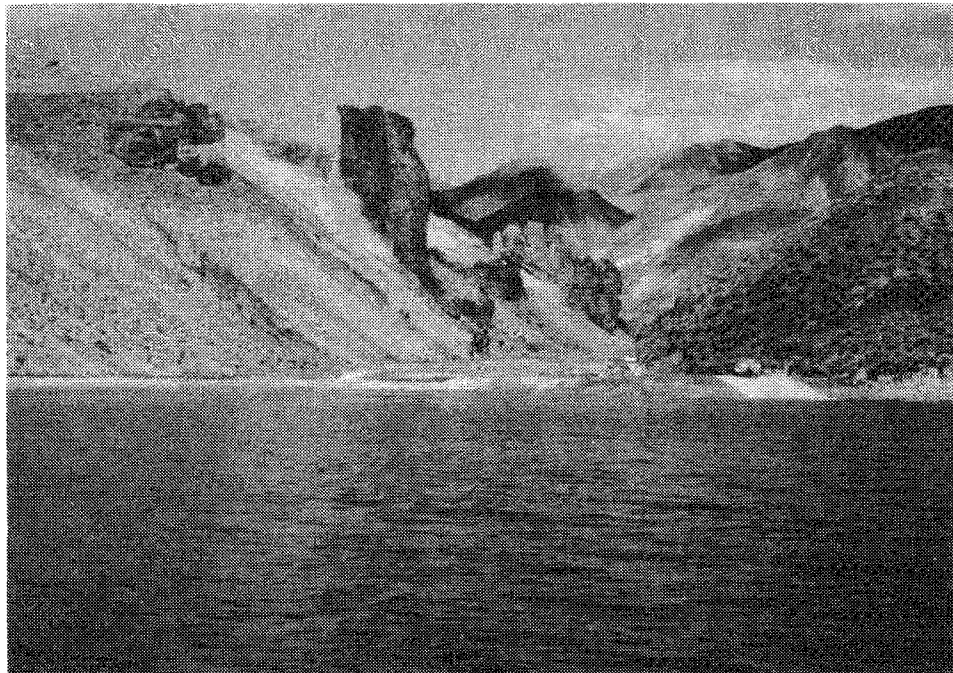
On October 20, 1971 a Memorandum Of Understanding (MOU) between Reclamation and the BLM was executed. The MOU assigns recreation management responsibilities to the BLM for approximately 300 acres at and near Leslie Gulch. The MOU allows the BLM to construct improvements and provide for recreation use provided a development plan is prepared by BLM and approved by Reclamation. In implementing recreation

management responsibilities, the BLM can issue and administer licenses, permits, and contracts for the purpose of regulating the privileges to be exercised and concession contracts under which public services are made available in the area.

In connection with the administration of the lands covered by the MOU, the BLM may develop boat docks and associated facilities within the designated recreation area to serve boating and other water-based activities. The agreement specifically prohibits the launching or use of houseboats on the reservoir.

Recreation improvements installed to date at the Leslie Gulch recreation area include day and overnight use parking areas, a 2-lane concrete boat ramp, a single two-unit vault toilet, a small fish cleaning station, and trash receptacles.

No conflicts have been noted by Reclamation regarding BLM administration of this area. The MOU remains in effect and may be amended, supplemented, or superseded at any time by mutual consent of the State Director of the BLM and the Regional Director of Reclamation.



*Photo 3-4: Leslie Gulch.*

*Leslie Gulch is the southern-most vehicle-accessible boat launch facility on the reservoir.*

### **3.1.5 Malheur County Special Use Permits**

Two boat ramps and associated parking facilities were constructed by Malheur County in the mid-1960s at the Lake Owyhee Resort and near Owyhee Dam under Special Use Permits issued by Reclamation. The first Special Use Permit was issued to the County in 1966 to construct, operate, and maintain for general public use a parking area and concrete boat ramp within the Lake Owyhee Resort lease area. The County added asphalt surfacing to the boat launch parking area in 1991.

A second permit authorized the reconstruction and maintenance of a concrete boat ramp and parking area within the SW  $\frac{1}{4}$  NW  $\frac{1}{4}$  and the NW  $\frac{1}{4}$  SW  $\frac{1}{4}$  of Section 21, Township 22 South, Range 45 East. The one-lane boat ramp is located about one-half mile south of Owyhee Dam near the Tunnel No. 1 diversion works. The boat ramp is steep and narrow and parking is limited.

Both permits were issued for 25 years and renewed in 1993 for an additional 25 years. Each permit includes the following stipulations:

- Construction and use of the boat ramp and parking area shall in no way restrict the free access and use of the reservoir shoreline for public use.
- Any floating structure utilized by the County shall be kept anchored securely at all times and marked in a manner satisfactory to Reclamation.
- The County shall post launching and docking facilities with signs approved by Reclamation advising boaters using said facilities that sewage or refuse from any boat shall not be dumped into the reservoir but disposed of on shore in accordance with Malheur County and State laws and regulations. Said sign will also include notice that launching houseboats or any craft equipped with toilet facilities upon the reservoir is prohibited.
- Additional facilities may be constructed or reconstructed provided plans and specifications are submitted to, and approved by, Reclamation prior to work performance.
- The County shall cooperate with State and Federal agencies and other organizations in fire prevention and suppression activities within the Lake Owyhee area.

### **3.1.6 Malheur County Road Right-of-Way Easements**

On June 7, 1961, Reclamation granted Malheur County a permanent road right-of-way easement to construct, reconstruct and maintain the county road (Lake Owyhee Road) between Owyhee Dam and the Owyhee Siphon. The easement encompasses a strip of land 100 feet wide meandering upstream along the Owyhee River through Sections 14, 22, 26, 27, 34, and 35 in Township 21 South, Range 45 East; and through Sections 3, 4, 7, 8, 9, 10, 17, 18 and 20 in Township 22 South, Range 45 East.

A second permanent road easement was granted to the County on April 20, 1988 for the county road from Owyhee Dam south to the Lake Owyhee Resort. The easement granted a 75 foot right-of-way lying above the reservoir high waterline for the maintenance, repair and reconstruction of the existing roadway. All reconstruction and maintenance work performed by the County shall be undertaken only at times, according to plans, and in a manner satisfactory to Reclamation.

### **3.1.7 Idaho Power Right-of-Way Agreement**

Reclamation issued a powerline right-of-way agreement to Idaho Power Company on August 26, 1986. The agreement granted the Company the right to relocate a portion of an existing 12.5 kilovolt (kV) powerline and to continue to operate and maintain the distribution line across United States property. The agreement does not give the

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Company any interest in the land or any special rights or equities other than the right to occupy United States property.

### **3.1.8 Cabin Site Leases**

At one time, dispersed cabin site leases were scattered along much of Owyhee Reservoir. This policy resulted in private occupancy of sites best suited to general public usage, sanitary problems, and difficult administration. Reclamation's current policy for cabin site leasing at Owyhee Reservoir was initiated in late 1964 as a result of a joint recommendation by the National Park Service and Reclamation following a comprehensive management review.

The two primary policy objectives identified by the review were: 1) to achieve planned and orderly development, and 2) to protect the area's outstanding environmental and scenic values. The review determined that these objectives could be accomplished by a phased-in confinement of all cabin site leases to designated areas at Fisherman's Cove and Dry Creek. Persons having leases on the reservoir outside these two cabin site areas were given the opportunity to move into the designated areas and given first choice of the available lots. Those that chose not to relocate were permitted to remain on their cabin site, but under conditions which prohibited the transfer or conveyance of the cabin site lease to another person.

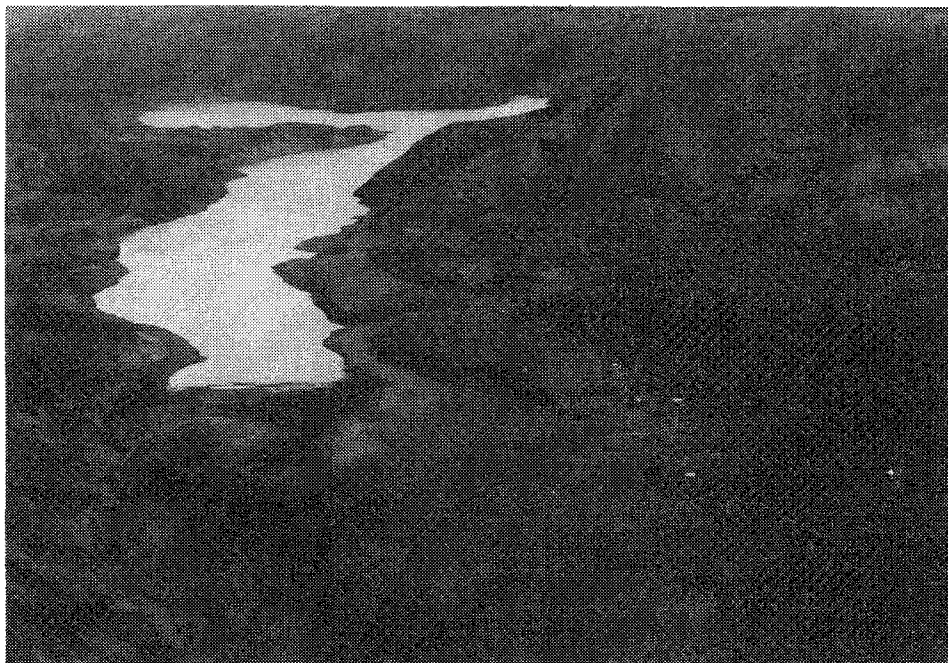
Cabin site management at Owyhee Reservoir is based on the determination that it is in the best interest of the general public to phase out all individual leases outside the Fisherman's Cove and Dry Creek lease areas. In support of this management objective, the Central Snake Projects Office has decided not to issue any new leases on Owyhee Reservoir for any undeveloped vacant subdivision lots which are unleased or become available for one reason or another. If a cabin should be destroyed by fire and the lessee indicates no further interest in leasing or for any other reason abandons a lease, the lot will be restored to as near its original condition and not be leased again.

Those whose cabins are outside the two cabin site areas and who chose not to move essentially possess a non-assignable lease. Since these leases are non-transferable, only the current lessee can occupy the cabin site. When this situation is no longer applicable, the cabin will be removed and the lot restored.

Currently there are 71 cabin site leases at Owyhee Reservoir. Of this total, 43 leases are within the Fisherman's Cove lease area, 17 are within the Dry Creek lease area, and 11 (7 Reclamation and 4 State) are outside designated lease areas. All available lots are leased except for 5 within the Fisherman's Cove area. Table 3-1 summarizes the current distribution of cabin site leases at Owyhee Reservoir.

Cabin site leases are renewable annually. The lessee has the option to extend the term of the lease for successive additional periods of one year each, up to but in no event beyond December 31, 1995. In 1995, the Central Snake Project Office (CSPO) will issue new leases based on the provisions of this RMP. Rental fees are currently set at \$270 per year. Federal regulations require that this fee be reviewed and updated prior to lease renewal.





*Photo 3-5: Dry Creek Arm.  
The Dry Creek Arm Subdivision has 17 cabin lease sites and is accessible by motorized vehicle as well as by boat.*



*Photo 3-6: Fisherman's Cove.  
The Fisherman's Cove Subdivision has 43 cabin lease sites and is accessible only by boat.*

Table 3-1: Cabin Site Leases at Owyhee Reservoir.

Cabin Location	Total # of Lots	# Leased	# Unleased <sup>a</sup>
<b>Within Designated USBR lease areas</b>			
<b><u>Fisherman's Cove</u></b>			
Section 5 (T24S, R44E)	31	26	5 <sup>b</sup>
Section 8 (T24S, R44E)	10	10	0
Section 9 (T24S, R44E)	1	1	0
Section 4 (T24S, R44E)	4	4	0
Section 33 (T23S, R44E)	2	2	0
Subtotal	48	43	5
<b><u>Dry Creek</u></b>			
Section 19 (T23S, R44E)	17	17	0
Subtotal	65	60	5
<b>Outside designated USBR lease areas</b>			
<b><u>Other USBR Cabin Leases<sup>b</sup></u></b>			
Section 17 (T23S, R44E)	1	1	0
Section 14 (T25S, R44E)	1	1	0
Section 28 (T24S, R44E)	2	2	0
Section 29 (T24S, R44E)	2	2	0
Section 10 (T25S, R44E)	1	1	0
Subtotal	72	67	5
<b>Cabin Leases on State Lands</b>			
Section 16 (T24S, R44E)	4	4	0
<b>Total</b>	<b>76</b>	<b>71</b>	<b>5</b>

<sup>a</sup> Leases only available to current lessee's outside designated subdivision lease areas.

<sup>b</sup> Leases on Lots 6A and 7 have not been issued. Leases have been terminated on Lots 11-A, 14-A, and 16-A.

Source: Bureau of Reclamation

Prior to the construction of any building on the leased premises, the lessee is required to submit to Reclamation for approval plans depicting the location, layout, style, and materials proposed for the cabin structure. The use of unpainted corrugated sheet metal, tarpaper, and similar materials in exposed areas is prohibited. Other cabin lease stipulations include:



- Cabins constructed on the premises must have a first floor area of not less than 240 square feet.
- Not more than one structure can be erected on the premises without Reclamation approval (a pit toilet to serve the cabin structure is exempt, provided such facility is constructed in compliance with County sanitation requirements).
- No improvements costing or being worth more than \$1,000 (other than those originally approved by Reclamation) may be placed on the premises without prior Reclamation approval.
- The lessee is required to maintain the leased premises and all improvements thereon in good condition.
- No subleasing or renting is permitted.
- The lessee may plant and care for shrubs and trees around his cabin; however, no planting of any kind shall be made outside of the area covered by the lease. The planting of salt cedar (*Tamarix pentandra*), Russian olive (*Elaeagnus augustifolia*) or any plant which has been declared noxious by Malheur County or the State of Oregon is prohibited.
- The lessee shall not remove or destroy any plant or other materials located on the premises, except those belonging to the lessee.
- The lessee shall adhere to Federal regulations pertaining to the use of chemical toxicants on the lands covered by their lease for the purpose of killing predatory mammals or birds or which may cause any secondary poisoning effects for the purpose of killing other mammals, birds, or reptiles. The lessee is also required to comply with all provisions of Federal and State pesticide laws.

Permission granted to a lessee to place buildings or improvements on the leased premises is a limited license, pending a greater public use or need for the premises. The lease does not give the owner of the improvement any interest in the land or any special rights or equities, other than the right to remove the improvement provided the land is left in a reasonably unimpaired condition. The lease does not grant any vested property rights to the lessee but affords only a limited lease to occupy the leased premises. Neither a lease or any interest therein can be transferred by the lessee without the written consent of Reclamation.

### **3.1.9 Grazing Leases**

Public lands grazing within the Study Area is authorized by both Reclamation and the BLM. Generally, Reclamation's grazing lease lands lie adjacent to the Owyhee River and Reservoir while BLM's grazing allotment lands overlap those of Reclamation and occupy large acreages of uplands away from the water. Reclamation administers a much smaller land base than does the BLM.

Reclamation currently administers 6 land parcels in the Study Area under a five-year renewable grazing lease program. Lands included in the grazing program total approximately 11,185 acres and primarily are situated east of the lower Owyhee River,

west of the reservoir from Owyhee Dam south to the Dry Creek Arm, and on both sides of the reservoir from Leslie Gulch south to the vicinity of Birch Creek. Table 3-2 shows the acreage and animal-unit-month (AUM) allocations under the existing lease program. Livestock grazing on Reclamation lands typically occurs in conjunction with the BLM's allotment management program period of use (see Tables 3-3 and 3-4).

Table 3-2: Reclamation Grazing Lease Program.

Lessee(s)	Animal Unit Months <sup>1</sup>	Acreage
Gary Cleaver/ Keith Cameron	89	1,175
Gary Cleaver	25 East/91 West	2,460
Floyd Derrick	48	1,205
Duncan MacKenzie	56.5	1,561
Dorothy Rust	22	335
Johnson Feedlot	222	4,449

<sup>1</sup> Animal Unit Month (AUM) -- The amount of forage required to sustain one cow and calf, or their equivalent (i.e. 5 sheep), for one month.

Subleases are not allowed without the written approval of Reclamation and livestock using lease lands that do not belong to the current lessee are considered to be in trespass. The lease term is for one year with an option to renew the term for an additional one year period. This option can be exercised by payment of the lease fees and in no case can the option be exercised beyond 5 years.

At the end of each lease period (no later than every five years), the grazing lease sites are reappraised and the new lease modified to reflect any changes in the appraised value. Restrictions needed to minimize land use conflicts or impacts are also included. If a determination is made to continue the lease it will be offered at the newly appraised value. If the current lessee does not choose to renew the lease, it may be offered for competitive bid.

Administration of the livestock grazing program is made more difficult because Reclamation's grazing leases and BLM's grazing allotments do not coincide. In most cases Reclamation leases include parts of several BLM allotments (see Table 3-3).

On three lease areas, BLM has prepared an exchange-of-use grazing agreement. Exchange-of-use agreements identify the animal-unit-month (AUM) grazing use to be allowed on intermingled and adjacent public lands. These exchange-of-use agreements identify the grazing carrying capacity of the Reclamation lands offered and allow the BLM to regulate and control the use of grazing on said lands.

The exchange-of-use agreements for lands under Reclamation administration provides for more use than the Reclamation lease authorizes. In two instances, no Reclamation leases exist although a portion of the BLM allotment includes Reclamation lands. In another two instances, Reclamation's lease includes a portion of a BLM allotment in which the Reclamation lessee is not a BLM permittee. Refer to Table 3-3 for a comparison of the Reclamation and BLM grazing programs in the Study Area.

Overall there is an ongoing problem with unauthorized grazing on Reclamation lands. The problem is due to many factors including: lack of fences, lack of program monitoring

by Reclamation, and a lack of appropriate exchange-of-use agreements for those Reclamation lands grazed under the BLM's grazing allotment program.

Reclamation currently has no grazing management plans within the Study Area nor does Reclamation conduct any grazing reviews to determine the ecological condition of its grazed lands. Historically the leases, once established, have continued without any subsequent monitoring, range analysis or lease modification. This past management approach has led to overgrazing, trespass cattle, long grazing periods, declines in vegetative vigor and species composition, and the direct loss of native shrubs, grasses and forbs.

Most shoreline areas at Owyhee Reservoir where livestock grazing continues to occur are in poor ecological condition (composed of non-native species such as cheatgrass and tumbled mustard) and lack a sufficient ground cover. Bare soils are most susceptible to erosion which adds to the sediment load entering Owyhee Reservoir. Vegetative restoration of upland areas will be slow due to the ecological limitations of the arid, high desert environment.

Livestock grazing has caused land use conflicts in the cabin site lease areas at Fisherman's Cove and Dry Creek and some other high use public recreation areas. With proper management and cooperation among all parties, the conflicts and disturbances directly related to livestock grazing in the Study Area can be reduced or avoided.

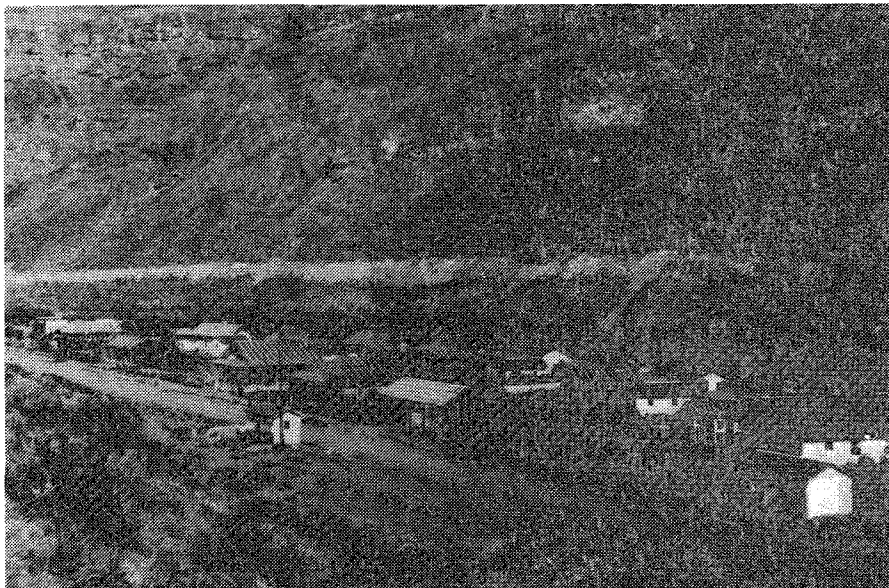
Some of the areas currently under grazing lease receive little if any recreational use. Consequently, there have been limited land use conflicts resulting from recreational and livestock grazing activities. However, if the trend towards increased recreational use in the Study Area continues, there could be an increase in use conflicts and more public concerns expressed about degraded riparian conditions, poor ecological conditions, and the general lack of biodiversity.

### **3.1.10 Government Camp Supplemental Contract**

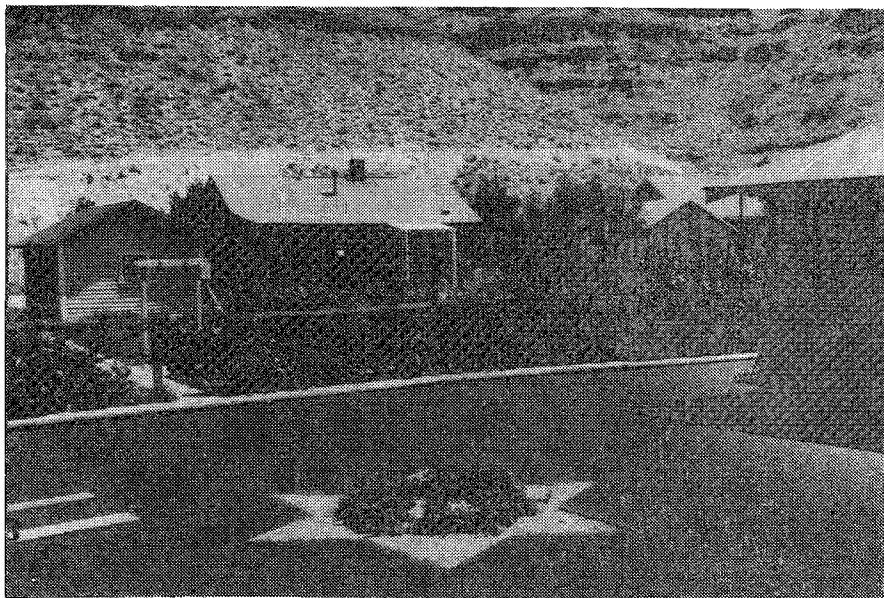
The first workers to arrive at the Owyhee Dam construction site in 1926 were surveyors preparing for the support facilities needed to construct the dam: the Owyhee Railroad, construction road, transmission and telephone lines. These surveyors lived at an encampment of tents and temporary barracks ten miles downstream from the damsite on the Snively Ranch (RTI, 1991).

In April 1927, work began on the more permanent Government Camp at the damsite, located just downstream from where Owyhee Dam would be erected. The camp was laid out, fenced and landscaped, and construction of homes and dormitories begun. The engineers and drillers lived first in tents and then in garages until the dwellings were completed. A deep well domestic water supply, sewer system, and a separate irrigation and fire protection system were also built (RTI, 1991).

By January 1928, 90 percent of the government's portion of the construction camp was completed. The homes and buildings constructed were used by government employees and their families. Families living in the houses created lavish gardens, winning prizes at local fairs. A common park area still used today was established at the north end of the camp.



*Photo 3-7: Looking North Over Government Camp at Owyhee Damsite. By January 1928, 90 percent of the government's portion of the construction camp was completed.*



*Photo 3-8: Headquarters Offices, Camp at Owyhee Damsite. Families living in the houses created lavish gardens, winning prizes at local fairs.*

During 1928, a contractor's camp for employees of the General Contracting Company was erected between Government Camp and the damsite. The two camps were served by a post office and community hall/movie theater. Mail and visitors arrived by an

“interurban” car that ran on the Owyhee Railroad tracks (RTI, 1991). The construction camp contained essentially all the services found in any small community.

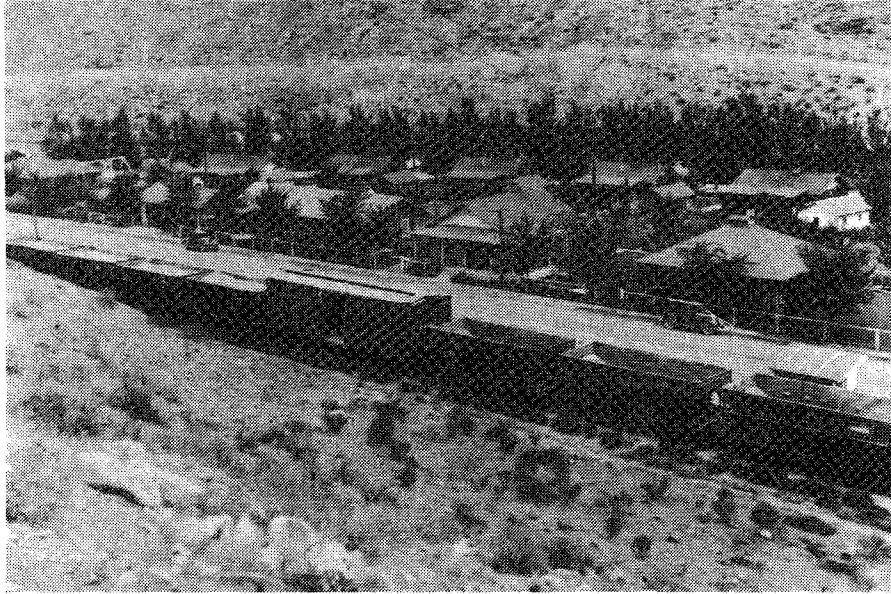
The 24-mile Owyhee Railroad was completed in 1928 and released to General Construction Company, the main contractor. The railroad was used to carry building materials and work crews to the construction site. The railroad remained in the construction company’s control until November 1931 at which time operation was transferred to the government. Reclamation dismantled the railroad shortly thereafter (RTI, 1991).

By October 1933 the only building left in the contractor’s portion of the camp was a warehouse which had been purchased by the government. Gradually the government’s facilities were sold for off-site removal. The railroad bed, for the most part, became the roadway that is now Lake Owyhee Road.

Responsibility for the operation and maintenance of the project’s “reserved works” including Owyhee Dam, the main canal and regulating works, wasteways, buildings, roads, telephone and electrical transmission lines, and other works incidental and appurtenant to those works were transferred to the Owyhee Project irrigation districts under a Supplemental Contract dated August 31, 1954. Responsibility for operation and maintenance of the remaining houses and structures at Government Camp were also transferred to the districts for the continued use as dam tender quarters and offices. Since that time, the houses, buildings and other facilities have been maintained and occupied by district personnel. The United States retains fee title to the lands and structures located at Government Camp but district personnel have the responsibility for the operation and maintenance of these reserved works as well as providing security and safety.



*Photo 3-9: Contractor’s Camp at Owyhee Damsite.  
During 1928, a contractor’s camp for employees of the General Contracting  
Company was erected between Government Camp and the damsite.*



*Photo 3-10: Part of Government Camp at Owyhee Damsite. (Note Growth of Vegetation). The 24-mile Owyhee Railroad was completed in 1928 and used to carry building materials and work crews to the construction site.*

All entrances to the dam interior and galleries, including the glory hole, are closed to the public. However, the district does schedule tours of project facilities and structures on a request basis.

### **3.2 OFF-ROAD VEHICLE MANAGEMENT**

The reservoir area is susceptible to damage by ORV use. Generally, the land resource is very fragile due to the presence of steep slopes and shallow soils which are moderately to highly susceptible to erosion (see Section 2.1.4, Soils).

Executive Orders 11644 (February, 1972) and 11989 (May, 1977) established policies and procedures to ensure that the use of off-road vehicles (ORVs) on public lands will be controlled and directed to protect resources, promote user safety, minimize user conflict, and ensure that any permitted uses will not result in significant adverse environmental impact or cause irreversible damage to existing resources. Pursuant to these Orders, policy and criteria relating to the use of ORVs on Reclamation lands were established on August 23, 1974 (see 43 CFR Part 420).

In June 1977, Reclamation completed the "Final Environmental Evaluation and Proposal for Off-Road Vehicle Use on Owyhee Reservoir." Based on this evaluation, all Reclamation lands within the Study Area were closed to off-road vehicle use except on designated roads and trails, and in the designated areas of Honeycomb Gulch, Cherry Creek, Spring Creek Canyon, and Section 16, T 26 S, R 43 E. All four designated areas are located on State land. Reclamation published their decision in the Federal Register on August 9, 1979.

Indiscriminate ORV use in the Study Area is not a widespread problem because topographical features and special management area designations (see 3.4.1) restrict motorized access/cross country travel. However, some unauthorized use is occurring. ORV use is a significant land management issue in and around the cabin lease sites areas at Fisherman's Cove and Dry Creek because of the resulting impacts on soil, watershed, vegetation, wildlife and adjacent wilderness values. The use of ORVs within cabin lease areas was not authorized by Reclamation's 1979 decision.

The four ORV use areas designated on State land in 1979 are no longer compatible with existing land use, resource, or special management objectives in the Study Area. Most lands within and adjacent to the Study Area received special management area status during the 1980s including Wilderness Study Area, Area of Critical Environmental Concern, Wild Horse Herd Management Area, Research Natural Area, and/or Wild and Scenic River Area designations. These designations and their management implications are discussed further in section 3.4, "Adjacent Land Use and Management."

The ORV use area designated in Section 16, T 26 S, R 43 E is within the Owyhee Wild and Scenic River corridor established in 1984 and conflicts with BLM's river management plan for that area. Similarly, the Honeycomb Gulch, Cherry Creek and Spring Creek Canyon areas are directly adjacent to BLM designated Wilderness Study Areas. The Northern Malheur Management Framework Plan (BLM, 1986) closed two large areas located within the Dry Creek Buttes and Honeycombs WSAs to all motorized vehicles (regardless of the presence of existing roads, trails and ways) to further protect sensitive resource values.

Considering the management changes which have occurred in the Study Area and on adjacent lands, it is necessary to reevaluate previous ORV and travel management designations. Proposed changes in travel management are discussed in Chapter 6.

### **3.3 RECREATION**

The primary land use activity occurring in the Study Area (other than livestock grazing) is public recreation. The area is especially suited to the pursuit of unconfined and primitive recreation opportunities and activities.

#### **3.3.1 Recreation Opportunities**

Recreation opportunities in the Study Area consist of land and water-based activities that occur primarily from May 1 through Labor Day weekend in early September. Most recreationists are from southeast Oregon and southwest Idaho who are able to reach the area within 2-1/2 hours driving time (defined as the Area of Influence). There is also a significant number of recreationists from the Bend and Portland areas.

##### **Water-Based Activities**

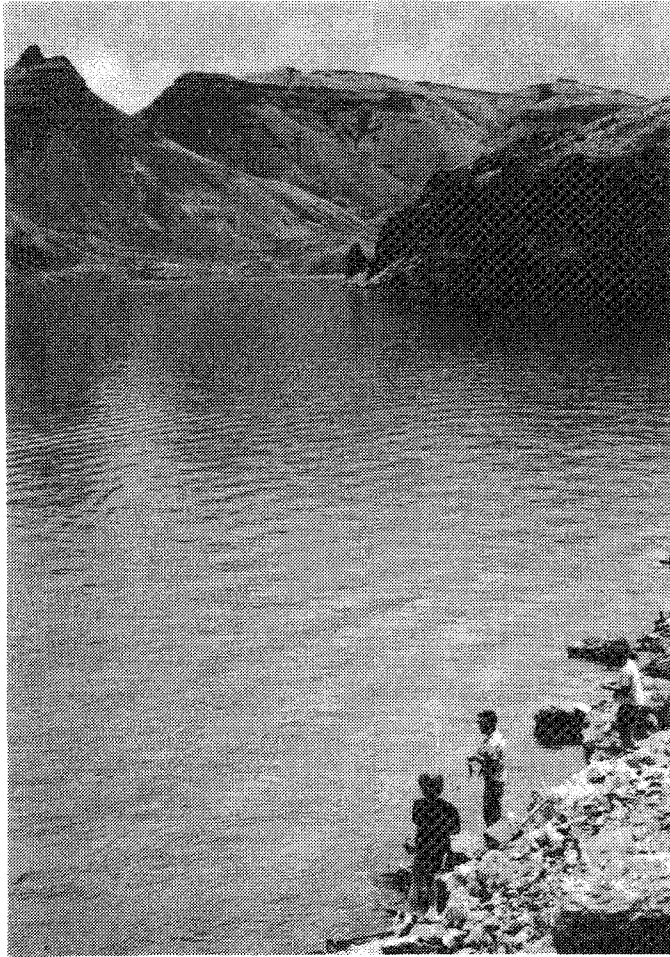
Water-based activities include fishing, motorized and whitewater boating, windsurfing, and swimming. Of these, fishing and boating are the most popular.



## Fishing

### *Owyhee Reservoir*

Owyhee Reservoir is the largest reservoir in southeastern Oregon and provides a popular warmwater fishery. Anglers primarily catch crappie, largemouth bass, channel catfish and bullhead catfish. Crappie are the most common species taken. Each summer there are a number of weekend fishing tournaments on the reservoir which draw a sizable number of fishing enthusiasts. Approximately 51% of the anglers come from Idaho and 28% from western Oregon. Residents of eastern Oregon and the local area account for about 15% of all anglers.



*Photo 3-11: Owyhee Reservoir.*

*Owyhee Reservoir is the largest reservoir in southeastern Oregon and provides a popular warmwater fishery.*

During the spring and summer of 1988, an intensive creel survey was conducted by the Oregon Department of Fish and Wildlife (ODFW). The purpose of the survey was to describe biological characteristics of the fish population, to complement other inventory data, and to characterize the fishery. The average catch rate during the survey period was 2.6 fish/angler and 0.7 fish/hour. The majority of anglers (74.3%) fished from a boat with the remainder divided between shore anglers (14.5%) and tournament anglers (11.2%). Anglers were fairly well distributed throughout the reservoir area with the most pressure and popularity (approximately 56%) occurring in the reach from the Owyhee Dam upstream to the Elbow. The most popular angling area (approximately 26%)



extends from Lake Owyhee State Park upstream to within 2 miles of the Dry Creek Arm. The area from Bensley Flat to Doe Island is also popular.

Bass tournament fishing at Owyhee Reservoir is popular throughout the late spring and summer. Based on information provided by tournament organizers, bass angler effort and catch rates appear to be increasing. Tournament and other bass anglers are catching a high proportion of the large-sized bass although the effect of handling these fish remains unknown (ODFW, 1991b). Smallmouth bass are a relatively new and increasing component of the reservoir fishery.

There are many complex factors and relationships that may be influencing fish populations and angler activity. Among these are timing and degree of reservoir drawdown, changes in fishery composition with the emergence of smallmouth bass and channel catfish, and increased pressure from bass tournaments. Another factor influencing fish populations is the development of other warmwater fisheries in the Area of Influence. The number of anglers at Lake Owyhee has decreased considerably since Brownlee Reservoir (on the Snake River) became a productive warmwater fishery. Additionally, Bully Creek Reservoir, converted in 1973 to warmwater production, has become a top crappie producer (Hosford, 1991). These changes may have drawn warmwater anglers away from Owyhee Reservoir.

#### *Lower Owyhee River*

ODFW's management objective for the lower Owyhee River is to provide a recreational fishery for the angling public. The 16-mile river reach from Owyhee Dam downstream to the Owyhee Ditch Diversion is managed as a trout fishery and the lower river as a warmwater fishery. The lower river contains many of the same species as the reservoir.

Angler use is relatively constant from May to mid-October with the peak harvest occurring after the irrigation season when fish are concentrated by reduced streamflows. Rainbow trout dominate the catch, but a few warmwater game fish are also taken. The heaviest fishing activity occurs in the two river miles immediately below Owyhee Dam. The river is generally accessible from Owyhee Dam downstream to the Owyhee Ditch Diversion via Lake Owyhee Road. Below the diversion dam, most of the land is in private ownership and access is by permission only.

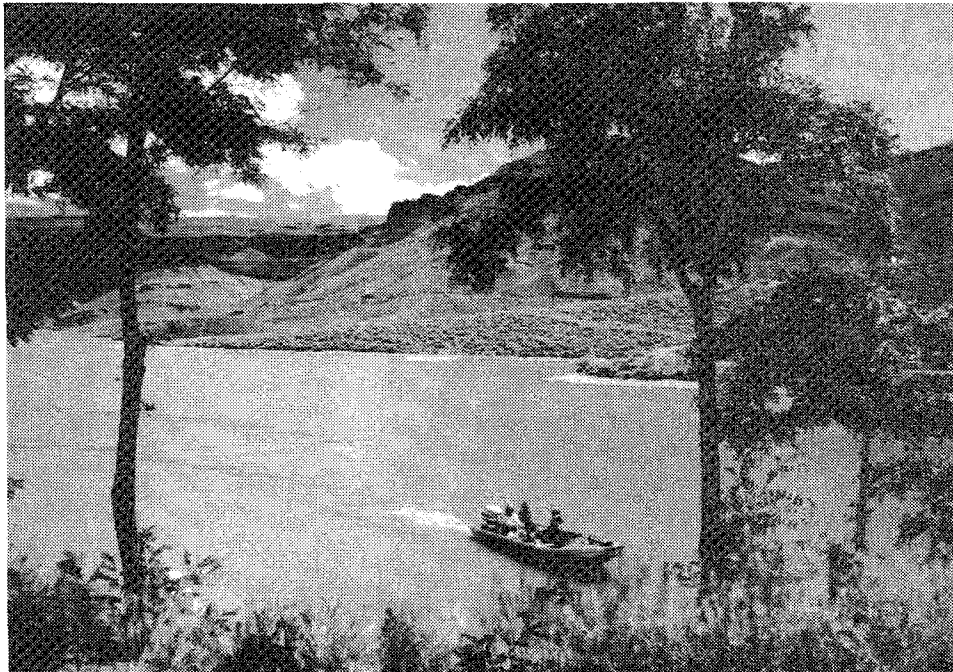
There has been no systematic creel census to statistically compare angler effort and harvest on the river. Estimates of 4,000 - 5,000 angler days for the trout fishery and 300 angler-days for the warmwater fishery in the lower segment have been reported (Hosey and Associates, 1983). Weather conditions, icing, and low water restricts angler activity and harvest during late fall and winter. Since 1974, most creel data has been collected by game enforcement personnel of the Oregon State Police during their routine patrols.

The current bag limit for trout in the lower Owyhee River is 5/day with a 6-inch minimum size and 10 in possession, year-round. ODFW has proposed prohibiting the harvest of brown trout to allow this fishery to become established.

#### Motorized Boating

Motorized boats are the principle means to access and enjoy many of the recreation opportunities available at Owyhee Reservoir. Motorboats support such popular activities as waterskiing, fishing, sightseeing and boat-in camping. The reservoir is 52 miles in length, averages 1/2-mile in width, and provides about 150 miles of shoreline. The highest concentration of boating activities occurs between the Dry Creek Arm and

Owyhee Dam. Areas of particular interest to boaters include the Honeycombs, Carlton Canyon, Indian Hot Springs, Pelican Point, Watson Cemetery, and Leslie Gulch. Deer, bighorn sheep, upland game birds, waterfowl, eagles, hawks, pelicans, cormorants and other species of wildlife are frequently viewed and enjoyed by boat.



*Photo 3-12: Motorized Boating.*

*Motorized boating is a primary recreation activity on Owyhee Reservoir and the principle means to access and enjoy many of the recreation opportunities available in the area.*

### Whitewater Boating

Whitewater boating on the main Owyhee River below Rome generally occurs from April through June and terminates either at the Birch Creek Ranch located on the upper Owyhee River or at Leslie Gulch on Owyhee Reservoir. A 67-mile whitewater boat trip from Rome to Leslie Gulch typically takes 5 days and requires covering 12 miles of reservoir flatwater.

During normal water years, the Owyhee River float season begins as early as February and lasts until the end of July. Cold unpredictable weather in February inhibits use while water levels in July are adequate only for kayaks and canoes. Usually boaters wait for the better weather in May and June making these months the busiest. The most active weekend is consistently Memorial Day (BLM, 1992).

The 1980 National River Recreation Study demonstrates that most visitors float the Owyhee River to run rapids, view scenery and camp. The possibility of several portages and boulder strewn rapids make the medium sized raft the preferred craft followed by kayaks, canoes, and drift boats. Approximately 50 percent of the boaters enjoy visiting archeological and historical sites, and 42 percent appreciate hiking in the canyon and side drainages during their river trip (BLM, 1992).

Idaho is the most frequent state of origin for visitors on the Owyhee River. Approximately 48 percent of the commercial outfitters and registered non-commercial boaters in 1991 indicated they lived in Idaho. Oregon follows Idaho with 40 percent succeeded by Washington with 6, Nevada with 3, Utah with 2, and California with 1 percent (BLM, 1992).

Non-commercial visitor statistics on the Rome to Owyhee Reservoir segment peaked in 1984 with 1,077 boaters and in 1980 for commercial guests with 771. Below Rome, the optimum water level for rafting is between 1,000 and 8,000 cubic feet per second. In 1992, the preferred level occurred on 13 days. Approximately 143 non-commercial and 70 commercial boaters took advantage of the short season (BLM, 1992).

The BLM has developed a final Wild and Scenic River Management Plan for the Main, West Little and North Fork Owyhee Rivers (BLM, 1993). A management plan for the Leslie Gulch Area of Critical Environmental Concern (ACEC) is also being prepared and includes the Leslie Gulch boat launch site located on Owyhee Reservoir. Human waste dump stations for whitewater boaters landing at Leslie Gulch and Birch Creek are proposed to meet this important sanitation need.

### **Land-Based Activities**

Land-based recreation activities in the Study Area include hunting, camping, hiking, fishing, off-road vehicle use, wildlife and wildflower observation, picnicking, and rockhounding.

#### **Hunting**

Hunting is the third most popular recreation activity in the Study Area after fishing and motorized boating. Hunting is open on all lands surrounding Owyhee Reservoir and occurs mainly during September, October, and November. The most common species sought are chukars, mule deer and bighorn sheep.

Most hunting activity occurs on BLM lands since Reclamation lands are relatively limited in extent and do not encompass most upland lands and ridges beyond the reservoir. However, some hunters gain access by boat and prefer to camp at the reservoir. The upper reservoir area in the vicinity of Red Butte and the upper Owyhee River area are particularly popular hunting camps since they can be reached by motorized vehicle.

Chukar hunting provides the most hunting recreation-days in the vicinity of Owyhee Reservoir. The wide distribution of birds and rugged terrain allow for long hunting seasons ranging from 75 to 110 days beginning in mid-October. Hunters often combine chukar hunting with deer hunting and fishing. Although most chukar hunters access ridges and breaks by vehicle, an estimated 20 boats are used each year by hunters to access hunting areas from the reservoir.

Other common upland games birds hunted in the hills adjoining the reservoir include the California Valley quail, mourning dove, and sage grouse. In 1989, the first sage grouse season in the area in ten years was held October 21-22 with a 2-day limit of two birds.

Some waterfowl hunting occurs mainly in the upper reaches of the reservoir for Canada geese. These geese nest in the rimrock cliffs bordering the reservoir. Mallards, pintails, and other species of ducks are also hunted in the same area as well as downstream of the dam during the fall migratory season.

Deer hunting is open around Owyhee Reservoir during the eastern Oregon buck season, which occurs in late summer. In 1989 the season was limited to 7-days due to limited fawn survival, but in 1990 and 1991 the season was open for 11 days.

ODFW has issued a limited number of California bighorn sheep hunting permits since 1973. Through 1990, 83 hunters have taken 76 bighorn rams from the Leslie Gulch area. In recent years, six permits have been issued and divided into two separate hunts in September. Hunting the Leslie Gulch herd during the 1986-1990 period involved a total of 30 hunters and 315 recreation-days. In 1989 six permits were issued in the Leslie Gulch Area and two in the Antelope Creek Area.

Pronghorn antelope hunting is popular outside the Study Area. Antelope are located primarily in upland desert habitats. In Malheur County, the 1991 population was estimated between 2,500 and 3,000 head and has remained relatively stable over the past 25 years. Hunting of this species is for bucks only, on a drawing basis. In 1991, the Owyhee and the Whitehorn Antelope Units were allowed 150 permits per unit.

Cougar are also present in the Owyhee Unit, but observed infrequently in the Owyhee Reservoir area. A population figure is not available, however an estimate of one animal per 100 square miles has been made for ODFW's Malheur District. Limited annual cougar hunting (2-5 permits) has occurred since 1988 in the East High Desert Unit, which includes the entire Owyhee Unit, however no cougars have been taken.

#### Off-Road Vehicle (ORV) Use

All Reclamation lands in the Study Area are closed to motorized travel except for those roads or areas specifically designated "open" for such use.

On adjacent lands administered by the BLM, special management area designations affect most lands adjacent to Owyhee Reservoir and the upper Owyhee River. Consequently, ORV use is limited to existing roads and trails only. In addition, the Honeycombs, North and South Table Mountain, and Red Butte areas are currently closed to ORVs to protect sensitive resource values.

#### Hiking

There are no constructed trails in the vicinity of Owyhee Reservoir. No tread hiking trails from the Lake Owyhee Resort to Leslie Gulch and from Leslie Gulch to Birch Creek have been in the planning stage for several years, but no action has yet been taken by the BLM. Boat-in campers on Owyhee Reservoir often choose hiking as their primary day-use activity. Boat-in camping in the vicinity of the Honeycombs, Carlton Canyon, Three Fingers Gulch, Wild Horse Basin, and Cherry Creek offer excellent hiking opportunities into highly scenic and diverse landscapes.

### **3.3.2 Recreation Sites and Facilities**

Recreation sites and facilities within the Study Area include developed and primitive day and overnight use areas, a small resort, State Park, cabin sites, and a small airstrip.

In conjunction with the development of this RMP, the study team studied and evaluated 31 recreation sites within the Study Area. This review identified which sites are environmentally suited for recreation use and helped determine what level of additional facility development is needed to meet present and future recreation needs in the area.

Of the 31 recreation sites studied, 13 are located on the lower Owyhee River and 18 on the reservoir and upper Owyhee River. Figure 3-3 illustrates the location of these recreation sites.

Following is an overview of the public recreation sites and facilities that are managed by Reclamation and BLM along the lower Owyhee River and Owyhee Reservoir. This includes developed, semi-developed, undeveloped, and random (dispersed) recreation sites.

### **Lower Owyhee River**

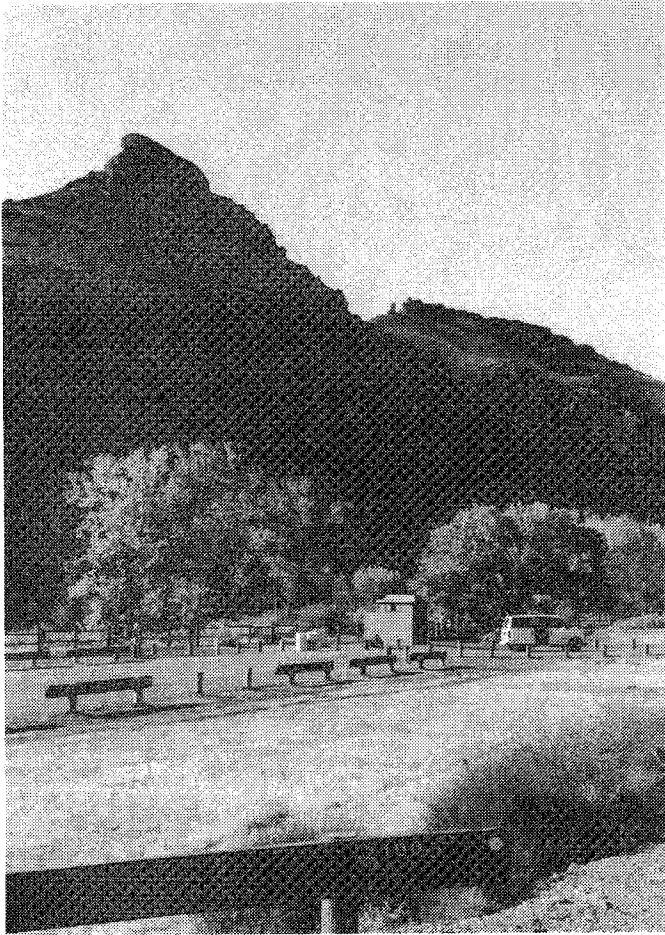
The lower Owyhee River is a popular recreation area used primarily for fishing, sightseeing, wildlife viewing and camping. The river meanders through a highly scenic canyon. Lake Owyhee Road, which parallels the river, is the primary access route in the area. Developed recreation sites include the LOCWWA "Gateway" Site, Snively Hot Springs, and Government Camp.



*Photo 3-13: Aerial View of Lower Owyhee River.  
The river meanders through a highly scenic canyon.*

### **LOCWWA "Gateway" Site (BLM)**

In 1991 the BLM designated the viewshed from Owyhee Dam downstream to the Siphon Site as the Lower Owyhee Canyon Watchable Wildlife Area (LOCWWA) to foster the public's appreciation for America's wildlife resources. As part of this program, an interpretive "Gateway" site was constructed at the north end of the canyon and includes a gravel (chip-sealed) parking area, a "barrier-free" vault toilet and asphalt path, trash receptacles, two picnic tables, interpretive displays and fencing. Throughout the LOCWWA are several designated watchable wildlife turnout sites.



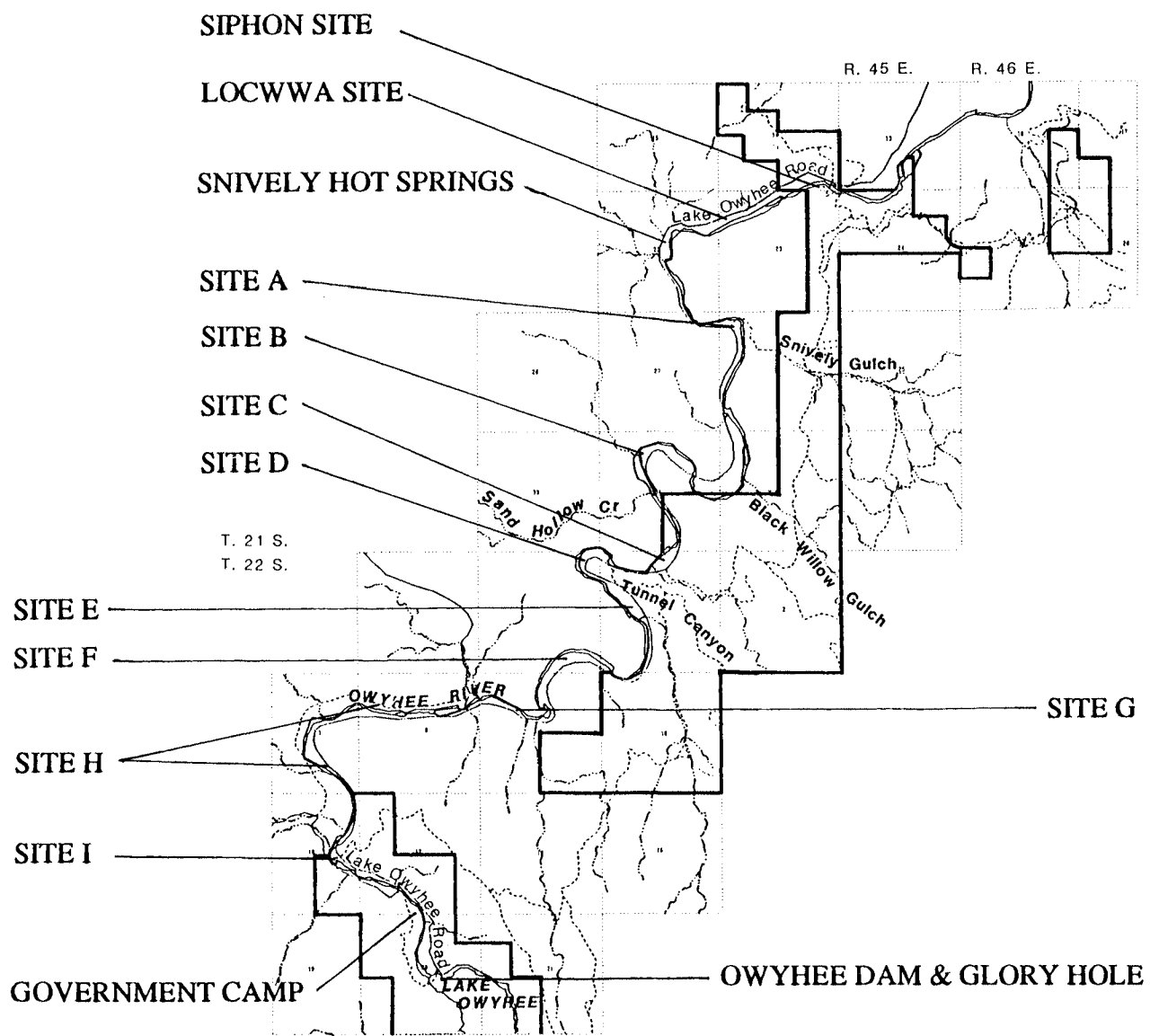
*Photo 3-14: LOCWWA  
"Gateway" Interpretive Site.  
BLM provided improvements at  
this entry to the Lower Owyhee  
Canyon Watchable Wildlife  
Area.*



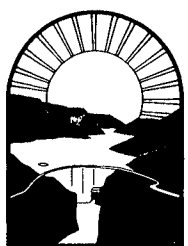
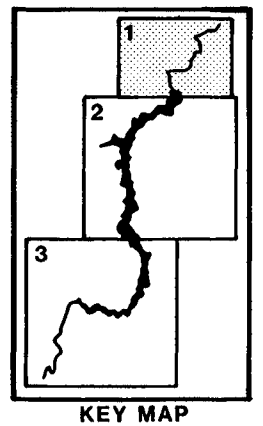
*Photo 3-15: Snively Hot Springs.  
Snively Hot Springs is one of the most popular recreation sites on the lower Owyhee  
River.*



# LOWER OWYHEE RIVER



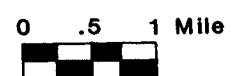
— Bureau of Reclamation Resource Management Area



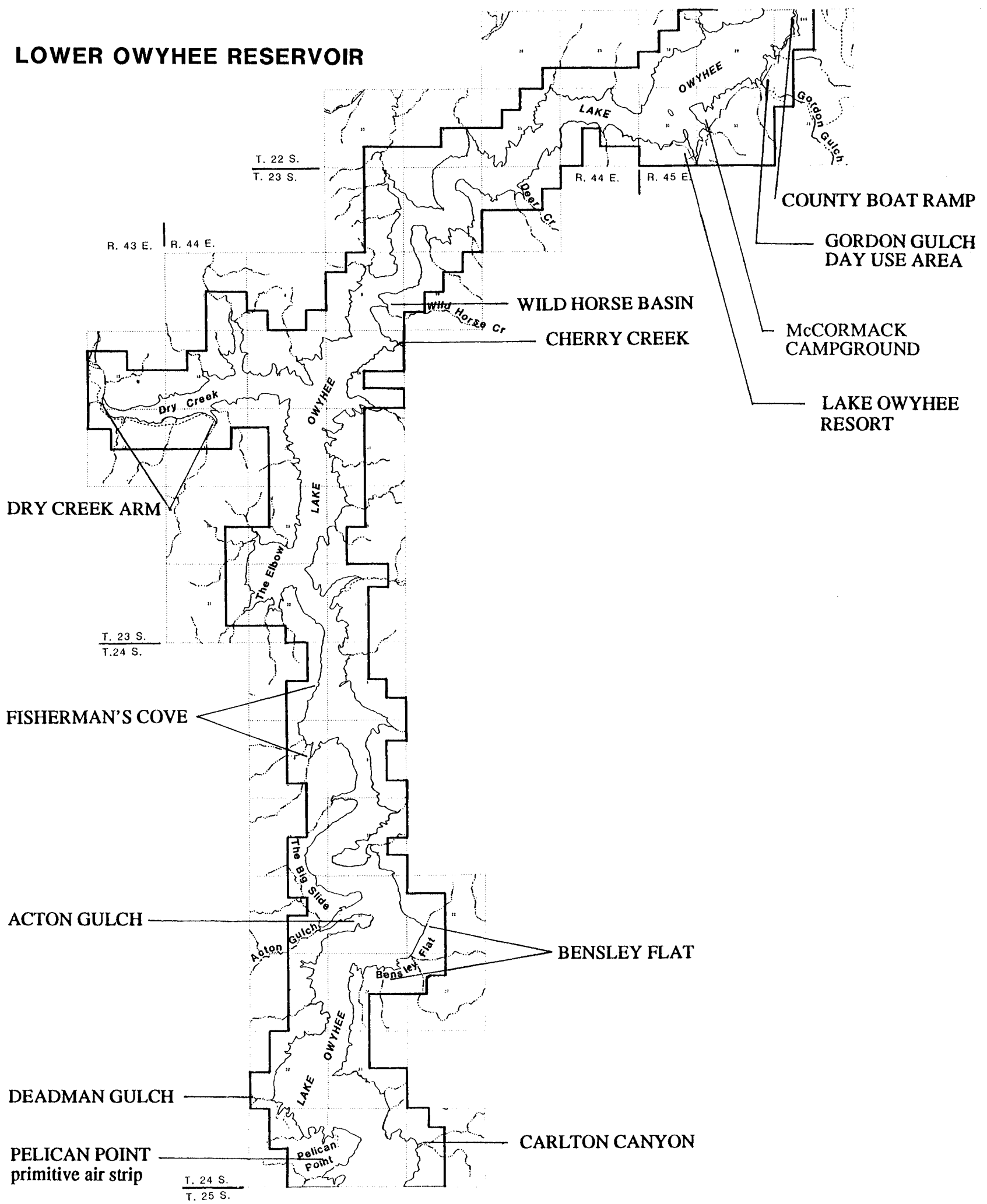
U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

## RECREATION SITES

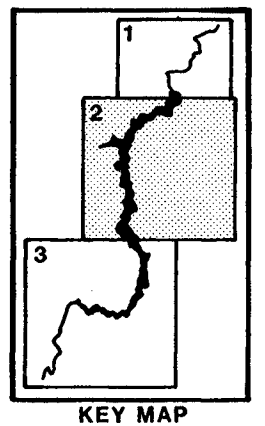
Figure 3-3



# LOWER OWYHEE RESERVOIR



— Bureau of Reclamation Resource Management Area

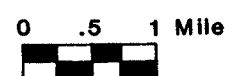


U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**

## RECREATION SITES

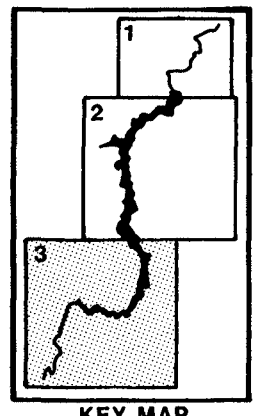
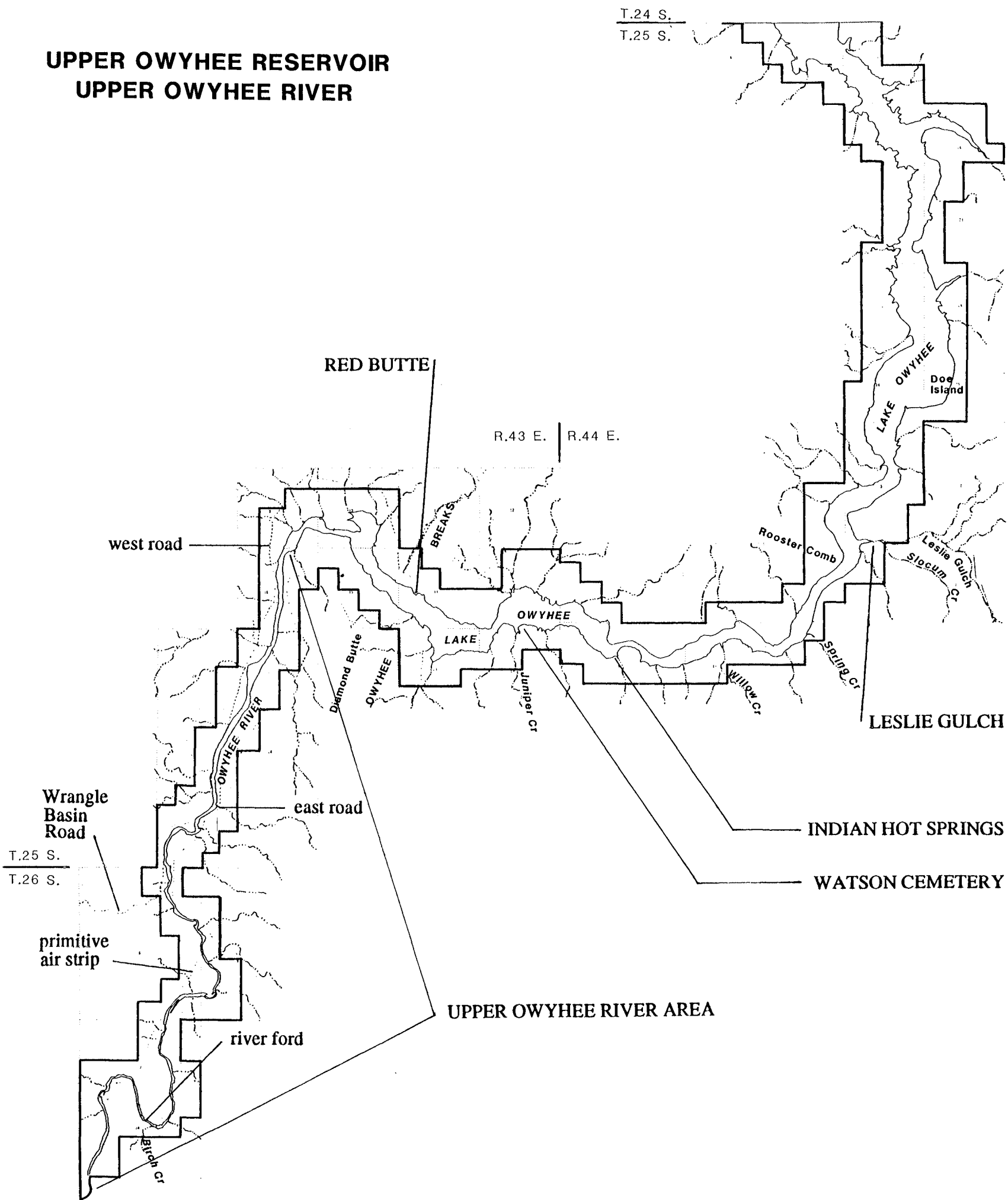
Figure 3-3

2 of 3





**UPPER OWYHEE RESERVOIR  
UPPER OWYHEE RIVER**

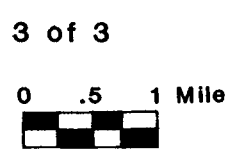


KEY MAP

— Bureau of Reclamation  
Resource Management Area



U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**  
**RECREATION SITES**  
Figure 3-3



### Snively Hot Springs (BLM)

Snively Hot Springs, located approximately one mile south of the “Gateway” site, is a popular day/overnight use area managed by the BLM. The site is popular due to the presence of hot mineral water that flows through the site to the river. An informal pool constructed of rocks along the river’s edge allows the hot water to mix with the cooler river water, providing a natural “hot tub.” Facilities include two unimproved parking areas, trash receptacles, and a single-unit vault toilet. The BLM has developed a site plan to improve the area that includes campsites, a day use area with picnic tables, and interpretive signage. BLM is reluctant to pursue additional site development until potential mining conflicts are resolved.

### Government Camp (BOR)

Located just below Owyhee Dam, Government Camp was developed in the late 1920s as a construction camp. Today the area is used primarily by the Owyhee Irrigation Districts to accommodate workers and project facility maintenance operations. The north end of the site is available to the public as a day use area and some overnight camping also occurs although not encouraged. The area is popular due to good fishing opportunities. Facilities include picnic tables, trash receptacles, a 2-unit restroom with flush toilets, and potable water. The site is accessed by a small wooden bridge that is in poor condition and subject to damage during the spring flood season.



*Photo 3-16: Government Camp.*

*Government Camp is located below Owyhee Dam and includes both public recreation and housing/maintenance facilities for the Owyhee Irrigation District.*

The remainder of the lower Owyhee River area is unimproved and randomly used. As part of the land suitability analysis (see Chapter 4, below), nine random recreation sites (A through I) were identified and evaluated. These sites are used for day and overnight use and accessed by the primitive road network which stems from Lake Owyhee Road.

These nine random recreation sites and the undeveloped Siphon Site are described below in terms of observations related to natural resources and disturbances due to recreation use.

#### Site A (BLM)

Site A includes a dispersed recreation site located near a small cluster of cottonwoods. One primitive road provides access to a river ford leading to private property across the river. Considerable erosion has occurred from dispersed motorized travel. Some streambank undercutting is occurring along northern end of area. Mulford's milk-vetch, a candidate plant species, occurs on the upper terrace near Lake Owyhee Road.



*Photo 3-17: Site A (right of Lake Owyhee Road).*

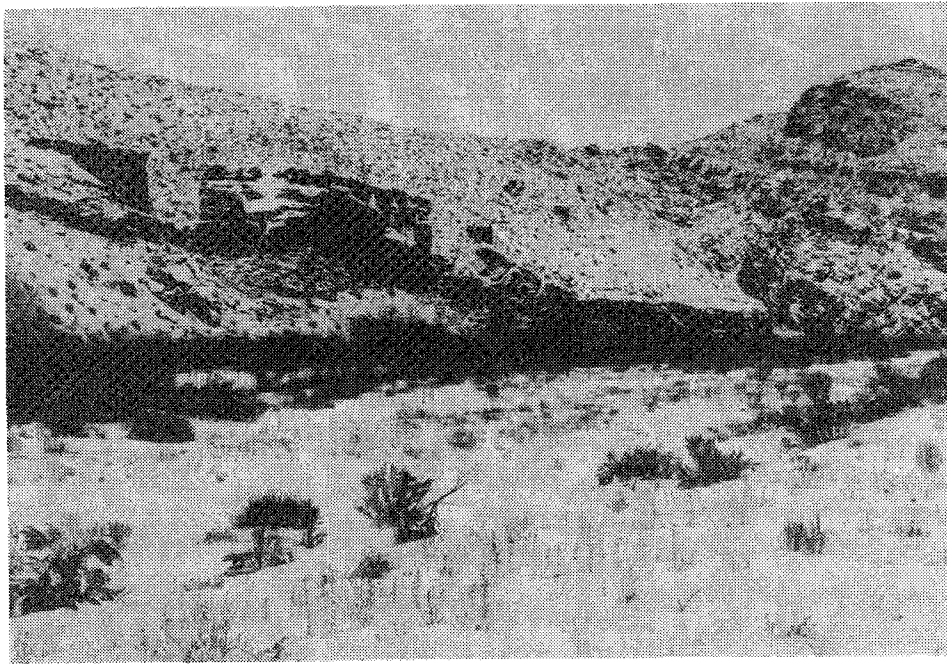
*Site A is a large, open area which contains milk-vetch, a candidate plant species.*

#### Site B (BLM)

This large site includes many dispersed roads. Dispersed camping occurs on the southeast side of the bridge and in several locations along the river's shoreline. A gravel storage/bladed area is located near Lake Owyhee Road.

#### Site C (BOR)

The three access roads leading to Site C are located on very steep slopes, posing potential erosion and safety hazards. A large gravel spoil area is located in the floodplain. Excellent riparian habitat is located along the river's edge. Opposite the site is a large talus deposit used by Malheur County as a source for road maintenance materials.



*Photo 3-18: Site B.  
Site B includes a bladed area that was once used for gravel storage.*



*Photo 3-19: Site D.  
Access to many sites, including Site D, is steep, causing erosion and potential safety problems.*

#### Site D (BOR)

Site D is located along a sharp horseshoe curve and pullout off Lake Owyhee Road, causing a safety hazard at both access points. Primitive road access to the site is very

steep, causing erosion problems. Dispersed camping occurs throughout the area. Two candidate plant species (milk-vetch) are located across Lake Owyhee Road on an upland terrace.

#### Site E (BOR)

Site E is a flat, open area with good access from Lake Owyhee Road. This site was formerly used for illegal gravel extraction and has since been filled and bladed. One primitive road extends downstream into a vegetated area and another leads to the river's edge. Excellent riparian habitats are located across the river and downstream.

#### Site F (BLM)

Site F is a popular camping area due to its protected, relatively flat, and scenic location. Natural resource values are low due to the lack of riparian vegetation and numerous access roads across the site. The area may be prone to flooding.



*Photo 3-20: Site F (Left of Lake Owyhee Road).*

*Site F is a long and very scenic area with safe access from Lake Owyhee Road.*

#### Site G (private)

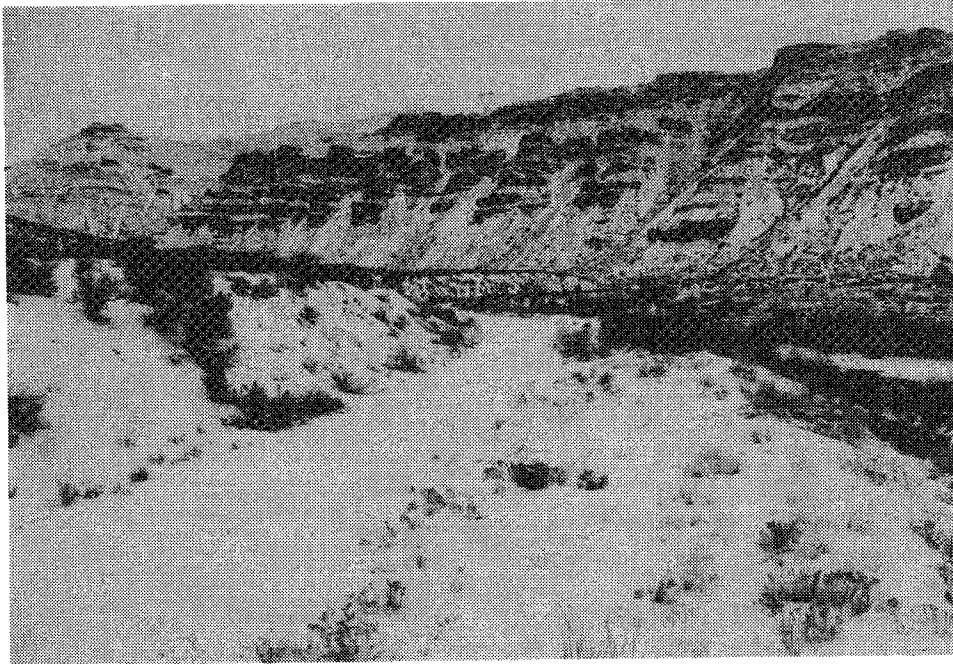
A primitive road parallel to Lake Owyhee Road provides access to this narrow site. A high value forested riparian area separates the primitive road from the river. Public use of this site is occurring on private land.

#### Site H (BLM)

Three access roads link the network of primitive roads at Site H. Access to the site is limited by a steep bank along Lake Owyhee Road. A primitive road beginning at the north (downstream) access point parallels Lake Owyhee Road below grade, providing



good visual screening and wildlife viewing opportunities. The center and north (downstream) access roads are causing severe erosion problems. The north and south roads access river fords which connect to a BLM maintained road along the west side of the river. Riparian values are fair to good.



*Photo 3-21: Site H.*

*Site H includes a primitive road that could be used as part of the LOCWWA interpretive program.*

### Site I (BOR)

Access to Site I off Lake Owyhee Road is very steep in several locations. Site I contains gravel spoils, a USGS gauging station, and a good mix of upland and riparian vegetation. A trash dump is located across the river.

### Siphon Site (BOR)

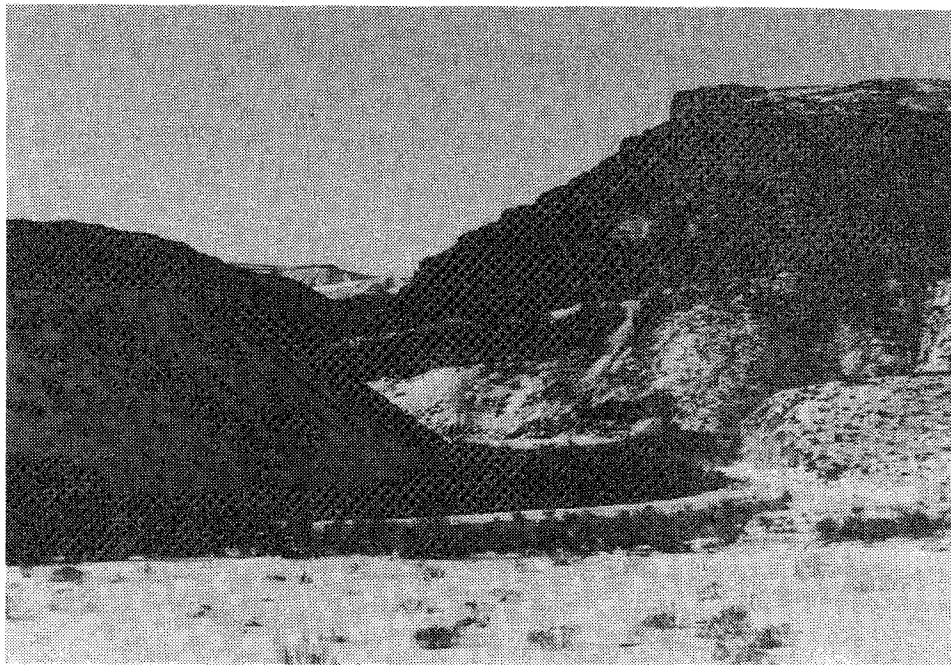
The Siphon Site is undeveloped and popular for RV camping. Located at the north end of the Study Area, the site is accessed by a primitive bridge maintained by the irrigation district. The bridge provides access to project facilities located east of the river canyon. The site is most popular in the spring and fall among anglers and hunters, respectively.

### Tunnel Canyon

Across from Site C is Tunnel Canyon. Similar to the primitive road at the Siphon Site, Tunnel Canyon Road is used by the irrigation districts to access project works and gravel sites used for project maintenance. The area is also used by the public for sightseeing, hiking, and hunting.



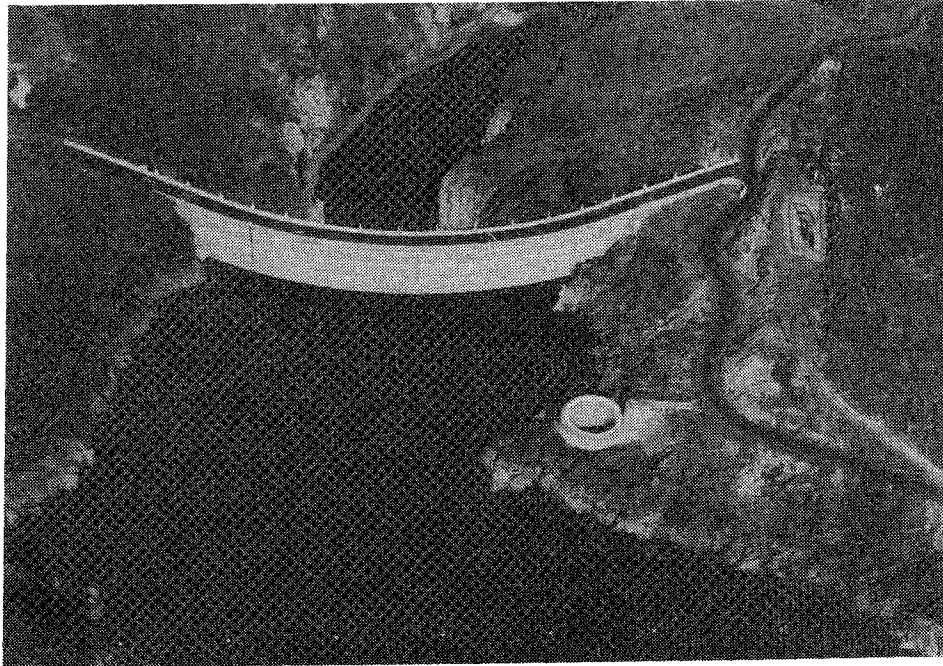
*Photo 3-22: Siphon Site.  
The Siphon Site is a very popular area for RV camping.*



*Photo 3-23: Tunnel Canyon.  
Tunnel Canyon Road provides access to irrigation canals and remote canyonlands.*

## Owyhee Reservoir

Public recreation sites with developed facilities are concentrated at the north end of the reservoir near Owyhee Dam. These developed sites include the Owyhee Dam/Glory Hole, Malheur County Boat Ramp, Lake Owyhee State Park, and the Lake Owyhee Resort. The only developed public recreation facility located south of this area is Leslie Gulch.



*Photo 3-24: Owyhee Dam/"Glory Hole" Site. Both Owyhee Dam and the "Glory Hole" spillway are popular "points of interest" for reservoir visitors. Turnout space for parking is limited.*

The Owyhee Dam/Glory Hole site is a day-use area. Both the dam and "glory hole" spillway are popular "points of interest" for reservoir visitors. Interpretive site opportunities are excellent due to the historic and engineering significance of the Owyhee Project and the diversity of project facilities which can be viewed from this location. The road which crosses the top of the dam is open to pedestrian travel and the glory hole spillway is viewed from a public observation deck. Turnout space for parking is limited.

Malheur County maintains a one-lane boat ramp about  $\frac{1}{2}$ -mile southeast of the dam. The boat ramp is steep and narrow. Associated parking facilities are on the opposite side of the road on a small bench. The county provides a portable vault toilet in the parking area on a seasonal basis. The existing parking area is topographically restricted to allow easy vehicle turnaround.

Lake Owyhee State Park is operated by the Oregon Department of Parks and Recreation. Recreation sites include Gordon Gulch and McCormack Campground. Gordon Gulch is a day-use area with 14 picnic sites, restrooms, a four lane boat ramp, and a parking area with 57 vehicle parking spaces and 24 boat trailer parking spaces. On occasion when campsites at the McCormack Campground (see below) are full, campers are allowed to stay at Gordon Gulch.





*Photo 3-25: Malheur County Boat Ramp.  
The one-lane boat ramp is steep and narrow.*



*Photo 3-26: Gordon Gulch, Lake Owyhee State Park.  
Because it is watered and shady, Gordon Gulch is a popular day-use area during the summer months.*

McCormack Campground is a fully developed day and overnight use area. Facilities include 43 camping spurs (33 tent sites and 10 RV sites with electrical hookups), picnic tables, restrooms, shower facilities, a boat ramp, and fish cleaning facilities. Camping fees are \$10.00 for tent sites and \$11.00 for RV sites. The average length of stay is 2.5 days with an average of 3.5 people per site. Fishing is the primary weekday activity and waterskiing is the primary weekend activity for park users.

The Lake Owyhee Resort is a privately operated recreation facility located at the end of Lake Owyhee Road. The resort is operated under a lease agreement with Reclamation. Facilities include a convenience store, eleven cabins, an 11-room motel, 36 trailer spaces with full hookups, 30 trailer spaces with water and electricity, boat dock moorage slips, and a 2-bedroom home. Within the resort area is Malheur County's Cherry Creek boat ramp and parking area. The one-lane concrete boat ramp is in good condition, but does not extend far enough during low water conditions. The parking area was paved in 1991 and provides ample parking for automobiles and boat trailers.

Leslie Gulch is the only other developed recreation site on the reservoir. The site is located approximately 35 miles south of the dam and managed by the BLM under a Memorandum of Understanding with Reclamation. The area is very popular for vehicle-supported day and overnight recreational activities. Developed facilities include: two single-unit vault toilets, a two-lane concrete boat ramp, a gravel surfaced parking area for motor vehicles and boat trailers, and a large parking area for overnight use. The site is the final take-out for Owyhee River whitewater boaters.

The shoreline of Owyhee Reservoir provides outstanding opportunities for primitive and unconfined recreation in a wilderness setting. Throughout the reservoir area are numerous opportunities for establishing a campsite, hiking, and other recreational pursuits.

There are a number of undeveloped recreation sites, however, which are already popular among boat-in campers and day-use recreationists. The random use sites which are consistently used by the public were closely evaluated in conjunction with the development of this RMP. These primitive sites are discussed below.

#### Wild Horse Basin and Cherry Creek

These two sites are located on the east shoreline, across from Dry Creek Arm. Both are popular overnight camping sites located close to the north end of the reservoir. They offer well protected campsites accessible at high and low water, and excellent hiking opportunities in narrow canyons. The Cherry Creek site has a high potential for flash flooding.

#### Acton Gulch

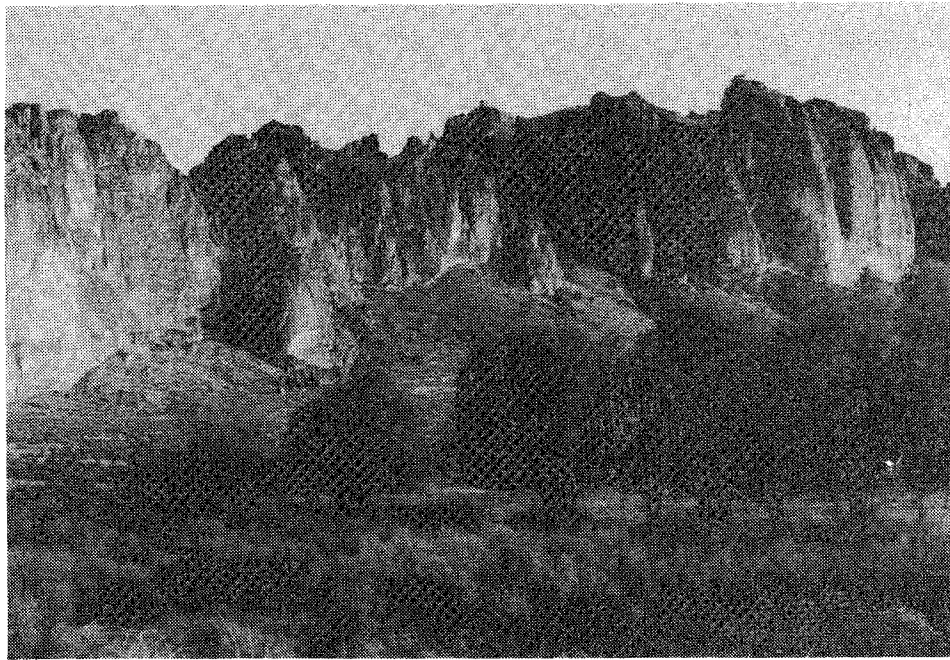
Acton Gulch is located on the west shore of the reservoir, across from Bensley Flat. During low water, access to the site is extremely steep and undesirable. Above the high waterline shelterwood trees provide some shade. There is evidence of occasional random overnight use (fire rings and trash), and heavy use by livestock.



*Photo 3-27: Wild Horse Basin.  
Wild Horse Basin is a popular overnight recreation site because of its isolated setting  
and close proximity to boat launch sites.*



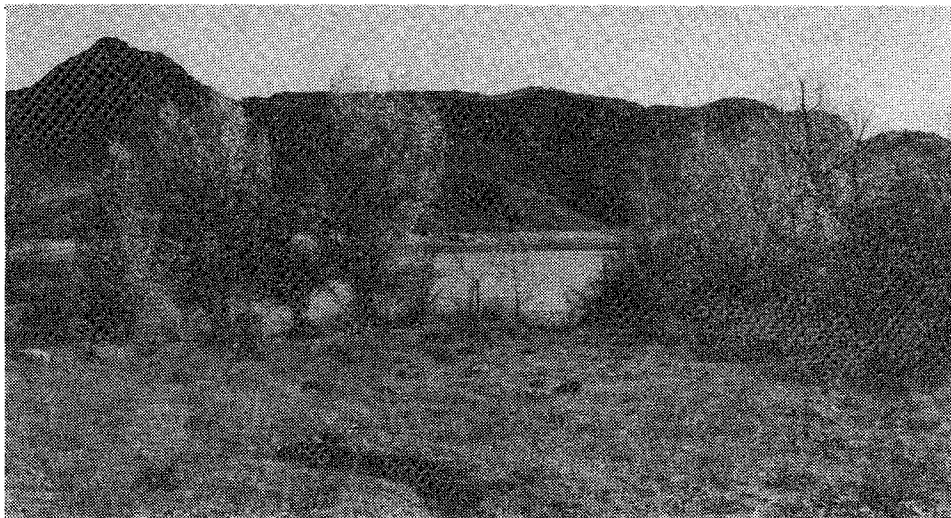
*Photo 3-28: Acton Gulch.  
Acton Gulch has been heavily impacted by cattle.*



*Photo 3-29: Bensley Flat.  
Bensley Flat provides shade and scenic beauty, making it the most popular random recreation site on the reservoir.*

### Bensley Flat

Located at the base of the Honeycombs, Bensley Flat is one of the most popular random recreation sites on the reservoir. The site offers the spectacular scenery of the Honeycombs and shelterwood trees at the high water line. Shoreline access is good at both high and low reservoir levels.



*Photo 3-30: Deadman Gulch.  
Deadman Gulch is used for camping due to the shade provided from various riparian trees and shrubs.*

### Deadman Gulch

Located just north of Pelican Point, this site is used for camping due to the shade provided from various riparian trees and bushes. The site is also used for fishing and prone to flash flooding on a seasonal basis. The primitive jeep trail from Deadman Gulch to Pelican Point is impassable due to severe gullying and erosion.

### Pelican Point

Pelican Point is the location of the only primitive airstrip on the Reservoir. There is also a small cabin (locally known as the “Owyhee Hilton”) that is often used by people who arrive by plane or boat in inclement weather. Favorable fishing conditions also make this area a popular destination.



*Photo 3-31: The “Owyhee Hilton” at Pelican Point.  
The “Owyhee Hilton” was constructed by pilots using the Pelican Point airstrip.*

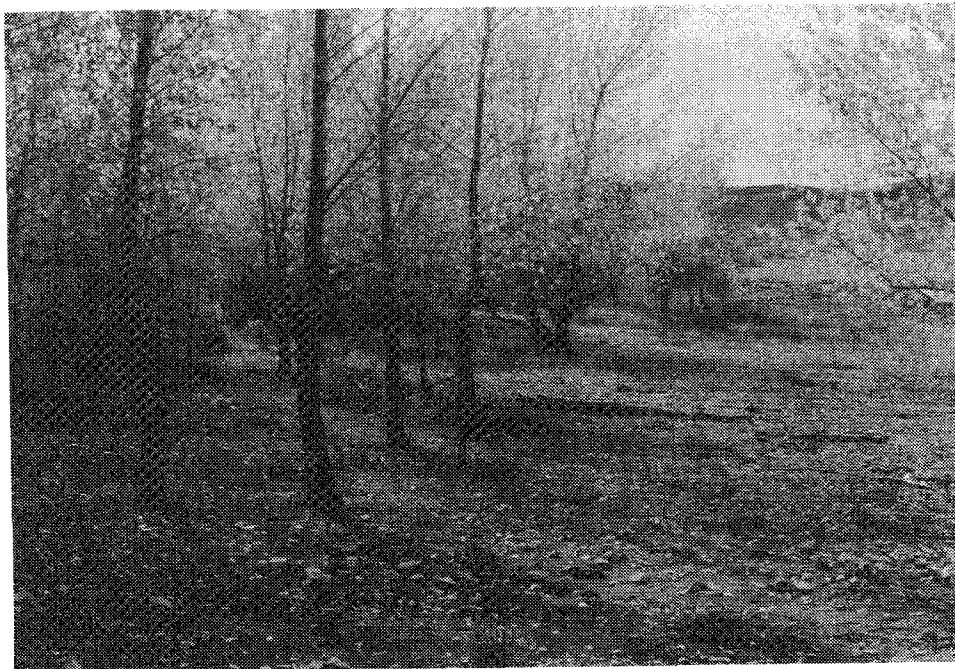
### Carlton Canyon

Located across from Pelican Point on the reservoir’s east shore, this site includes a large, flat, open area. The area is popular for overnight use due to the presence of shelterwood trees and sandy soils.

### Indian Hot Springs and Watson Cemetery

Indian Hot Springs and Watson Cemetery are located south of Leslie Gulch on the reservoir’s south shore. The Hot Springs is a popular overnight camping location due to hot spring pools. Watson Cemetery is the site of an historic cemetery where some of the first white settlers of the area were buried.





*Photo 3-32: Carlton Canyon.  
Carlton Canyon is a popular camping area due to the presence of shade trees and sandy soils.*

### Dry Creek Arm and Red Butte

Two random recreation areas (Dry Creek Arm and Red Butte) are accessible by car and popular for car camping. The Dry Creek site is used during the spring when the reservoir elevation is typically more favorable for boat launching and fishing. The Red Butte area is used throughout the spring, summer, and fall with the greatest use occurring in the fall in association with hunting activities.

### **3.3.3. Malheur County Non-Resident Boat License Fee**

In March 1993 through state legislative action, Malheur County implemented a non-resident boat license fee program for all county waters. Non-residents are required to purchase a boat decal for \$1.00/day (minimum of 4 days) or an annual permit for \$5.00/boat. For boats longer than 12 feet, an additional \$2.00/foot is added to the annual fee. The penalty for operating a non-resident boat on Malheur County waters without a decal is \$96.00. The licenses can be purchased at the Lake Owyhee Resort and several stores in the county.

## **3.4 ADJACENT LAND USE AND MANAGEMENT**

Reclamation lands in the Study Area lie primarily adjacent to BLM administered lands. Anticipated land use and management activities affecting these adjacent BLM lands are described below.

### 3.4.1 Special Management Areas

BLM special management areas include Wilderness Study Areas (WSAs), Areas of Critical Environmental Concern (ACECs), Research Natural Areas (RNAs), Wild Horse Herd Management Areas (HMAs), Wild and Scenic Rivers (WSRs), and Watchable Wildlife Areas (WWAs). The "Special Management Areas" map (see Figure 3-4) shows the relationship of these land designations to the Study Area. Anticipated land use decisions and management activities affecting these adjacent lands are described below.

#### Wilderness Study Areas

The BLM manages six Wilderness Study Areas (WSAs) adjacent to the Study Area: four border Owyhee Reservoir and two border the upper Owyhee River. Each WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and evaluated in the Final Oregon Wilderness Environmental Impact Statement completed in December 1989. There were three alternatives analyzed in the EIS: an all-wilderness alternative, a partial wilderness alternative, and a no wilderness/no action alternative. The final wilderness recommendations contained in the BLM's Wilderness Study Report dated October 1991 are summarized below.

#### Dry Creek Buttes (OR-3-56)

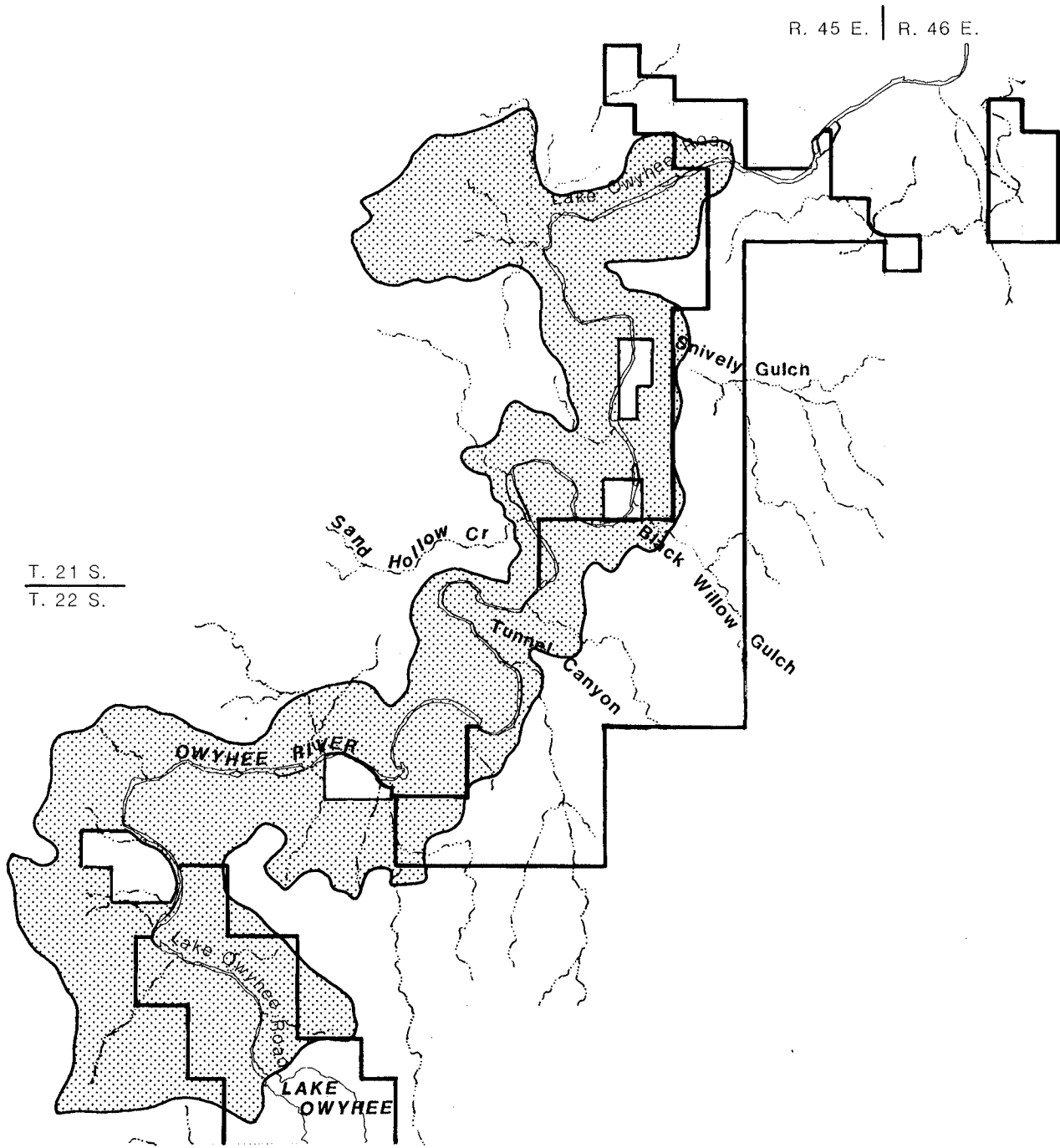
The Dry Creek Buttes WSA borders Reclamation land along the west side of Owyhee Reservoir for approximately 25 miles and contains 51,800 acres (49,880 acres of BLM land and 1,920 acres of split-estate land). The area has been nominated as an Area of Critical Mineral Potential (ACMP) because of the high potential for the occurrence of gold and silver.

Livestock use at the current level of 2,241 animal unit months (AUMs) and recreation use totaling 1,000 visitor days per year are the primary resource outputs that generate economic activity. Local personal income generated annually from these existing use levels amounts to approximately \$26,890 for livestock grazing and \$12,000 related to recreation use (BLM, 1991).



The southern portion of the WSA has been designated an off-road vehicle (ORV) closure area so that fragile soils, geologic features, and wildlife habitat are protected. The ORV closure includes North Table Mountain, South Table Mountain, Red Butte and the area surrounding these landmarks. The vehicle closure was established through BLM's Northern Malheur Management Framework Plan (1986).

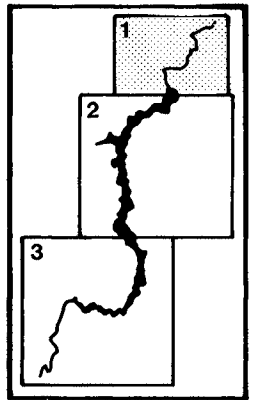
BLM has recommended to release the entire WSA for uses other than wilderness (the no wilderness/no action alternative). This recommendation will allow for projected management actions that include the construction of livestock reservoirs, 36 miles of access roads, and continued exploration for mineral resource development. The discovery and development of two gold/silver deposits is anticipated. Mineral explorations and open-pit mine development would involve approximately 1,055 acres of surface disturbance in the northeastern portion of the WSA on existing claims and in the southwestern portion on Red Butte. The mines would be located on high elevation features where they would be highly visible. The lack of vegetation in the WSA to screen mining activities would contribute to their extensive visual influence over approximately 80% (41,400 acres) of the WSA (BLM, 1991).

# LOWER OWYHEE RIVER



## LEGEND

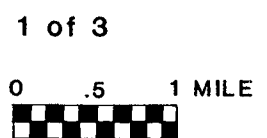
-  Lower Owyhee Canyon Watchable Wildlife Area
-  Bureau of Reclamation Resource Management Area



KEY MAP

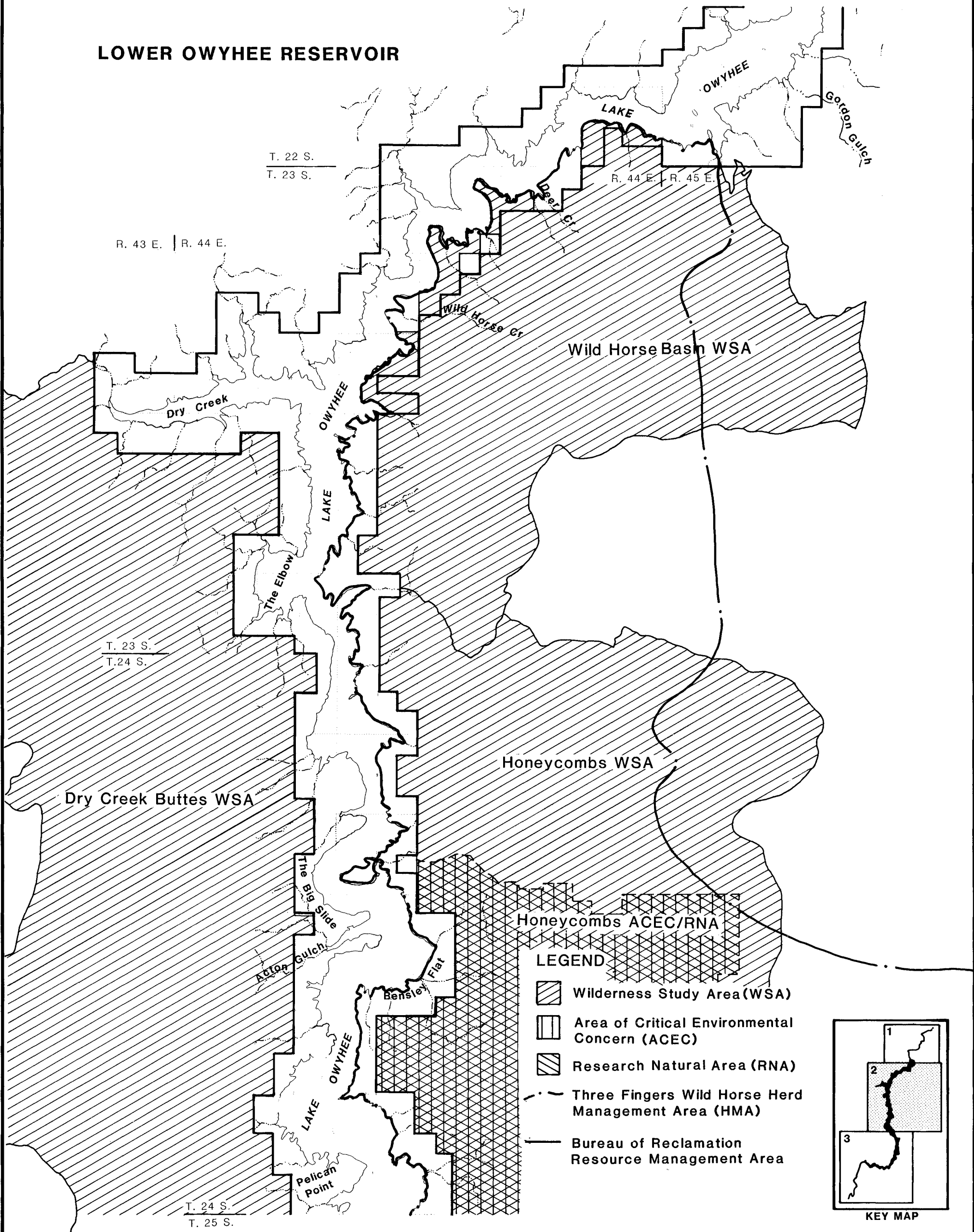


U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**  
**SPECIAL MANAGEMENT AREAS**  
 Figure 3-4








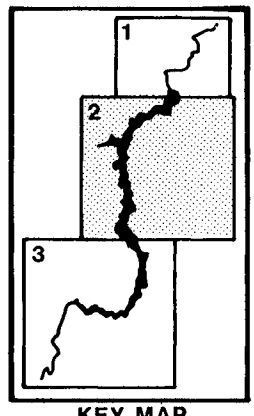


# LOWER OWYHEE RESERVOIR

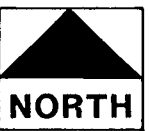
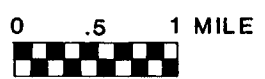


### LEGEND

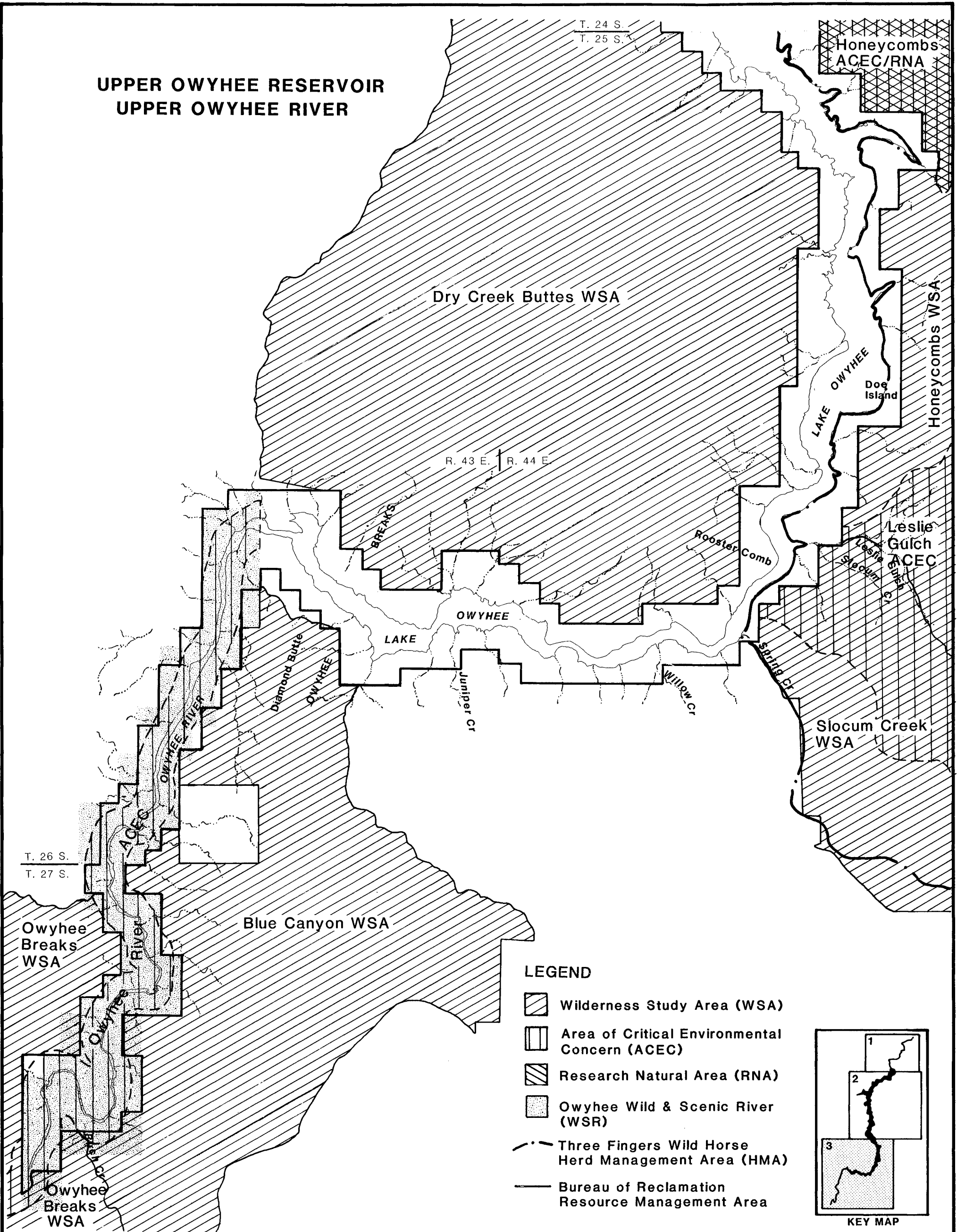
-  Wilderness Study Area (WSA)
-  Area of Critical Environmental Concern (ACEC)
-  Research Natural Area (RNA)
-  Three Fingers Wild Horse Herd Management Area (HMA)
-  Bureau of Reclamation Resource Management Area









U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**  
**SPECIAL MANAGEMENT AREAS**  
 Figure 3-4

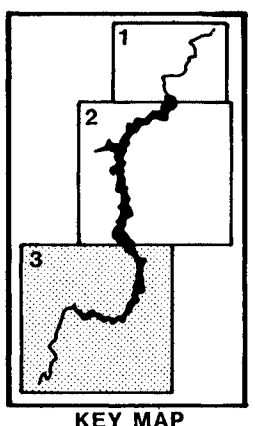


**UPPER OWYHEE RESERVOIR  
UPPER OWYHEE RIVER**

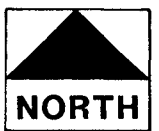
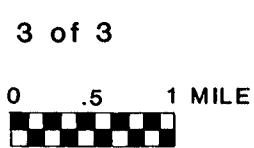


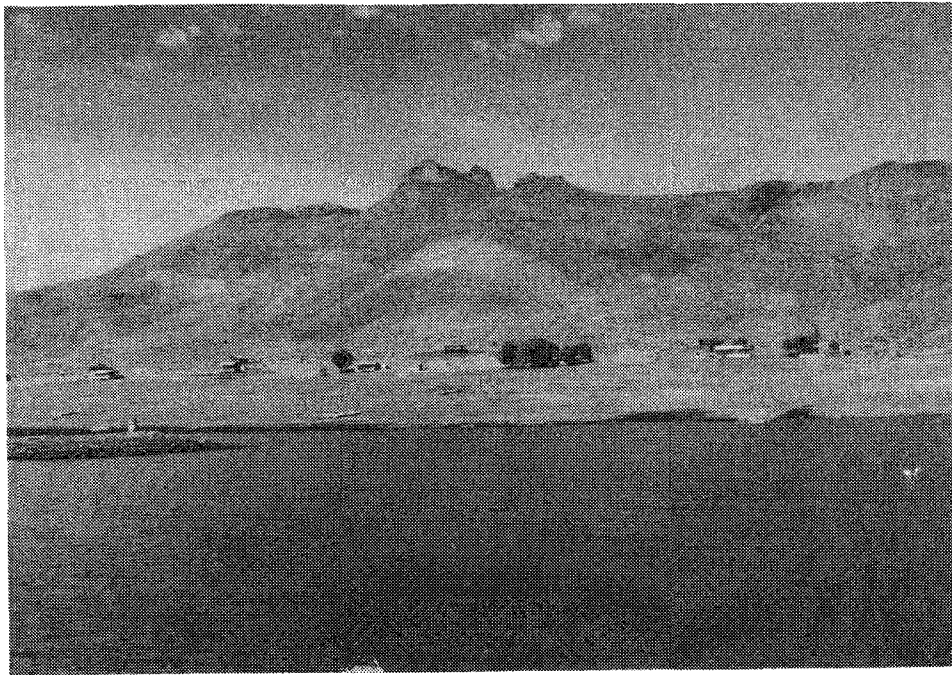
**LEGEND**

-  Wilderness Study Area (WSA)
-  Area of Critical Environmental Concern (ACEC)
-  Research Natural Area (RNA)
-  Owyhee Wild & Scenic River (WSR)
-  Three Fingers Wild Horse Herd Management Area (HMA)
-  Bureau of Reclamation Resource Management Area



U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**  
**SPECIAL MANAGEMENT AREAS**  
Figure 3-4





*Photo 3-33: Dry Creek Buttes WSA.  
A portion of the Dry Creek Buttes WSA is located behind the Fisherman's Cove cabin site lease area.*

### Wild Horse Basin (OR-3-77B)

The Wild Horse Basin WSA borders Reclamation land along the east side of Owyhee Reservoir for approximately seven miles and contains 12,680 acres (12,100 acres of BLM land and 580 acres of split-estate land). The final acreage and boundary description included in the Wilderness Study Report (October 1991) varies from that in the Final Oregon Wilderness EIS due to the inclusion of 580 acres of split-estate lands acquired in a land exchange with the State of Oregon.

The recommendation for the Wild Horse Basin WSA is to release the entire area for uses other than wilderness because of projected geothermal exploration, continued use of roads for livestock management, facility maintenance and recreational access. The no wilderness recommendation would preserve the option to explore the high potentials for geothermal resources and optical calcite and the moderate potential for oil and gas which the WSA is considered to have.

Most of the WSA is within the Three Fingers Wild Horse Herd Management Area which is managed to maintain a population of 75-150 horses. The no wilderness alternative eliminates potential wilderness management complications posed by continued use of the wild horse trap located in the WSA. The area is sometimes frequented by California bighorn sheep since their primary range is located in the Honeycombs area, south of the WSA.

Livestock use at the current level of 1,513 AUMs and recreation use totaling 500 visitor days per year are the primary resource outputs that generate economic activity. Local personal income generated annually from these existing use levels amounts to approximately \$18,150 for livestock grazing and \$6,000 related to recreation use (BLM, 1991).

### Honeycombs (OR-3-77A)

The Honeycombs WSA borders Reclamation land along the east side of Owyhee Reservoir for approximately 15 miles and contains 39,000 acres of BLM land. The WSA is south of Wild Horse Basin WSA and north of the Upper Leslie Gulch and Slocum Creek WSAs. It is separated from these three other WSA's by high standard dirt roads. Across from the Honeycombs WSA and located on the west side of Owyhee Reservoir is Dry Creek Buttes WSA.

In the northern portion of the WSA is an area of approximately 12,000 acres called the Honeycombs. The Honeycombs is a very scenic area of steep walled canyons with sculpted, multi-colored rock formations of volcanic origin.

The recommendation for the Honeycombs WSA is to designate 36,555 acres as wilderness and release 2,445 acres for uses other than wilderness. The benefits of preserving the area as wilderness include the Leslie Gulch volcanic tuff formation, a high concentration of special status plant species, bighorn sheep habitat, crucial deer winter range, northern bald eagle winter range, excellent reptile habitat, outstanding scenery, and outstanding opportunities for solitude and primitive and unconfined recreation. These benefits are high compared to the benefits of maintaining options for exploration and development of energy and mineral resources, development of a spring, and continued vehicle use on 11 miles of roads and ways.

Recommended uses for non-wilderness lands include continued mineral exploration, unrestricted use, and maintenance of range projects and a horse trap. Livestock use at the current level of 1,755 AUMs and recreation use totaling 2,000 visitor days per year are the primary outputs that generate economic activity. Local personal income generated annually from these existing use levels amounts to approximately \$21,060 for livestock grazing and \$24,000 related to recreation use (BLM, 1991).

### Slocum Creek (OR-3-75)

The Slocum Creek WSA borders Reclamation land along the east side of Owyhee Reservoir for approximately 2 miles and contains 7,600 acres of BLM land. The WSA is adjacent to the Honeycombs and Upper Leslie Gulch WSAs.

The recommendation for the Slocum Creek WSA is to designate the entire acreage as wilderness. The recommendation would help protect five special status plant species found in the WSA. Four of them are candidate species for listing under the Endangered Species Act (ESA): sterile milkvetch, Packard's blazing star, Ertter's groundsel, and Owyhee clover. The groundsel and blazing star depend upon the specific conditions offered by the Leslie Gulch ash deposits. Globally, they are found only in this WSA and in the two adjacent WSAs to the east and north. The WSA supports approximately 75 of the 200 California bighorn sheep of the Leslie Gulch herd which are a Federal candidate species for listing under the ESA.

Livestock use at the current level of 356 AUMs and recreation totaling 1,500 visitor days per year are the primary source of outputs that generate economic activity in this WSA. Local personal income generated annually from these existing use levels amounts to approximately \$4,300 for livestock grazing and \$18,000 related to recreation use (BLM, 1991).

### Blue Canyon (OR-3-73)

The Blue Canyon WSA borders Reclamation land along the southeast end of Owyhee Reservoir and east of the upper Owyhee River boundary for approximately 9 miles and contains 12,700 acres of BLM land. A 2-mile long road which dead-ends at two jasper mines along Diamond Butte Ridge forms part of the WSA boundary.

The recommendation for the Blue Canyon WSA is to designate the entire acreage as wilderness. Preserving the area as wilderness would protect spectacular and highly varied geologic features, outstanding scenery (which can be seen by rafters), bald eagle nesting on cliffs within the Owyhee River canyon, and outstanding opportunities for solitude and primitive recreation.

After wilderness designation, mineral development at three small, isolated locations with high mineral resource potential for gold, silver, mercury and molybdenum is not expected to occur. Mining activities for picture jasper gemstone may continue to occur on as many as seven present claims should they be proved to have a valid discovery.

Livestock use at the current level of 1,493 AUMs and recreation totaling 1,000 visitor days per year are the primary source of outputs that generate economic activity in this WSA. Local personal income generated annually from these existing use levels amount to approximately \$17,900 for livestock grazing and \$12,000 related to recreation use (BLM, 1991).

### Owyhee Breaks (OR-3-59)

The Owyhee Breaks WSA borders Reclamation land west of the upper Owyhee River boundary for approximately 5 miles and contains 13,380 acres of BLM land and four 40-acre parcels of private property. Approximately 75 percent of the WSA is located in rugged, dissected badlands along the Owyhee River. The stretch of the Owyhee River in the WSA is designated an Oregon State Scenic Waterway.

The recommendation for the Owyhee Breaks WSA is to designate 10,596 acres as wilderness and release 2,784 acres for uses other than wilderness. The benefits of preserving the area's high wilderness values include outstanding scenic quality, excellent nesting habitat for a variety of raptors, northern bald eagle winter range, river otter habitat, and numerous cultural resources. In the portion recommended for uses other than wilderness, mineral exploration for gold, silver and mercury would be allowed. On the southern plateau overlooking the Owyhee River, 3.5-miles of ways would remain open to motorized travel.

Livestock use at the current level of 1,399 AUMs and recreation totaling 3,000 visitor days per year are the primary source of outputs that generate economic activity in this WSA. Local personal income generated annually from these existing use levels amounts to approximately \$16,800 for livestock grazing and \$36,000 related to recreation use (BLM, 1991).

### **Areas of Critical Environmental Concern**

The BLM manages three Areas of Critical Environmental Concern (ACECs) within or adjacent to the RMP Study Area -- two border Reclamation land along Owyhee Reservoir and one along the upper Owyhee River. The Federal Land Policy and Management Act mandates that priority be given to the designation and protection of ACECs.

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The ACEC designation highlights areas where special management is needed to protect and prevent irreparable damage to important historic, cultural, scenic, wildlife, natural systems or processes, or to provide for human safety from natural hazards. A description of each ACEC is provided below.

### Leslie Gulch

The Leslie Gulch ACEC is located within the Honeycombs, Upper Leslie Gulch and Slocum Creek WSAs and contains 11,900 acres of BLM land within the Leslie Gulch drainage adjacent to Owyhee Reservoir. The area includes spectacular geologic formations created by differential weathering of the Leslie Gulch ash-flow tuff. Impressive cliffs, spires and breaks give the area an appearance very similar to some sections of the famous canyon county of southern Utah.

The soils derived from ash are droughty and highly erosive when vegetative cover is disturbed. Area vegetation is diverse and includes five Federal candidate species which are endemic to volcanic ash deposits. Area habitat provides a portion of the range for 150-200 California bighorn sheep (the Leslie Gulch herd) which can be adversely affected by unregulated use.

The BLM is currently preparing a management plan for the Leslie Gulch ACEC. The primary management issues to be addressed in the plan include: mineral resource management, recreation/facility management, motor vehicle access and management (some unauthorized ORV use is occurring), livestock management, noxious weed management (Canadian thistle is of particular concern), candidate plant species management (BLM policy is to insure that agency actions do not contribute to the need for listing of candidate species), rockclimbing, and bighorn sheep management (BLM, undated).

### Owyhee River

The Owyhee River ACEC encompasses 30,400 acres within the Owyhee Wild and Scenic River corridor. The area contains many petroglyphs, rock shelters, caves and cultural artifacts. Historical values of the early settlement era consist of buildings, waterwheels and whiskey stills. Vegetation is diverse including four Federal candidate species.

Special management to protect the resource values will require:

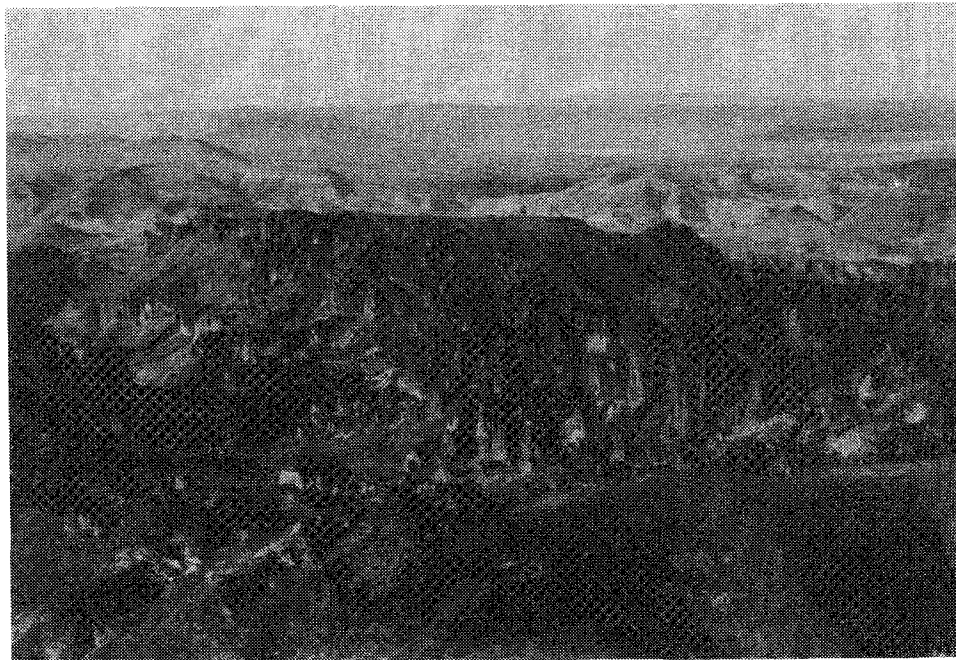
- Maintaining the current ORV closure
- Erecting barriers and/or posting road signs to deter ORV travel and protect the fragile habitat.
- Continuing river patrols during high use periods to monitor and prevent overuse which may damage sensitive values.
- Conducting carrying capacity studies and regulating river use to prevent damage to sensitive plants, fish and wildlife habitat (BLM, Northern Malheur MFP, 1986).

### Honeycombs

The Honeycombs ACEC is located within the Honeycombs WSA and contains 11,930 acres of BLM land on the east side of Owyhee Reservoir. Vegetation is diverse



throughout the area and includes three Federal candidate species. The area also provides one of five areas in Oregon where reintroduced California bighorn sheep can be harvested. The habitat can be adversely affected by unregulated use. The purpose of the ACEC is to protect: bighorn sheep habitat, the highly scenic volcanic rock outcrops which are honeycombed by the erosive force of wind and water, fragile soils highly sensitive to surface disturbances including ORV use, and several rare plant species.



*Photo 3-34: Honeycombs ACEC.*

*The Honeycombs ACEC supports a large herd of California bighorn sheep.*

Special management to protect the resource values will require:

- Maintaining the current ORV closure and posting road signs to deter ORV travel.
- Securing a protective public land withdrawal from entry under mineral and/or land laws and provide interim control of mineral and energy related activities to minimize surface disturbance.
- Managing grazing so as to maintain areas in good ecological condition and improve condition in areas which are currently below natural potential.
- Not subjecting pristine or near pristine vegetative communities to an increase in livestock use through project developments.
- Insuring no vegetation manipulation projects or range development projects are allowed in the ACEC (BLM, Northern Malheur MFP, 1986).

## **Research Natural Areas**

Research Natural Areas (RNAs) are established for the primary purpose of research and education because the land has one or more of the following characteristics: (1) a typical representation of a common plant or animal association; (2) an unusual plant or animal association; (3) a threatened or endangered plant or animal species; (4) a typical representation of common geologic, soil, or water features; or (5) outstanding or unusual geologic, soil or water features.

The 11,930-acre Honeycombs ACEC was also identified in the Northern Malheur Management Framework Plan as a RNA. The RNA was designated to fill the big sagebrush/needle-and-thread grass on cinders community for the Owyhee Uplands Province.

The Honeycombs RNA/ACEC boundary corresponds with an existing BLM vehicle closure and is entirely within the Honeycombs WSA. Bensley Flat on Owyhee Reservoir provides boaters with a convenient route into the heart of the Honeycombs.

The BLM approved a management plan for the Honeycombs ACEC/RNA in October 1985. Special management actions identified to protect the ACEC/RNA include:

- Prohibit construction of recreational facilities and ORV usage.
- Physically close and rehabilitate all roads within the RNA/ACEC.
- Allow no further resource development.
- Maintain existing habitat and habitat components.
- Manage wild horse numbers within the Three Fingers Herd Management Area (HMA) not to exceed 150 head.
- Manage threatened and endangered species habitats in a manner that will favor perpetuation and/or expansion in numbers.
- Develop primitive trails if and when area approaches environmental carrying capacity (BLM, 1985).

## **Wild Horse Herd Management Areas**

The Three Fingers Herd Management Area (HMA) consists of 76,933 acres on the east side of Owyhee Reservoir. The HMA extends from the Lake Owyhee Resort south to Spring Creek. Herd numbers are managed between 75 to 150 head and kept at levels commensurate with available forage and drinking water after allocations are made to watershed and wildlife. Maintaining these herd numbers requires roundups on a four-year cycle.

Domestic horse grazing is not allowed in areas with wild horses. Management practices to improve wild herd stock include selection for sex and age ratio, color, breed conformation and physical condition (through gathering of undesirable individuals).



## **Wild and Scenic Rivers**

In 1984 Congress designated 120 miles of the main Owyhee River from the Oregon-Idaho border downstream to Owyhee Reservoir as "wild." Within the designated wild Owyhee River corridor, the 110 river miles above Birch Creek are BLM lands and the 10 river miles from Birch Creek downstream to Owyhee Reservoir are Reclamation lands. A more detailed discussion of the Owyhee Wild and Scenic River is presented in Chapter 2 (see Section 2.1.11).

## **Watchable Wildlife Areas**

The BLM established the Lower Owyhee Canyon Watchable Wildlife Area (LOCWWA) in 1992. The boundaries of the LOCWWA extend from Owyhee Dam downstream to the Siphon Site (River Mile 14) and incorporates the entire canyon viewshed (rim to rim). The WWA is a cooperative effort between the BLM, Malheur County and Reclamation. The program is intended to introduce canyon visitors to the area's quality wildlife resource and to foster a greater public awareness and appreciation of this resource. A more detailed discussion of the LOCWWA is presented in Chapter 2 (see Section 2.1.9).

### **3.4.2 BLM Grazing Allotment Management**

Domestic livestock have been grazing in the area since the middle 1800s. In 1936 the first grazing permits were issued. Grazing allotment boundaries were set by adjudication in the 1950s as the middle of the Owyhee River/Reservoir (BLM, 1992). Generally, Reclamation's grazing lease lands (see Section 3.1.9) lie adjacent to the Owyhee River and Reservoir while BLM's grazing allotment lands overlap those of Reclamation and occupy large acreages of uplands away from the water. There are 10 BLM grazing allotments within the RMP study area. The "BLM Grazing Allotments" map (see Figure 3-5) delineates the allotment and pasture boundaries located within the Study Area.

The Northern Malheur Management Framework Plan (BLM, 1983) states that livestock will be excluded from the Owyhee River where an alternative source of water could be provided above the rim. The 1983 Southern Malheur Grazing Environmental Impact Statement and the 1984 Southern Malheur Rangeland Program Summary provided the overall direction for livestock grazing on Vale District lands. The primary grazing management objectives identified are:

- Improve ecological condition and increase forage production through the development and implementation of economically feasible grazing systems and range improvements. Allocate forage between competing uses.
- Use prescribed fire (both natural and controlled burning) as the preferred vegetation manipulation method.
- Maintain or improve riparian vegetative condition by restricting or excluding livestock use (period and/or numbers) in all important riparian zones along perennial streams, lakes and reservoirs.

Developed water sources exist up on the plateaus in many of the allotments. Some of these dry-up or freeze depending on the season. The Owyhee River and Reservoir system is used as a water source for many of these allotments, increasingly during drought periods.

Table 3-3: Bureau of Reclamation Grazing Leases and Bureau of Land Management Grazing Allotments, Owyhee Reservoir and Vicinity, Malheur County, Oregon.

Reclamation Lessees	BOR AUMS <sup>1</sup>	BLM Allotments and Permittees	BLM AUMS/ Allotment	Period of Use	Exchange of Use <sup>2</sup>
Gary Cleaver Floyd Derrick Keith Cameron	89	<u>Lower Owyhee (502)</u> Gary Cleaver  Kerry Peterson <u>Blackjack (501)</u> John Cameron Gary Cleaver	202  42 558 492	3/1-4/15 (C) 11/1-11/30 (C) 4/1-10/31 (C) 4/16-10/15 (C) 4/16-10/15 (C)	28   42 12
Gary Cleaver	25 (East)  91 (West)	<u>Lower Owyhee (502)</u> <u>*Board Corral (507)</u> Robert Davis Harold Markley Richard Springs  <u>*Nyssa (403)</u> Gary Cleaver Larry Culbertson Frank Shirts Anita Peutz Adah Schweizer Vernon Widmer	(see above)  895 886 2401  2191 868 534 1120 70 1099	(see above)  3/1-2/28 (C&H) 6/15-11/30 (C) 3/1-5/30 (C&H) 7/1-2/28 (C&H)  4/1-10/30 (C) 4/1-10/30 (C) 4/15-5/15 (S) 4/1-10/30 (C) 4/1-10/31 (C) 4/1-10/30 (C)	(see above)
Kerry Petersen	48	<u>*Nyssa (403)</u> (See above)			
Johnson Feedlot	222	<u>Quartz Mtn. (406)</u> Johnson Feedlot	7476	3/1-2/28 (C)	222
Duncan MacKenzie	56.5	<u>Three Fingers (503)</u> Duncan MacKenzie Cunningham Ranch Andrew Greeley Delbert Allison  <u>*Mahogany Mtn. (509)</u> T.L. Cattle Co. Baltzor Cattle Co.	3876 2777 1664 1664  2937 2729	3/1-2/28 (C&H) 3/1-10/31 (C&H) 3/1-2/28 (C&H) 3/1-2/28 (C)  3/25-10/15 (C) 3/25-10/15 (C)	104
Quarter Circle (Dorothy Rust)	22	<u>Birch Creek (506)</u> MacKenzie Ranch	1099	4/1-2/28 (C)	
NO BOR LEASE		<u>Mitchell Butte (408)</u> Sam Hartley	152	3/1-2/28 (C)	
NO BOR LEASE		<u>Wallrock (405)</u> Richard Sutphin	6656	3/1-2/28 (C)	

<sup>1</sup> Animal Unit Month (AUM): The amount of forage required to sustain one cow and calf, or their equivalent (i.e. 5 sheep), for one month.

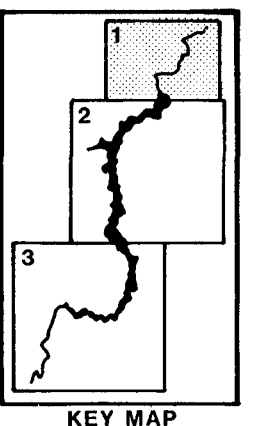
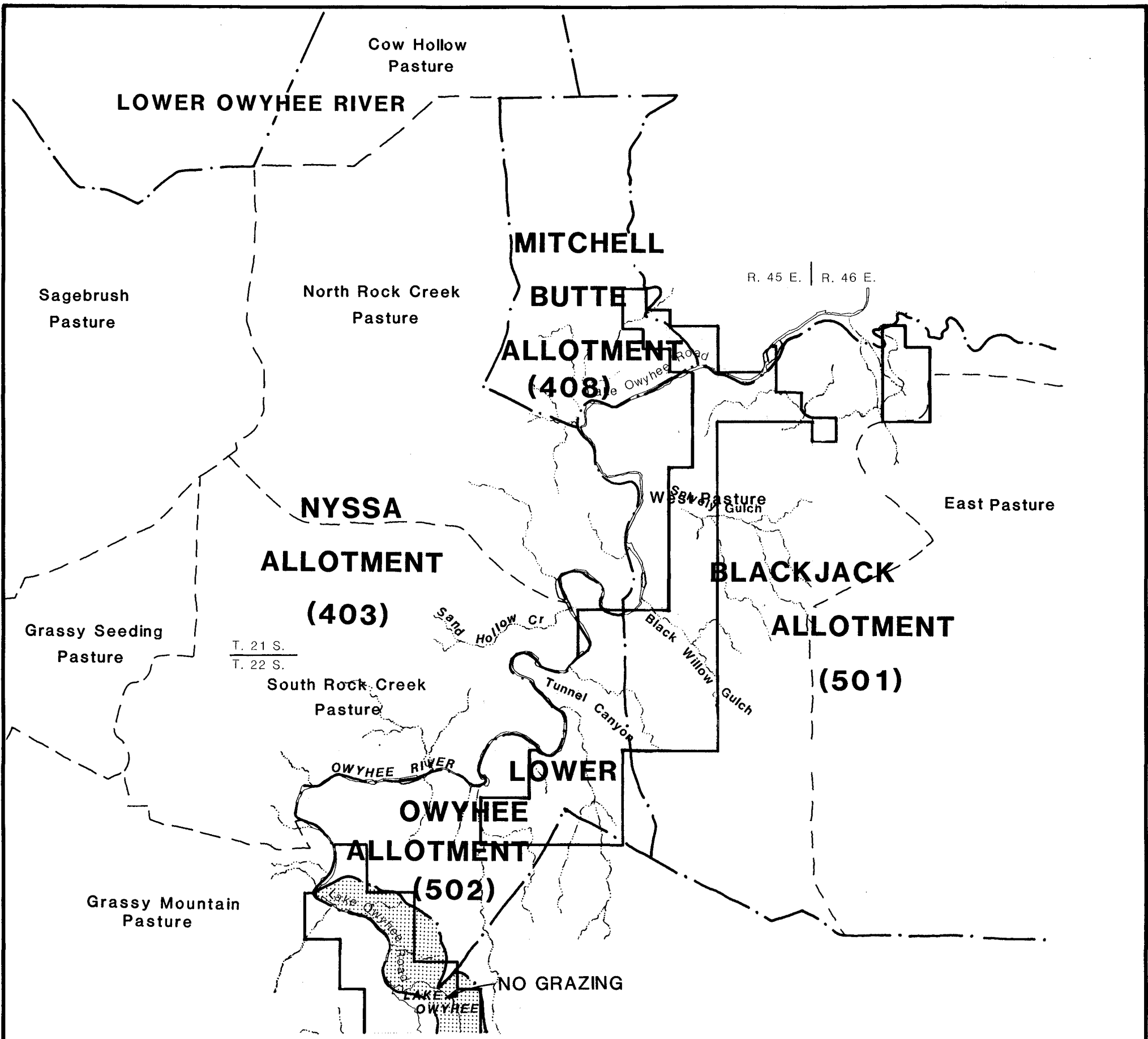
<sup>2</sup> Exchange of use is given where BLM determines the overall allotment carrying capacity, but doesn't charge for AUMs on unfenced private or other lands controlled by the permittee. This exchange of use figure refers to exchange use on Reclamation lands.

\* No AUMS are identified for the BOR lessee in this allotment.

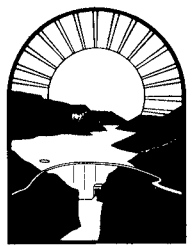
(C) = Cattle

(C&H) = Cattle and Horse

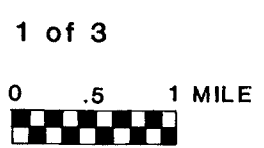
(S) = Sheep



KEY MAP



U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**  
**BLM GRAZING ALLOTMENTS**  
 Figure 3-5



LOWER OWYHEE RESERVOIR

NYSSA

ALLOTMENT (403)

T. 22 S.  
T. 23 S.  
Grassy  
Mountain  
Pasture

R. 43 E. | R. 44 E.

R. 44 E. R. 45 E.

NO. GRAZING  
GORDAN  
GULCH ALLOTMENT (513) TUNNEL  
CANYON ALLOTMENT (512)

Wild Horse Basin  
Pasture  
Wild Horse Cr

BOARD  
CORRAL  
TEMPORARY  
ALLOTMENT  
(507)

Dry Creek Buttes  
Pasture

WALLROCK

T. 23 S.  
T. 24 S.

ALLOTMENT  
(405)

Sheephead  
Pasture

Riverside  
Pasture

THREE  
FINGERS  
TEMPORARY  
ALLOTMENT  
(503)

McIntire  
Pasture

The Big Side  
Acton Gulch  
Bensley Flat

Red Butte  
Pasture

QUARTZ  
MOUNTAIN

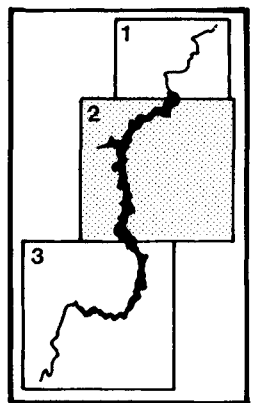
ALLOTMENT  
(406)

T. 24 S.  
T. 25 S.

U. S. Bureau of Reclamation  
OWYHEE RESERVOIR RMP

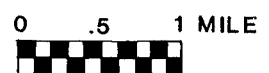
BLM GRAZING ALLOTMENTS

Figure 3-5



KEY MAP

2 of 3



UPPER OWYHEE RESERVOIR  
UPPER OWYHEE RIVER

T. 24 S.  
T. 25 S.

**QUARTZ  
MOUNTAIN  
ALLOTMENT  
(406)**

Riverside  
Pasture

Doe  
Island

Red Butte  
Pasture

**THREE  
FINGERS  
TEMPORARY  
ALLOTMENT  
(503)**

R. 43 E. | R. 44 E.

Willow  
Springs  
Pasture

BREAKS

Rooster Comb

Leslie Gulch  
Pasture

**THREE  
FINGERS  
TEMPORARY  
ALLOTMENT  
(503)**

LAKE OWYHEE

Spring Basin  
Pasture

Leslie Gulch  
Pasture

T. 26 S.  
T. 27 S.

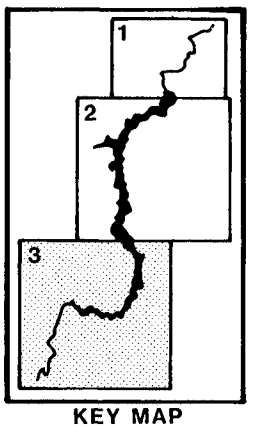
Island  
Field  
Pasture

Black Rocks  
Pasture

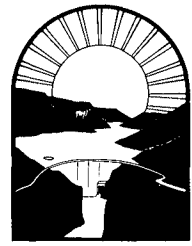
**MAHOGANY  
MOUNTAIN  
TEMPORARY  
ALLOTMENT  
(509)**

**BIRCH  
CREEK  
ALLOTMENT  
(506)**

**McCAIN  
SPRINGS  
ALLOTMENT  
(505)**

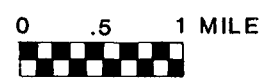


KEY MAP



U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**  
**BLM GRAZING ALLOTMENTS**  
Figure 3-5

3 of 3



Trailing is permitted through several areas of the Owyhee system. Within the Study Area this activity primarily occurs in the lower Owyhee River area during the spring and fall season. Trailing of livestock typically takes one day or less. When water is not available outside the canyon within a days trailing period, the livestock use the river as a water source for one day before moving out of the canyon.

Table 3-1 summarizes the BLM grazing allotment program within the Study Area. For each BLM allotment, the grazing permittee(s), Animal Unit Month (AUM) allocation, and authorized period of use are shown. If applicable, the table also identifies the lessees authorized to graze within an allotment under Reclamation's grazing lease program. In those instances where an exchange of use has been determined within an allotment, the exchange of use AUMs credited to Reclamation lands are shown.

Most pastures operate under a 2-year rotation or a 3-year deferred rotation grazing system. Although livestock grazing may occur within an allotment year-round (see Table 3-3), in actuality, livestock are moved from pasture to pasture within the allotment under a grazing schedule which generally limits livestock forage utilization to either a one or three month period of use. Other pastures such as those within the Wallrock, Quartz Mountain, Three Fingers Temporary, Mahogany Mountain Temporary, and Birch Creek Allotments are grazed season long on an annual basis (see Table 3-3).

A herd of 75-150 wild horses also use the Study Area primarily in the Wild Horse Basin Pasture of the Board Corrals Allotment and the Riverside Pasture of the Three Fingers Allotment. The 1984 Rangeland Program Summary allocates approximately 2.9 percent of the forage for wild horses and 1.2 percent for wildlife.

Grazing use is predominantly cattle, but some sheep and horse use is also authorized. For each BLM allotment and pasture within the Study Area, the grazing system and periods of use currently authorized are as follows:

**Mitchell Butte Allotment (408)**

Federal Range (no specific period of use authorized)

**Nyssa Allotment (403)**

North Rock Creek Pasture (2-year rotation)

7/16-9/15 (year 1)

6/16-7/15 (year 2)

South Rock Creek Pasture (2-year rotation)

6/16-7/15 (year 1)

7/16-9/15 (year 2)

Grassy Mountain Pasture (3-year deferred rotation)

4/1-6/15 (year 1)

8/1-10/31 (year 2)

4/1-4/30 and 8/1-10/31 (year 3)

---

Wallrock Allotment (405)

Dry Creek Buttes Pasture 11/1-3/31

Quartz Mountain Allotment (406)

Red Butte Pasture 11/1-4/20

Willow Springs Pasture 11/1-4/20

Blackjack Allotment (501)

West Pasture (2-year rotation)

4/15-7/15 (year 1)

7/16-10/15 (year 2)

Lower Owyhee Allotment (502)

3/1-10/31

Board Corral Temporary Allotment (507)

Wild Horse Basin Pasture (3-year deferred rotation)

4/1-7/1 (year 1)

7/1-9/1 (year 2)

9/1-11/1 (year 3)

Three Fingers Temporary Allotment (503)

Riverside Pasture 3/1-5/1

Leslie Gulch Pasture 3/1-5/1

Black Rocks Pasture 12/1-4/1

Mahogany Mountain Temporary Allotment (509)

Spring Basin Pasture 3/25-6/1

Birch Creek Allotment (506)

Island Field Pasture 11/1-2/28

Source: BLM, Vale District, 1993, personal communication.

### 3.4.3 Minerals Management

Most public lands which abut Reclamation lands in the Study Area are open to mineral entry and location under the mining laws of the United States. Since this "open" status also applies to those public domain lands contained within six BLM designated Wilderness Study Areas (WSAs), mineral entry, location, exploration and development remain viable options within WSAs. However, until Congress decides which of these areas will be designated as wilderness and added to the National Wilderness Preservation System, the BLM is required to manage WSAs in accordance with the Federal Land Policy and Management Act (FLPMA), their "Interim Management Policy and Guidelines for Lands Under Wilderness Review," and other applicable laws and regulations. Only Congress can release a WSA from wilderness study status.

Section 603(c) of FLPMA tells the BLM how to manage lands under wilderness review, in these words:

During the period of review of such areas and until Congress has determined otherwise, the Secretary shall continue to manage such lands according to his authority under this Act and other applicable law in a manner so as not to impair the suitability of such areas for preservation as wilderness.

This language is referred to as the "non-impairment" mandate. However, Section 603(c) also provides a special exception from the non-impairment mandate for existing mining and mineral leasing activities ("grandfathered" uses) being conducted on the date of approval of FLPMA.

A "grandfathered" use is an existing use that clearly was taking place on the land when FLPMA was passed (October 21, 1976). An existing use would have created actual physical impacts on the land. Grandfathered uses are allowed to continue in the manner and degree in which the same was being conducted on October 21, 1976 (BLM, November 1987).

The "valid existing rights" provision of FLPMA means a valid discovery had been made on a mining claim on or before October 21, 1976. Activities under valid existing rights must satisfy the non-impairment standard unless this would unreasonably interfere with the enjoyment of the benefit of the rights. Activities under valid existing rights also are regulated to prevent unnecessary or undue degradation of the lands (BLM, November 1987).

For those mining claims filed after October 21, 1976, all activities must be managed so as not to impair the area's suitability for preservation as wilderness. The key point is that any action cannot negatively impact the wilderness values of a WSA, thus constraining or preempting Congressional designation. Permissible activities (other than grandfathered uses and valid existing rights) under the non-impairment standard are temporary uses that create no new surface disturbance (BLM, July 1989).

Geologists from the Oregon Department of Geology and Mineral Industries (DOGAMI) have evaluated the energy and mineral resources of the WSAs surrounding Owyhee Reservoir and the upper Owyhee River. In recent years, thousands of mining claims have been filed on these public lands followed by considerable exploration activity. Table 3-4 summarizes the primary mineral and energy potentials identified for the six WSAs adjacent to the Study Area.



Table 3-4: Potential Energy and Mineral Resources Within Six Wilderness Study Areas Adjacent to Owyhee Reservoir and Upper Owyhee River, Malheur County, Oregon.

Mineral Resource	Upper Owyhee River			Owyhee Reservoir		
	Owyhee Breaks	Blue Canyon	Slocum Creek	Honey-combs	Wild Horse Basin	Dry Creek Buttes
gold	H <sup>1</sup>	H <sup>1</sup>	M <sup>1</sup>	M		H
silver	H <sup>1</sup>	H <sup>1</sup>	M <sup>1</sup>	M		H
bentonite	M <sup>1</sup>	M <sup>1</sup>		M		M
perlite				M	M	
flourite	L	L		L		
calcite					H	M
mercury	H <sup>1</sup>	H <sup>1</sup>	M <sup>1</sup>	M		
molybdenum	H <sup>1</sup>	H <sup>1</sup>		M		
diatomite	M	M <sup>1</sup>				
uranium			M <sup>1</sup>	M		M <sup>1</sup>
thorium			M <sup>1</sup>	M		
lithium			L	M		
zinc			M <sup>1</sup>	M		
zeolite	O			M <sup>1</sup>		M
<b>Energy Resource</b>						
oil and gas	M <sup>1</sup>	L		M	M	M
geothermal	M <sup>1</sup>	M <sup>1</sup>	M <sup>1</sup>	M	H	
<b># of Mining Claims as of May 1991</b>	4	442	0	199	178	724

L= Low; M= Moderate; H= High; O= Occurrences

<sup>1</sup> = In certain areas

Source: U.S. Bureau of Land Management, October 1991, Wilderness Study Report, Volume 1.

Mineral exploration activities have been particularly concentrated in the Dry Creek Buttes WSA. Preliminary findings indicate a particularly high potential for gold and silver in this WSA.

The BLM has recommended non-wilderness designation for the Dry Creek Buttes and Wild Horse Basin WSAs. The value of the benefits to be gained by retaining development options in these WSAs included geothermal exploration within the Wild Horse Basin WSA and mineral exploration and development within the Dry Creek Buttes WSA (BLM, 1991). BLM's final wilderness recommendations have been formally submitted to the Secretary of the Interior and forwarded to the President. In 1992, the President submitted his wilderness recommendations to Congress as described in the Wilderness Study Report.

The western border of the Blue Canyon WSA abuts Reclamation land along the upper Owyhee River. Reclamation land boundaries along this river reach also define the lower portion of the main Owyhee Wild and Scenic River boundary. No mining claims or mineral/energy leases exist within this portion of the river corridor nor is any known mineral/energy development or exploration occurring.

Under the management guidelines for "wild" rivers, new mining claims and mineral leases are prohibited within 1/4-mile of the river. Mining claims beyond 1/4-mile of the river, but within the wild river boundary and perfected after the effective date of the wild river designation can be patented only as to mineral estate and not to surface estate (BLM, 1989).

Some mineral exploration and development continues just outside the wild and scenic boundary within the Blue Canyon WSA (BLM, May 1992). The most notable location is the Sheep Head mining district, located along the east wall of the Owyhee River canyon approximately one mile downstream from Birch Creek. Several tons of "picture jasper" have been removed from five mining claims since the mid-1960s.

A total of seven lode mining claims have been filed in the Blue Canyon WSA for picture jasper. All seven claims are located near the western border. Because two of these claims were established and active prior to the passage of the FLPMA, they are considered "valid existing rights." Consequently, these "grandfathered" mineral claims can remain active as long as they continue in the same manner and degree as they were on October 21, 1976.

Present and past mining activities within the WSA have been associated with the jasper-bearing materials which underlie most of the area. Five of the lode claims are adjacent to each other and located at the terminus of the 2-mile dead-end road that serves as part of the WSAs boundary. As of December 1991, mining activities by two operators were occurring in this location. Two other claims with no mining activity are located further south (BLM, October 1991).

Based on indirect evidence, most of the western border of the WSA is considered to have moderate potential for the occurrence of gold and silver due to the known presence of picture jasper (an indicator of gold/silver mineralization) and a favorable geologic environment. There are no confirmed deposits of silver in the WSA (BLM, December 1989).

### **3.5 ACCESS AND TRANSPORTATION**

#### **Road Access**

Primary access to the Owyhee Reservoir area is along the major highways leading into Ontario, Nyssa, Vale and Jordan Valley, Oregon. These routes include Interstate-84, U.S. Routes 20/29 and 95, and State Routes 201, 18 and 52. State Route 201 south of Ontario is the primary route leading to the northern portion of the Study Area and U.S. Route 95 north of Jordan Valley is the primary route leading to the southern portion of the Study Area.

Access within the Study Area is limited by the area's steep topography and remoteness. Primary road access is provided via the Lake Owyhee and Leslie Gulch Roads. Most secondary access routes are primitive, unmaintained 2-track dirt roads and ways which require the use of high clearance, four-wheel drive vehicles. Wet and muddy road conditions in the spring can make motorized travel especially difficult and lead to severe rutting, gullyng and soil erosion.

The 27-mile Lake Owyhee Road branches from State Route 201 at Owyhee Corners near Adrian and terminates at the Lake Owyhee Resort. Meandering along the lower Owyhee

River, the 2-lane road provides access to the river, Tunnel Canyon, Government Camp, Owyhee Dam, Lake Owyhee State Park, and Lake Owyhee Resort. The road is asphalt surfaced and maintained by Malheur County (Nyssa Road District). From Owyhee Corners to Owyhee Dam, Lake Owyhee Road is a nominee for State Scenic Route designation.

From Owyhee Corners to Government Camp, Lake Owyhee Road is flat with no steep grades or narrow, sharp corners. The road generally is 22-feet in width and surfacing is of built-up rock and asphalt. There are localized areas of cracking, minor potholes, and pavement breakup near the shoulder edge. Falling rock from adjacent hillsides creates a continual maintenance problem (Birdsall, 1987).

About 4 miles below Owyhee Dam, the roadway passes through a tunnel cut in a rock outcropping. Because the tunnel is narrow and unlined, rocks falling down inside pose a continual safety problem and its narrow width poses a safety risk. A shoring or gunite system to keep rocks from breaking away and falling would help alleviate this safety and maintenance problem (Birdsall, 1987).

The narrow, one-lane wooden bridge accessing Government Camp is also a continual safety risk. The irrigation districts are justifiably concerned that increased public use in the area will pose an increased liability on them and necessitate bridge reconstruction to meet conventional road and safety standards. Under a supplemental contract issued in 1954, project irrigation district personnel have the responsibility for the operation and maintenance of project works as well as providing security and safety at the Camp.

From Government Camp to the top of Owyhee Dam, the roadway grade becomes steep and narrow. From the dam to the resort, the roadway is generally in poor condition. There are numerous potholes, sharp narrow curves, substantial rockfalls from adjacent cliffs, and insufficient turnouts. The roadway width varies from 15-18 feet and the pavement is badly broken along the edges. The curvature of the roadway is severe at some locations and there is no economical way to lay back the slopes to eliminate falling debris.

Road improvement from one mile below Owyhee Dam to the Resort was a need consistently voiced by local officials and the public. Based on 1987 estimates, upgrading the 5-mile route would cost between \$800,000 and \$1,400,000 depending on the desired design speed, roadway width, backslope shaping, and safety improvements (Birdsall, 1987).

The primitive road network located east of the lower Owyhee River canyon is primarily used and maintained by the irrigation districts to access project works, facilities, and material sites (primarily gravel) used for project operations and maintenance. Access is provided via Lake Owyhee Road at Tunnel Canyon and the Owyhee Siphon. The Owyhee Siphon river crossing usually requires annual replacement and/or maintenance due to spring flooding.

The locally known Cherry Creek Road maintained by Malheur County links the Lake Owyhee State Park/Resort to the primary road network located east of the Study Area. The Cherry Creek Road is a viable alternate route for those persons accessing the lower reservoir area from Idaho's Treasure Valley or Oregon's Jordan Valley. The alternate route would extend about 16 miles from the junction of Highway 201/19 to the Resort and utilize several unimproved roads including the Cherry Creek Road. Based on 1987 estimates, upgrading the 16-mile route to a graveled surfaced roadway would cost in the

range of \$90,000 to \$180,000 per mile depending on design speed, road width, and other variables (Birdsall, 1987).

The County-maintained Succor Creek Road east of Owyhee Reservoir provides primary access to the BLM-maintained Board Corral Road and to several unmaintained dirt roads east of the reservoir. The Cherry Creek Road intersects the Board Corral Road approximately 3<sup>1</sup>/<sub>2</sub> miles southeast of the Resort.

West of the Study Area, the Twin Springs Road provides primary access to Grassy Mountain, Oxbow Basin, the Dry Creek Arm, and other west side locations. Periodic road maintenance is provided by the BLM.

The Leslie Gulch Road which terminates at the Leslie Gulch boat ramp is the most heavily used access route in the south half of the Study Area. The roadway is gravel surfaced, accessed from the Succor Creek Road, and BLM-maintained. The 52-mile Leslie Gulch/Succor Creek Road system is a BLM Back Country Byway and a nominee for State Scenic Route designation.

Road access within the south half of the Study Area is primarily by unmaintained dirt roads. The BLM-maintained Birch Creek Road requires the use of high clearance, 4-wheel drive vehicles to access the Morrison (Pinnacles) and Birch Creek Ranches located on the east side of the upper Owyhee River. The Birch Creek Ranch is an increasingly popular take-out point for Owyhee River boaters who do not wish to proceed to the final take-out at Leslie Gulch.

Along the upper Owyhee River are unmaintained dirt roads on each side of the river. A river ford at Birch Creek links the Birch Creek Road to the primitive road located on the river's west side. The west road provides access to Wrangle Basin and connects with the primitive road system serving the Red Butte Canyon and Quartz Mountain Basin areas. The BLM's final Wild and Scenic River Management Plan for the Main Owyhee (BLM, 1993) closes the west side road from the Birch Creek river ford north to the Wrangle Basin turnoff.

Historically, the east side road provided access from the upper end of Owyhee Reservoir (Diamond Butte/Blue Canyon) to the Morrison (Pinnacles) Ranch and Birch Creek. Most of the east side road was eliminated in the spring of 1993 due to record breaking river flows.

### **Air Access**

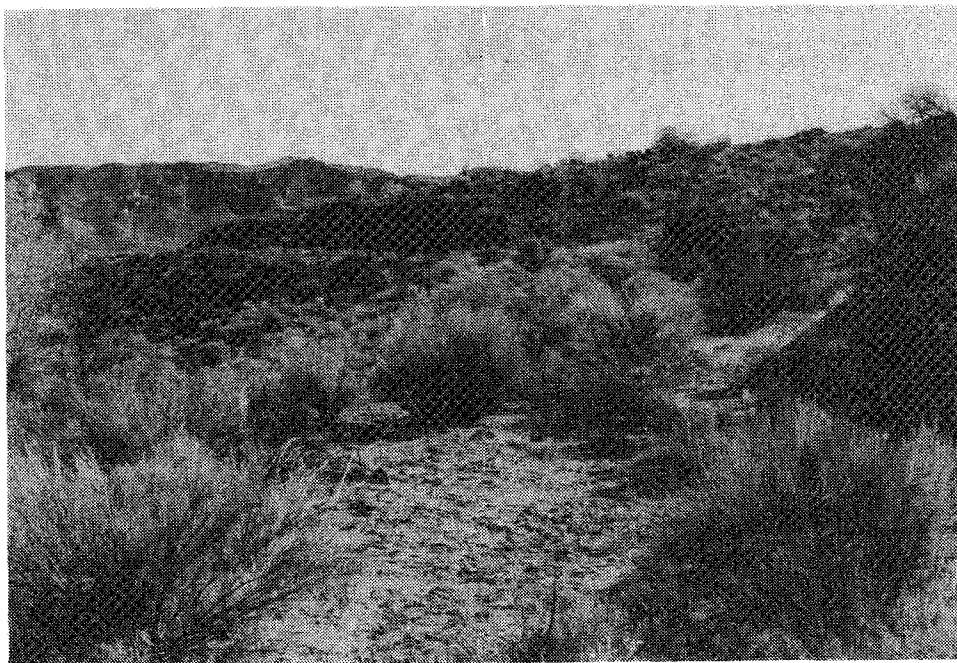
Primitive airstrips are located at Pelican Point on Owyhee Reservoir and within the upper Owyhee River area.

The Pelican Point airstrip is operated and maintained by the Oregon Aeronautics Division (OAD) under a license agreement between the Oregon State Board of Aeronautics and Reclamation. Reclamation renewed the license agreement in 1982 for an additional 25-year term.

Maintenance of the Pelican Point airstrip could involve improvement and use of the Deadman Gulch jeep trail which crosses the Dry Creek Buttes WSA. The trail is currently unmaintained and impassable by vehicle. If the OAD requests use of the Deadman Gulch trail to maintain the airstrip, reasonable alternatives and their respective impacts would need to be assessed and presented in a National Environmental Policy Act

(NEPA) compliance document. The BLM has determined that their guidelines would allow temporary improvement of the trail to a road as long as it was restored to its previous condition and did not impair wilderness suitability. If motor vehicle use of the trail is determined to be the least impairing feasible alternative, rehabilitation of the trail to its pre-existing condition could be stipulated upon completion of required airstrip maintenance (BLM, 1989). Transporting maintenance equipment by barge, horse, or aircraft are additional options.

Annual airstrip usage is estimated at 500 aircraft operations with a peak monthly usage of 100 operations. Pilots and passengers use Pelican Point for recreation and emergency operations. A 1991 OAD survey showed that the addition of toilets, camping and water facilities, airstrip grading, and a new air sock were the airstrip improvements most often identified by pilots.



*Photo 3-35: Deadman Gulch Jeep Trail.*

*This jeep trail has not been used by motorized vehicles for some time and is currently impassable due to severe erosion and gullying.*

A second primitive airstrip is located on the west side of the upper Owyhee River in Sections 5 and 6, T27S, R43E. Although no annual use estimate is available, the unauthorized landing strip is becoming an increasingly popular destination. With the airstrip located within the main Owyhee Wild and Scenic River corridor, the BLM's proposed river management plan would continue to prohibit the landing of aircraft within the Congressionally protected area except for emergencies.

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## Chapter 4

# Land Suitability and Constraints

This chapter summarizes the land suitability and constraints analysis used to formulate the land use plans and management policies included in the Owyhee Reservoir RMP. The analysis involves a two step process: (1) the development of land suitability criteria, and (2) the application of these criteria to the Study Area. Through this process the planning team identified potential resource/public use conflicts and evaluated approaches to minimize such conflicts during the development of alternative land use plans for the Study Area.

The analysis was conducted using maps produced by a computerized Geographic Information System (GIS). The GIS database includes spatial information on the Study Area's physical environment (i.e., slope, soils, streams, and geologic hazards), biological environment (vegetation, wetlands, fish spawning areas, bighorn sheep habitat, and Special Status Species), cultural resources (archeological, historical and paleontological sites) and land use conditions (i.e. Special Management Areas, grazing allotments/leases, cabin sites, roads, land ownership, recreation sites and facilities). The GIS provides an excellent overview of area resources and land use constraints.

### 4.1 LAND SUITABILITY

Two sets of land suitability criteria were used. One set identified those elements which are "high," "moderate" or "low" in suitability for "Resource Preservation/Enhancement" and the second set identified suitability elements for "Public Use/Improvement." Tables 4-1 (Resource Preservation/Enhancement) and 4-2 (Public Use/Improvement) summarize the land suitability criteria applied to the Study Area. Using the GIS, the criteria were applied to produce a set of maps identifying the presence of the rated elements. The "high suitability" elements are discussed further below.

#### 4.1.1 Resource Preservation/Enhancement

The "Resource Preservation/Enhancement" criteria include primarily those elements that are considered sensitive or unique. Many of these elements are protected under Federal/State law or policy guidelines.

Sensitive natural resource elements that are rated "high" include riparian habitat, fish spawning areas, breeding and brooding areas, bighorn sheep range, islands, and live springs and perennial streams. Wetlands, special status species, and known "significant" archeological and historical sites are rated "high" due to their protection under Federal and state law and policy. Additionally, surrounding lands with special management area designations are rated "high" due to resource protection policies and guidelines developed and adopted by the BLM. These special management areas include

Table 4-1: Land Suitability Criteria

## RESOURCE PRESERVATION/ENHANCEMENT

Element	High	Moderate	Low
Fish/Wildlife Habitat	<ul style="list-style-type: none"> <li>• Wetland/Riparian</li> <li>• Spawning area</li> <li>• Breeding/Brooding area</li> <li>• Islands</li> <li>• Bighorn sheep range</li> </ul>	<ul style="list-style-type: none"> <li>• Shrub-steppe</li> <li>• Shelterwood</li> <li>• Potential bighorn sheep range</li> <li>• Deer winter range</li> </ul>	<ul style="list-style-type: none"> <li>• Outside deer winter range</li> <li>• Outside potential bighorn sheep range</li> <li>• Developed/private land</li> </ul>
Federal/State Threatened, Endangered, Candidate, and Sensitive Species	<ul style="list-style-type: none"> <li>• Threatened, Endangered, Candidate C1 &amp; C2 species present</li> </ul>	<ul style="list-style-type: none"> <li>• Candidate C3 species present</li> <li>• Sensitive species present</li> </ul>	<ul style="list-style-type: none"> <li>• No special status species present</li> </ul>
Special Management Areas	<ul style="list-style-type: none"> <li>• Within a WSA, ACEC, RNA, WSR, or WWA <sup>1</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Within 1/8 mile of WSA, ACEC, or RNA</li> </ul>	<ul style="list-style-type: none"> <li>• &gt; 1/8 mile from WSA, ACEC, or RNA</li> <li>• Outside WSR or WWA</li> <li>• Within HMA</li> </ul>
Archeological and Historical Sites *  * Site Probability	<ul style="list-style-type: none"> <li>• Known site with "significant" determination</li> <li>• BOR lands south of Watson Cemetery</li> </ul>	<ul style="list-style-type: none"> <li>• Known site with "insignificant" determination</li> <li>• Level terrace remnants north of Watson Cemetery above reservoir pool</li> </ul>	<ul style="list-style-type: none"> <li>• No occurrence</li> <li>• Cliff areas above reservoir pool</li> </ul>
Paleontological	<ul style="list-style-type: none"> <li>• Known site</li> </ul>	<ul style="list-style-type: none"> <li>• High probability land form</li> </ul>	<ul style="list-style-type: none"> <li>• No occurrence</li> </ul>
Proximity to Live Springs/Perennial Streams	<ul style="list-style-type: none"> <li>• &lt; 50 feet</li> </ul>	<ul style="list-style-type: none"> <li>• 50-100 feet</li> </ul>	<ul style="list-style-type: none"> <li>• &gt; 100 feet</li> </ul>

<sup>1</sup> WSA-Wilderness Study Area, ACEC-Area of Critical Environmental Concern, RNA-Research Natural Area, WSR-Wild and Scenic River, WWA-Watchable Wildlife Area, HMA - Wild Horse Herd Management Area.

Table 4-2: Land Suitability Criteria

## PUBLIC USE/IMPROVEMENT

Element	High	Moderate	Low
Slope	• 0-10 %	• 11-15%	• 16% +
Land Use	• Developed and Semi-developed recreation sites <sup>1</sup>	• Cabin lease area • Abandoned material site • Undeveloped recreation sites • Livestock allotment	• Right-of-way • Active material site • Easement • Discourage Use and Random recreation sites
Site Distance From High Waterline	• Within 500 feet	• 500-1000 feet	• Greater than 1000 feet
Ownership	• Reclamation • BLM	• State	• Irrigation District
Boat Access	• Accessible at various reservoir levels (low to high)	• Accessible at high reservoir levels	• Accessible at low reservoir levels
Motor Vehicle Access	• Primary road (maintained) • No erosion • No hazardous conditions	• Primitive road (un-maintained) • Minor erosion • No hazardous conditions	• Primitive road/trail (un-maintained) • Significant erosion • Hazardous Conditions
Vegetation	• Shrub-steppe (non-native species dominate) • Shelterwood	• Shrub-steppe (native species dominant)	• Threatened, endangered, candidate species present • Riparian/Wetland • Agricultural
Soil Erosion Potential (K - factor)	• Low (0.05-0.2)	• Moderate (0.3 - 0.35)	• High (>.36)
Geologic/Hydrologic Hazards	• No hazards present	• Floodplain	• Landslide • Prone to flash flooding

<sup>1</sup> Developed recreation sites include fire rings/grills, picnic tables, restrooms, signage, and potable water and handicapped access where determined feasible. Semi-developed recreation sites include fire rings/grills, signage, and handicapped access where determined feasible. Optional facilities include picnic tables and restrooms.



Wilderness Study Areas (WSAs), Areas of Critical Environmental Concern (ACECs), Research Natural Areas (RNAs), and Wild and Scenic Rivers (WSRs). A complete discussion of special management areas can be found in Section 3.4.1.

Along the lower Owyhee River a majority of lands are rated “high” for resource protection/enhancement due to the presence of wetland/riparian habitat, breeding/brooding areas, sterile milk-vetch (a Federal/state listed special status plant species), and special management area designation (Watchable Wildlife).

On Owyhee Reservoir, a number of shoreline areas are rated “high” due to the presence of fish spawning areas (i.e., Dry Creek Arm, Pelican Point, Indian Hot Springs, Watson Cemetery, and upper Owyhee River). The Bensley Flat area is rated “high” due to the presence of bighorn sheep range, sterile milk-vetch, and its proximity to the Honeycombs ACEC/RNA/WSA (located on BLM land). Leslie Gulch is rated “high” due to the presence of five rare plant species, bighorn sheep range, deer winter range, and proximity to the Leslie Gulch ACEC and Honeycombs/Slocum Creek WSAs. Watson Cemetery and Indian Hot Springs are located within deer winter range.

The upper Owyhee River area is rated “high” due to the presence of cultural resources (archaeological/historical sites), wetland/riparian habitats, fish spawning areas, breeding/brooding areas, and the Owyhee River ACEC, and Wild and Scenic River management areas.

#### **4.1.2 Public Use/Improvement**

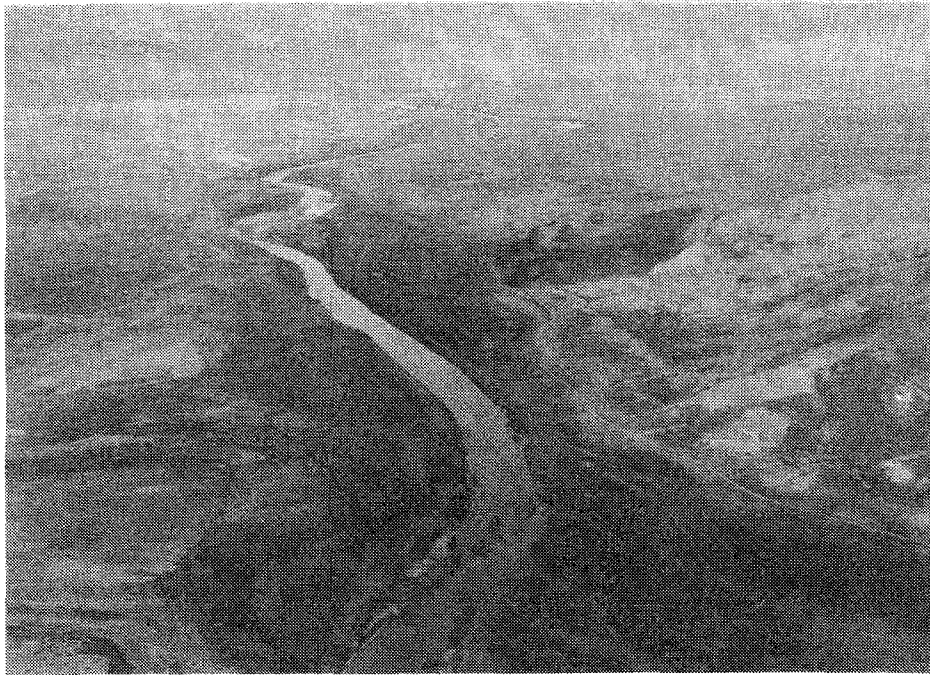
The “Public Use/Improvement” criteria include primarily physical and land use elements. Physical terrain elements that are rated “high” include areas which have little or no slope, close to the high waterline, are accessible by boat or motor vehicle, have a low potential for soil erosion, and contain no significant geologic or hydrologic hazards. Additionally, vegetation considered to have a relatively low resource value (i.e. non-native species and shelterwood) are rated “high” for public use/improvement. Land use elements that are rated “high” include “developed” and “semi-developed” recreation sites and Federal lands (both Reclamation and BLM).

Along the lower Owyhee River, those areas meeting the “high” rating criteria for Public Use/Improvement include the Siphon Site, Snively Hot Springs, a few dispersed recreation sites (particularly Site F), and Government Camp. All of these sites are flat, environmentally suitable for public use, and safely accessible from Lake Owyhee Road.

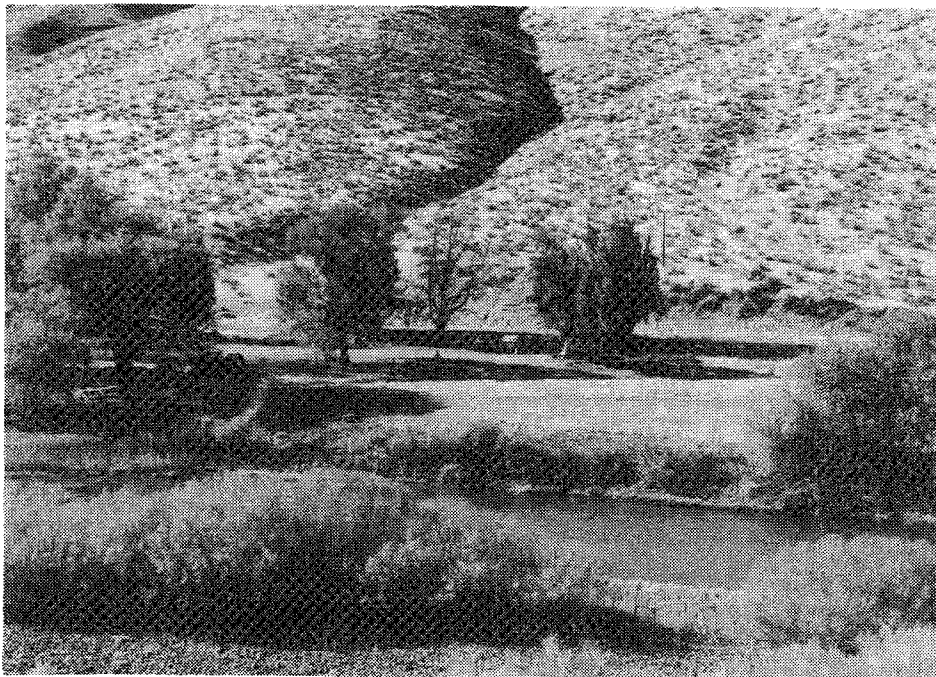
On the reservoir, those areas particularly suitable for public use include the State Park and Resort areas, Cherry Creek, Dry Creek Arm, Fisherman’s Cove, Bensley Flat, Carlton Canyon, Leslie Gulch, Watson Cemetery and Indian Hot Springs. All of these sites meet most of the “high” suitability criteria including boat accessibility at various reservoir levels and are popular random (dispersed) use sites located on predominantly flat (low slope) terrain.

## **4.2 CONSTRAINTS**

Once the elements for resource preservation/enhancement and public use/improvement were mapped, they were combined to identify potential land use constraints. These constraints represent potential conflicts that occur where resource preservation needs conflict with public use/improvement opportunities.



*Photo 4-1: Aerial View of the Upper Owyhee River.  
Rich in cultural and natural resources, the upper Owyhee River was rated “high” for resource protection/enhancement.*



*Photo 4-2: Government Camp Day Use Area.  
Existing developed recreation sites were rated “high” for public use/improvement.*

Along the lower Owyhee River potential conflicts occurred primarily where wetland/riparian habitat overlapped with existing or potential public use areas at the Siphon Site, Snively Hot Springs, Site E, and the upstream end of Sites B, C and F. Additionally, Sites A and D were found to be constrained by the presence of sterile milk-vetch located at or near these sites.

On the reservoir, constraints were identified primarily at those popular public use sites with sensitive natural/cultural resource values. A number of sites meeting the "high" suitability criteria for public use/improvement are located adjacent to fish spawning areas (i.e. the east end of Dry Creek Arm, Deadman Gulch to Pelican Point, Watson Cemetery and Indian Hot Springs). Bensley Flat and Leslie Gulch are high conflict areas due to sensitive resource conditions including bighorn sheep range and sensitive plant species. Constraints identified at Carlton Canyon included riparian habitat and bighorn sheep range.

Along the upper Owyhee River the high occurrence of cultural resource sites and special management area designations are the most significant constraints affecting potential land use and resource management decisions in the area.

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## Chapter 5 Public Desires

This chapter describes public desires for the Study Area. It includes a summary of major concerns the public expressed through the Owyhee Reservoir Task Force, responses to mail-in surveys, and public workshops.

### 5.1 PUBLIC ISSUES AND CONCERNS

Public input has been an important element in the development of the Owyhee Reservoir RMP. Early in the planning process, a newsletter was published and a public meeting was held to provide information and determine public interest in the RMP. The newsletter included a mail-in response form to help Reclamation identify public issues and concerns within the Study Area.

An analysis of the opinions and comments received in writing and verbally at the public meeting revealed that the public's primary concerns focused on six issues: 1) safe and convenient access to the reservoir, 2) maintenance of irrigation and power commitments, 3) enhancement of recreational opportunities and visitor services, 4) environmental protection, 5) maintenance of a productive fishery, and 6) development of an equitable cabin lease policy. Initial recommendations included:

- Improve Snively Hot Springs;
- Provide additional camping and sanitation facilities on the reservoir;
- Improve Lake Owyhee Road;
- Improve visitor facilities and services: add parking, improve visitor information, expand McCormack campground, and add additional drinking water facilities;
- Improve public safety and law enforcement;
- Minimize any impacts the Owyhee RMP might have on reservoir operations and adjacent land use, and,
- Improve reservoir and downstream fisheries.

### 5.2 OWYHEE RESERVOIR TASK FORCE

Following the first public meeting, the Owyhee Reservoir Task Force was formed to provide input to Reclamation. Task Force members were selected to represent a wide variety of interests including irrigation and power, livestock grazing, environmental preservation, economic development, and recreation. The Task Force consisted of 19 individuals representing local, state, and Federal agencies; organizations; the Lake Owyhee Resort; cabin lessees; and the general public.

The primary objective of the Task Force was to develop management goals, objectives and recommendations for the RMP. The Task Force also served as liaisons on an informal basis by providing communication between Reclamation and the public-at-large.

The recommendations developed by the Task Force were published in a second newsletter sent to over 1,000 interested agencies and individuals. The newsletter included a mail-in response form to receive specific comments on the Task Force recommendations. The newsletter also announced two public workshops to be held in Ontario and Boise to receive public comment on the initial Task Force recommendations.

Below is a summary of the goals and specific recommendations developed by the Owyhee Task Force. The recommendations are organized into five main areas: recreation and related visitor services, natural resources and fishery protection, reservoir operations, adjacent land uses, and access. These five areas are discussed further below. A complete copy of the Owyhee Reservoir Task Force Recommendations can be found in Appendix C.

### **Recreation and Related Visitor Services**

Task Force goals for recreation and related visitor services are to optimize mixed use of Owyhee Reservoir project lands for recreation and to meet future recreational demands and trends consistent with the existing character of the reservoir area. Specific areas were recommended for day and/or overnight use.

Along the lower Owyhee River, Snively Hot Springs (a BLM site) was recommended for day and overnight use. The Siphon Site was suggested as an alternative overnight use site to Snively and identified as a good location for an interpretive/informational kiosk.

Recommended recreation additions at Government Camp included an improved bridge crossing, restrooms and picnic sites. For the remainder of the river corridor, the general consensus was to leave the area in its current primitive condition. The Task Force recommended that motorized access be controlled to protect riparian and other resource values and to provide signage to direct recreationists to specific use areas. The public-at-large recommended that Reclamation cooperate with the BLM to provide portable vault toilets and picnic tables at selected locations.

On the reservoir, a number of areas for developed and primitive day and overnight use were recommended. Overnight use facilities including fire rings and grills were recommended at Bensley Flat and between Deadman Gulch and Pelican Point. The need for interpretive signage and monitoring the effects of overnight use at Bensley Flat on bighorn sheep was also identified.

The Task Force recommended that Reclamation designate and manage the following sites for primitive (undeveloped) overnight use: Wild Horse Basin, Cherry Creek, Acton Gulch, Carlton Canyon, and Watson Cemetery. No facilities were proposed.

For the two cabin lease areas (Fisherman's Cove and Dry Creek Arm), it was recommended that vacant and abandoned cabin sites be leased and cattle grazing be eliminated. Additionally, it was recommended that car camping be promoted at the upper end of the Dry Creek Arm. For Fisherman's Cove, it was recommended that an emergency phone be installed and that the use of ORVs be allowed only for transport purposes between the reservoir and cabin sites. At Pelican Point continued airstrip

maintenance and the provision of potable water and sanitation facilities was recommended.

At Leslie Gulch, the public generally agreed with the improvements suggested by the BLM. These include:

- Courtesy boat docks
- Potable water
- A fish cleaning station
- A day-use site with picnic tables, grills, visitor information, and signage
- Developed overnight facilities including fire rings/grills, picnic tables, restrooms and trash receptacles
- A sanitary dump station for boaters
- Maintained gravel roads and parking areas

In addition to these site-specific improvements, the Task Force recommended that Reclamation increase public awareness of recreational opportunities and natural and cultural resource values in the area. Specific recommendations included a self-service information kiosk at Government Camp, visitor information brochures, and interpretive signage at Bensley Flat, Watson Cemetery, Indian Hot Springs, Owyhee Tunnel No. 1, and Owyhee Dam.

A number of specific recreation support services and facilities to enhance the quality and safety of the recreation experience were recommended. These include:

- Provide facilities along the lower Owyhee River and at the State Park accessible to people with disabilities
- Upgrade the Lake Owyhee Resort
- Extend the State Park boat ramp
- Provide additional fish cleaning facilities at Gordon Gulch
- Designate a swimming area near the State Park or Resort
- Support scheduled road improvement work in the Study Area as proposed by Malheur County
- Work with the military to create a buffer zone around Owyhee Reservoir to be excluded from military airspace, and,
- Establish more shade trees at recreation sites

### **Natural/Cultural Resources and Fisheries Protection**

Task Force desires for natural resource protection are embodied in three specific goals. The first goal is to preserve, protect and maintain the area's special natural and cultural resource values. Recommendations include: ensuring development in areas bordering wilderness study areas is consistent with adjacent land use objectives, adopting a "pack-in/pack-out" management policy, and protecting against the vandalism and/or disturbance of rare natural and cultural resources.

The second goal is to manage wildlife habitat to protect and enhance game and non-game wildlife which includes the protection of bighorn sheep and maintaining first-form withdrawals on Reclamation withdrawn lands. The final goal is to maintain Owyhee

Reservoir water quality levels for swimming and fish production and consumption. Of particular concern is the presence of mercury in reservoir fish tissue.

For fisheries protection the Task Force established two goals. The first goal is to improve and manage the reservoir fishery to enhance recreational fishing opportunities. Because the reservoir fishery has declined since the 1950s and the exact causes of this change are not known, both the Task Force and the public-at-large supported Reclamation's involvement in the ODFW reservoir fishery study. Specifically, the following actions were recommended:

- Do not conduct bass tournaments during spawning seasons
- Change tournament release locations
- Use "photo tournament" method during spawning season
- Avoid reservoir drawdowns during spawning seasons since it reduces spawning success
- Install reservoir structures to improve fish habitat
- Monitor mercury levels in reservoir fish tissues to ensure that public health requirements are being met

The second fisheries goal is to provide a high quality recreational fishery below Owyhee Dam. Task Force discussions centered on developing and evaluating solutions to existing fishery needs (habitat improvement, reduced river fluctuations, water quality improvement, and the establishment of a year-round stream resource maintenance flow) within the limits of existing irrigation and power operation commitments. Task Force members and the general public support the establishment of a quality, self-sustaining downstream fishery, but some are concerned about changes to reservoir operations which could affect irrigation water supplies.

### **Reservoir Operations**

The Task Force recommended that reservoir operations be managed to ensure existing irrigation commitments are met, and, where feasible, meet other water resource needs such as river recreation, downstream fisheries, and flood control. There was strong support for ODFW's recommendation to provide a stream resource maintenance flow of 100 cfs in the lower Owyhee River. The public also recommended that Reclamation and the Owyhee Irrigation District seek to minimize liabilities associated with dam operations and maintenance.

### **Adjacent Land Uses**

To ensure that adjacent land uses and the Owyhee Reservoir RMP are compatible, the public recommended consistency with relevant plans by other public agencies to avoid potential conflicts and to protect riparian and other sensitive areas. Additionally, particular concerns were raised about the impacts of cattle grazing on recreation and natural resources in the Study Area. Specific recommendations included:

- Remove cattle grazing from the State Park, Resort, and cabin lease areas.
- Work with ODFW to reduce conflicts with bighorn sheep, mule deer, and other wildlife habitat.

## Access

The Task Force recommended improving vehicular access to the reservoir, especially near the dam. It was suggested that no new roads be developed. They also recommended exploring the potential for improving the Pelican Point airstrip to enhance recreation use of the reservoir.

### 5.3 INTERAGENCY MEETING

As part of the development of this RMP, Reclamation sponsored an interagency meeting to receive input from other agencies that cooperate in the management of the Study Area. These agencies include the Bureau of Land Management, the U.S. Fish and Wildlife Services, the Oregon Department of Fish and Wildlife, the Oregon Department of Parks and Recreation, Malheur County, and the Owyhee Irrigation District.

As part of this meeting, a review of the land suitability analysis was presented. In addition, two RMP alternatives (Focused Use and Dispersed Use) were also presented. Recommendations made at this meeting resulted in a number of changes to the RMP. Of these, there were three significant recommendations.

First, a developed recreation site was recommended for Pelican Point rather than Carlton Canyon (as presented in the Focused Use alternative) due to the presence of the airstrip and the area's historic use and popularity. Second, road closures within the upper Owyhee River area were modified to enhance natural and cultural resource protection efforts within the Wild and Scenic River corridor. And third, the "day-use only" restriction proposed for the Siphon Site (as presented in the Focused Use alternative) was modified to allow day and overnight use.

### 5.4 PUBLIC WORKSHOPS

Following the Interagency Meeting, two public workshops were held in Ontario, Oregon and Boise, Idaho to receive public comment on the RMP alternatives. There were three primary concerns raised at these two workshops. First, many people (primarily cabin lessees) did not support phasing out of any cabins in the Study Area. They also did not support the recommendation to institute a public boat dock policy nor to limit or preclude motor vehicle access between cabins and their respective docks. Second, some people (primarily cattle ranchers) did not support the alternative to phase out Reclamation's grazing lease program. Lastly, some people were concerned about vehicle access in the Owyhee Wild and Scenic River corridor should any/all of the primitive roads be closed.





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# Chapter 6

## Resource Management Plan

### 6.1 INTRODUCTION

The problems and issues related to resource management at Owyhee Reservoir are multifaceted. The balance between natural resource preservation/enhancement and public use/improvement requires a variety of management actions and policies. Successful implementation of these actions and policies depends on a cooperative effort among Federal and state resource agencies, local governments, and the public.

Reclamation's general land policy is to manage jurisdictional lands in a manner consistent with the principles of good stewardship, for accomplishing project purposes, and in the best public interest; to maintain a current inventory of all land holdings and uses; and, to develop resource management plans which best support the public interest, preserve and enhance environmental quality, and are compatible with project purposes and needs. It is also Reclamation policy to prevent soil erosion, preserve natural and cultural resources, prevent reservoir impairment, protect public health, and protect public lands from degradation.

The goals and objectives identified for the Owyhee Reservoir Resource Management Plan (RMP) were developed by the Owyhee Reservoir Task Force and refined through agency and public involvement. These goals and objectives are the guiding principles of the Owyhee Reservoir RMP and serve as a collective benchmark by which future management decisions and actions are compared. Similarly, the RMP strives to achieve the primary issues and concerns consistently voiced by the public including: 1) the need for additional recreational development, 2) improved visitor services, 3) improved reservoir and river fisheries, and 4) the protection of the area's sensitive resources.

Although Owyhee Reservoir is divided into upper and lower management units, these two areas were combined for the purpose of defining the RMP goals and objectives and evaluating management needs. The two areas differ, however, in the levels of public use they receive and are expected to receive in the future.

The RMP does not address the upper Owyhee River area to the same degree as the reservoir and lower Owyhee River areas. Instead, upper Owyhee River lands will be managed in accord with the BLM's final Wild and Scenic River Management Plan for the Main Owyhee (BLM, 1993). Although the BLM is the principle land management agency along the main Owyhee River under the Wild and Scenic Rivers Act, some key management issues and resource concerns affecting Reclamation lands in the upper Owyhee River area were identified by the public during RMP scoping. Reclamation has pursued the resolution of these issues and concerns through this RMP and BLM's river management program.

This chapter describes the Owyhee Reservoir RMP. For each principle management category, applicable policies are described followed by specific RMP goals and objectives, management guidelines, and management actions. The policy discussion is omitted if no Reclamation-wide policy exists.

The management actions were developed in close coordination with the BLM, other agencies and the public. They reflect a comprehensive management strategy for the area irrespective of agency jurisdictional boundaries and constraints. Cooperative implementation of the Owyhee Reservoir RMP with our resource managing partners, local governments, and the public will be vital to achieve the coordinated conservation, protection, use, enhancement and management of the area's unique resources.

**The specific management actions identified herein for BLM administered lands within the Lower Owyhee Canyon Watchable Wildlife Area (LOCWWA) are recommendations only.** The BLM is required to include and formally adopt management actions affecting their jurisdictional lands through their respective RMP and activity planning programs. This process insures that BLM programs and actions will be carried out in conformance with applicable BLM land/resource management plans, policies, laws, regulations and guidelines.

## 6.2 NATURAL RESOURCES

This section outlines the specific management policies, goals, objectives, guidelines and actions to be applied to natural resource management within the Study Area. Individually addressed are: 1) vegetation and wildlife, 2) fisheries, 3) water quality, 4) soils, and 5) visual resources.

**Overall Goal:** Preserve, protect and enhance natural and visual resources within the resource area.

### 6.2.1 Vegetation and Wildlife

#### Policy

In accordance with the Endangered Species Act (ESA) of 1973 (P.L. 93-205), Federal and Reclamation policy provides for the protection of plant and animal species that are currently in danger of extinction (endangered) or those that may become so in the foreseeable future. Section 7 of the ESA requires Federal agencies to conduct informal and formal consultation with the U.S. Fish and Wildlife Service (USFWS) on all proposed actions which may affect any Federally listed or candidate threatened/endangered species. This consultation process is designed to help ensure that Federal activities will not have an adverse impact on the continued existence of threatened or endangered species, or on designated areas (critical habitats) that are important in conserving these species.

Federal and Reclamation policy supports the protection and "no net loss" of wetlands. In carrying out land management responsibilities, Federal agencies are required to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. Executive Order 11990 (Protection of Wetlands) states that agencies shall: "Avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and avoid direct or

indirect support of new construction in wetlands wherever there is a practicable alternative."

Reclamation's wildlife policy is to encourage the management of its lands so as to preserve and enhance the native wildlife populations of the area commensurate with the primary use for which Reclamation holds the land, and in accordance with an approved land use or resource management plan. Where native wildlife values will be diminished by project works, Reclamation will cooperate with wildlife management agencies to properly mitigate those losses.

## **Management Goals and Objectives**

### **Goals**

- Restore, conserve, manage and enhance native plant and wildlife communities.

The general goals for wildlife management in the State of Oregon are specified by Oregon statute (ORS 496.012) that wildlife shall be managed to provide optimum recreational and aesthetic benefits for present and future generations of Oregonians. Specifically, the goals of wildlife management are:

- Maintain all species of wildlife at optimum levels and prevent the serious depletion of any indigenous species.
- Develop and manage the lands and waters of the state in a manner that will enhance the production and the public enjoyment of wildlife.
- Permit an orderly and equitable use of available wildlife.
- Regulate wildlife populations and the public enjoyment of wildlife in a manner that is compatible with primary uses of the lands and waters of the state and that provides public recreational benefits.

### **Objectives**

- Avoid or minimize adverse impacts on vegetation and wildlife populations.
- Manage for a sustained yield of native forage species.
- Protect species that are included on Federal or state lists as rare, threatened, endangered, sensitive, or of special concern.
- Protect and enhance riparian and other wetland habitats.
- Determine facility locations in consultation with the Oregon Department of Fish and Wildlife (ODFW).
- Revegetate damaged areas.
- Protect and enhance plant communities and wildlife values, throughout the Study Area, with particular attention to the Lower Owyhee Canyon Watchable Wildlife Area.

- Minimize impacts on bighorn sheep due to recreation development in key habitat areas.

## **Management Guidelines**

### **Vegetation**

- Encourage recovery or prevent deterioration where activities may be leading to poor vegetative conditions; downward trends; the displacement of native plants or plant communities by weedy, annual or noxious vegetation; or where cover is atypically low for the particular plant community.
- Maintain and enhance vegetative structure and diversity.
- Do not introduce exotic plants or use them in site restoration.
- Do not manipulate vegetation to enhance forage production or species composition for livestock consumption in the Lower Owyhee Canyon Watchable Wildlife Area.
- Limit motorized travel to designated roads and areas only.

### **Wetland/Riparian Habitat**

- Select facility locations away from wetland/riparian areas.
- Protect and enhance wetland/riparian conditions adjacent to perennial streams and springs.
- Fence springs and other live water areas when necessary to avoid or minimize human and livestock impacts on wetland/riparian areas.
- Evaluate potential impacts to wetland and riparian areas in all project-level environmental assessments.
- Manage recreational activities to prevent the deterioration of wetland and riparian areas. Consider fencing of recreation sites to protect riparian habitat.
- Locate parking areas, roadside pull-off sites, and motor vehicle access routes away from wetland/riparian areas.

### **Special Status Species**

- Avoid/minimize management activities in habitats occupied/utilized by special status species.
- Locate and design facilities to avoid impacts to special status species.
- Document special status taxa locations and findings; notify the Oregon Department of Fish and Wildlife, Oregon Natural Heritage Program, BLM and U.S. Fish and Wildlife Service of such locations/findings.
- Determine if a species use of habitat is incidental or essential; if it is determined to be essential habitat (roosting sites, breeding areas, migration corridors, etc.)

protect it from adverse modification through curtailment or elimination of conflicting activities, modification of activities, seasonal restrictions, or avoidance of the area.

- Review location records and other information during project-specific environmental reviews.

### Wildlife

- Work with ODFW, BLM, sportsman groups and others in developing and implementing wildlife habitat improvement projects.
- Design new fences, when needed for other purposes, to allow wildlife passage (top wire: not more than 40 inches above the ground; bottom wire: smooth wire at least 18 inches above the ground).
- Manage beaver activity to prevent over-utilization of woody vegetation within wetland/riparian areas.
- Monitor impacts of management activities in sensitive wildlife areas.
- Implement habitat improvement projects where necessary to stabilize and/or improve unsatisfactory or declining wildlife habitat conditions.
- Emphasize maintenance and enhancement of habitat for Watchable Wildlife especially in the riparian zone; retain snags for dependent species habitat and as a source of large organic debris for the river.
- Minimize/avoid impacts to breeding/brooding areas, migration corridors, islands, and within bighorn sheep range.

### **Management Actions**

The following management actions will be taken to improve vegetative and wildlife resources and to establish monitoring programs where resource conflicts potentially exist.

- Enter into cooperative agreements for noxious weed control.
- Establish a special protection/buffer area (at least 50 feet and preferably 100 feet) from the edge of perennial streams and springs; avoid facility development in special protection/buffer areas.
- Close and revegetate, to a natural or near natural condition, roads not planned for future use.
- Work with BLM to fence Spring Creek and other live water areas.
- Work with the BLM, Nyssa School District, ODFW, other interested parties, groups and individuals to establish a wildlife habitat management/ monitoring program for the Lower Owyhee Canyon Watchable Wildlife Area.
- Adopt the BLM designation of the Lower Owyhee Canyon Watchable Wildlife Area (LOCWWA). Enter into an Interagency Agreement/MOU with BLM for cooperative management of the LOCWWA.

- Work with Malheur County and BLM to develop and adopt a county ordinance specifically designed to protect and enhance plant communities and wildlife values within the LOCWWA.
- Install wire mesh tree protectors selectively in developed and semi-developed recreation areas to reduce beaver damage within the LOCWWA.
- Work with the ODFW and BLM to initiate a monitoring program designed to evaluate the effects of public recreation use on bighorn sheep at Bensley Flat.
- Work with the ODFW, BLM, and other interested parties and individuals to encourage and enhance opportunities for the regeneration and/or planting of native riparian species (i.e. cottonwood, willow) within the LOCWWA.
- Limit motorized travel to designated roads and areas.
- Modify land management activities (recreation, cabins, grazing, material [gravel] extraction, etc.) where monitoring indicates necessary.
- Work with the BLM and ODFW to identify and implement habitat improvement projects needed to stabilize and/or improve unsatisfactory or declining wildlife habitat conditions.



*Photo 6-1: Beaver Damage.*

*Wire mesh tree protectors will be selectively installed to reduce beaver damage within the LOCWWA.*

To improve ongoing management in accord with the goals and objectives described above, further information is needed regarding the location and management of special status taxa. Specific actions to be taken by Reclamation include:

- Conduct site-specific botanical surveys prior to any development or land management activities potentially impacting special status taxa in the Study Area (see "Special Status Species" listed in Chapter 2).
- Coordinate with the Native Plant Society of Oregon, Oregon Heritage Program, BLM, and USFWS to exchange information on local rare plant distributions and status.

Once further information is known about the location of special status taxa and monitoring program results become available, Reclamation will review management actions to ensure that impacts to special status taxa are avoided or minimized. Other actions to be taken include:

- Conduct informal and formal consultation with the U.S. Fish and Wildlife Service (USFWS) on all site-specific actions which may affect any Federally listed or candidate threatened/endangered species; conduct consultation in accordance with Section 7 of the Endangered Species Act.
- Work with ODFW, USFWS and/or BLM to modify programs and management activities adversely affecting special status species.
- Work with BLM, permittees/lessees and other affected interests to modify the grazing program where unacceptable impacts to special status species are occurring due to livestock grazing.
- Provide signage, where necessary, to avoid/minimize conflict between public use and special status species.

## 6.2.2 Fisheries

### Policy

Where opportunities exist to improve fishery management without negatively impacting contractual obligations, it is Reclamation policy to develop fishery management plans in conjunction with overall resource management planning efforts which balance such opportunities with other project purposes and resource amenities. These plans may include changes in reservoir operations that will enhance reservoir and downstream fisheries. Fishery management plans and their effectiveness will be reviewed periodically and recommendations for modifications provided where appropriate.

ODFW's wild fish management policy states that the protection and enhancement of wild fish stocks be given first and highest consideration. Within the Study Area, the wild fish policy applies to the one remaining native salmonid-- redband trout.

In August 1987, the ODFW issued a warmwater game fish management plan. The goal of the plan is to provide optimum recreational benefits to the people of Oregon by managing warmwater game fishes and their habitats. To achieve this goal, fish management policies, objectives and implementation strategies were outlined in the fish management plan.

At Owyhee Reservoir, as is the case for most reservoir environments, hatchery-produced fishes are mainly used to establish populations. Once warmwater game fish populations



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are established, measures which improve natural spawning and rearing opportunities typically result in the greatest natural production and angler use benefit.

### **Management Goals and Objectives**

#### **Goal**

- Protect and enhance cold and warmwater fishery resources.

#### **Objectives**

- Meet fishery needs within the limits of existing irrigation and power operation commitments.
- Minimize impacts on fish spawning areas.
- Prioritize riparian, wetland, and water quality actions to support fishery goals.
- Respond to recommendations contained in ongoing and future fish resource studies.
- Support the ODFW fish stocking program for rainbow and brown trout.
- Explore opportunities to maintain and enhance the lower Owyhee River fishery on a year-round basis.

The ODFW has also identified four broad objectives for warmwater game fish management, with specific strategies leading to the attainment of each.

- Provide diversity of angling opportunity.
- Expand distribution by stocking warmwater species where habitat is suitable and expansion is consistent with fish management programs.
- Increase angling opportunities and use of warmwater species where desirable.
- Maintain, restore, and enhance populations of warmwater game fishes in individual waters.

### **Management Guidelines**

- Support research consistent with fisheries management objectives.
- Support aquatic habitat monitoring and restoration/enhancement programs.
- Encourage public participation in stream monitoring and stream restoration and enhancement programs.
- Explore and evaluate opportunities for year-round stream resource maintenance flows below Owyhee Dam.
- Locate recreation facilities outside of riparian/wetland areas and away from sensitive habitats.

- Avoid/minimize impacts on spawning areas due to fishing tournaments, permitted land uses or facilities, and management actions.
- Seek to improve fisheries and fish habitat within the framework of existing contractual commitments.
- Identify procedures to utilize the flexibility that exists in project operations (i.e. flood control operations) to the benefit of fish and fishery resources.
- Seek volunteers, cost-sharing, and partnerships through in-kind services and challenge grants as the basis for cooperative fishery and habitat improvement projects. Cooperative projects with government and private sector fishery interests at the national and local level should be emphasized to achieve mutually agreed upon habitat goals.

In carrying out ODFW's fish management policy, the following guidelines apply to the extent available technical knowledge, funds, manpower, and the cooperation of other public and private interests permit:

- Aquatic and riparian habitat must be actively protected, rehabilitated, and enhanced.
- Written management plans are to be developed for major waters of the State. The plans will identify physical and biological capabilities, limiting environmental factors, and the fish management goals best suited to each area.
- ODFW management proposals that may create substantial impacts upon wild fish will be publicized and explained in public hearing prior to implementation.
- The Oregon Fish and Wildlife Commission will periodically review progress in implementing this policy.

### **Management Actions**

The production and maintenance of a healthy and diverse population of warmwater game fish is directly related to the quality and quantity of habitat. Habitat protection and improvement programs are critical to perpetuating and enhancing warmwater game fish populations.

Although ODFW does not have direct regulation over habitat protection, protection can be emphasized by: 1) promoting better land use practices on lands adjacent to streams and reservoirs to minimize siltation and loss of shoreline vegetation; 2) stressing adherence to land-use planning laws and regulations to protect wetlands and other valuable aquatic habitats from development; and 3) supporting minimum streamflows. Habitat protection and improvement measures are often needed to enhance spawning and rearing areas and hiding cover. The ODFW has an aggressive program with other agencies to advocate protection and improvement of fish habitat.

High priority action items include those which 1) identify potential conflicts/impacts relative to existing facilities and uses, and 2) establish monitoring programs where public health is at risk. Specific management actions to be taken by Reclamation include:

- Identify and document the location and number of docks, boat ramps, boat-in campsites, and other fishery related information (i.e. spawning areas) in GIS

database. Review mapped information to identify potential conflicts and management concerns.

- Encourage the ODFW and Department of Environmental Quality (DEQ) to establish a sampling program to monitor mercury contamination in river and reservoir fishery tissues; restrict fish consumption and issue advisories as necessary.
- Review recommendations contained in ongoing and future fish resource studies and modify management actions or permitted land uses where needed to protect or enhance fishery resources.
- Encourage the ODFW to adopt an on-site "catch-and-release" policy for Owyhee Reservoir bass tournament events.
- Work with Owyhee Project Irrigation Districts and ODFW to evaluate river/reservoir operational patterns to increase opportunities for year-round stream resource maintenance flows below Owyhee Dam.
- Conduct inwater activities (boat ramp modifications) during the inwater work period(s) set by ODFW.

### **6.2.3 Water Quality**

#### **Management Goals and Objectives**

##### Goal

- Protect and enhance water quality for irrigation, water contact activities, fish production and consumption, aesthetics, and other beneficial purposes.

##### Objectives

- Support and/or recommend measures to control non-point source pollution in the watershed. (A non-point source cannot be traced to a specific, identifiable point of entrance to water. Non-point sources usually originate from land-use activities and are carried to lakes and streams by runoff.)
- Ensure that land management practices and proposals do not adversely affect water quality within the resource area.
- Disallow water withdrawals and activities which would result in water quality degradation.
- Identify measures to avoid/reduce water quality degradation.
- Establish a water quality monitoring program and encourage public participation in this program.

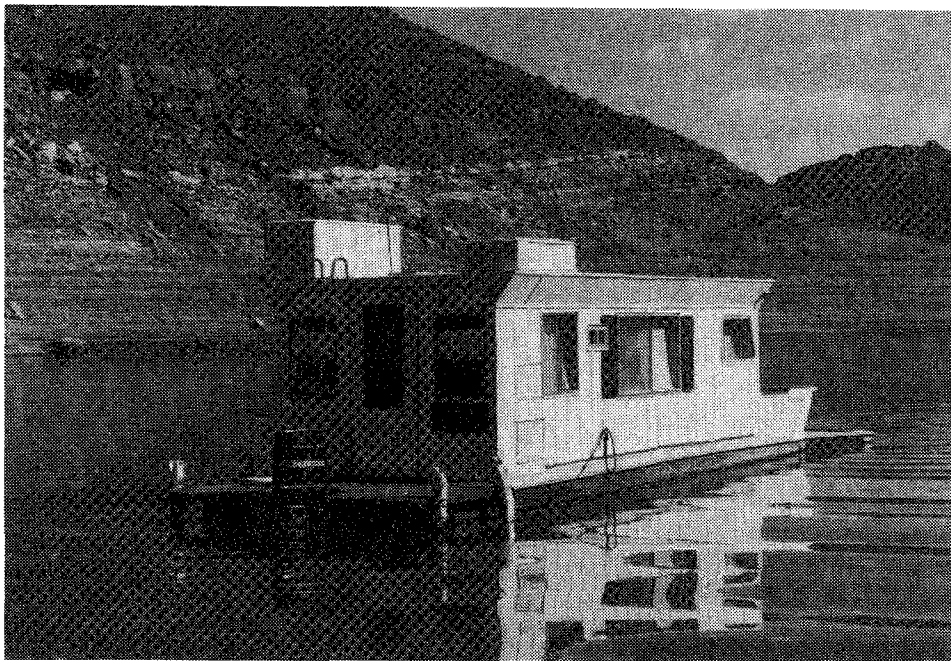
#### **Management Guidelines**

- Ensure proper disposal of "gray" water.

- Protect and enhance wetland/riparian conditions adjacent to perennial streams and springs.
- Review and comment on proposed land use activities and plans within the Owyhee River watershed regarding effects on water quality (mining plan of operations, grazing allotment management plans, recreation facility site plans, etc.).
- Evaluate and maintain water quality through monitoring programs and management practices which reduce soil erosion and provide for human sanitation needs.

### Management Actions

- Prohibit use of houseboats on Owyhee Reservoir until a suitable waste disposal facility is constructed; post signs at boat ramps and include information in visitor brochures which notify the public of this restriction.



*Photo 6-2: Unauthorized Houseboat at Acton Gulch.  
Houseboats will be prohibited on Owyhee Reservoir until a suitable waste disposal facility is constructed.*

- Include information on the proper disposal of “gray” water in visitor brochures and other informational materials.
- Establish a special protection/buffer area (at least 50 feet and preferably 100 feet) from the edge of perennial streams and springs.
- Fence springs and other live water areas as necessary to avoid or minimize human and livestock impacts on wetland/riparian areas; work with BLM to fence Spring Creek.

- Work with the ODFW, BLM, Nyssa School District, and the public to establish and implement a reservoir and river water quality monitoring program; encourage public participation in this program.
- Monitor recreation use to determine where human sanitation needs may impact water quality. Provide sanitation facilities and services as necessary to correct and/or prevent ground or surface water contamination.
- Modify management actions or permitted land uses as needed to protect water quality.

#### **6.2.4 Soils**

##### **Management Goals and Objectives**

###### **Goal**

- Minimize soil erosion and reservoir sedimentation.

###### **Objective**

- Avoid or control land use activities where soil and/or slope conditions contribute to soil erosion and sedimentation problems.

##### **Management Guidelines**

- Develop alternative management practices and mitigating measures when activities are likely to cause soil displacement, compaction, mass wasting, erosion, or long-term productivity losses.
- Include provisions in all contracts and permits to protect soils and soil productivity.

##### **Management Actions**

- Establish and implement a soil monitoring program to identify and evaluate erosion impacts from existing facilities and uses.
- Avoid facility development on slopes over 16 percent and/or in areas with a K factor<sup>1</sup> greater than 0.35.
- Close and revegetate, to a natural or near natural condition, roads not planned for future use.
- Restrict motor vehicles to designated roads and areas.
- Harden all high use campgrounds and day-use sites with gravel or asphalt.

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<sup>1</sup> K Factor is a unit of measure which describes the erodability of soil types.

- Limit motorized travel and off-road vehicle use to designated roads and areas (see section 6.7 "Access and Transportation" for further details).
- Provide supplemental seeding and planting in riparian and upland areas, as feasibility and funding permits, to speed vegetative recovery of degraded/damaged areas.
- Work with BLM to consider seasonal road closures during wet (thawing) periods of the year to minimize erosion and rutting of unsurfaced roads "open to motorized travel".

### **6.2.5 Visual**

#### **Policy**

Reclamation follows established visual guidelines for compatibility and minimal intrusion with the surrounding natural environment. These guidelines include color schemes that are comparable to surrounding natural colors, structures that blend as close as possible with the surrounding landscape, and signage and other information displays of minimal size, consistent in design, and compatible in color and texture with the landscape.

#### **Management Goals and Objectives**

##### **Goal**

- Preserve, protect, and enhance scenic resources.

##### **Objectives**

- Minimize development in areas that would adversely impact special scenic or wilderness characteristics.
- Maintain primitive, undeveloped character of landscape.

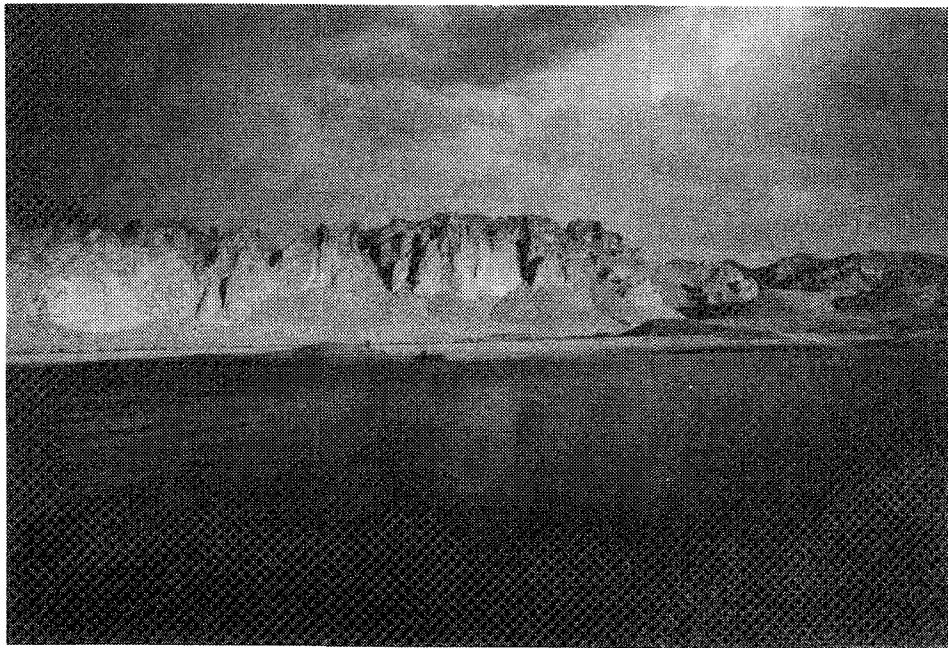
#### **Management Guidelines**

- Design facilities to minimize adverse affects on visual quality; avoid or minimize use of unpainted metallic surfaces.
- Restore areas currently damaged by unrestricted and unregulated motorized travel.
- Require lessees to select colors and building materials that are compatible with the landscape.

#### **Management Actions**

- Upon lease renewal, include provisions in the lease which require that colors and building materials are compatible with the landscape.
- Review on-site conditions annually prior to lease renewal and issuance of special use permits.

- Close and revegetate, to a natural or near natural condition, roads not planned for future use, particularly those through and across wetland/riparian areas.
- Adopt and encourage "pack-in/pack-out"; promote this waste management program in visitor brochures, on appropriate signage, etc.
- Remove trash dumps located at Pelican Point and on the west side of the lower Owyhee River near Site I; work with lessees to remove the trash dump located in the Dry Creek Arm cabin lease area.
- Discourage trash dumping on public lands through educational programs, signage, brochures, increased monitoring and law enforcement by Federal, state and local officials.



*Photo 6-3: The Honeycombs at Bensley Flat.  
The RMP minimizes land use activities that would adversely impact special scenic or wilderness characteristics.*

## 6.3 CULTURAL RESOURCES

### Policy

Cultural resources include historical and archeological properties, and traditional cultural properties. Federal law and regulation requires Federal agencies to identify, evaluate, and appropriately manage significant cultural resources located on lands they administer. A list of these laws and regulations is provided in Appendix B. Evaluation and management decisions are to be made in consultation with the appropriate State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (the Advisory Council). Where appropriate, interested Indian tribes are also to be consulted about management actions. Reclamation has implemented the referenced cultural resource laws and regulations through Reclamation Instructions 376.11. These

instructions direct the agency to manage cultural resources under Reclamation jurisdiction “in order to protect, preserve, rehabilitate, restore, and maintain the properties as appropriate.”

Whenever possible, it is Reclamation policy to avoid or reduce an adverse impact upon significant cultural resources through altering the project design. If adverse effects are unavoidable, Reclamation typically mitigates the adverse effects through a site documentation or data recovery program approved by the SHPO and the Advisory Council.

Where areas are proposed for development or focused use, Reclamation completes a Class III cultural resource inventory. Around existing facilities, selection of areas for inventory is made considering the probability for the presence of significant resources that are being adversely affected by ongoing water operations or land use, and availability of funding. Where practicable, cultural resources are interpreted for the public’s enjoyment and education.

When inventory information indicates significant resources are likely to be present, Reclamation’s policy is to complete a cultural resource management plan (CRMP) for the area. The plan would be reviewed by the SHPO and the Advisory Council, and by affected Tribes.

## **Management Goals and Objectives**

### Goal

- Identify and appropriately manage cultural resources on Reclamation lands, in accordance with Sections 106 and 110 of the National Historic Preservation Act.

It is Reclamation’s goal to avoid impacts to significant cultural resources wherever possible when considering new or enhancement actions. This will primarily be implemented by setting aside sensitive resource areas for use only by activities that do not adversely affect the resource. Unless there is a special, overriding justification, no new features (buildings, roads, recreation areas, etc.) shall be developed within the boundaries of a significant cultural site. Undeveloped use shall likewise not be directed toward these areas.

Where existing uses are affecting significant resources, Reclamation will investigate methods to avoid or reduce adverse effects. If adverse effects cannot be avoided, Reclamation will consult with the SHPO and the Advisory Council concerning mitigation of those effects. If mitigation proves necessary, it will be conducted consistently with management strategies defined in the cultural resource management plan.

These goals apply both to lands under Reclamation’s direct administration, and to those within agency jurisdiction that are managed for Reclamation by other parties.

### Objectives

- Protect known historic and archaeological resources.
- Identify and evaluate unknown cultural resources.
- Provide for cultural resource interpretation.



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## **Management Guidelines**

- **Manage cultural resources on public lands in accordance with Sections 106 and 110 of the National Historic Preservation Act, the Secretary of the Interior's Guidelines, and other appropriate laws, regulations, and guidelines (see Appendix B).**
- **Inventory lands to identify cultural or traditional resources affected by agency actions, as detailed below.**
- **When cultural resource sites will be affected by new agency actions, evaluate the eligibility of sites for listing on the National Register, in consultation with the Oregon SHPO.**
- **Prior to the implementation of a site-specific project, a determination of effect will be made for sites eligible for the National Register, in consultation with the SHPO and the Advisory Council, with the participation of affected Indian tribes.**
- **When a cultural resource site is affected by site-specific actions, consult with the SHPO, the Advisory Council, and affected Tribes about appropriate mitigation strategy. Avoidance, protection, or stabilization of a significant cultural resource site will be implemented whenever feasible.**
- **Manage cultural resource sites in accordance with a cultural resource management plan (CRMP), which will be reviewed by the SHPO and the Advisory Council.**
- **Manage cultural resources within the Owyhee Wild and Scenic River corridor in cooperation with the BLM; work with BLM to develop a CRMP for the Birch Creek Historic Ranch.**
- **Whenever possible, avoid disturbance to significant cultural resource sites by managing, restricting, or prohibiting disturbing uses or activities. This might be accomplished by amending land use agreements, redesigning construction plans, signing, and/or fencing.**
- **Avoid identification of specific cultural sites in public information materials (i.e. recreation brochures and maps).**
- **Monitor selected areas or sites which are affected by or are likely to be affected by use or erosion. Monitoring would occur in cooperation with BLM, as appropriate.**
- **Compile and maintain a GIS cultural resource database of known and/or recorded historic and archeological sites. (Cultural resource site locations are confidential and will be in a secured data file.)**
- **Include stipulations regarding protection of significant cultural resources in all new and renewed leases or management agreements.**
- **Interpret area history or prehistory for public enjoyment and education, as funding permits.**

- Work with other managing agencies and local groups to develop and implement a public information/education program to increase public awareness of, and cooperation in, the protection of cultural resources.

### **Management Actions**

As indicated in Chapter 2, "Existing Resource Inventory," a Class III cultural resource inventory has been completed of only a small portion of the Study Area. This survey was completed in 1976, and has proven to be a reliable inventory. However, site conditions may have been altered since that time, due to effects of reservoir operation, recreational use, grazing, or other natural or artificial processes.

The 1976 survey and the Class I historic records review indicates that highly significant resources are likely to be present above the reservoir low water elevation from Birch Creek downstream to the Spring Creek vicinity. It is likely that localized areas elsewhere in the reservoir also contain significant resources above the low water elevation.

A Class III intensive cultural resources inventory will be conducted in 1994 to identify resources in areas proposed in the RMP for development, enhancement, or targeted undeveloped use. The size of the survey area will vary, depending upon the extent of development proposed and the size of the landform upon which it will occur. In the case of large terraces which will receive low-impact or undeveloped use, the survey may be limited to the immediate area of the proposed use, or lands within a few hundred meters of the shoreline. However, if sites are found, the survey will follow the surface deposit further in order to define site boundaries (except where this extends onto private land).

All areas below the dam proposed for use in the RMP will be surveyed, except Site G. Site G is on private land, and the management recommendation is to discourage use. The proposed watchable wildlife trail along the primitive road at Site H will be surveyed, as will the trail from Government Camp to Owyhee Dam.

Around the reservoir, most survey will be confined to the reservoir shoreline and adjacent areas. The Owyhee Dam/Glory Hole and the County Boat Ramp areas will not be surveyed, since the areas have been entirely altered due to dam and road construction. At Gordon Gulch, McCormack Campground, and Lake Owyhee Resort, survey will most likely be limited to the shoreline; these are extensively developed areas, covered in thick irrigated grass. Visibility will be about zero except along the shoreline and in the drawdown zone. For the following areas, survey will consist of the shoreline and adjacent beach/small terraces: Wild Horse Basin, Cherry Creek, Acton Gulch, Bensley Flat, and Carlton Canyon. These areas will remain undeveloped and primarily visited by boat-in hikers and campers.

At the Dry Creek Arm, drive-in camping is identified for an unimproved location on the southwest shore. Historic records indicate that two historic sites may be present at the upper end of the Arm, and relatively flat terraces are present that have a moderate to low probability to contain prehistoric resources. Therefore, the entire shoreline and adjacent areas on the south side of the reservoir arm in Sections 24 and 25 will be surveyed. If it appears that significant resources could be present below the high waterline or further from the shore, Reclamation will consider additional survey.

There is a high probability that significant prehistoric and historic period archeological sites will be present in the Red Butte area, which is identified for unimproved car camping. These activities are already occurring here. Historic records indicate homesteading on the terrace by 1899 (see GLO plats, and Wickstrom, 1993), and the

location is similar to areas where Pullen recorded significant prehistoric archeological sites. Here, Reclamation will survey all portions of the terrace under Reclamation's jurisdiction within the west half of Section 14, the northeast quarter of Section 15, and the east half of Section 10, all T. 26. S., R. 43 E. With permission from BLM, we will extend surveys onto their adjacent lands to define site boundaries.

Pelican Point is identified for developed day and overnight use. The point is a large, relatively level terrace that has the potential to contain significant resources. Reclamation will survey portions of the point that will be affected by facility development and use. If that survey indicates that significant sites are likely to be present elsewhere on the point, we will survey as much of the terrace as appears appropriate in Section 4 and 5, T. 25 S., R. 44 E.

Leslie Gulch lands are jointly managed by Reclamation and BLM, and the BLM likely will propose facility enhancements there in conjunction with their management plan for the Leslie Gulch Area of Critical Environmental Concern. Reclamation will survey previously uninventoried areas that are proposed for development, including the proposed trailhead to Birch Creek.

Reclamation will discourage use at Indian Hot Springs and Watson Cemetery, where there are both recorded and unrecorded prehistoric and historic sites. At Indian Hot Springs, Reclamation will systematically survey the more-level areas in the vicinity of the springs in the southeast quarter of Section 18, T. 26 S., R. 44 E. We will formally record Watson Cemetery, and survey the shoreline and other areas in the immediate vicinity of the cemetery. If sites are located, we will survey to our jurisdictional boundary in the northeast quarter of Section 24, T. 26 S., R. 43 E.

To the extent that funding permits, additional areas will also be inventoried in 1994 and 1995. Lands to be inventoried will be selected from the following categories, with the selection based upon those areas most likely to contain significant resources that are being adversely affected by permitted uses or reservoir operations. Lands to be considered would include: cabin management areas in the Dry Creek Arm and at Fisherman's Cove; portions of areas with Reclamation grazing leases; selected lands at the upper end of the reservoir in the Watson vicinity, and in the upper Owyhee River corridor, in cooperation with the BLM. Reclamation will evaluate whether the potential exists to establish a National Historic District.

The Class III inventories will identify all surface-visible cultural resources within the surveyed areas. Then, all recorded sites for which sufficient information is available will be evaluated to determine their eligibility for inclusion on the National Register of Historic Places. Sites that are determined to be "not eligible" for the Register will not be subject to further investigation or protective management.

If sites are identified that are eligible for inclusion on the National Register, or if sites are present that require further investigation to determine their significance, then Reclamation will prepare a cultural resource management plan (CRMP) for Owyhee Reservoir. The CRMP will identify if significant or unevaluated resource sites are being affected, and identify the affecting agents; discuss preservation or site investigative means appropriate for each site or site type; and discuss the need for inventories in un-surveyed areas. A draft CRMP would likely be completed in 1997, and would be submitted to the SHPO and the Advisory Council for review and comment.

Management actions that might be proposed in the CRMP include:

- Additional surveys of high site probability areas. These surveys might be conducted with BLM, where we share or have adjacent management responsibility.
- Test excavation of sites suffering from adverse effects to determine if they are eligible for the National Register.
- Site stabilization to halt riverbank or reservoir erosion, or to armor banks being damaged by livestock, vehicles, or other use. This might be completed in cooperation with BLM, who proposes bank stabilization activities within the Wild and Scenic River corridor.
- Implement a monitoring program to review the effects of permitted uses, including unimproved and improved recreation and grazing impacts on particularly significant sites.
- Identify areas where use will be prohibited to protect especially significant resources. This could include eliminating recreational or grazing use of selected areas.
- Provide protection of sites from artifact collection or vandalism through a signage and monitoring program. Signage would be placed at all locations designated for use in the RMP. Monitoring and Archeological Resources Protection Act enforcement would most likely focus upon the Wild and Scenic River area and the Watson vicinity, and be implemented by BLM and local law enforcement staff. Reclamation would co-fund expanded monitoring and enforcement activities.
- Provide interpretive and educational materials, both on- and off-site, to enhance visitor experiences and to further protect resources through public education. Many of these materials would be cooperatively developed with the BLM. Educational and interpretive materials are proposed at Government Camp, and could be considered elsewhere. Reclamation could contribute to BLM interpretive actions at Leslie Gulch, Birch Creek Ranch, and other trailhead or recreational locations near the reservoir. Educational brochures could be prepared and distributed.
- Nominate areas as National Register archeological districts.

Reclamation will initiate some or all of the actions defined in the RMP within the next few years (depending upon availability of funds). Some of the actions could occur in advance of completion of the CRMP. If a significant or unevaluated site were within the impact area of a proposed development, then that development would be deferred until site-specific consultation on project effect was completed, and any necessary management action implemented. Management actions will be conducted in accordance with a Memorandum of Agreement signed by the SHPO and the Advisory Council. Affected Tribes would also be consulted about affect and management actions.

Reclamation will proceed with management actions that do not involve development or that continue an existing practice during the period in which the CRMP is being drafted and reviewed. These kinds of actions include undeveloped camping and grazing under existing leases. However, these uses might be discontinued or altered in selected areas if it is clear they are adversely affecting significant sites. All new or renewed leases or

management agreements shall contain explicit stipulations regarding avoidance of significant cultural properties.

## 6.4 PALEONTOLOGICAL RESOURCES

### Policy

No regulations are presently available defining the evaluation and management of paleontological resources. However, Reclamation's policy is to identify and protect these resources in a manner equivalent to cultural resources. When regulations are promulgated, Reclamation will manage paleontological resources in accordance with them. The Bureau of Land Management is presently preparing draft regulations.

No field inventories have been completed either to identify general locations of fossil bearing formations or to survey areas for paleontological materials. The Class I overview (Wickstrom, 1993) indicates there is a high probability that significant resources are present in some portions of the Study Area.

### Management Guidelines

- Manage paleontological resources consistent with guidelines forthcoming from the BLM.
- During the cultural resource survey, identify locations of paleontological deposits.
- Avoid disturbance, whenever possible, to significant paleontological deposits by managing, restricting, or prohibiting disturbing uses/activities. Potential methods include amending land use agreements, redesigning construction plans, signing, and/or fencing.
- Avoid identification of specific paleontological sites in public information materials (i.e. recreation brochures and maps).
- Compile and maintain a GIS resource database of known and/or recorded paleontological locals.
- Include stipulations regarding protection of paleontological resources in all new and renewed leases or management agreements.
- Interpret paleontological resources for public enjoyment and education.
- Work with other managing agencies and local groups to develop and implement a public information/education program to increase public awareness of, and cooperation in the protection of paleontological resources.

### Management Actions

A paleontological review will occur at existing and proposed developed and undeveloped use areas. This review will be implemented in one of two ways, depending upon available funding and upon the apparent sensitivity of a given location. The method that will most likely be used would involve the cultural resource surveyors identifying locations of fossil materials. A paleontologist would then examine the find to identify the origin and significance of the resource. If examination of the find indicates a highly

significant paleontological locality may be present and is in danger of destruction, then more extensive surveys of the area may be conducted by paleontologists, given available funding. The second survey method would involve a paleontologist accompanying the cultural resource survey crew, or a separate paleontological crew being fielded. Given existing funding constraints, the latter method is likely to be rarely employed.

If significant paleontological deposits are found in these areas, then Reclamation will consider eliminating or altering the proposed development or use to avoid damaging the resource. If damage cannot be avoided, then Reclamation will seek funding to conduct limited studies at the location. This could consist of annual site visits to collect exposed specimens, and a one-time limited excavation of the most significant deposits. The preferred repository for collected materials would be the State of Oregon Repository of Fossils at the University of Oregon.

If the paleontological inventory of selected areas indicates that Owyhee Reservoir is likely to contain highly significant fossil resources that are endangered from natural processes, water operations, or land use practices, then Reclamation will seek funding for a systematic inventory of the reservoir lands by qualified paleontologists. This will start with a geologic field review to identify the areas where fossiliferous formations are exposed on Reclamation lands, and a prioritizing of the lands for paleontological survey.

## **6.5 LAND USE**

This section outlines the policies, objectives, management guidelines and actions applicable to land use activities and coordinated land use planning within the Study Area. The specific land use activities addressed in this section are: 1) recreation, 2) cabin management, 3) grazing management, 4) unauthorized use and trespass, 5) material and mineral resources, and 6) rights-of-way.

### **Policy**

The Bureau of Reclamation's general land use policy is to manage the lands in a manner consistent with the principles of good stewardship, for accomplishing project purposes, and in the best public interest; to maintain a current inventory of all land holdings and uses; and to develop resource management plans which best support the public interest, preserve and enhance environmental quality, and are compatible with project purposes and needs. As part of this policy Reclamation seeks opportunities for coordinated and cooperative land use planning with other Federal, state and local agencies.

### **6.5.1 Land Use Compatibility**

#### **Management Goals and Objectives**

##### **Goal**

- To the extent possible, insure land use activities on Reclamation lands are compatible with existing and planned land uses.
- Strive for compatibility with, and avoid conflict among, land uses on and adjacent to Reclamation lands.

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### **Objectives**

- Encourage and support cooperative planning within the resource area between Reclamation, other affected Federal, state and local agencies, and the public.
- Explore opportunities for interagency implementation of management plans and activities.
- Accommodate all reasonable uses of Reclamation lands, consistent with environmental protection and conflict avoidance objectives.
- Minimize user conflicts and impacts on natural resources.

### **Management Guidelines**

- Resolve land ownership and jurisdictional uncertainties with BLM and State Department of Lands where discrepancies exist.
- Revocate/transfer Reclamation administered lands to the Bureau of Land Management where such revocation/transfer will foster resource management activities and not impact project purposes.
- Minimize conflicts between recreational and residential uses at Government Camp.
- Work with appropriate agencies to control hunting and/or casual shooting where public safety is at risk.
- Ensure that land use decisions and activities are compatible with Wilderness Study Area (WSA), Research Natural Area (RNA), Watchable Wildlife Area (WWA), Area of Critical Environmental Concern (ACEC), and other special management designations.

### **Management Actions**

- Initiate revocation of Reclamation withdrawn lands within the Owyhee Wild and Scenic River corridor for administration by the BLM.
- Manage the upper Owyhee River area in accord with the final Wild and Scenic River Management Plan for the Main Owyhee (BLM, 1993).
- Establish a seasonal camp host program to minimize potential conflicts between recreation and residential use in conjunction with the development of overnight recreational facilities at Government Camp.
- Work with Malheur County officials and the BLM to develop a county ordinance designed to complement the Lower Owyhee Canyon Watchable Wildlife Area (LOCWWA). Such an ordinance might include specific measures to prevent or control casual shooting, material resource extraction, firewood cutting, motor vehicle access/ travel, fire, noise, litter and other management concerns.
- Review management plans on adjacent lands to ensure that land use decisions and activities are compatible.

- Adopt the BLM designation of the LOCWWA. Enter into an Interagency Agreement/MOU with BLM for cooperative management of the LOCWWA.
- Enter into an Interagency Agreement/MOU with BLM for managing cultural properties within the upper Owyhee River area; work with BLM to develop a CRMP for the Birch Creek Historic Ranch.
- Review and/or participate in the development of BLM plans affecting land use activities in the Study Area.

## 6.5.2 Recreation

### Policy

The policy of Reclamation is to provide public recreational opportunities and facilities in accordance with an approved RMP. The RMP is to include adequate facilities to protect the health and safety of the user and protect land and water resources from environmental degradation. Recreation facilities under Reclamation jurisdiction are to be operated and maintained in a safe and healthful manner.

Where Reclamation lands are directly managed by others for recreation purposes, Reclamation shall exercise oversight responsibility to ensure that those management entities fulfill all aspects of the approved RMP. All contractual agreements with these management entities shall reflect, and be consistent with, the approved management plan.

### Management Goals and Objectives

#### Land-Based Recreation

##### *Goals*

- Provide a diverse range of land-based recreation opportunities and a quality recreation experience, respecting the suitability and carrying capacity of the land resource.
- Optimize mixed use of Owyhee Reservoir project lands for recreation; meet present and future recreational demands and trends consistent with the existing character of the resource area.

##### *Objectives*

- Identify, designate and manage an appropriate range of recreation sites including: 1) day and overnight, and 2) developed and undeveloped.
- Provide an appropriate variety and/or level of recreational opportunities (including secluded and primitive), locations (both on the river and reservoir), facility development, and opportunities accessible to the physically challenged.
- Meet human sanitation needs (e.g. restrooms where needed; trash receptacles in developed areas).
- Designate and manage areas for dispersed/undeveloped use (no facilities, pack-in/pack-out policy, etc.). Monitor impacts and modify use designations and/or management actions if impacts become unacceptable.



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- Provide potable water at selected sites.
  - Complement existing recreational uses (fishing, hunting, camping, hiking and sightseeing) by providing developed and undeveloped sites.
  - Complement the Watchable Wildlife Program with appropriate recreation and interpretive facilities.
  - Protect and enhance the existing character of the upper and lower Owyhee River corridors (visual, biophysical).
  - Locate access and use areas to minimize environmental degradation.
  - Maintain an overall low intensity character throughout the Study Area.
  - Concentrate highly developed facilities and services in the northeast portion of the reservoir (i.e. Lake Owyhee State Park/Lake Owyhee Resort).
  - Minimize recreational development south of Pelican Point.
  - Develop an emergency communication system to provide for the health and safety needs of visitors.
  - Provide for a continuation of the facilities and services offered at Lake Owyhee State Park.
  - Minimize user conflicts and impacts on natural resources.
  - Explore and, if feasible, implement trail opportunities (e.g. linking recreation sites, providing natural resources interpretation, etc.). Provide trail staging areas where needed.

### Water-Based Recreation

#### *Goal*

- Provide a diverse range of water-based recreation opportunities and a quality recreation experience, respecting the suitability and carrying capacity of the water resource.

#### *Objectives*

- Protect and enhance the cold and warmwater fishing experience.
- Support the Oregon Department of Fish and Wildlife (ODFW) annual fish stocking program.
- Accommodate and manage competitive events on the reservoir (i.e. fishing derbies, waterskiing, power boating) consistent with resource protection and conflict avoidance objectives. Provide dump stations and fish cleaning stations at appropriate reservoir locations.
- Designate swimming areas in high use locations (e.g. Lake Owyhee State Park and/or Resort).

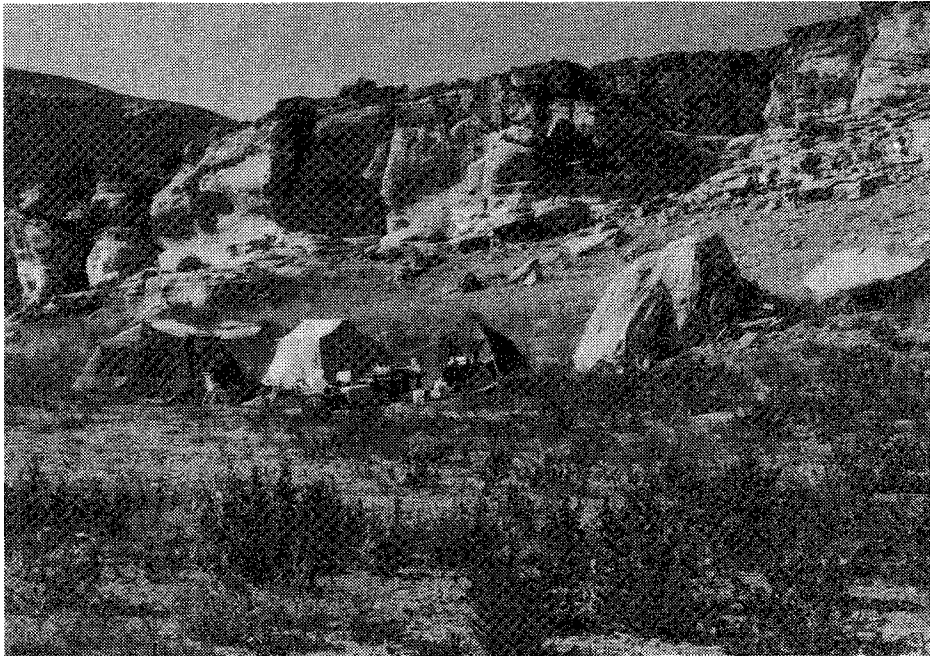
- Provide for a continuation of the facilities and services offered at Lake Owyhee State Park.

### **Management Guidelines**

- Designate a system of environmentally suitable areas for overnight use and promote camping in those areas.
- Ensure during final site design and planning that facilities/access will not increase usage beyond the carrying capacity of the area and the resources' ability to recover.
- Include in all facility plans for construction consideration for protecting or improving resource conditions, public safety, and reducing user conflicts rather than increasing the capacity of the site to accommodate use.
- Implement a 14-day camping/boat moorage stay limit.
- Design campsites and other recreation facilities for access and use by the physically challenged wherever feasible.
- Provide sanitation facilities (toilets) at heavily used campsites on a site-by-site basis for resource protection and visitor health/safety.
- Require campers to pack-out garbage from sites with no trash receptacles and collection services.
- Install signs in areas where camping is prohibited as opposed to where camping is allowed.
- Remove snags only if they clearly pose a public safety hazard in recreation areas.
- Incorporate measures in facility design as necessary to protect and enhance the resource values identified in the RMP.
- Coordinate with BLM to develop recreation facilities.
- Maintain trails to prevent resource damage and provide for user safety.
- Emphasize use/reconstruction of existing trails rather than construction of new trails.
- Encourage use of volunteers to assist with trail construction and maintenance.
- Develop multiple use trails whenever possible (minimize user conflicts).
- Seek partners from the public and/or private sector to assist in the development of recreation improvements.

## Management Actions

Determining appropriate recreation management actions within the RMP Study Area requires a careful balancing of recreation demands and needs with economic, physical, and environmental constraints. To assist Reclamation in this process, the Owyhee Task Force identified specific recreation management actions and recommendations. These recommendations provided the framework for RMP development, and were refined and supplemented through additional public input, field survey, and resource analysis.



*Photo 6-4: Dispersed Camping Near Pelican Point.  
The RMP focuses and directs recreation to areas environmentally suited for public use.*

Existing and potential recreation sites in the Study Area were analyzed according to their potential effect on sensitive resources and their suitability for public use/development (see Chapter 4). Two RMP alternatives, “Focused Use” and “Dispersed Use,” were formulated by Reclamation staff and presented at a series of interagency and public workshops for review and comment. Through this review process, a preferred alternative emerged and provided the framework for the RMP. A detailed description and evaluation of the RMP alternatives studied is provided in the Final Environmental Assessment.

The Owyhee Reservoir RMP is based on a variation of the “Focused Use” alternative. This alternative was designed to focus and direct recreation to areas environmentally suited for public use. The management intent is to avoid and/or minimize potential environmental disturbances and impacts on an area-wide basis.

The recreation component of the RMP focuses on three general goals or recommendations identified by the Owyhee Task Force. These are: (1) to locate a “focused” recreation facility at a mid-point on the reservoir; (2) to limit dispersed recreation along the lower Owyhee River; and (3) to maintain the primitive undeveloped character of the Study Area.

Recreation sites were identified along the lower river and reservoir based on historic use patterns and field studies. The location of these recreation sites is shown in Figure 3-3. Sites A through I along the lower Owyhee River are popular “random” sites with primitive road access to them. Reservoir and upper Owyhee River sites are referenced by common place names.

Five levels of recreation site development are used to describe the general character of current and proposed facility development in the Study Area. Table 6-1 summarizes these recreation site designations and the range of facilities associated with them.

The RMP recognizes that random recreational activities will continue to occur throughout the Study Area. The RMP does not discontinue this type of recreation use, but does discourage this type of use in specific areas where environmental damage or conflicts with sensitive resource values would occur.

“Discourage Use” sites will generally be closed to motorized travel to protect sensitive natural/cultural resource values and not identified in visitor information materials and brochures. The intent of this site designation is to minimize recreation/public use in environmentally sensitive areas.

“Undeveloped” sites will be identified in visitor information materials and brochures as a means to direct visitor use to environmentally suitable areas. No facility development will be authorized except for minor signage as needed. Access and parking areas will be designated and garbage will be managed on a “pack-in/pack-out” basis, a solid waste management strategy which will apply to all undeveloped (primitive) areas in the Study Area.

“Semi-developed” sites will be identified in visitor information materials and brochures. In addition, facility development could consist of pedestal grills, signage, picnic tables, handicapped access, and restrooms. Access and parking will be designated and garbage managed on a pack-in/pack-out basis or by centralized collection.

“Developed” sites will be the most intensively managed. These sites will be identified in visitor brochures and consist of pedestal grills, signage, picnic tables, handicapped access, restrooms, and potable water (if feasible). Parking areas and access routes will be surfaced and trash collection provided.

The recreation management proposals contained in the RMP are designed to direct use to environmentally suitable areas and to maintain the primitive character of the area. This approach will help to protect important resource values such as wetlands, soils, cultural resources, fish spawning areas, special status plant and animal species, and water quality.

Overall, the RMP retains and enhances eight existing “developed” sites (3 on the lower river and 5 on the reservoir) while adding one new “developed” site on the reservoir at Pelican Point. Along the lower Owyhee River, two existing “developed” sites (Snively Hot Springs and Government Camp) will be further improved to accommodate overnight use, and two new “semi-developed” sites will be provided at the Siphon Site and Site F for day and/or overnight use.

Table 6-1: Recreation Site Designations.

Designation	Facilities	Access & Parking <sup>3</sup>	Trash Collection
Random      †	None	Dispersed (unsurfaced)	Pack-in/pack-out
Discourage Use      ✕	Do <u>not</u> identify in the visitor brochure. Post signage. <sup>1</sup> Discourage use due to sensitive cultural and/or natural resource values.	None or Restricted <sup>3</sup>	Pack-in/pack-out
Undeveloped      ○	Designate in visitor brochure as an “undeveloped” recreation site. Provide on site signage. <sup>1</sup> Promote day and/or overnight use.	Designated (unsurfaced)	Pack-in/pack-out
Semi-developed      ▸	Designate in visitor brochure as a “semi-developed” recreation site. Provide fire rings/grills, signage, picnic tables <sup>1</sup> , handicapped access <sup>2</sup> , and restrooms. <sup>1</sup>	Designated (unsurfaced)	Pack-in/pack-out or centralized collection
Developed      ●	Designate in visitor brochure as a “developed” recreation site. Provide fire rings/grills, picnic tables, restrooms, potable water <sup>2</sup> , signage, and handicapped access. <sup>2</sup>	Designated (surfaced) <sup>4</sup>	Centralized collection

<sup>1</sup> Optional

<sup>2</sup> If determined to be feasible

<sup>3</sup> Where vehicular access is provided

<sup>4</sup> Gravel or paved surface

### Lower Owyhee River

Currently there are three “developed” and ten “random” recreation sites along the lower Owyhee River. The three “developed” sites are the Lower Owyhee Canyon Watchable Wildlife Area (LOCWWA) “Gateway” Site, Snively Hot Springs, and Government Camp. The Owyhee Siphon Site and Sites A through I currently receive “random” recreational use and are accessed by a network of primitive roads stemming from Lake Owyhee Road.

Table 6-2 provides a summary of existing and new recreation site designations and improvements for the lower Owyhee River area. The three existing “developed” sites will continue to be the most intensively managed.

The LOCWWA Site will continue to be managed for day use only. Site improvements will consist of the addition of a visitor information kiosk.

Snively Hot Springs will continue to be a day and overnight use area managed by the BLM. Facility improvements will likely include pedestal grills, picnic tables, road surface improvements (pavement or gravel), and interpretive signage. If determined to be feasible, a potable water supply may be developed. The site will be barrier-free and accessible to the physically challenged. Trash receptacles and collection will continue to be provided.

Government Camp will be a barrier-free site improved to accommodate day and overnight use. A seasonal camp host program will be established to monitor users, deter vandalism, and help insure that day and overnight users respect the rights and privacy of area residents. Security fencing, lockable gates, and increased law enforcement patrols may be used to deter interference with nearby irrigation facilities and operations. Site improvements will include a pressurized water supply, pedestal grills, picnic tables, and signage. Trash receptacles and collection will continue to be provided.

At the Siphon Site, a portable restroom will be provided on a seasonal basis to accommodate peak-use periods. Should recreation demand increase beyond the facility capacity of Snively Hot Springs and Government Camp, additional improvements could be provided at the Siphon Site and Site F to accommodate future overnight facility needs.

Sites B, D, E and H will be designated “undeveloped” and limited to day use only. Facility improvements will include parking turnouts and interpretive signage developed in conjunction with the Lower Owyhee Canyon Watchable Wildlife Area (LOCWWA) program.

In order to protect sensitive natural resources along the lower river (i.e. wetland/riparian areas, key wildlife habitat, and special status species), Sites A, C, G and I will be managed as “discourage use” sites. The primitive roads that currently access these sites will be closed to motorized travel and signage installed as needed to educate the public as to the rationale for the vehicular closure. Although discouraged, day use activities will continue to be allowed.

Following are the site-specific actions identified for the lower Owyhee River area. **The specific management actions identified for BLM administered lands within the LOCWWA are recommendations only.**

Table 6-2: Lower Owyhee River Recreation Site Designations and Improvements.

Recreation Site	Existing Designation	RMP Designation and Improvements	
Siphon Site (BOR)	+	■	improve river/bridge crossing; add portable restrooms; further improvements deferred until need arises
LOCWWA Site (BOR/BLM)	●	●	add visitor information kiosk, day use only
Snively Hot Springs (BLM)	●	●	add pedestal grills, picnic tables, interpretive signage; resurface road; add water if feasible
Site A (BLM)	+	×	discourage use due to rare plants
Site B (BLM)	+	○	add parking at gravel site, day use only
Site C (BOR)	+	×	discourage use to enhance riparian values
Site D (BOR)	+	○	add LOCWWA turnout and parking, day use only
Site E (BOR)	+	○	add parking at bladed area, day use only
Site F (BLM)	+	■	add parking, day use only; overnight improvements deferred until need arises
Site G (private)	+	×	discourage use due to private ownership
Site H (BLM)	+	○	add parking and LOCWWA trail, day use only
Site I (BOR)	+	×	discourage public use, remove trash
Government Camp (BOR)	●	●	improve river/bridge crossing; add pedestal grills and signage; establish a seasonal camp host program

- + Random
- × Discourage Use
- Undeveloped
- Semi-developed
- Developed

**Siphon Site (BOR)**

- Designate as a “semi-developed” recreation site for day and overnight use.
- Work with the Owyhee Irrigation District to improve and maintain bridge for safe passage.
- Protect trees from beaver damage.
- Provide portable restroom(s) during high use periods.
- Provide further improvements as needs arise.

**LOCWWA “Gateway” Interpretive Site (BOR/BLM)**

- Designate as a “developed” recreation site.
- Add a visitor information kiosk as part of the public information program describing recreational opportunities in the area.
- Continue to provide trash collection and restrooms.
- Post “no camping” sign; day use only.

**Snively Hot Springs (BLM)**

- Designate as a “developed” recreation site for day and overnight use.
- Add pedestal grills, gravel or paved parking areas/camp spurs, access for the physically challenged, picnic tables, and signage.
- Develop potable water, if determined feasible.
- Continue to provide vault toilet and trash collection.

**Site A (BLM)**

- Discourage use to protect rare plant species (milk vetch) in the area.
- Post “no camping” sign.

**Site B (BLM)**

- Designate as an “undeveloped” recreation site.
- Develop gravel site for day use parking.
- Include signage as part of the interpretive program describing the old railroad line used during the construction of Owyhee Dam (a berm, where the tracks once existed, is noticeably present on this site).
- Post “no camping” sign; day use only.



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**Site C (BOR)**

- Discourage use to reduce erosion and protect riparian habitat.
- Remove gravel spoils and restore site.
- Work with Malheur County and the Nyssa Road District to discontinue use of material site located on the east side of Lake Owyhee Road.

**Site D (BOR)**

- Designate as an “undeveloped” recreation site.
- Add a watchable wildlife turnout at the south end of the site.
- Post “no camping” sign; day use only.

**Site E (BOR)**

- Designate as an “undeveloped” recreation site.
- Develop bladed area for day use parking.
- Post “no camping” sign; day use only.

**Site F (BLM)**

- Designate as a “semi-developed” recreation site for day and future overnight use.
- Add day use parking area.
- Post “no camping” sign; day use only.
- Defer overnight facility improvements and use until recreation demand and needs warrant such action.

**Site G (Private)**

- Discourage use due to private ownership.

**Site H (BLM)**

- Designate as an “undeveloped” recreation site.
- Develop a watchable wildlife interpretive trail utilizing the existing primitive road parallel to Lake Owyhee Road.
- Develop a LOCWWA turnout and day use parking area on the north end of the site.
- Post “no camping” sign; day use only.

Site I (BOR)

- Discourage use due to potential conflicts with BOR/USGS gauging station.
- Remove trash dump on west side of river.
- Post “no camping” sign.

Government Camp (BOR)

- Designate as a “developed” recreation site for day and overnight use.
- Add pedestal grills and signage.
- Repair/replace picnic tables.
- Provide a camp host on a seasonal basis.
- Work with the Owyhee Irrigation District to provide and maintain safe bridge access to Government Camp.
- Work with the Owyhee Irrigation District to identify a potential site (preferably a historic building) for the development of a visitor information/interpretive center.
- Develop a pedestrian trail from Government Camp to the top of Owyhee Dam.
- Continue to provide restroom, potable water, and trash collection facilities and service.

Owyhee Reservoir and Upper Owyhee River

Recreation facilities are concentrated at the northeast end of Owyhee Reservoir at Lake Owyhee State Park, the Malheur County Boat Ramp, and Lake Owyhee Resort. Further south, recreation facilities are located at Leslie Gulch. The remaining recreation sites are popular “undeveloped” shoreline areas receiving random use. Table 6-3 provides a summary of existing and new recreation site designations and improvements for the Owyhee Reservoir and Upper Owyhee River areas.

Consistent with the Owyhee Reservoir Task Force recommendation to provide a “developed” recreation site at a mid-point on the reservoir, Pelican Point will be improved to include pedestal grills, shade shelters, picnic tables, and restrooms. If determined to be feasible, a potable water supply will be developed and floating restrooms provided for boater convenience.

Reservoir shoreline areas environmentally suited for “undeveloped” recreation use will be identified in visitor information brochures and materials to direct recreationists to them. These sites include Wild Horse Basin, Cherry Creek, Dry Creek Arm, Acton Gulch, Bensley Flat, Carlton Canyon and Red Butte. The Dry Creek Arm and Red Butte sites will be identified for car camping in visitor materials and brochures.

Other than supporting BLM’s recommended improvements (and the construction of a courtesy boat dock) at Leslie Gulch, no recreation facility development will occur south of Pelican Point. The upper Owyhee River area will be managed in accord with BLM’s final Wild and Scenic River Management Plan for the Main Owyhee (BLM, 1993).

Table 6-3: Owyhee Reservoir and Upper Owyhee River Recreation Site Designations and Improvements.

	Existing Designation	RMP Designation and Improvement	
Owyhee Dam/Glory Hole (BOR)	+	○	add interpretive signage
County Boat Ramp (Malheur Co./BOR)	●	●	add permanent restroom, improve parking
Gordon Gulch (ODPR/BOR)	●	●	No changes proposed
McCormack Campground (ODPR/BOR)	●	●	support ODPR improvements
Lake Owyhee Resort (Concessionaire/BOR)	●	●	support concessionaire improvements
Wild Horse Basin (BOR)	+	○	promote as good site for high/low water use
Cherry Creek (BOR)	+	○	promote as good site for high/low water use
Dry Creek Arm (BOR)	+	○	designate west area for car camping, add seasonal restrooms
Acton Gulch (BOR)	+	○	note shelterwood at high water line
Bensley Flat (BOR)	+	○	add interpretive signage describing sensitive natural resources
Deadman Gulch (BOR)	+	✗	discourage use due to potential for flash flooding & impacts to paleontological resources
Pelican Point (BOR)	+	●	add pedestal grills, shade shelters, picnic tables, permanent and/or floating restrooms, courtesy boat dock and potable water (if feasible), remove trash dump, keep airstrip open
Carlton Canyon (BOR)	+	○	Promote as a good site for high/low water use; note shelterwood
Leslie Gulch (BLM/BOR)	●	●	support BLM recommendations/improvements; add courtesy boat dock
Indian Hot Springs (BOR)	+	✗	discourage use due to cultural resource values, add interpretive signage
Watson Cemetery (BOR)	+	✗	discourage use due to cultural resource values, add interpretive signage
Red Butte (BOR)	+	○	designate area for car camping
Upper Owyhee River (BOR/BLM)	+	+	manage in accordance with the Owyhee Wild & Scenic River Management Plan

- + Random
- ✗ Discourage Use
- Undeveloped
- ◐ Semi-developed
- Developed

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Following are the site-specific actions identified for the Owyhee Reservoir and upper Owyhee River areas.

### Owyhee Reservoir

#### Owyhee Dam and Glory Hole (BOR)

- Designate as an “undeveloped” recreation site.
- Add interpretive signage.

#### County Boat Ramp (Malheur County/BOR)

- Designate as a “developed” recreation site.
- Add permanent restroom.
- Improve parking area.

#### Gordon Gulch Day Use Area (ODPR/BOR)

- Designate as a “developed” recreation site.
- Support Oregon State Park efforts to improve recreation facilities.

#### McCormack Campground (ODPR/BOR)

- Designate as a “developed” recreation site.
- Support Oregon State Park efforts to improve recreation facilities (i.e. upgrade electrical hook-ups, extend boat ramp, provide an additional fish cleaning facility, and designate a swimming area).

#### Lake Owyhee Resort (Concession/BOR)

- Designate as a “developed” recreation site.
- Support efforts to upgrade the quality of resort facilities and services.

#### Wild Horse Basin (BOR)

- Designate as an “undeveloped” recreation site.
- Promote as good location for public use during all water conditions (high to low).
- Warn of potential for flash flooding.

#### Cherry Creek (BOR)

- Designate as an “undeveloped” recreation site.
- Promote as good location for public use during all water conditions (high to low).
- Warn of potential for flash flooding.



*Photo 6-5: Cherry Creek. Cherry Creek will be designated as an “undeveloped” recreation site and promoted as a good location for public use during all water conditions*

#### Dry Creek Arm (BOR)

- Designate as an “undeveloped” recreation site.
- Promote southwest area for car camping.
- Add seasonal (portable) restrooms.

#### Acton Gulch (BOR)

- Designate as an “undeveloped” recreation site.
- Note shade trees (shelterwood) at high water line in visitor information brochures.

#### Bensley Flat (BOR)

- Designate as an “undeveloped” recreation site.
- Note shade trees (shelterwood) at high water line in visitor information brochures.
- Add interpretive signage to promote the protection of sensitive resources in the area (milk-vetch and bighorn sheep).
- Work with ODFW and BLM to initiate a monitoring program designed to evaluate the effects of public recreation use on bighorn sheep at Bensley Flat.

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### Deadman Gulch (BOR)

- Discourage use due to potential for flash flooding and impacts to nearby cultural resources.
- Add interpretive signage to promote the protection of sensitive paleontological resources in the area.

### Pelican Point (BOR)

- Designate as a “developed” recreation site.
- Provide picnic tables, pedestal grills, shade shelters and restrooms.
- Provide potable water, floating restroom(s), and/or trash collection, if determined to be feasible.
- Remove on-site trash dump.
- Keep airstrip open.

### Carlton Canyon (BOR)

- Designate as a “undeveloped” recreation site.
- Promote south shore as good location for use during all water conditions (high to low).
- Note shade trees (shelterwood) at high water line in visitor information brochures.

### Leslie Gulch (BLM/BOR)

- Designate as a “developed” recreation site.
- Install an emergency phone, if determined to be feasible.
- Update Memorandum of Understanding between BLM and Reclamation for recreation management at Leslie Gulch.
- Support BLM’s efforts to provide the following facilities:
  - 1) Boat docks associated with the boat ramp
  - 2) Fish cleaning station
  - 3) Foot access day use site with picnic tables, grills, directional/ information signage
  - 4) Overnight facilities
  - 5) Sanitary dump station for boaters
  - 6) Access and parking areas

Indian Hot Springs (BOR)

- Discourage use due to cultural resource and fish spawning conflicts.
- Add interpretive signage to promote the protection of sensitive cultural and natural resources in the area.

Watson Cemetery (BOR)

- Discourage use due to cultural resource and fish spawning conflicts.
- Add interpretive signage to promote the protection of sensitive cultural and natural resources in the area.

Red Butte

- Designate as an “undeveloped” recreation site.
- Promote site for car camping.

Upper Owyhee River Area (BOR/BLM)

- Manage in accord with BLM’s final Wild and Scenic River Management Plan for the Main Owyhee (BLM, 1993).

Trails

Trails provide the public with an opportunity to explore many of the unique natural features that the area has to offer away from roads, boats and other more intensive land use activities.

- Work with the BLM to designate a series of trails in the lower Owyhee River area including a Watchable Wildlife trail along the existing primitive road at Site H.
- Develop a trail from the visitor’s center at Government Camp to the top of Owyhee Dam.
- Cooperate with the BLM to establish trailheads as needed on Reclamation lands (BLM is planning a “tread-free” trail system linking Lake Owyhee Resort to Leslie Gulch, and Leslie Gulch to Birch Creek).
- Identify trailheads and routes in visitor information brochures and with appropriate signage.

Other Recreation Considerations

Following are some other recreation management actions and considerations which may demand additional management attention if resource conditions and/or use trends change substantially in the future. Of particular concern are camping/boat moorage stay limits, boat-in management, and reservoir water surface uses.

Camping/Boat Moorage Stay Limit: Reclamation will implement a 14-day (2 week) camping and boat moorage stay limit in the Study Area. This stay limit is

consistent with current regulations at other Reclamation projects and with general stay limit policies in effect at other Federal recreation sites in the region. The stay limit is designed to discourage long-term occupation of desirable camping spots in the area.

**Boat-In Management:** Primitive boat-in day and overnight use will continue to be permitted in undeveloped reservoir areas. Trash and human wastes in these areas currently do not pose a significant management concern or threat to public health. Most boaters pack-out their trash, dispose human wastes properly, and leave shoreline areas clean. Consequently, no boat-in facilities, services, or specific management actions are needed at this time. Garbage in undeveloped areas will continue to be managed on a "pack-in/pack-out" basis.

As the use of undeveloped shoreline areas continues to increase, significant resource and public health problems may arise. To avoid, reduce, or minimize potential problems and adverse resource affects, Reclamation will monitor the effects of boat-in use. If monitoring shows declining resource conditions or improper waste disposal practices creating sanitation and other environmental hazards, Reclamation will develop and evaluate alternative management actions to rectify the identified problem(s) and, after consultation with other agencies and the public, adjust the boat-in management program accordingly.

The proper disposal of human wastes is the most likely boat-in management problem to arise. Potential solutions include the designation of boat-in use areas where sanitation facilities (i.e. chemical, pit or compost toilets) are provided. The use of floatable restrooms is a particularly attractive option for Owyhee Reservoir because they can be moved to accommodate use where it is most needed. Any decision to use floatable restrooms at the reservoir will be coordinated with the Oregon State Marine Board.

Reclamation's policy is to optimize public recreational uses and opportunities on the lands and waters we administer. However, Reclamation also has an "equal stewardship" responsibility to ensure that natural resources are protected and public health and safety needs are met.

**Reservoir Water Surface Uses:** Owyhee Reservoir has been an increasingly popular boating area since its completion. Traditional activities such as power boating, fishing and waterskiing have yet to be significantly augmented by jet skis, wind surfing and a variety of other water surface use activities.

Boating activities tend to be concentrated from Owyhee Dam to the Dry Creek Arm. This can be attributed to the close proximity of developed boat ramp sites to one another in the Lake Owyhee State Park/Resort area. As the reservoir surface is reduced by drawdown, water surface uses become increasingly concentrated. South of the Dry Creek Arm, boating activities are well dispersed over the reservoir surface.

On peak-use days such as weekends and holidays, conflicts sometimes arise between power boaters, waterskiers, anglers and other user groups. These conflicts are limited to the area near Owyhee Dam. Conflicts do not occur on non-peak use days when the reservoir surface is uncongested.

Some areas of the reservoir are marked by the Marine Patrol with spherical buoys in an effort to reduce boat speeds near boat launch ramps, reduce boating accidents in congested areas, and prevent undesirable shoreline erosion. Waterway signs to warn boaters of hazards such as floating debris, reefs or shoals are essentially absent on the reservoir.



Special water surface uses such as bass tournaments and waterskiing events are annually held at the reservoir. To establish a temporary waterski course on the reservoir, a permit is required from the Oregon State Marine Board. The Marine Board consults with Reclamation prior to permit approval to ensure that each special temporary use permit will be compatible with other recreation and public safety needs at the reservoir.

At this time no special reservoir water surface management actions are necessary. The existing level and extent of user conflict does not warrant the adoption of zoning or user restrictions. If substantial user conflicts do arise, potential water surface management actions will be developed and evaluated in coordination with the Oregon State Marine Board. Prior to any final decision by Reclamation, opportunities for public review and comment will be provided.

As in the past, Reclamation will continue to allow limited special use events and activities (i.e. fishing tournaments, waterskiing courses, powerboat races) on the reservoir provided such uses are temporary, not exclusive, nor incompatible with other recreational activities or public safety needs. The closure of coves or other areas for limited special uses will generally be prohibited. However, general public access to an area where a limited special use has been approved may be temporarily restricted for public health and safety reasons.

Any future public information pamphlets or brochures developed for Owyhee Reservoir will contain information on boating safety, State Marine Board regulations, and boat-in camping etiquette.

### **6.5.3 Cabin Management**

#### **Policy**

Federal policies relating to cabin use on Federal lands are defined in 43 CFR Part 21. In addition, Reclamation policies regarding cabin management are provided in Reclamation Instructions, Section 215, Chapter 4 "Outgrants" (215.4.1). An overview of the regulations and instructions affecting cabin management is provided below.

#### Code of Federal Regulations (43 CFR Part 21)

Reclamation's overall guidance regarding cabin sites is outlined in 43 CFR Part 21 — "Occupancy of Cabin Sites on Public Conservation and Recreation Areas". These policies apply to both privately owned and government owned cabins on public recreation and conservation areas.

In any area where the Authorized Officer (i.e. Project Superintendent for the Central Snake Projects Office) determines that the recreation requirements of the general public are limited, and is an area where private cabin site use has been permitted, a cabin permit may be renewed or extended. Any extension or renewal of an existing permit must be reviewed at least once every five years to determine that the continued use of the cabin site is not inconsistent with the needs of the general public for use of the area. In reviewing whether the existence of private cabin sites conflict with the best public use of an area, consideration is given to 1) existing and projected public need for the area, 2) compatibility between public uses and private cabin sites, and 3) development potential and plans for the area.

Whenever the Authorized Officer determines that the needs of the general public for a particular public recreation or conservation area are sufficient to be inconsistent with further use of that area for private cabin sites, no further extension or renewal for any individual site shall be extended for more than 5 years, consistent with protection of legitimate investment in improvements (usually a 20 year amortization).

Voluntary and involuntary transfers of cabin site permits, including by sale, inheritance, or otherwise is permitted. Such transfers are subject to approval by the Authorized Officer and to the terms and conditions of the existing permit.

Occupants of cabin sites who do not hold a valid permit for the occupancy or use of the site are required to surrender occupancy. In addition, cabin lessees are not allowed to operate a cabin rental concession on Federal lands.

#### **Reclamation Instructions — Chapter 4 — Outgrants**

Part 215 of Reclamation Instructions outlines Reclamation policy regarding cabin use on Reclamation lands. The policy states:

New outgrants for long- or short-term, exclusive private or semi-private use of Reclamation lands for purposes such as cabins...shall not be issued. Where outgrants for such purposes already exist, they should be phased out as soon as possible within contractual restrictions imposed by the grant.

In recent years, revisions to Part 215 of Reclamation Instructions have been drafted. Reclamation's draft policy states:

New outgrants for long- or short-term, exclusive private or semi-private uses of Reclamation lands for purposes such as cabin sites... may be issued only on lands designated as suitable for such uses in approved resource management plans.

Existing outgrants for private or semi-private uses on areas where a resource management plan has not been prepared, or where an existing plan does not address private or semi-private uses, may be renewed for a period of time, not to exceed five years, until the necessary resource management planning has been finished, providing the continued use does not result in any serious health, safety, or environmental degradation problems. The final resource management plan will determine whether or not such uses will be allowed to continue.

### **Management Goals and Objectives**

#### **Goal**

- Maintain a balance between public and private use of public lands, respecting the suitability and carrying capacity of the land and public needs in the area.

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### **Objectives**

- Ensure that existing and additional cabins and access will not increase usage beyond the carrying capacity of the area and the resources' ability to recover.
- Concentrate cabins within the Dry Creek Arm and Fisherman's Cove subdivisions.
- Insure that local health and sanitation requirements for human waste disposal are met with minimal impacts on natural resources.
- Minimize user conflicts between cabin owners and the public.
- Maintain a low intensity character in the reservoir area.
- Develop an emergency communication system to provide for the health and safety needs of visitors and cabin owners.
- Minimize cabin site impacts on natural resources.

### **Management Guidelines**

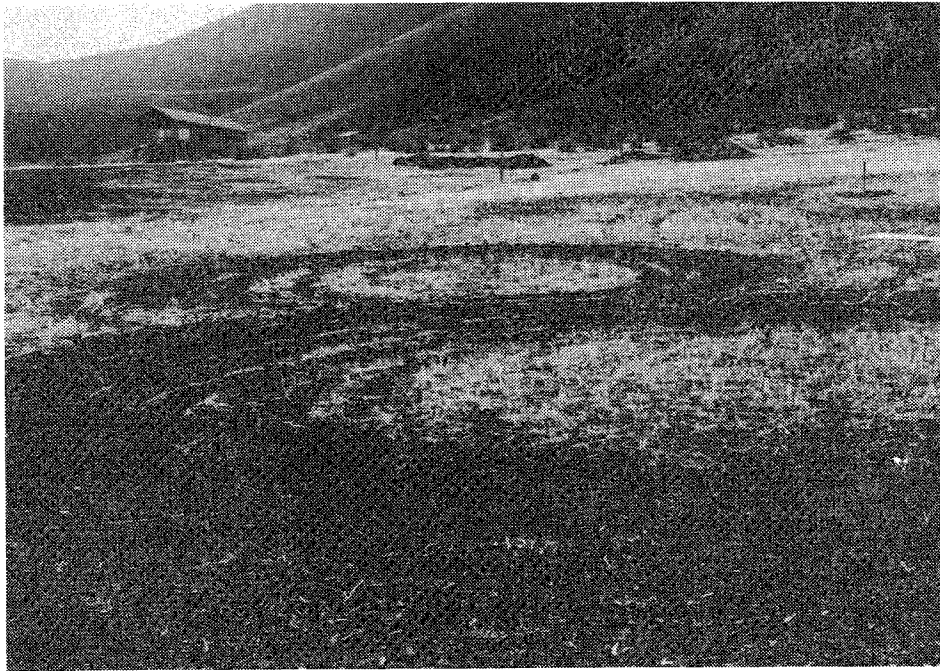
- Identify and manage an appropriate number of cabin sites.
- Incorporate stipulations in cabin site leases as necessary to protect and enhance the scenic and natural resource values identified in the RMP.
- Limit motorized travel to designated areas within cabin lease areas.
- Limit new boat dock construction to community docks (four cabins per dock) and encourage consolidation of existing boat docks.

### **Management Actions**

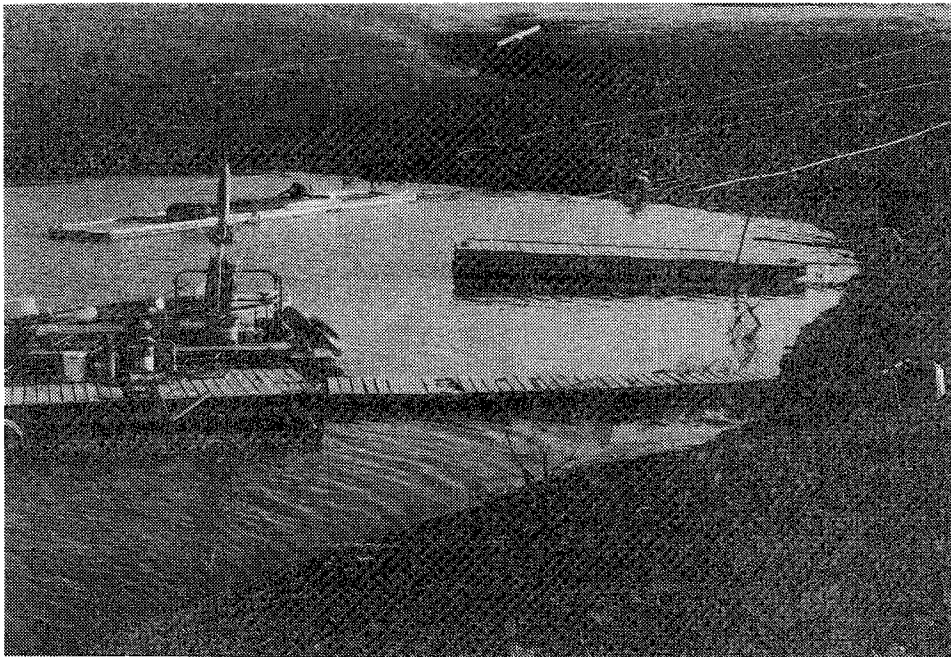
Currently, cabin sites are located in three management areas: the Dry Creek subdivision on the south shore of the Dry Creek Arm; the Fisherman's Cove subdivision on the reservoir's east and west side; and those outside the two subdivision areas (four are located on state land and seven on Reclamation land).

In order to concentrate cabins within the Dry Creek Arm and Fisherman's Cove subdivision areas, Reclamation's current policy to phase out the seven cabins located on Reclamation land outside the two subdivision areas will continue. These seven cabins will be phased out through a non-assignable life estate lease.

Motorized travel within cabin lease areas will be restricted to designated areas. During cabin lease review and renewal in 1995, Reclamation will establish and include new lease stipulations relative to the use of motorized vehicles in cabin lease areas. The purpose of this travel limitation is to reduce vehicular impacts on surrounding land resources particularly within the adjoining Dry Creek Buttes Wilderness Study Area. The "Travel Management Plan" is discussed in section 6.7 of this chapter.



*Photo 6-6: Fisherman's Cove.  
Motorized travel within cabin lease areas will be restricted to designated areas in order to reduce impacts on soils and vegetation.*



*Photo 6-7: Fisherman's Cove.  
Cabin lessees will be required to obtain a boat dock permit for existing or new boat docks on the reservoir.*

In order to manage the number of existing and new private boat docks on the reservoir, Reclamation will implement a boat dock permit system. The boat dock permit program will be initiated in 1995 in conjunction with cabin lease renewal. For new boat docks constructed on the reservoir, a minimum of four cabins will be required to share a community boat dock. For individual boat docks which already exist, the fee structure will encourage shared boat dock use.

Upon reissuance, all cabin leases will contain lease terms and stipulations which support and reflect the management actions described above. To insure compliance with cabin lease terms and conditions, Reclamation will conduct cabin lease compliance reviews on an annual basis.

## **6.5.4 Grazing Management**

### **Policy**

Generally, grazing and other agricultural uses on Reclamation lands are secondary to recreation, fish and wildlife, and operational uses. If grazing and other agricultural uses are to be allowed, it is Reclamation policy that such uses be managed properly, utilizing modern techniques to ensure: 1) continued productivity, 2) maximum user-fee returns, and 3) no natural resource degradation. These uses will be allowed only after the necessary studies and analyses are completed to permit the proper allocation of resources among the competing uses identified. Grazing will be administered on an Animal Unit Month (AUM) basis, or other method or methods accepted in the range management profession, unless other special considerations are more appropriate.

If an agency other than Reclamation manages agricultural uses on Reclamation lands, Reclamation is responsible for exercising oversight control to ensure proper administration. In addition, grazing activities are to be monitored by Reclamation to assure that such uses are managed properly and within the carrying capacity of the land, and that lessees comply with the terms of their lease.

### **Management Goals and Objectives**

#### **Goals**

- Improve the ecological condition of Reclamation lands at Owyhee Reservoir.
- Insure that livestock grazing Animal Unit Month (AUM) allocations are within the carrying capacity of the land and provide for sustained yield.

#### **Objectives**

- Identify livestock management practices on Reclamation lands that are needed to minimize conflicts with other land use activities and environmental values (recreation, special status species, water quality, etc.).
- Ensure that land use activities (i.e. grazing, recreation, material extraction sites) complement Watchable Wildlife, State Scenic Route, and Federal Wild and Scenic River designations.

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### **Management Guidelines**

- Adjust Reclamation grazing lease schedules to coincide or complement BLM grazing allotment schedules.
- Require Reclamation concurrence for all grazing authorizations and range improvements affecting Reclamation lands.
- Minimize or eliminate grazing seasons-of-use which conflict with high public use periods at Owyhee Reservoir.
- Maintain streambanks and reservoir shoreline in stable condition.
- Adopt BLM forage utilization standards and guidelines.
- Ensure that forage utilization does not reduce the variety, vigor or abundance of native plant species and communities.
- Maintain browse on winter range currently supporting browse.
- Control livestock distribution to protect and improve water quality.
- Schedule livestock distribution and use patterns to prevent or resolve resource/use conflicts.
- Encourage recovery or prevent deterioration where grazing activities may be leading to poor conditions; downward trends; the displacement of native plants or plant communities by weedy species, annual, or noxious vegetation; or where cover is atypically low for the particular native plant communities/associations.

### **Management Actions**

- Participate in the revision of BLM allotment management plans (AMPs) affecting Reclamation lands at Owyhee Reservoir.
- Establish cooperative agreements with livestock permittees/lessees to protect and enhance riparian habitat (i.e. fence Spring Creek).
- Recommend to BLM the preparation of an exchange-of-use document specific to grazing management on Reclamation lands.
- Conduct carrying capacity evaluations in cooperation with BLM to determine Animal Unit Month (AUM) allocation and exchange-of-use levels for Reclamation lands.
- Identify and include AUM allocations and season-of-use requirements, as specified in BLM exchange-of-use documents, in all grazing lease agreements issued for Reclamation lands.
- Conduct compliance checks and monitor use levels in cooperation with managing agencies to prevent unauthorized use and trespass.
- Fence livestock from areas of high public use or high resource value. Specific fencing projects include Spring Creek, “developed” recreation sites, and

concentrated cabin areas. Consider alternatives to fencing such as seasonal use and off-site watering.

- Initiate a grazing monitoring program on Reclamation lands: collect and evaluate data to identify impacts on natural resources and to determine adjustments in grazing practices prior to grazing lease renewal.

Monitoring data will be used by Reclamation to provide the basis for modifying the grazing lease program terms and conditions. Monitoring data will be reviewed on the same five-year cycle as the grazing lease renewal program. Specific actions include:

- Evaluate monitoring data to identify what adjustments in grazing practices and/or levels of use are needed to meet RMP objectives.
- Review and adjust AUMs/stocking levels in accordance with the results of monitoring studies and site/allotment evaluations prior to grazing lease renewal (every 5 years).
- Conduct utilization studies to monitor the success of grazing management strategies and refine carrying capacities.
- Perform on-site examinations to identify and protect sensitive resource values within lease areas prior to grazing lease renewal or issuance.

### **6.5.5 Unauthorized Use and Trespass**

Trespass and unauthorized use, when permitted to continue, deprives the public of its rightful use and enjoyment of the public lands. Prohibited acts on Federal land include construction, placing, or maintaining any kind of road, trail, structure, fence, enclosure, communication equipment, pump, well, or other improvement without a permit.

#### **Policy**

It is the general policy of Reclamation to facilitate and insure the proper use of land resources. Benefits to the public as a whole resulting from non-exclusive uses of Federal lands is the primary management emphasis.

Reclamation's policy is to clear, and keep clear, all lands of trespasses and unauthorized uses. In resolving trespass or unauthorized use issues, priority will be given to those trespasses which are not in the best public interest, or are not compatible with the primary uses of the land. In cases where a trespass or unauthorized use has occurred, prompt resolution of the conflict is encouraged.

Unauthorized uses and trespasses are best resolved before they become permanently established. When violations do occur, Reclamation will seek first to negotiate solutions to resolve all violations. Attempts to negotiate solutions to unauthorized uses and trespass will be the first priority, using the courts will be a last resort. In the event such negotiations fail, Reclamation will take those actions necessary to protect the public interest and project lands.

All plans are to include a program to prevent and resolve unauthorized use of, and trespass upon Reclamation lands. Legalizing a trespass by issuing an outgrant must be approved by Reclamation's Denver or Regional Office.

## Management Goals and Objectives

### Goal

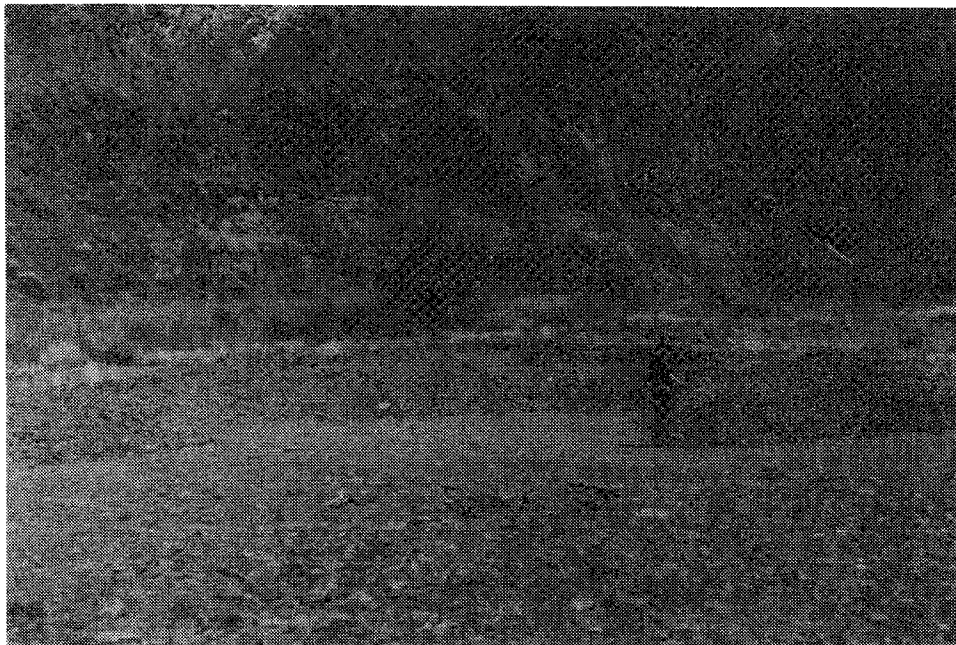
- Eliminate unauthorized use and trespass on Reclamation lands.

### Objective

- Resolve existing and prevent future trespass/encroachment violations (i.e. unauthorized sand/gravel extraction).

### Management Actions

- Conduct an inventory of built structures on Reclamation lands to determine unauthorized structures and use prior to lease renewal.
- Prior to lease renewal (1995 and thereafter), require removal of unauthorized structures or uses on Reclamation lands.
- Work with the BLM and Malheur County to monitor and prevent unauthorized entry and extraction of material resources on Federal lands.
- Support BLM's management decision to prohibit the landing of non-emergency aircraft within the Owyhee Wild and Scenic River corridor. Reclamation will not issue any land use agreement authorizing use of the primitive airstrip located within the upper Owyhee River area.



*Photo 6-8: Unauthorized Gravel Site, Lower Owyhee River.  
Reclamation will work with the BLM and Malheur County to monitor and prevent unauthorized entry and extraction of material resources on Federal lands.*



## 6.5.6 Material and Mineral Resources

Section 10 of the Reclamation Project Act of 1939 gives the Secretary of the Interior discretion and broad authority to permit the removal of sand, gravel and other minerals and building materials, with or without competitive bidding, from land withdrawn or acquired and being administered under the Federal reclamation laws in connection with the construction or operation and maintenance of any project. The Act also authorizes the Secretary to permit the removal of such sand, gravel, and other minerals and building materials without charge, if for use by a public agency in the construction of public roads or streets within any project or in its immediate vicinity.

This authority has been delegated to Regional Directors who determine when such sales should be made with or without competitive bidding. In no case, are these materials to be sold for less than fair market value. All permits issued for the purpose of allowing the removal of sand, gravel, and other minerals and building materials are to contain adequate provisions for requiring the permittee to restore the surface of the area to acceptable standards.

Except for those minerals and conditions meeting the provisions of Section 10 of the Reclamation Projects Act of 1939, leases for mineral and geothermal resources on all land acquired or withdrawn by Reclamation are issued by the BLM. BLM will, in all issues involving mineral and geothermal leases on or under Reclamation lands, request that Reclamation determine whether leasing is permissible, and, if so, to provide any stipulations required to protect the interest of the United States. BLM will not issue permits, leases, or licenses on acquired or withdrawn lands under Reclamation's management without Reclamation's consent and concurrence on all conditions and stipulations.

### Management Guidelines

- Use existing material sources instead of developing new sources except when conflicts with other resource uses and values are found to be unacceptable.
- Analyze proposals for capital improvements which may occur at known material source deposits within the context of the management direction established by the RMP.
- Allow no occupancy or other surface disturbance on slopes in excess of 30 percent or within 100 feet of open water bodies.
- Allow no occupancy or surface disturbance in the vicinity of eagle, hawk, or owl nesting sites, or in key habitats of special status species.
- Locate new gravel pits, disposal sites and borrow areas away from sensitive areas (i.e. wetland/riparian areas), viewer locations, and access routes.

### Management Actions

- Evaluate and comment on surface-use plans (i.e. mining Plan of Operations) in the Owyhee River watershed.
- Work with Malheur County and the Nyssa Road District to identify alternative material source sites to replace those within the Lower Owyhee Canyon Watchable Wildlife Area (LOCWWA).

- Require retention of withdrawals from mineral entry under the general mining laws if Reclamation withdrawn lands are revoked.

### **6.5.7 Rights-of-Way**

#### **Policy**

Reclamation, within its discretion, authority, and rules, is responsible for reviewing requests and granting rights-of-way across its withdrawn and acquired land and facilities. Reclamation is required to furnish to the BLM a copy of all grants on withdrawn lands, including maps which it issues, to be recorded on BLM's Master Title Plats.

On all rights-of-way for which Reclamation lacks authority to make a grant, BLM will issue the grant on all withdrawn or acquired lands, after consultation with Reclamation. Such consultations include: 1) questions of whether the grant should or should not be granted; 2) modification of the grant location from the location applied for; and 3) terms, conditions and stipulations for the grant.

#### **Management Guidelines**

- Avoid proliferation of separate rights-of-way; encourage applicants to locate new facilities in existing corridors.
- Avoid rights-of-way use within 1/4-mile of special status species use sites.
- Exclude wild and scenic river corridors from rights-of-way use.
- Avoid rights-of-way use in areas having high or sensitive visual resource qualities.
- Avoid wetland/riparian protection areas.
- Confine additional facilities to existing corridors; evaluate feasibility of facility upgrade before allowing new facility construction.
- Minimize area necessary for operation and maintenance rights-of-way.

#### **Management Actions**

- Continue to require applicant funded right-of-way clearance studies/inventories for special status species, cultural resources, etc. prior to review and approval by Reclamation/BLM staff.
- Continue to require applicant to submit plans, maps and other information related to the rights-of-way proposal for Reclamation evaluation and approval.

## **6.6 VISITOR INFORMATION AND SERVICES**

Visitor information is an important management responsibility that is not readily apparent, but instrumental in providing a quality recreation experience and contributing to an informed visitor. An informed public will help protect and enhance the unique recreational and environmental attributes of the area.

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## **Management Goals and Objectives**

### Goal

- Provide an appropriate range of information materials to increase the public's awareness of recreational opportunities, use restrictions, safety concerns, and natural and cultural resource values.

### Objectives

- Develop visitor information materials/brochures.
- Establish clear and consistent signage to guide public access to, and use of, Reclamation lands.
- Provide natural and cultural resource interpretive signs, as appropriate, at recreation and other public interest sites.
- Explore the demand for, and feasibility of, facilities to provide visitor information.
- Support efforts by Malheur County and other agencies to promote the area.
- Emphasize the primitive nature of the resource area in all public information programs.
- Promote resource protection and public safety.

### **Management Guidelines**

- Utilize signs, brochures, maps and other materials to increase public awareness and understanding of motorized travel restrictions; the availability of recreation facilities and services; and to promote good outdoor manners, respect for the environment and other users, and public safety.
- Educate the public of the area's unique recreational, cultural and natural attributes, and the special management and use restrictions in effect to help protect them.
- Utilize information measures by which visitors can voluntarily achieve management needs (i.e. "pack-in/pack-out," "leave no trace," "tread lightly").
- Work with BLM, Oregon State Parks, Malheur County, and local tourism groups to identify and share information concerning the various types of recreational opportunities available in the Owyhee Reservoir area.
- Use signs only where necessary for user safety and enjoyment, interpretation, and resource protection; design and locate signs to blend with the elements found in the characteristic landscape.
- Seek volunteers to assist in public information and education programs, encourage stewardship, and provide annual care for the area.

- Incorporate “Tread Lightly,” “Pack-In/Pack-Out,” and “Leave No Trace” ethics into the public information and education program.
- Seek and promote public-private partnerships which will benefit visitors through enhanced interpretive opportunities.
- Incorporate aquatic resource education into interpretive programs, particularly as it deals with healthy wetland, riparian, stream and reservoir ecosystems; minimum impact; litter, etc.
- Develop and implement a public information/education program aimed at increasing public awareness of, and appreciation for, the significance of prehistoric/historic resources.
- Produce scientifically accurate and culturally sensitive displays and brochures.
- Interpret selected sites for the education and enjoyment of the general public; give priority to sites within the Lower Owyhee Canyon Watchable Wildlife Area or within public use areas in proximity to special geologic, cultural or natural features; give special attention to public use areas being degraded through natural or human impacts.
- Discourage on-site interpretation at significant/sensitive resource sites unless a no adverse affect determination is assured.

### **Management Actions**

As part of the plan to enhance recreation opportunities while protecting sensitive resources in the Study Area, a visitor information and services program will be implemented. The purpose of this program is to facilitate public communication about the amenities the area has to offer while encouraging individual responsibility and stewardship. In cooperation with our resource management partners, Malheur County, and local recreation service providers, Reclamation will develop a series of visitor information brochures. Brochure distribution would include the LOCWWA “Gateway” site, Government Camp, Lake Owyhee State Park/Resort, Leslie Gulch, local Chambers of Commerce, and other appropriate locations.

Brochure preparation is a priority item. The brochure(s) will be written according to the management guidelines above and include:

- 1) An overall guide map to the Owyhee Reservoir area including the identification of boat-in campsites; motor vehicle accessible day and overnight use areas; facilities and services; and points of interest;
- 2) Facility use guidelines and local regulations;
- 3) Interpretive information on the areas unique geology, plants, wildlife, and historical features;
- 4) Boat-in use etiquette with special emphasis on fire use and waste management practices (i.e. proper disposal of human wastes, disposal of “gray” water, pack-in/pack-out);
- 5) Guidelines on camping in a high desert environment; and

- 6) Guide to roads and areas "open to motorized travel," parking facilities, boat launch sites, trails, travel conditions, and motorized travel restrictions.

Central to the visitor information program is the establishment of a visitor center (preferably housed in a small historic building) at Government Camp, and the installation of an informational kiosk at the LOCWWA "Gateway" Site. Informational/ interpretive materials will provide an overview of the historic, geologic, and natural significance of the area as well as the regional benefits of the Owyhee Project. Presentation media could include photographs, brochures, audio and video displays.

Traffic and informational signage will be installed to direct visitors to day and overnight use areas. Priority will be given to signage in high use areas open to motorized travel/access, day use areas, and in support of the travel management plan. Signage will be installed at "Discourage Use" sites to inform the public of special resource attributes or natural hazards (i.e. flash flooding) present.

Reclamation will work with the BLM to develop interpretive signage for the Lower Owyhee Canyon Watchable Wildlife Area.. At Owyhee Reservoir, interpretive signage will be provided at the Owyhee Dam/Glory Hole, Bensley Flat, Watson Cemetery, and Indian Hot Springs sites.

## **6.7 ACCESS AND TRANSPORTATION**

The RMP contains management actions for land, water and air-based access and transportation. Specific management guidelines are included for the "land-based" component to provide additional management direction.

### **6.7.1 Land-Based Access and Transportation**

Executive Orders 11644 and 11989 established policies and procedures to ensure that the use of off-road vehicles (ORVs) on public lands will be controlled and directed to protect resources, promote user safety, minimize user conflict, and ensure that any permitted uses will not result in significant adverse environmental impact or cause irreversible damage to existing resources. Pursuant to these Orders, policy and criteria relating to the use of ORVs on Reclamation lands were established on August 23, 1974 (see 43 CFR Part 420).

#### **Policy**

The policy of Reclamation is to ensure that the use of motor vehicles on Reclamation lands will be controlled and directed so as to protect the land resource, promote the safety of all users, and minimize land use and user conflicts. Reclamation lands are closed to motorized travel except for areas, roads or trails specifically open for such use.

Specific to ORV use, ORV use areas and trails are not to be located in areas possessing unique natural, wildlife, historic, cultural, archeological, or recreational values unless Reclamation determines that these unique values will not be adversely affected. If substantial damage to land, soil, water, wildlife, wildlife habitat, archeological, historic or vegetative resources is found, affected areas and trails are to be immediately closed to ORV use or appropriate controls established to prevent further deterioration of the environment. No area, road or trail can be reopened until the Regional Director of Reclamation determines that adverse effects have been eliminated and that measures have been implemented to prevent further recurrence.

Reclamation is currently considering the development of guidelines and standards for establishing a monitoring program to assess ORV impacts on Reclamation lands. The guidelines would provide a consistent set of standards for monitoring including photographic records, need and frequency of on-site reviews, requiring self-policing of users, relation of designated ORV areas to other land uses and property owners, liability, clear marking of ORV use areas, and rehabilitation of damaged lands.

### **Management Goals and Objectives**

#### **Goal**

- Provide appropriate and safe access to Reclamation lands.

#### **Objectives**

- Develop and implement a Travel Management Plan focusing on providing appropriate and safe vehicular access to facilities and use areas on Reclamation lands.
- Utilize and improve the existing road system wherever feasible; discourage new road construction.
- Prohibit motorized travel in environmentally unsuitable/sensitive areas.
- Provide vehicular access and parking consistent with Watchable Wildlife program objectives.
- Ensure vehicular access for irrigation district and ODFW fish stocking personnel, consistent with natural resource objectives.
- Manage motor vehicle use below high waterline.

### **Management Guidelines**

- Restrict motor vehicles to designated roads; roadside pullouts; parking, camping and other recreation areas.
- Include information on travel conditions, road access, parking, boat launching sites, and trails in brochures and other public information materials; identify travel restrictions through the use of signs, brochures, and maps.
- Locate material sites, borrow areas, and disposal sites outside primary access route corridors.
- Minimize the number of stream crossings.
- Mitigate impacts where existing roads are adversely affecting water quality, soils, and other resources; close and rehabilitate if impacts cannot be mitigated.

### **Management Actions**

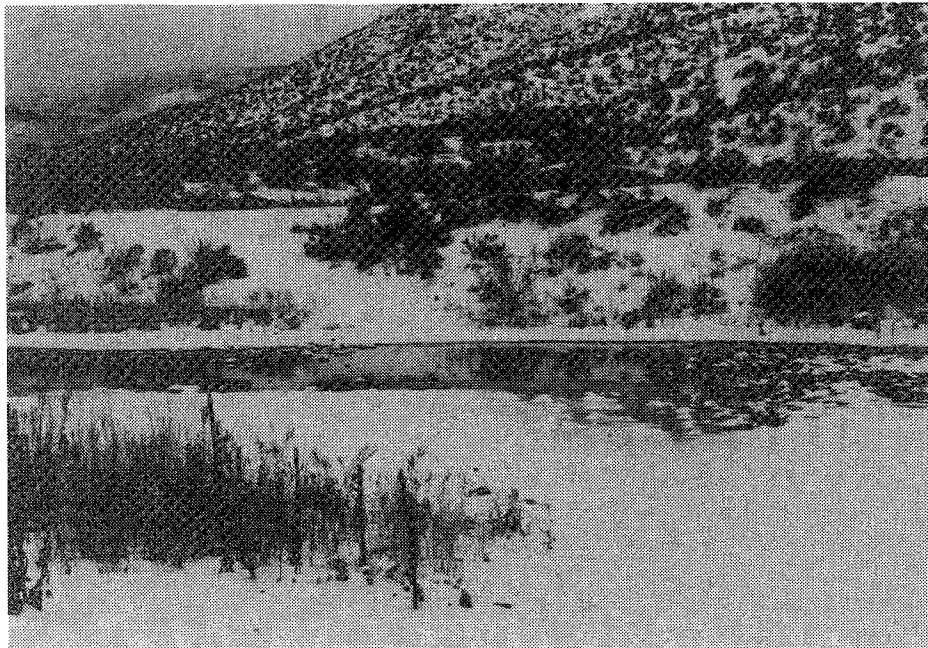
Substantial damage to soils, water quality, wildlife and vegetative resources continues due to unauthorized or unnecessary motor vehicle activity in the Study Area. The vast

majority of the resource area is highly sensitive to motor vehicle activity due to steep slopes and soils susceptible to erosion.

In conformance with Reclamation policy, all Reclamation lands will remain closed to motorized travel except for those roads and areas specifically designated "open" for such use. Motorized travel will be allowed only on those roads and within those areas specifically designated "open to motorized travel." Unless designated "open," all other roads, trails, ways and land areas will be considered closed to motor vehicle use and subject to enforcement citations by local law enforcement officials if motor vehicle violations occur. The "Travel Management Plan" map (see Figure 6-1) identifies which roads and areas are designated "open to motorized travel" within the Study Area.

Some primitive roads will be closed to motorized use within the lower and upper Owyhee River areas. The purpose of these road closures is to protect sensitive environmental resources in the area including wetland and riparian habitat, animal breeding/brooding areas, rare plant species, and cultural resources.

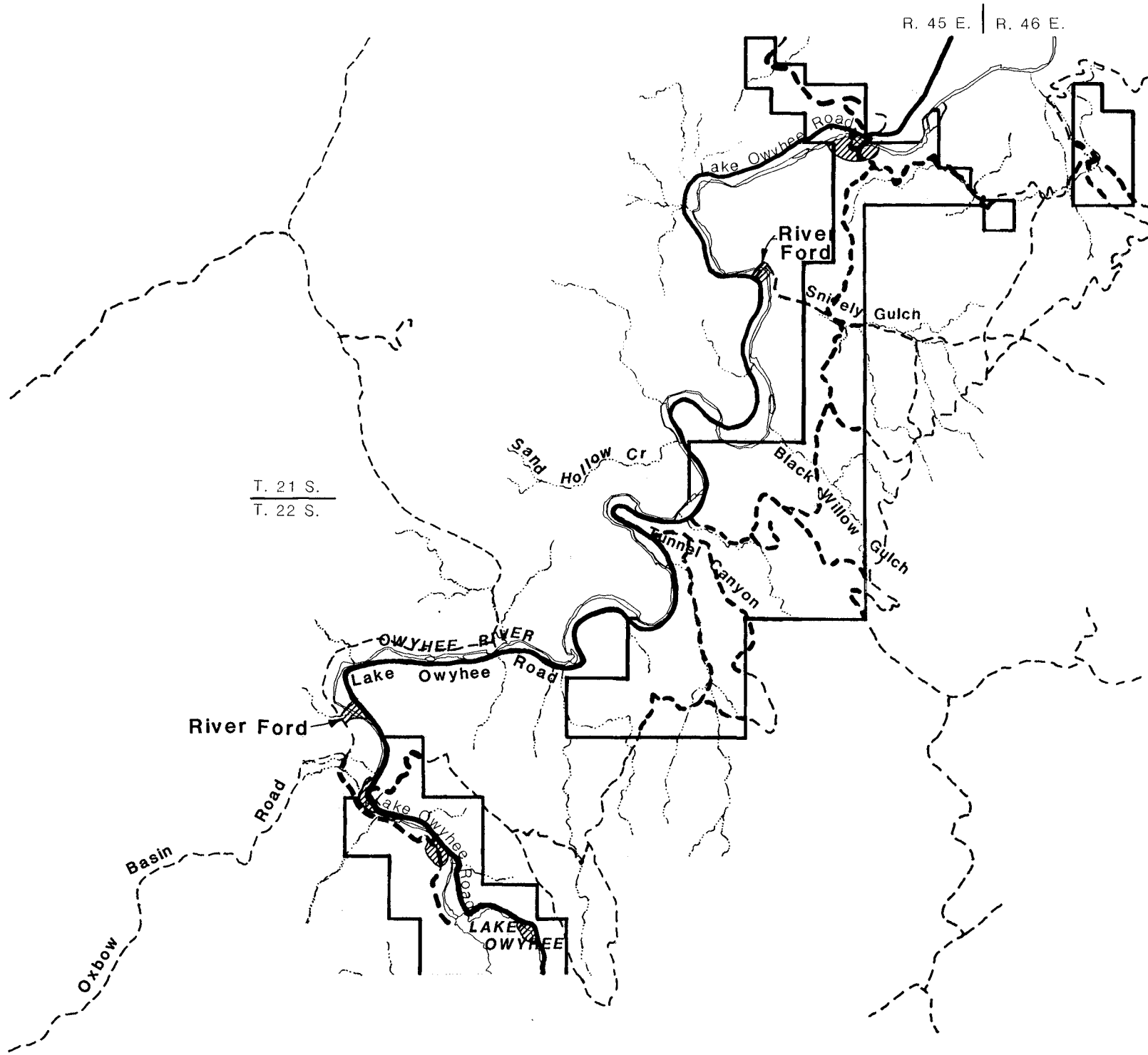
Along the lower Owyhee River, most of the primitive road system at Sites A through I will be "closed to motorized travel" and rehabilitated as feasibility and funding permit. The primitive roads remaining "open to motorized travel" include: (1) those roads and river crossings at Sites A and H needed to maintain public access to road systems located across the Owyhee River, and (2) those needed to operate and maintain a river gauging station at Site I.






*Photo 6-9: River Ford at Site H, Lower Owyhee River.  
The river ford at Site H will remain "open to motorized travel."*

Special consideration will be given to accommodate ODFW's fish stocking program. Reclamation and BLM will coordinate with the ODFW to insure that river access needs for the stocking program are sufficiently met. The fish liberation truck is a large tandem

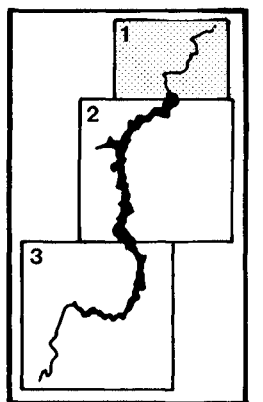
# LOWER OWYHEE RIVER



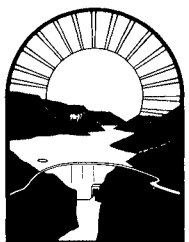
## LEGEND

-  Road open to motorized travel
-  Area open to motorized travel
-  Bureau of Reclamation Resource Management Area

Note: Unless designated "open," all other roads and areas are "closed to motorized travel" on Reclamation administered lands.



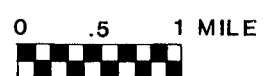
KEY MAP



U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**  
**TRAVEL MANAGEMENT PLAN**

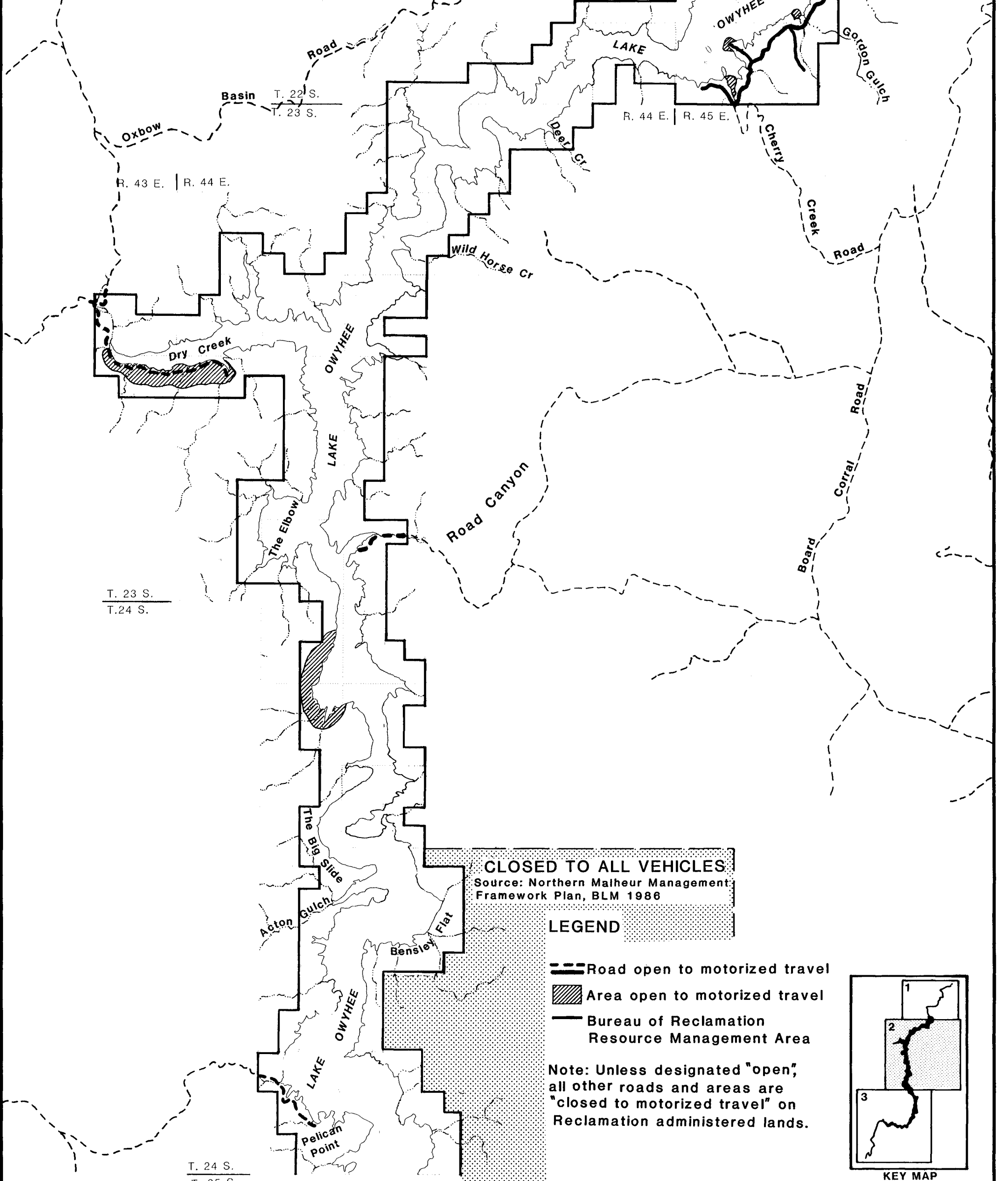
Figure 6-1

1 of 3








# LOWER OWYHEE RESERVOIR

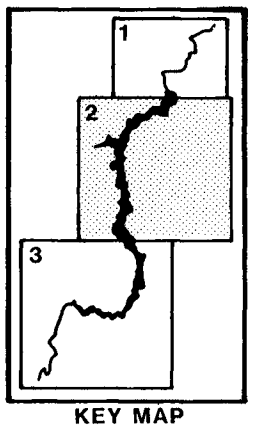


**CLOSED TO ALL VEHICLES**  
 Source: Northern Malheur Management Framework Plan, BLM 1986

### LEGEND

-  Road open to motorized travel
-  Area open to motorized travel
-  Bureau of Reclamation Resource Management Area

Note: Unless designated "open", all other roads and areas are "closed to motorized travel" on Reclamation administered lands.



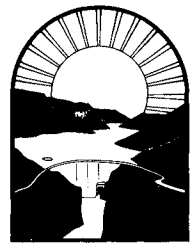
T. 23 S.  
T. 24 S.

Basin T. 22 S.  
T. 23 S.

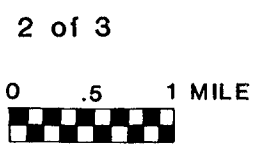
R. 43 E. | R. 44 E.

R. 44 E. | R. 45 E.

T. 24 S.  
T. 25 S.



U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**  
**TRAVEL MANAGEMENT PLAN**  
 Figure 6-1



**UPPER OWYHEE RESERVOIR  
UPPER OWYHEE RIVER**

T. 24 S.  
T. 25 S.




**CLOSED TO ALL VEHICLES**  
Source: Northern Malheur Management  
Framework Plan, BLM 1986

R. 43 E. | R. 44 E.

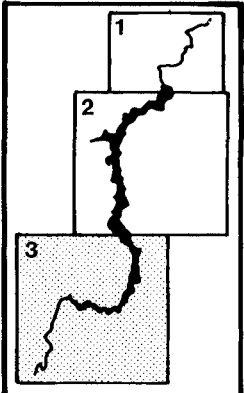
T. 26 S.  
T. 27 S.

Wrangle Basin  
Road

**LEGEND**

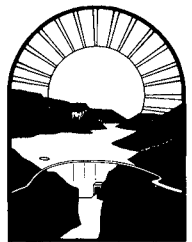
-  Road open to motorized travel
-  Area open to motorized travel
-  Bureau of Reclamation Resource Management Area

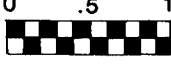
Note: Unless designated "open",  
all other roads and areas are  
"closed to motorized travel" on  
Reclamation administered lands.

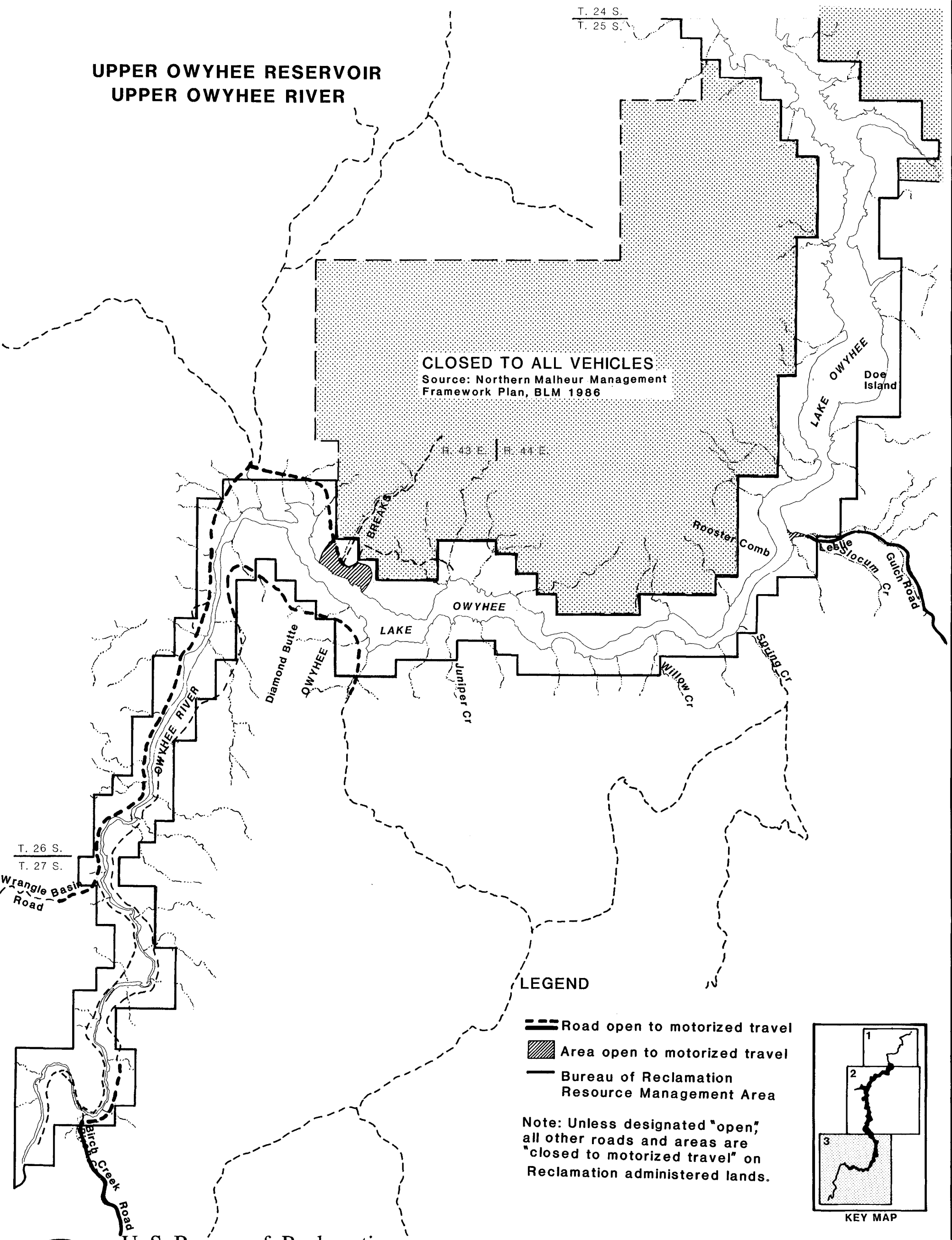
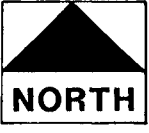


KEY MAP

U. S. Bureau of Reclamation  
**OWYHEE RESERVOIR RMP**  
**TRAVEL MANAGEMENT PLAN**  
Figure 6-1



3 of 3  
0 .5 1 MILE  




axle 2,300 gallon, 17-ton unit. Stocking site prerequisites are a firm surface, close proximity to the river, safe location, and, in some cases, a fairly large turnaround area.

In the upper Owyhee River area, the east road paralleling the river will be closed to motorized travel. Closure of the east side road is essentially a moot action since most of the east road was obliterated by record high river flows in the spring of 1993.

At Birch Creek, the BLM has closed the river ford which connects the Birch Creek Road to the west side road. In addition, the west side road from the river ford north to the Wrangle Basin turnoff will be closed. The primary purpose of these road closures is to protect sensitive environmental resources in the area including wetland and riparian habitat, fish spawning areas, and known archeological resources. Public road safety and consistency with the management guidelines applicable to Congressionally designated "wild" rivers under the Wild and Scenic Rivers Act are additional management concerns. The west side road is also a public safety risk due to landslides and absent maintenance.

Motorized use of the west side road may be allowed for administrative and/or emergency use. Administrative access is periodically needed in conjunction with local ranching operations and activities in the area.

At Owyhee Reservoir, the Fisherman's Cove and Dry Creek Arm subdivision areas will be designated "open to motorized travel" to meet the transportation needs of cabin owners. However, if indiscriminate ORV use continues outside the cabin lease areas, more restrictive management strategies will be evaluated. Public cooperation and the responsible use of motorized vehicles within cabin lease areas will insure the continued privilege to use motorized vehicles in these areas.

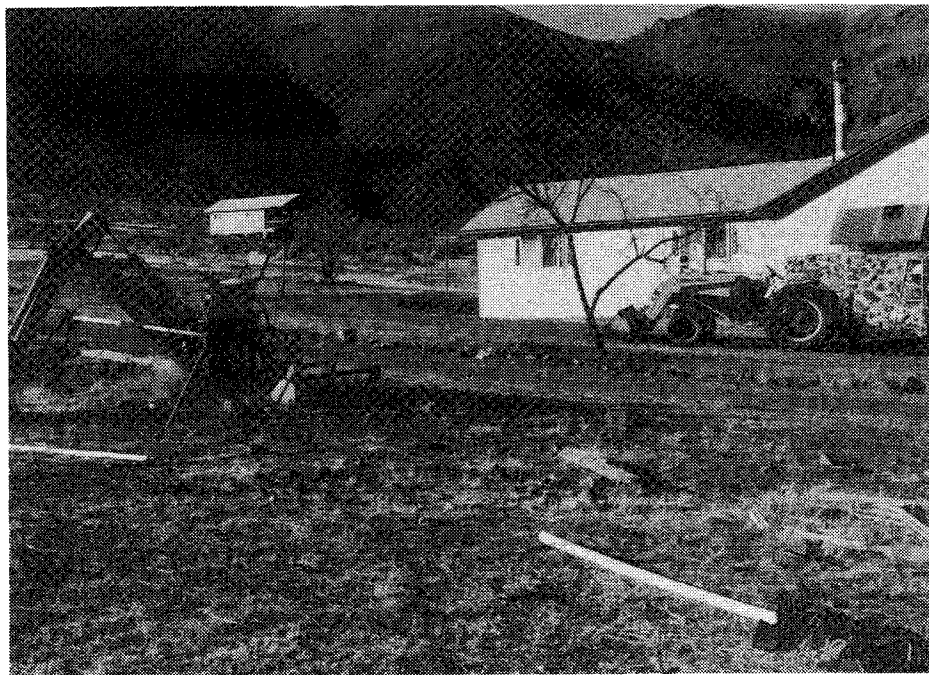


*Photo 6-10: Indiscriminate Motorized Travel Near Fisherman's Cove. The RMP limits motorized travel to designated roads and areas.*

Motor vehicle travel will also continue on those primitive roads leading to the Dry Creek Arm and Red Butte areas. The popularity of these areas for dispersed car camping supports their designation as "undeveloped" recreation sites for car camping and "open to motorized travel." The upper portion of the west side road within the upper Owyhee Reservoir/ upper Owyhee River area will remain "open to motorized travel" to provide access to Wrangle Basin.

Specific actions to implement the access and transportation portion of the RMP follow. Those related to the "Travel Management Plan" will occur in 1994. Other actions will be pursued by Reclamation on an ongoing basis.

- Publish the "Travel Management Plan" in the Federal Register per 43 CFR Part 420.
- Update the "Travel Management Plan" as necessary to reflect changing resource management needs and conditions (i.e. conflicts with special status species). Provide opportunities for public involvement prior to any change in travel management policies and/or actions.
- Include lease terms and stipulations which support and reflect the motor vehicle use policies included in the RMP.
- Establish an annual monitoring program for those primitive roads and areas "open to motorized travel." If significant resource impacts or safety hazards result from continued vehicular use, potential mitigation measures or road closure options will be evaluated. Additional road closures will not be initiated without opportunities for public review and comment.



*Photo 6-11: Heavy Motorized Equipment at Fisherman's Cove. The RMP seeks to reduce indiscriminate motor vehicle use and resource damage within and adjacent to cabin lease areas.*

- Work with BLM to consider seasonal road closures during wet (thawing) periods of the year to minimize erosion and rutting of unsurfaced roads "open to motorized travel". Seasonal road closures are an appropriate option to prevent excessive damage to soil and vegetation.
- Close and rehabilitate existing roads/trails not designated or needed for public or administrative use. Road barriers, fencing and/or signage will be installed as needed. Rehabilitation will occur as feasibility and funding permit.

In many areas impacted by motorized travel, it is highly unlikely that natural revegetation will be successful due to soil compaction and erosion problems. Initial site restoration and planting efforts will focus on those areas where the potential is high for successful rehabilitation and revegetation. Plantings will consist of vegetation native to the area and beneficial to wildlife (i.e. bitterbrush, bluebunch wheatgrass).

- Support Malheur County efforts to improve Lake Owyhee Road. Road improvements are particularly needed from Owyhee Dam to the Lake Owyhee Resort. Reclamation is not in a position to fund a major road improvement project at Owyhee Reservoir, but will assist local agency and government officials in exploring options available to obtain road improvement funds. An agency/citizen task force dedicated to this management need may be a viable and productive forum.
- Work with Malheur County and other appropriate agencies/entities to define appropriate road/access route development standards (i.e. road width, turnouts, safety guard railings, bridge crossings, tunnel repairs).
- Allow motorized travel below the reservoir high waterline within 500 feet of a developed boat launch ramp or area specifically designated for boat launching, angling access, and/or car camping.

## **6.7.2 Water-Based Transportation and Access**

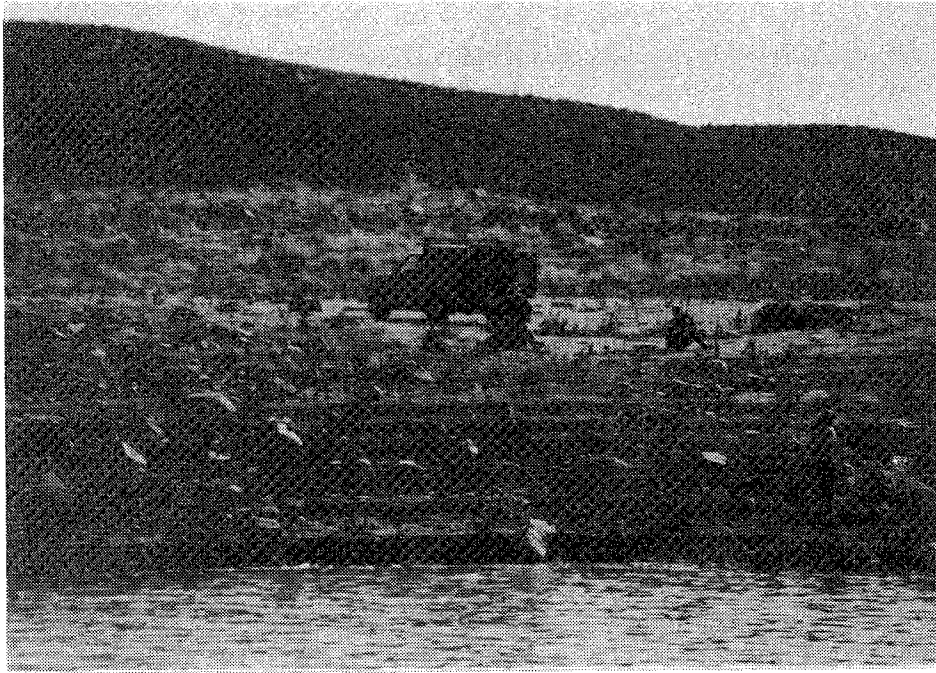
### **Management Goal and Objectives**

#### Goal

- Provide adequate shoreline support facilities to meet boater needs.

#### Objectives

- Provide boat launching facilities to meet needs and demand.
- Provide public courtesy docks at appropriate locations.
- Establish a consistent boat dock policy for cabin lease areas.

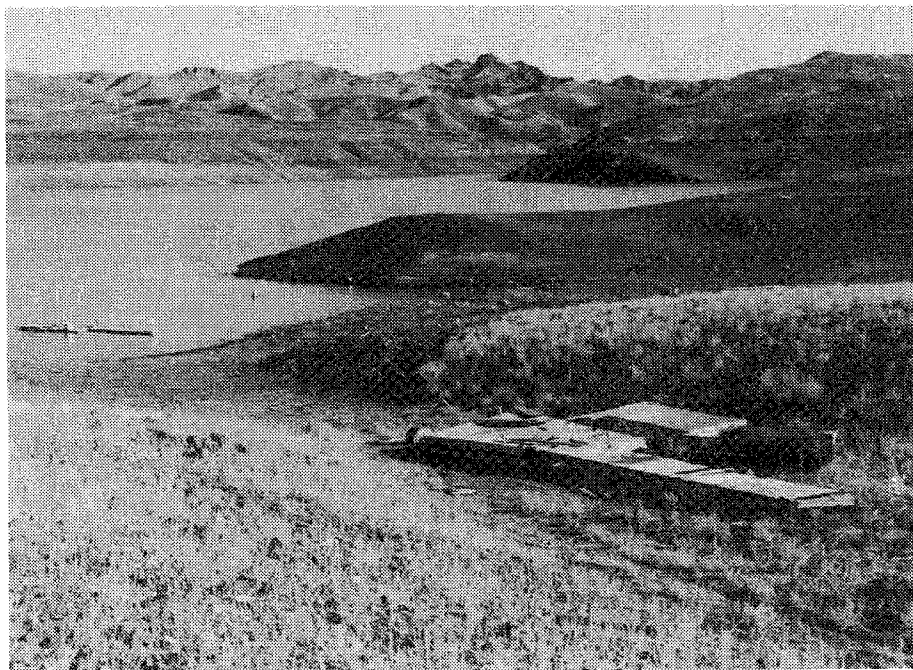


*Photo 6-12: Motorized Travel Below High Waterline.*  
*The RMP allows motorized travel below the reservoir high waterline within 500 feet of a developed boat launch ramp or area specifically designated for boat launching, angling access, and/or car camping.*

### **Management Actions**

- Support boat ramp extensions at the Lake Owyhee Resort and Lake Owyhee State Park. Reclamation challenge grant, Oregon State Marine Board, Oregon State Park and/or Malheur County funds could be used on a cost-sharing basis to meet boat launch ramp extension and other water-based facility needs.
- Implement a boat dock permit system. Cabin lessees will be required to obtain a boat dock permit for existing or new boat docks on the reservoir. The permit program will be initiated in 1995 in conjunction with cabin lease renewal.
- Install courtesy boat docks at the Leslie Gulch boat ramp and Pelican Point. The installation of a courtesy boat dock at Pelican Point would reduce random boat landings which adversely impact fish spawning success along the area's north/northeast shoreline. The location of the courtesy dock will be determined in consultation with the ODFW to minimize to the greatest possible extent impacts to bass spawning areas located below the high waterline.
- Include lease terms and stipulations which support and reflect the boat dock policies included in the RMP.
- Manage the upper Owyhee River area in accord with BLM's final Wild and Scenic River Management Plan for the Main Owyhee (BLM, 1993).





*Photo 6-13: Boat Docks, Dry Creek Arm.  
Cabin lessees will need to obtain a boat dock permit for existing or new boat docks beginning in 1995.*

### **6.7.3 Air-Based Transportation and Access**

#### **Management Goals and Objectives**

##### Goal

- Provide air access for recreational and emergency medical use.

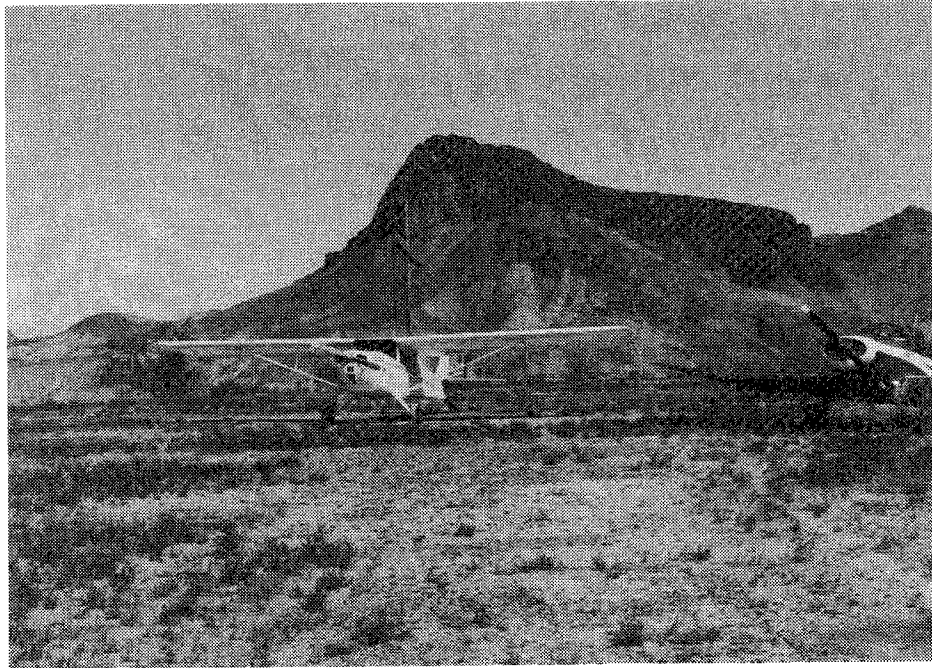
##### Objectives

- Explore opportunities for the continued operation of the Pelican Point airstrip.
- Explore air access needs for emergency medical use.

#### **Management Actions**

- Support the continued use of the Pelican Point Airstrip for small aircraft flight and emergency use. Operation and maintenance of the primitive airstrip will continue to be the responsibility of the Oregon State Board of Aeronautics under their license agreement with Reclamation.

The issue of whether the Deadman Gulch jeep trail should be temporarily reopened within the Dry Creek Buttes Wilderness Study Area is a BLM decision. Road access is one option for delivering the equipment (bulldozer/blader) needed for airstrip maintenance and repair. However, the Deadman Gulch trail is in such a severe state of disrepair that a major reconstruction effort would be required to restore the trail to a condition suitable for motorized travel. This high level of trail repair may make barging or other alternatives economically competitive and environmentally preferred.



*Photo 6-14: Pelican Point Airstrip.*

*The airstrip at Pelican Point will remain open for small aircraft flight and emergency use.*

- Support BLM's management decision to prohibit the landing of non-emergency aircraft within the Owyhee Wild and Scenic River corridor. Reclamation will not issue any land use agreement authorizing use of the primitive airstrip located within the upper Owyhee River area.

## **6.8 RESERVOIR OPERATIONS**

### **Management Goals and Objectives**

#### Goals

- Ensure public safety in the operation and maintenance of the dam, reservoir, and appurtenant structures.
- Within the constraints of existing irrigation and power commitments, manage reservoir operations to enhance reservoir and river recreation, reservoir and downstream fisheries, and flood control benefits.

#### Objectives

- Establish procedures and improvements, as necessary, to ensure public safety.
- Provide appropriate notification to alert the public of hazardous conditions.
- Minimize downstream flooding, property damage, and liabilities.



- Explore opportunities to maintain and enhance water-based recreation on a year-round basis.
- Evaluate and modify reservoir operations to achieve natural resource objectives.

### **Management Actions**

- Conduct hydrologic simulations which explore opportunities for modifying reservoir operations to reduce the potential for downstream flooding, increase power generation and revenue, and provide year-round stream resource maintenance flows below Owyhee Dam. Present the results of these hydrologic and operational studies to irrigation district officials for their consideration.

Preliminary hydrologic studies by Reclamation show opportunities do exist to provide year-round streamflows below Owyhee Dam, enhance power generation, and reduce downstream flooding without impacting irrigation water supplies.

- Conduct a review of hazardous conditions associated with project facilities. As necessary, recommend to irrigation district officials measures to correct or reduce public safety hazards and liability. The installation of low cost protection measures such as fences, barricades and warning signs may be needed.
- Encourage Oregon State Marine Board, Malheur County and irrigation district officials to identify and sign, as appropriate, water hazard areas.
- Include general safety/hazard information in informational brochures. Warn the public of general subsurface boating hazards and underwater structures.

## **6.9 FIRE MANAGEMENT**

The threat of range fires in the Study Area is high during the hot and dry summer months. Reclamation is not directly responsible for fire suppression efforts (Reclamation does not employ fire suppression personnel), but has examined the issue of fire management and control. The following management guidelines will be applied to the Study Area.

### **Management Objective**

- Implement decisions regarding the prevention and suppression of wildfire to protect public values and property.

### **Management Guidelines**

- Support the suppression of fires that threaten life, private property, public safety, improvements or investments with minimal mechanical disturbance.
- Adopt fire closures on Reclamation lands as established by the Bureau of Land Management.
- Limit campfires within the Lower Owyhee Canyon Watchable Wildlife Area (LOCWWA) to designated overnight campgrounds and within provided fire rings and pedestal grills.
- Install and encourage the use of pedestal grills in “developed” recreation areas.

- Require users to provide their own firewood within the LOCWWA; the cutting of any dead or down vegetation for firewood within the LOCWWA will be prohibited.
- Encourage the use of charcoal and camp stoves.

## **6.10 LAW ENFORCEMENT**

Reclamation's law enforcement authority is site-specific and currently does not include Owyhee Reservoir. Law enforcement services on Reclamation lands within the Study Area must be provided by others with such authority. Reclamation can enter into cooperative agreements and contracts with law enforcement authorities to provide law enforcement services on Reclamation administered lands.

### **Management Goals and Objectives**

#### Goal

- Ensure protection of the public, public resource values, and facilities.

#### Objectives

- Explore additional law enforcement mechanisms to ensure public safety and resource needs are met on Reclamation lands.
- Actively seek law enforcement authority from Congress.

### **Management Guidelines**

- Work and cooperate with the Malheur County Sheriff's Department, Marine Patrol, Oregon State Parks, Bureau of Land Management, Oregon State Police, and Oregon Department of Fish and Wildlife officials to enforce Federal, state, and local laws and regulations.
- Provide for visitor safety in all law enforcement decisions and activities.
- Prevent violations through visibility, public information, and signing programs.

### **Management Actions**

- Establish a signing system and information program to advise users of applicable regulations.
- Establish and enforce a 14-day stay limit for camping and boat moorage.
- Limit motorized travel to designated roads and areas only.
- Work with the BLM and Malheur County to develop a County ordinance designed to protect and preserve the natural resource values within the Lower Owyhee Canyon Watchable Wildlife Area (LOCWWA). This would include issues pertaining to casual shooting, unauthorized use and trespass, preserving natural vegetation, litter, trash dumping, motorized travel, firewood cutting and campfire use.

- Pursue negotiations to contract with Malheur County, BLM, or other entities to increase primary law enforcement services at Owyhee Reservoir.
- Establish a “camp host” program at the Government Camp campground.
- Work with local agency representatives and law enforcement officials to explore the mechanisms needed to adopt and enforce the restrictions and regulations included in the RMP.



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## Chapter 7

# Plan Implementation

Since ecosystems and resources are not limited to administrative and ownership boundaries, implementation of the Owyhee Reservoir Resource Management Plan (RMP) will require cooperation and coordination with our resource management and regulatory partners including Oregon Department of Fish and Wildlife, U.S. Bureau of Land Management, Oregon State Parks, Oregon State Marine Board, Malheur County, local government, and Owyhee Project irrigation district personnel. The public also has an important role, not only in observing the use guidelines established for the area, but as a partner in resource monitoring and habitat restoration activities.

### 7.1 COOPERATIVE AGREEMENTS AND PARTNERSHIPS

Cooperative agreements and partnerships will be a vital tool in implementing the RMP. Through such agreements and partnerships, the resource problems, issues, and facility needs of the resource area can be addressed. Successful implementation of the management actions contained in the RMP will also require a significant commitment by Reclamation.

Existing land use agreements with Oregon State Parks, Malheur County, the Bureau of Land Management, a concessionaire, the Oregon State Board of Aeronautics, and the Owyhee Irrigation District will continue for the operation and maintenance of Lake Owyhee State Park, Lake Owyhee Road and county boat ramps, Leslie Gulch and the Lower Owyhee Canyon Watchable Wildlife Area, Lake Owyhee Resort, the Pelican Point Airstrip, and Government Camp, respectively. Reclamation will also work to secure additional cooperative cost sharing agreements and challenge grant partnerships with other Federal, state, and local entities to accomplish many of the facility improvements, resource protection actions, and monitoring programs contained in the RMP.

Where existing authorities provide for use authorizations that establish partnerships with private, semi-private, and public entities to provide needed public services and facilities, fair market value will be received for the privileges granted. A cooperative spirit among all entities and the public is essential if successful implementation of the RMP is to be realized.

### 7.2 MANAGEMENT ACTIONS AND PRIORITIES

The management actions identified in sections 6.1 to 6.10 are prioritized by the time frames determined to be the most reasonable for implementation: Immediate, Short-Term, Long-Term, Ongoing, and Actions With Scheduled Dates. Although the management actions have been prioritized as accurately as possible into these time frames, each management

action will be implemented as early as possible. Therefore, many items will be occurring before the set timeframe.

“Immediate Action” items are those which are required to meet current Public Laws and regulations such as the National Environmental Policy Act, the Endangered Species Act, the Clean Water Act, and the Antiquities Act. Other actions are needed to lay the groundwork for implementation of future management actions.

“Short-Term” items are those required to meet a specific resource protection or public need. Development or construction items will require further site-specific planning, Congressional appropriations, budgeting by Reclamation’s Regional and Central Snake Project Offices, and Reclamation’s ability to find partners for cost sharing. Short-term items for implementation or development are intended for completion within the first five years after plan approval.

“Long-Term” items have been categorized based on the need and/or magnitude of the project. In most cases the cost involved with implementation is substantial and will require ample funding and partners to complete. Long-term items for implementation or development are intended for completion within the last five years after plan approval.

“Ongoing” items are those actions which are currently taking place, and have been identified in the RMP. In some instances the procedures may be modified to make processing and administration easier and more efficient.

“Actions With Scheduled Dates” are those where specific dates for implementation are already known.

Specific project developments identified in the RMP will be reviewed, studied and evaluated under the provisions of the National Environmental Policy Act (NEPA) prior to implementation. Mitigation measures will be incorporated into each final plan and construction schedule as necessary to avoid or minimize the potential adverse environmental effects associated with each site-specific proposal. Opportunities for public review and comment will be an integral part of this process.

### **Immediate Actions**

- Pursue noxious weed control agreements or partnerships.
- Coordinate with the Native Plant Society of Oregon, Oregon Heritage Program, USFWS and ODFW to exchange information on locale and status of rare plants and other special status species.
- Establish a special protection/buffer area (minimum 50' and preferably 100') from edge of perennial streams and springs; avoid facility development in these buffer areas.
- Close roads not planned for future use per Travel Management Plan.
- Limit motorized travel to designated roads and areas per Travel Management Plan.
- Publish the “Travel Management Plan” in the Federal Register per 43 CFR Part 420.

- Prohibit use of houseboats on Owyhee Reservoir until a suitable waste disposal facility is constructed.
- Encourage the ODFW and Department of Environmental Quality to establish a sampling program to monitor mercury contamination in Owyhee River and Reservoir fish tissue; restrict fish consumption and issue advisories as necessary.
- Encourage the ODFW to adopt an on-site “catch-and-release” policy for Owyhee Reservoir bass tournaments.
- Limit off-road vehicle use/motorized travel within cabin lease areas to designated areas.
- Upon lease renewal, include lease stipulations which insure that colors and building materials are compatible with the landscape.
- Initiate revocation of Reclamation withdrawn lands in the Owyhee Wild and Scenic River corridor for administration by the BLM.
- Manage the upper Owyhee River area in accord with BLM’s final Wild and Scenic River Management Plan for the Main Owyhee dated September 1993.
- Adopt BLM’s Lower Owyhee Canyon Watchable Wildlife Area (LOCWWA) designation; enter into an Interagency Agreement/MOU with BLM for cooperative management of the LOCWWA.
- Adopt recreation site designations per RMP.
- Work with BLM and Malheur County to add an information kiosk and no camping signage at the LOCWWA “Gateway” Site.
- Support BLM efforts to improve recreation facilities at Snively Hot Springs and Leslie Gulch.
- Support the continued use of the Pelican Point Airstrip.
- Prohibit the landing of non-emergency aircraft within the Owyhee Wild and Scenic River corridor.
- Encourage Oregon State Marine Board, Malheur County and the irrigation districts to identify and sign, as needed, water hazard areas.
- Establish and enforce a 14-day stay limit for camping and boat moorage.
- Adopt and implement the “Fire Management Guidelines” included in the RMP.
- Work with local agency representatives and law enforcement officials to explore the mechanisms needed to adopt and enforce the restrictions and regulations included in the RMP.
- Recommend to BLM the preparation of exchange-of-use documents specific to grazing management on Reclamation lands.

- Enter into an Interagency Agreement/MOU with BLM for managing cultural properties within the upper Owyhee River area; work with BLM to develop a cultural resource management plan (CRMP) for the Birch Creek Historic Ranch.
- Discourage trash dumping on public lands through educational programs, signage, brochures, increased monitoring and law enforcement.
- Perform on-site examinations to identify and protect sensitive resource values within lease areas prior to lease renewal or issuance of special use permits.
- Allow motorized travel below the reservoir high waterline within 500 feet of a developed boat launch ramp or area specifically designated for boat launching, angling access and/or car camping.
- Encourage the use of charcoal and camp stoves.

### **Short-Term Actions**

- Enter into cooperative agreements for noxious weed control.
- Fence springs and other live water areas; work with BLM to fence Spring Creek.
- Install wire mesh tree protectors selectively in developed and semi-developed recreation areas to reduce beaver damage within the LOCWWA.
- Work with ODFW and BLM to initiate a monitoring program designed to evaluate the effects of public recreation use on bighorn sheep at Bensley Flat.
- Provide signage as needed to minimize conflict between public use and special status species.
- Work with the Owyhee Project irrigation districts and ODFW to evaluate river and reservoir operational patterns to increase opportunities for year-round stream resource maintenance flows, reduce potential flooding, and enhance power generation below Owyhee Dam.
- Establish a signage system and visitor information program to advise users of applicable regulations and use guidelines (“pack-in/pack-out”, leave-no-trace, travel management, etc.).
- Prepare and publish visitor information brochures (see 6.6).
- Provide public with information brochures on proper disposal of “gray” water, “pack-in/pack-out”, and back country sanitation methods.
- Provide protection of cultural sites through educational brochures, signage, and regular monitoring.
- Produce travel management maps/brochures which identify which roads and areas are “open to motorized travel” per Travel Management Plan.
- Implement a boat dock permit system for existing and new boat docks in conjunction with cabin lease renewal.



- Post signs at boat ramps and provide public information materials/brochures to inform the public that the use of houseboats will not be permitted until a suitable waste disposal facility is available at Owyhee Reservoir.
- Post signage where needed to discourage use of roads and areas “closed to motorized travel” per Travel Management Plan.
- Establish and implement a soil monitoring program to identify and evaluate erosion impacts from existing facilities and uses.
- Monitor effects of boat-in use; adjust boat-in management program accordingly.
- Establish an annual monitoring program for those roads and areas “open to motorized travel”; adjust Travel Management Plan designation to reflect changing resource management needs and conditions.
- Contribute to BLM interpretive actions at Leslie Gulch, Birch Creek Ranch, and other trailhead or recreational areas.
- Pursue negotiations to contract with Malheur County, BLM, or other entities for increased law enforcement.
- Work with Malheur County officials and the BLM to develop a county ordinance designed to complement the LOCWWA; include specific measures to prevent and control casual shooting, material resource extraction, firewood cutting, motor vehicle access, fire, noise, litter, and other use issues.
- Provide portable restrooms at the Siphon Site and Dry Creek Arm on seasonal basis.
- Coordinate decision to use floatable restrooms at Owyhee Reservoir with Oregon State Marine Board.
- Add LOCWWA turnout and no camping signage at site D.
- Add day use parking area and no camping signage at site E.
- Clean up trash dump and add no camping signage at site I.
- Support Oregon State Park efforts to improve recreation facilities at Gordon Gulch and McCormack Campground.
- Support efforts to upgrade facilities at Lake Owyhee Resort; enforce lease terms and conditions.
- Promote public use of Wild Horse Basin and Cherry Creek; add signage indicating potential for flash flooding.
- Work with BLM to designate a series of trails in the LOCWWA including a watchable wildlife trail along the existing primitive road at Site H.
- Update Memorandum of Understanding with BLM for administration of Reclamation lands at Leslie Gulch.

- 
- Complete test excavations to determine cultural resource site significance when adverse effects cannot be avoided.
  - Add signage to discourage use due to cultural and natural resource conflicts at Indian Hot Springs and Watson Cemetery.
  - Remove trash dump at Pelican Point.
  - Promote car camping at Dry Creek Arm and Red Butte areas in visitor information brochures.
  - Conduct reviews to identify hazardous conditions associated with project facilities; recommend measures (i.e. fences, signs, barriers) to correct or reduce public safety hazards and liability.
  - Establish cooperative agreements with BLM, livestock permittees/lessees to protect and enhance riparian habitat.
  - Conduct carrying capacity evaluations in cooperation with BLM to determine Animal Unit Month (AUM) allocation and exchange-of-use (grazing capacity) levels on Reclamation lands.
  - Conduct periodic compliance checks and monitor grazing use levels in cooperation with other agencies to prevent unauthorized use and trespass.
  - Fence livestock from areas of high public use or high resource value (i.e. “developed” recreation sites, cabin subdivision areas, Spring Creek).
  - Initiate a grazing monitoring program on Reclamation lands; collect and evaluate data to identify impacts on resources and determine adjustments in grazing use/practices prior to grazing lease renewal.
  - Work with the Owyhee Irrigation District to improve and maintain bridge crossings at Siphon Site and Government Camp.
  - Conduct an inventory of built structures on Reclamation lands to identify unauthorized/trespass structures for removal prior to lease renewal.
  - Work with ODFW, BLM, Nyssa School District and others to encourage and enhance opportunities for the regeneration and/or planting of native riparian species (i.e. cottonwood, willow) within the LOCWWA.
  - Coordinate with Native Plant Society of Oregon, Oregon Heritage Program, BLM, and USFWS to exchange information on local rare plant distributions and status.

### **Long-Term Actions**

- Work with BLM and ODFW to identify and implement habitat improvement projects needed to stabilize and/or improve unsatisfactory conditions or declining wildlife conditions.
- Harden all high use campgrounds and day use sites with gravel or asphalt.

- Provide supplemental seeding and planting in damaged riparian areas, on closed roads, and other degraded areas, as funding permits; place barriers where needed to discourage motorized travel per Travel Management Plan.
- Work with ODFW, BLM, Nyssa School District, and the public to establish and implement a reservoir and river water quality monitoring program; encourage public participation in this program.
- Conduct utilization studies/checks to monitor the success of grazing management strategies and refine carrying capacities.
- Cooperate with BLM on bank stabilization projects on the Wild and Scenic River.
- Cooperate with the BLM to establish trailheads as needed on Reclamation lands; identify trailheads with appropriate signage.
- Nominate eligible cultural resource sites to the National Register of Historic Places.
- Seek funding for paleontological surveys if significant fossil deposits are present.
- Interpret cultural and paleontological resources for public education and enjoyment.
- Implement a monitoring program to review the effects of all permitted and unpermitted land uses on significant cultural sites.
- Add pedestal grills, picnic tables and signage at Government Camp; establish a seasonal camp host program.
- Provide additional recreation improvements at Siphon Site and Site F as needs/demand arise.
- Work with Owyhee Irrigation District to identify a potential site (preferably an historic building) for the development of a visitor information/interpretive center.
- Remove gravel spoils and restore area at Site C.
- Work with Malheur County and Nyssa Road District to identify alternative material source sites to replace those within the LOCWWA.
- Develop a pedestrian trail from Government Camp to the top of Owyhee Dam.
- Assist with addition of restroom and improved parking area at County Boat Ramp.
- Add picnic tables, pedestal grills, shade shelters, and restrooms at Pelican Point; provide potable water if feasible.
- Install courtesy boat docks at Leslie Gulch and Pelican Point.
- Develop interpretive signage for the LOCWWA, Government Camp, Leslie Gulch, Owyhee Dam/Glory Hole, Bensley Flat, Watson Cemetery, and Indian Hot Springs.

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## Ongoing Actions

- Continue current policy to phase out the 7 cabins located on Reclamation land outside the Dry Creek Arm and Fisherman's Cove subdivision areas.
- Continue to provide toilets and trash collection at the LOCWWA "Gateway" Site, Snively Hot Springs, Government Camp, Lake Owyhee State Park/Resort, and Leslie Gulch.
- Enforce lease/license terms and stipulations.
- Work with BLM, Nyssa School District, ODFW and other interested parties to establish a wildlife habitat management/monitoring program in the LOCWWA.
- Manage garbage in undeveloped/primitive areas on pack-in/pack-out basis; promote this waste management strategy with visitor brochures, signage, etc.
- Develop and include lease terms and stipulations which reflect the management actions included in the RMP.
- Conduct site-specific vegetation surveys prior to approval of surface disturbing land use activities and outgrants.
- Initiate informal and formal consultation with USFWS on all site-specific actions which may affect listed or candidate species; work with agencies to modify programs or activities adversely affecting special status species.
- Identify and document the location and number of docks, ramps, boat-in campsites and other fishery related information.
- Review recommendations contained in on-going and future fish resource studies and modify management actions or permitted land uses where needed to protect or enhance fishery resources.
- Monitor recreation use to determine where human sanitation needs may impact water quality and take corrective action were necessary.
- Avoid facility development on slopes over 16% and/or in areas with a soil K factor greater than 0.35.
- Manage paleontological resources consistent with national instructions and guidelines forthcoming from the BLM.
- Review all proposed land use activities on Reclamation and adjacent lands to ensure that land use decisions and activities are appropriate and compatible.
- Review and participate in the development of BLM plans which may affect land use activities in the Study Area.
- Support cooperative partners in their efforts to obtain development grants for facility improvements.

- Upon reissuance of outgrants, provide any changes in the terms and stipulations which support and reflect the motor vehicle, boat dock, and other land use policies included in the RMP.
- Participate in the revision of BLM grazing allotment management plans affecting Reclamation lands.
- Work with BLM, grazing permittees/lessees, and other affected interests to modify the grazing program where unacceptable impacts to special status species are occurring due to livestock grazing.
- Identify and include AUM allocation and season-of-use requirements, as specified in BLM exchange-of-use documents, in all grazing lease agreements issued for Reclamation lands.
- Prior to lease renewal require removal of unauthorized structures or uses on Reclamation lands.
- Work with BLM and Malheur County to monitor and prevent unauthorized entry and extraction of material resources on Federal lands.
- Evaluate and comment on surface-management plans (i.e. Mining Plan of Operations) in the Owyhee River watershed.
- Require retention of withdrawals from mineral entry under the general mining laws if Reclamation withdrawn lands are revoked.
- Continue to require applicant funded right-of-way clearance study for all proposed activities, via administrative fees.
- Continue to require applicant to submit plans, maps, and other information related to the rights-of-way proposal for Reclamation evaluation and approval.
- Update any information, i.e. lease terms, brochures, maps, as necessary.
- Support Malheur County efforts to improve Lake Owyhee Road; assist local agency and government officials in exploring options to obtain road improvement funds.
- Work with Malheur County and other appropriate agencies to define road/access route development standards.
- Seek partners from the public and/or private sector to assist in the development of recreation improvements.
- Conduct inwater activities (i.e. boat ramp modifications) during the inwater work period(s) set by ODFW.
- Modify management actions or permitted land uses where monitoring indicates necessary (to protect water quality or other resource values).
- Work with BLM to consider seasonal road closures during wet (thawing) periods of the year to minimize erosion and rutting of unsurfaced roads “open to motorized travel”.

- 
- Conduct cabin lease compliance reviews on an annual basis.
  - Coordinate with ODFW to insure that river access needs for the fish stocking program are sufficiently met.
  - Work with BLM, USFS, and/or BLM to modify programs and management activities adversely affecting special status or species.
  - Support Malheur County efforts to improve Lake Owyhee Road; assist local agency and government officials in exploring options to obtain road improvement funds.
  - Work with Malheur County and other appropriate agencies to define road/access route development standards.

#### **Actions With Scheduled Dates**

- Cabin lease renewal – 1995
- Boat dock permit program – 1995
- County Boat Ramp Special Use Permit renewal – 2017
- Class III cultural resource inventory – 1994 and 1995
- Draft Cultural Resource Management Plan – 1997
- Concession lease renewal, Lake Owyhee Resort – 2001
- Oregon State Parks license agreement renewal, Lake Owyhee State Park – 2008
- Owyhee Reservoir Resource Management Plan update – 2004

### **7.3 UPDATING AND AMENDING THE RMP**

The RMP will be reviewed and amended as necessary on an ongoing basis to reflect changing conditions, new information, and budgetary realities. However, the plan will be amended only when there are substantial changes proposed in management direction, actions or policies. Ample opportunity for public involvement, review and comment will continue to be Reclamation's policy before any final RMP amendment can be adopted.

As the RMP was prepared to meet the most current and immediate recreation, fish and wildlife, conservation, and operational needs of the resource area, the RMP will need to be fully updated in ten years.

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# Appendix A

## Soils Interpretations Record



MLRA(S): 8, 10  
 REV. GLG,MD, 7-91  
 LITHIC HAPLOXEROLLS, LOAMY-SKELETAL, MIXED, MESIC

THE BAKEOVEN SERIES CONSISTS OF VERY SHALLOW, SOILS FORMED IN LOESS MIXED WITH COLLUVIUM ON RIDGETOPS AND PLATEAUS. TYPICALLY, THE SURFACE LAYER IS VERY COBBLY LOAM ABOUT 8 INCHES THICK. THE SUBSOIL IS VERY GRAVELLY LOAM AND CLAY LOAM ABOUT 5 INCHES THICK OVER BASALT.

LANDSCAPE AND CLIMATE PROPERTIES											
ANNUAL AIR TEMPERATURE		FROST FREE DAYS		ANNUAL PRECIPITATION		ELEVATION (FT)		DRAINAGE CLASS		SLOPE (PCT)	
45-52		100-180		9-16		540-1800		W		0-90	
ESTIMATED SOIL PROPERTIES											
DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO.				CLAY (PCT)			
				>10 IN	3-10 IN	4	10		40	200	
0-2	STV-L, STV-SIL	GM, SM	A-4	15-25	10-20	65-80	60-75	50-70	35-50	15-25	
0-2	CBV-L, CBV-SIL	GM	A-2, A-4	10-20	125-40	50-70	40-65	35-55	30-50	15-25	
0-2	STX-SIL, STX-L	GM, SM	A-4	25-40	120-30	65-80	60-75	50-70	35-50	15-25	
2-7	GRV-CL, CBV-L, GRV-L	GM, GC	A-4, A-6	5-15	15-40	50-65	45-60	40-55	35-50	18-33	
7	UWB										
DEPTH (IN.)	LIQUID LIMIT	PLASTICITY INDEX	MOIST DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC (ME/100G)	CAC03 (PCT)	GYPSUM (PCT)
0-2	25-35	NP-10	1.25-1.35	0.2-0.6	0.06-0.14	6.1-7.8	-	-	10-25	-	-
0-2	25-35	NP-10	1.25-1.35	0.2-0.6	0.06-0.09	6.1-7.8	-	-	10-25	-	-
0-2	25-35	NP-10	1.25-1.35	0.2-0.6	0.06-0.09	6.1-7.8	-	-	10-25	-	-
2-7	30-40	5-15	1.30-1.40	0.2-0.6	0.05-0.14	6.6-7.8	-	-	10-30	-	-
7											
DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS			WIND EROD. GROUP	WIND EROD. INDEX	CORROSIVITY			
			K	Kf	T			STEEL	CONCRETE		
0-2	1-3	LOW	.15	.43	1	8	-	MODERATE	LOW		
0-2	1-3	LOW	.15	.43	1	8	-				
0-2	1-3	LOW	.10		1	8	-				
2-7	.5-2	LOW	.20								
7											
FLOODING			HIGH WATER TABLE			CEMENTED PAN		BEDROCK		SUBSIDENCE	
FREQUENCY	DURATION	MONTHS	DEPTH (FT)	KIND	MONTHS	DEPTH (IN)	HARDNESS (IN)	DEPTH (IN)	HARDNESS (IN)	INIT. (IN)	TOTAL (IN)
NONE			>6.0						4-12	HARD	-
SANITARY FACILITIES						CONSTRUCTION MATERIAL					
SEPTIC TANK ABSORPTION FIELDS	0-15% SEVERE-DEPTH TO ROCK					ROADFILL	0-25% POOR-DEPTH TO ROCK				
	15+% SEVERE-DEPTH TO ROCK, SLOPE						25+% POOR-DEPTH TO ROCK, SLOPE				
SEWAGE LAGOON AREAS	0-7% STV: SEVERE-DEPTH TO ROCK					SAND	IMPROBABLE-EXCESS FINES				
	7+% STV: SEVERE-DEPTH TO ROCK, SLOPE										
SANITARY LANDFILL (TRENCH)	0-7% CBV, STX: SEVERE-DEPTH TO ROCK, LARGE STONES					GRAVEL	IMPROBABLE-EXCESS FINES				
	7+% CBV, STX: SEVERE-DEPTH TO ROCK, SLOPE										
SANITARY LANDFILL (AREA)	0-15% STV: SEVERE-DEPTH TO ROCK					TOPSOIL	0-15% POOR-DEPTH TO ROCK, SMALL STONES				
	15+% SEVERE-DEPTH TO ROCK, SLOPE						15+% POOR-DEPTH TO ROCK, SMALL STONES, SLOPE				
DAILY COVER FOR LANDFILL	0-15% POOR-DEPTH TO ROCK					POND RESERVOIR AREA	WATER MANAGEMENT				
	15+% POOR-DEPTH TO ROCK, SLOPE						0-8% SEVERE-DEPTH TO ROCK 8+% SEVERE-DEPTH TO ROCK, SLOPE				
BUILDING SITE DEVELOPMENT											
SHALLOW EXCAVATIONS	0-15% SEVERE-DEPTH TO ROCK					EMBANKMENTS DIKES AND LEVEES	STV: MODERATE-LARGE STONES				
	15+% SEVERE-DEPTH TO ROCK, SLOPE						CBV, STX: SEVERE-LARGE STONES				
DWELLINGS WITHOUT BASEMENTS	0-15% SEVERE-DEPTH TO ROCK					EXCAVATED PONDS	SEVERE-NO WATER				
	15+% SEVERE-SLOPE, DEPTH TO ROCK						AQUIFER FED				
DWELLINGS WITH BASEMENTS	0-15% SEVERE-DEPTH TO ROCK					DRAINAGE	DEEP TO WATER				
	15+% SEVERE-DEPTH TO ROCK, SLOPE										
SMALL COMMERCIAL BUILDINGS	0-8% SEVERE-DEPTH TO ROCK					IRRIGATION	0-3% LARGE STONES, DROUGHTY				
	8+% SEVERE-SLOPE, DEPTH TO ROCK						3% SLOPE, LARGE STONES, DROUGHTY				
LOCAL ROADS AND STREETS	0-15% SEVERE-DEPTH TO ROCK					TERRACES AND DIVERSIONS	0-8% LARGE STONES, DEPTH TO ROCK				
	15+% SEVERE-DEPTH TO ROCK, SLOPE						8+% SLOPE, LARGE STONES, DEPTH TO ROCK				
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	STV, STX: SEVERE-DEPTH TO ROCK					GRASSED WATERWAYS	0-8% LARGE STONES, DROUGHTY				
	CBV: SEVERE-SMALL STONES, LARGE STONES, DEPTH TO ROCK						8+% LARGE STONES, SLOPE, DROUGHTY				

RECREATIONAL DEVELOPMENT

CAMP AREAS	0-15%STV:SEVERE-DEPTH TO ROCK	PLAYGROUNDS	0-6%:SEVERE-LARGE STONES, SMALL STONES
	15+%STV:SEVERE-SLOPE,DEPTH TO ROCK		6-11:SEVERE-LARGE STONES, SLOPE, SMALL STONES
	0-15%CBV,STX:SEVERE-LARGE STONES, DEPTH TO ROCK		
PICNIC AREAS	15+%CBV,STX:SEVERE-SLOPE,LARGE STONES	PATHS AND TRAILS	0-15%STV:MODERATE-DUSTY
	0-15%STV:SEVERE-DEPTH TO ROCK		15-25%STV:MODERATE-SLOPE,DUSTY
	15+%STV:SEVERE-SLOPE,DEPTH TO ROCK		0-15%CBV,STX:MODERATE-LARGE STONES,DUSTY
	0-15%CBV,STX:SEVERE-LARGE STONES, DEPTH TO ROCK		15-25%CBV,STX:MODERATE-LARGE STONES,SLOPE
	15+%CBV,STX:SEVERE-SLOPE,LARGE STONES		25+%:SEVERE-SLOPE

REGIONAL INTERPRETATIONS

CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

CLASS- DETERMINING PHASE	CAPA- BILITY	CROPS AND PASTURE															
		NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR
ALL	75																

WOODLAND SUITABILITY

CLASS- DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS				POTENTIAL PRODUCTIVITY				TREES TO PLANT	
		EROS HAZARD	EQUIP LIMIT	SEEDL MORT'Y	WINDTH HAZARD	COMMON TREES	SITE INDX	PROD CLAS			
										NONE	

WINDBREAKS

CLASS- DETERMIN'G PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT

WILDLIFE HABITAT SUITABILITY

CLASS- DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS										POTENTIAL AS HABITAT FOR:			
	GRAIN SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	OPENLD WILDLF	WOODLD WILDLF	WETLAND WILDLF	RANGELD WILDLF		
ALL	V. POOR	IV. POOR	FAIR	-	-	FAIR	V. POOR	IV. POOR	IV. POOR	-	V. POOR	FAIR		

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION) (A)

COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE	
		0-90% DRY	DRY
SANDBERG BLUEGRASS	POSE	50	35
STIFF SAGEBRUSH	ARRI2	10	35
OTHER PERENNIAL GRASSES	PPGG	5	-
BUCKWHEAT	ERIOG	2	10
BLUEBUNCH WHEATGRASS	AGSP	5	5
PHLOX	PHLOX	2	5
OTHER PERENNIAL FORBS	PPFF	-	10
POTENTIAL PRODUCTION (LBS./AC. DRY WT):			
FAVORABLE YEARS		350	200
NORMAL YEARS		300	125
UNFAVORABLE YEARS		200	75

FOOTNOTES

A 0-90% VERY SHALLOW 9-15PZ; DRY 010XY0021.

MLRA(5): 10  
 REV. WEL, 6-90  
 LITHIC ARGIXEROLLS, CLAYEY-SKELETAL, MONTMORILLONITIC, MESC

THE RUCKLES SERIES CONSISTS OF SHALLOW, WELL DRAINED SOILS FORMED IN COLLUVIUM MIXED WITH LOESS AND VOLCANIC ASH. THEY OCCUR ON GENTLY SLOPING TO STEEP HILLS AT ELEVATIONS OF 2000 TO 3800 FEET. THE SURFACE LAYER IS GRAYISH-BROWN VERY STONY CLAY LOAM ABOUT 5 INCHES THICK. THE SUBSOIL IS DARK BROWN VERY STONY CLAY ABOUT 6 IN. THICK. THE SUBSTRATUM IS VERY STONY IN. THICK. THE SUBSTRATUM IS VERY STONY SANDY CLAY ABOUT 5 IN. THICK OVER BASALT. THE AVERAGE ANNUAL PRECIP. IS 9 TO 14 IN. MEAN ANNUAL AIR TEMP. IS 45 TO 50 F. FROST-FREE PERIOD IS 100 TO 140 DAYS. SLOPES ARE 1 TO 80 PERCENT.

LANDSCAPE AND CLIMATE PROPERTIES					
ANNUAL AIR TEMPERATURE	FROST FREE DAYS	ANNUAL PRECIPITATION	ELEVATION (FT)	DRAINAGE CLASS	SLOPE (PCT)
	100-140		2000-3800	W	1-80

ESTIMATED SOIL PROPERTIES										
DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT. >10 IN (PCT)	FRACT. > 3 IN THAN 3" PASSING SIEVE NO. (PCT)	PERCENT OF MATERIAL LESS				CLAY (PCT)
						4	10	40	200	
0-5	STV-L	GM, ML, SM	A-6, A-4		25-35	65-95	60-90	50-85	35-70	18-27
0-5	STV-CL	IGC, CL, SC	A-6, A-7		25-55	60-80	50-75	40-75	35-60	27-35
0-5	STX-L	IGC, SC	A-2, A-6		45-60	55-75	50-75	45-70	30-50	18-27
5-16	STV-C, STX-C, STX-SC	CH, GC, SC	A-7, A-2		40-65	25-70	25-70	25-60	20-55	40-60
16	UWB									

DEPTH (IN.)	LIQUID LIMIT	PLASTICITY INDEX	MOIST DENSITY (G/CM3)	BULK DENSITY (IN/HR)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC (ME/100G)	CaCO3 (PCT)	GYPSUM (PCT)
0-5	35-45	15-25	1.35-1.40	0.2-0.6	0.10-0.14	6.6-7.8	-	-	-	-	-	-
0-5	30-40	10-20	1.30-1.45	0.6-2.0	0.09-0.11	6.6-8.4	-	-	-	-	-	-
5-16	60-70	35-45	1.35-1.40	0.06-0.2	0.07-0.11	6.6-7.8	-	-	-	-	-	-
16												

DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS	WIND EROD. GROUP	WIND EROD. INDEX	CORROSIVITY	
						STEEL	CONCRETE
0-5	1-2	MODERATE	.17 .49	1	8	MODERATE	LOW
0-5	1-2	MODERATE	.17 .43	1	8	-	-
0-5	1-3	MODERATE	.15 .43	1	8	-	-
5-16		HIGH	.05 .32				
16							

FREQUENCY	DURATION (MONTHS)	FLOODING		HIGH WATER TABLE		CEMENTED PAV		BEDROCK		SUBSIDENCE		HYDRO POTENTIAL	
		DEPTH (FT)	KIND	DEPTH (FT)	KIND	DEPTH (IN)	HARDNESS	DEPTH (IN)	HARDNESS	INIT. (IN)	TOTAL (IN)	GRP	FROST ACTION
NONE		>6.0		-		10-20	HARD	-				D	MODERATE

SEPTIC TANK ABSORPTION FIELDS	SANTARY FACILITIES		CONSTRUCTION MATERIAL	
	1-15%: SEVERE-DEPTH TO ROCK, LARGE STONES	15+%: SEVERE-DEPTH TO ROCK, SLOPE, LARGE STONES	ROADFILL	POOR-DEPTH TO ROCK, SHRINK-SWELL, LARGE STONES
SEWAGE LAGOON AREAS	1-7%: SEVERE-DEPTH TO ROCK, LARGE STONES	7+%: SEVERE-DEPTH TO ROCK, SLOPE, LARGE STONES	SAND	IMPROBABLE-EXCESS FINES, LARGE STONES
SANITARY LANDFILL (TRENCH)	1-15%: SEVERE-DEPTH TO ROCK, TOO CLAYEY	15+%: SEVERE-DEPTH TO ROCK, SLOPE, TOO CLAYEY	GRAVEL	IMPROBABLE-EXCESS FINES, LARGE STONES
SANITARY LANDFILL (AREA)	1-15%: SEVERE-DEPTH TO ROCK	15+%: SEVERE-DEPTH TO ROCK, SLOPE	TOPSOIL	POOR-DEPTH TO ROCK, TOO CLAYEY, SMALL STONES
DAILY COVER FOR LANDFILL	POOR-DEPTH TO ROCK, TOO CLAYEY, HARD TO PACK			

SHALLOW EXCAVATIONS	BUILDING SITE DEVELOPMENT		WATER MANAGEMENT	
	1-15%: SEVERE-DEPTH TO ROCK, LARGE STONES	15+%: SEVERE-DEPTH TO ROCK, LARGE STONES, SLOPE	POND RESERVOIR AREA	1-8%: SEVERE-DEPTH TO ROCK
DWELLINGS WITHOUT BASEMENTS	1-15%: SEVERE-SHRINK-SWELL, DEPTH TO ROCK	15+%: SEVERE-SHRINK-SWELL, SLOPE, DEPTH TO ROCK	EXCAVATED PONDS	8+%: SEVERE-DEPTH TO ROCK, SLOPE
DWELLINGS WITH BASEMENTS	1-15%: SEVERE-DEPTH TO ROCK, SHRINK-SWELL	15+%: SEVERE-DEPTH TO ROCK, SLOPE, SHRINK-SWELL	AQUIFER FED	
SMALL COMMERCIAL BUILDINGS	1-8%: SEVERE-SHRINK-SWELL, DEPTH TO ROCK	8+%: SEVERE-SHRINK-SWELL, SLOPE, DEPTH TO ROCK	DRAINAGE	DEEP TO WATER

LOCAL ROADS AND STREETS	BUILDING SITE DEVELOPMENT		WATER MANAGEMENT	
	1-15%: SEVERE-DEPTH TO ROCK, SHRINK-SWELL	15+%: SEVERE-DEPTH TO ROCK, SHRINK-SWELL, SLOPE	TERRACES AND DIVERSIONS	1-3%: LARGE STONES, DROUGHTY
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	1-15%: SEVERE-LARGE STONES, DEPTH TO ROCK	15+%: SEVERE-LARGE STONES, SLOPE, DEPTH TO ROCK	GRASSED WATERWAYS	3+%: SLOPE, LARGE STONES, DROUGHTY
	1-8%: SEVERE-SHRINK-SWELL, DEPTH TO ROCK	8+%: SLOPE, LARGE STONES, DEPTH TO ROCK		

RECREATIONAL DEVELOPMENT

CAMP AREAS	1-15%STV: SEVERE-DEPTH TO ROCK	PLAYGROUNDS	1-6%: SEVERE-LARGE STONES, SMALL STONES
	15+%STV: SEVERE-SLOPE, DEPTH TO ROCK		6+%: SEVERE-LARGE STONES, SLOPE, SMALL STONES
	15+%STX: SEVERE-LARGE STONES, DEPTH TO ROCK		
PICNIC AREAS	1-15%STV: SEVERE-DEPTH TO ROCK	PATHS AND TRAILS	1-25%: SEVERE-LARGE STONES
	15+%STV: SEVERE-SLOPE, DEPTH TO ROCK		25+%: SEVERE-LARGE STONES, SLOPE
	15+%STX: SEVERE-LARGE STONES, DEPTH TO ROCK		

REGIONAL INTERPRETATIONS

CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

CLASS- DETERMINING PHASE	CAPA- BILITY	NIRR		IRR.		NIRR		IRR.		NIRR		IRR.		NIRR		IRR.	
		NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.		
ALL	75																

WOODLAND SUITABILITY

CLASS- DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS				POTENTIAL PRODUCTIVITY				TREES TO PLANT	
		EROS'N	EQUIP.	SEEDL.	WINDTH	PLANT	COMMON TREES	SITE/PROD	INDX/CLAS		
		HAZARD	LIMIT	MORT'Y	HAZARD	COMPET	NONE				

WINDBREAKS

CLASS- DETERMIN'G PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT

WILDLIFE HABITAT SUITABILITY

CLASS- DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS						POTENTIAL AS HABITAT FOR:					
	GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	OPENLD WILDLF	WOODLD WILDLF	WETLAND WILDLF	RANGELD WILDLF
ALL	V. POOR	POOR	FAIR	V. POOR	V. POOR	FAIR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	POOR

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION) (A)

COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE		
		0-12%	12+%	HIGH ELEV
BLUEBUNCH WHEATGRASS	AGSF		70	20
IDAHO FESCUE	FEID	60		-
SANDBERG BLUEGRASS	POSE	5	5	15
STIFF SAGEBRUSH	ARRIZ		-	5
WYOMING BIG SAGEBRUSH	ARTRW*	20	1	5
LOMATIUM	LOMAT	-	5	5
				35
				5
				5
				-

POTENTIAL PRODUCTION (LBS./AC. DRY WT):			
FAVORABLE YEARS	1200	800	400
NORMAL YEARS	600	500	300
UNFAVORABLE YEARS	300	300	250

FOOTNOTES

A 1-12%; MTN SHALLOW 9-12PZ, 010XY0360:12+%; SHALLOW 9-12PZ, 010XY0500:



MLRA(S): 23  
 REV. AJG, 6-90  
 LITHIC XEROLIC CAMBORTHIDS, LOAMY, MIXED, MESIC

THE CALLZACORTA SERIES CONSISTS OF SHALLOW WELL DRAINED SOILS THAT FORMED IN COLLUVIUM AND ALLUVIUM ON LAVA PLATEAUS AT ELEVATIONS OF 2500 TO 4200 FT. TYPICAL THE SURFACE LAYER IS LIGHT BROWNISH GRAY STONY LOAM ABOUT 4 IN. THICK. THE SUBSOIL IS LIGHT BROWN AND BROWN STONY CLAY LOAM ABOUT 8 IN. THICK OVER BASALT BEDROCK. THE MEAN ANNUAL PRECIPITATION IS 8 TO 10 INCHES, THE MEAN ANNUAL AIR TEMPERATURE IS 48 TO 52 DEGREES F. THE FROST-FREE PERIOD IS 90 TO 140 DAYS. SLOPES RANGE FROM 3 TO 20 PERCENT.

LANDSCAPE AND CLIMATE PROPERTIES													
ANNUAL AIR TEMPERATURE	FROST FREE DAYS	ANNUAL PRECIPITATION	ELEVATION (FT)	DRAINAGE CLASS	SLOPE (PCT)								
48-52	90-140	8-10	2500-4200	W	3-20								
ESTIMATED SOIL PROPERTIES													
DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO.					CLAY (PCT)				
				>10 IN (PCT)	> 3 IN (PCT)	4	10	40		200			
0-4	ST-L	ML, GM	A-4	15-45	70-95	65-90	55-85	40-70	18-27				
4-12	ST-CL, ST-L	ML	A-4, A-6	15-40	70-95	65-90	60-90	50-70	18-35				
12	UWB												
DEPTH (IN.)	LIQUID LIMIT	PLASTICITY INDEX	MOIST BULK DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC (ME/100G)	CACO3 (PCT)	GYPNUM (PCT)		
	0-4	25-35	NP-10	1.10-1.30	0.6-2.0	0.11-0.18	7.4-8.4	-					
4-12	30-40	5-15	1.20-1.30	0.6-2.0	0.13-0.20	7.4-8.4	<2						
12													
DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS		WIND EROD. GROUP	WIND EROD. INDEX	CORROSIVITY						
			K	K <sub>f</sub>			STEEL	CONCRETE					
0-4	2-3	LOW	.15	.43	1	6	48	HIGH	LOW				
4-12		MODERATE	.15	.43									
12													
FLOODING			HIGH WATER TABLE			CEMENTED PAN		BEDROCK	SUBSIDENCE	HYD POTENTIAL			
FREQUENCY	DURATION	MONTHS	DEPTH (FT)	KIND	MONTHS	DEPTH (IN)	HARDNESS	DEPTH (IN)	HARDNESS	INITIAL (IN)	TOTAL (IN)	GRP	FROST ACTION
NONE			>6.0			-		11-19	HARD	-	-	D	LOW
SANITARY FACILITIES						CONSTRUCTION MATERIAL							
SEPTIC TANK ABSORPTION FIELDS	3-15%:SEVERE-DEPTH TO ROCK 15+%:SEVERE-DEPTH TO ROCK,SLOPE					ROADFILL	POOR-DEPTH TO ROCK						
SEWAGE LAGOON AREAS	3-7%:SEVERE-DEPTH TO ROCK,LARGE STONES 7+%:SEVERE-DEPTH TO ROCK,SLOPE,LARGE STONES					SAND	IMPROBABLE-EXCESS FINES						
SANITARY LANDFILL (TRENCH)	3-15%:SEVERE-DEPTH TO ROCK,LARGE STONES 15+%:SEVERE-DEPTH TO ROCK,SLOPE,LARGE STONES					GRAVEL	IMPROBABLE-EXCESS FINES						
SANITARY LANDFILL (AREA)	3-8%:SLIGHT 8-15%:MODERATE-SLOPE 15+%:SEVERE-SLOPE					TOPSOIL	3-15%:POOR-DEPTH TO ROCK,LARGE STONES 15+%:POOR-DEPTH TO ROCK,LARGE STONES,SLOPE						
DAILY COVER FOR LANDFILL	3-15%:POOR-DEPTH TO ROCK,LARGE STONES 15+%:POOR-DEPTH TO ROCK,LARGE STONES,SLOPE					POND RESERVOIR AREA	3-8%:SEVERE-DEPTH TO ROCK 8+%:SEVERE-DEPTH TO ROCK,SLOPE						
BUILDING SITE DEVELOPMENT													
SHALLOW EXCAVATIONS	3-15%:SEVERE-DEPTH TO ROCK 15+%:SEVERE-DEPTH TO ROCK,SLOPE					EMBANKMENTS DIKS AND LEVEES	SEVERE-PIPING,LARGE STONES						
DWELLINGS WITHOUT BASEMENTS	3-15%:SEVERE-DEPTH TO ROCK 15+%:SEVERE-SLOPE,DEPTH TO ROCK					EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER						
DWELLINGS WITH BASEMENTS	3-15%:SEVERE-DEPTH TO ROCK 15+%:SEVERE-DEPTH TO ROCK,SLOPE					DRAINAGE	DEEP TO WATER						
SMALL COMMERCIAL BUILDINGS	3-8%:SEVERE-DEPTH TO ROCK 8+%:SEVERE-SLOPE,DEPTH TO ROCK					IRRIGATION	SLOPE,LARGE STONES,DEPTH TO ROCK						
LOCAL ROADS AND STREETS	3-15%:SEVERE-DEPTH TO ROCK 15+%:SEVERE-DEPTH TO ROCK,SLOPE					TERRACES AND DIVERSIONS	3-8%:LARGE STONES,DEPTH TO ROCK 8+%:SLOPE,LARGE STONES,DEPTH TO ROCK						
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	3-15%:SEVERE-LARGE STONES,DEPTH TO ROCK 15+%:SEVERE-LARGE STONES,SLOPE,DEPTH TO ROCK					GRASSED WATERWAYS	3-8%:TOO ARID,LARGE STONES 8+%:TOO ARID,LARGE STONES,SLOPE						

RECREATIONAL DEVELOPMENT

CAMP AREAS	3-15%: SEVERE-DEPTH TO ROCK	PLAYGROUNDS	3-6%: SEVERE-SMALL STONES, DEPTH TO ROCK
	15+%: SEVERE-SLOPE, DEPTH TO ROCK		6+%: SEVERE-SLOPE, SMALL STONES, DEPTH TO ROCK
PICNIC AREAS	3-15%: SEVERE-DEPTH TO ROCK	PATHS AND TRAILS	3-15%: MODERATE-LARGE STONES, DUSTY
	15+%: SEVERE-SLOPE, DEPTH TO ROCK		15-20%: MODERATE-LARGE STONES, SLOPE, DUSTY

REGIONAL INTERPRETATIONS

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CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

CLASS- DETERMINING PHASE	CAPA- BILITY	CROPS AND PASTURE											
		NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.
ALL	75												

WOODLAND SUITABILITY

CLASS- DETERMINING PHASE	MANAGEMENT PROBLEMS				POTENTIAL PRODUCTIVITY				TREES TO PLANT	
	ORD SYM	EROS'N HAZARD	EQUIP. LIMIT	SEEDL. MORT'Y	WINDTH	PLANT HAZARD	COMPET	COMMON TREES		SITE PROD INDX
								NONE		

WINDBREAKS

CLASS- DETERMIN'G PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
	NONE							

WILDLIFE HABITAT SUITABILITY

CLASS- DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS						POTENTIAL AS HABITAT FOR:					
	GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	OPENLD WILDLF	WOODLD WILDLF	WETLAND WILDLF	RANGELD WILDLF
ALL	V. POOR	V. POOR	FAIR	POOR	POOR	FAIR	V. POOR	V. POOR	POOR	-	V. POOR	FAIR

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

COMMON PLANT NAME	PLANT SYMBOL (NLSFN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE			
SANDBERG BLUEGRASS	POSE				
CHEATGRASS	BRE				
FOURWING SALT BUSH	ATCA2				
LOW SAGEBRUSH	ARAR8				
HOPSAGE	GRAYI				
POTENTIAL PRODUCTION (LBS./AC. DRY WT):					
FAVORABLE YEARS					
NORMAL YEARS					
UNFAVORABLE YEARS					

FOOTNOTES

MLRA(S): 23  
 REV. GDM, 6-90  
 ARIDIC CALCIC ARGIXEROLLS, FINE-LOAMY, MIXED, MESC

THE BROGAN SERIES CONSISTS OF DEEP, WELL DRAINED SOILS FORMED IN LACUSTRINE SEDIMENTS ON NORTHLY FACING TERRACE FACES. THE SURFACE LAYER IS GRAYISH BROWN SILT LOAM ABOUT 10 INCHES THICK. THE UPPER PART OF THE SUBSOIL IS PALE BROWN CLAY LOAM ABOUT 10 INCHES THICK, THE LOWER PART IS YELLOWISH BROWN CALCAREOUS LOAM ABOUT 17 INCHES THICK. THE SUBSTRATUM IS WHITE VERY FINE SANDY LOAM TO 60 INCHES. ELEVATION IS 2400 TO 4000 FEET MEAN ANNUAL PRECIP. IS 9 TO 12 INCHES. MEAN ANNUAL AIR TEMP. IS 48 TO 50 DEGREES F. FROST FREE PERIOD IS 110 TO 140 DAYS. SLOPES ARE 10 TO 65 PERCENT.

LANDSCAPE AND CLIMATE PROPERTIES					
ANNUAL AIR TEMPERATURE	FROST FREE DAYS	ANNUAL PRECIPITATION	ELEVATION (FT)	DRAINAGE CLASS	SLOPE (PCT)
	110-140		2400-4000	W	10-65

ESTIMATED SOIL PROPERTIES										
DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT. >10 IN	FRACT. 3-10 IN	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO.				CLAY (PCT)
				(PCT)	(PCT)	4	10	40	200	
0-10	SIL	ML, CL-ML	A-4	0	0	100	100	90-100	75-90	15-25
10-20	CL, SICL	CL	A-6	0	0	100	100	95-100	75-90	27-35
20-37	SIL, L	ML, CL-ML	A-4	0	0	100	100	85-100	65-85	15-25
37-60	SR-VFSL-L	ML, CL-ML	A-4	0	0	100	100	85-95	50-70	10-20

DEPTH (IN.)	LIQUID LIMIT	PLASTICITY INDEX	MOIST DENSITY (G/CM3)	BULK DENSITY	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC (ME/100G)	CACO3 (PCT)	GYPSUM (PCT)
0-10	25-35	5-10	1.10-1.25	0.6-2.0	0.16-0.19	6.6-7.8	-	-				
10-20	30-40	10-20	1.10-1.25	0.6-2.0	0.17-0.20	7.4-8.4	-	-				
20-37	25-35	5-10	1.10-1.25	0.6-2.0	0.15-0.18	7.4-8.4	<2	<2				
37-60	20-30	NP-10	1.20-1.30	0.6-2.0	0.14-0.17	7.4-8.4	<2	<2				

DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS		WIND EROD. GROUP	WIND EROD. INDEX	CORROSIVITY	
			K	K <sub>t</sub>			STEEL	CONCRETE
0-10	1-3	LOW	.43	.43	5	6	48	HIGH LOW
10-20		MODERATE	.37	.37				
20-37		LOW	.43	.43				
37-60		LOW	.43	.43				

FLOODING		HIGH WATER TABLE		CEMENTED PAN	BEDROCK	SUBSIDENCE	HYDRO-POTENTIAL
FREQUENCY	DURATION	DEPTH (FT)	KIND	DEPTH (IN)	HARDNESS (IN)	DEPTH (IN)	TOTAL GRP FROST ACTION
NONE		>6.0		-	>60	-	B MODERATE

SANITARY FACILITIES		CONSTRUCTION MATERIAL	
SEPTIC TANK ABSORPTION FIELDS	10-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE	ROADFILL	10-15%: GOOD 15-25%: FAIR-SLOPE 25+%: POOR-SLOPE
SEWAGE LAGOON AREAS	SEVERE-SLOPE	SAND	IMPROBABLE-EXCESS FINES
SANITARY LANDFILL (TRENCH)	10-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE	GRAVEL	IMPROBABLE-EXCESS FINES
SANITARY LANDFILL (AREA)	10-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE	TOPSOIL	10-15%: FAIR-SLOPE 15+%: POOR-SLOPE
DAILY COVER FOR LANDFILL	10-15%: FAIR-SLOPE 15+%: POOR-SLOPE	WATER MANAGEMENT	SEVERE-SLOPE

BUILDING SITE DEVELOPMENT		CONSTRUCTION MATERIAL	
SHALLOW EXCAVATIONS	10-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE	EMBANKMENTS DIKES AND LEVEES	SEVERE-FIPING
DWELLINGS WITHOUT BASEMENTS	10-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE	EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER
DWELLINGS WITH BASEMENTS	10-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE	DRAINAGE	DEEP TO WATER
SMALL COMMERCIAL BUILDINGS	SEVERE-SLOPE	IRRIGATION	SLOPE, ERODES EASILY
LOCAL ROADS AND STREETS	10-15%: MODERATE-SLOPE, FROST ACTION 15+%: SEVERE-SLOPE	TERRACES AND DIVERSIONS	SLOPE, ERODES EASILY
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	10-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE	GRASSED WATERWAYS	TOO ARID, SLOPE, ERODES EASILY

RECREATIONAL DEVELOPMENT

CAMP AREAS	10-15%: MODERATE-SLOPE, DUSTY	PLAYGROUNDS	SEVERE-SLOPE
	15+%: SEVERE-SLOPE		
PICNIC AREAS	10-15%: MODERATE-SLOPE, DUSTY	PATHS AND TRAILS	10-25%: SEVERE-ERODES EASILY
	15+%: SEVERE-SLOPE		25+%: SEVERE-SLOPE, ERODES EASILY

REGIONAL INTERPRETATIONS

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CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

CLASS- DETERMINING PHASE	CAPA- BILITY																
		NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.
10-12%	3E																
12-20%	3E																
20-35%	4E																
35-60%	6E																
60+%	7E																

WOODLAND SUITABILITY

CLASS- DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS				POTENTIAL PRODUCTIVITY				TREES TO PLANT
		EROS'N	EQUIP.	SEEDL. WINDTH	PLANT HAZARD	COMMON TREES	SITE PROD	INDX	CLAS	
						NONE				

WINDBREAKS

CLASS- DETERMIN'G PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT

WILDLIFE HABITAT SUITABILITY

CLASS- DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS										POTENTIAL AS HABITAT FOR:			
	GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	OPENLD WILDLF	WOODLD WILDLF	WETLAND WILDLF	RANGELS WILDLF		
10-15%	FAIR	GOOD	GOOD	IV. POOR	IV. POOR	POOR	IV. POOR	IV. POOR	GOOD	POOR	IV. POOR	FAIR		
15-25%	POOR	FAIR	GOOD	IV. POOR	IV. POOR	POOR	IV. POOR	IV. POOR	FAIR	POOR	IV. POOR	FAIR		
25-35%	IV. POOR	FAIR	GOOD	IV. POOR	IV. POOR	POOR	IV. POOR	IV. POOR	POOR	POOR	IV. POOR	FAIR		
35+%	IV. POOR	POOR	GOOD	IV. POOR	IV. POOR	POOR	IV. POOR	IV. POOR	POOR	POOR	IV. POOR	FAIR		

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE															
		ALL															
BLUEBUNCH WHEATGRASS	AGSP																
IDAHO FESCUE	FEID																
SANDBERG BLUEGRASS	POSE																
BIG SAGEBRUSH	ARTR2																
POTENTIAL PRODUCTION (LBS./AC. DRY WT):																	
FAVORABLE YEARS																	
NORMAL YEARS																	
UNFAVORABLE YEARS																	

FOOTNOTES

MLRA (S): ALL  
REV. LNL, 8-81

LAVA FLOWS ARE AREAS COVERED WITH LAVA. IN MOST HUMID AREAS, THE FLOWS ARE HOLOCENE AGE, BUT IN ARID AND VERY COLD REGIONS THEY MAY BE OLDER. MOST FLOWS HAVE SHARP, JAGGED SURFACES, CREVICES, AND ANGULAR BLOCKS CHARACTERISTIC OF LAVA. OTHERS ARE RELATIVELY SMOOTH AND HAVE A ROPY GLAZED SURFACE. A LITTLE EARTHY MATERIAL MAY BE IN A FEW CRACKS AND SHELTERED POCKETS, BUT THE FLOWS ARE VIRTUALLY DEVOID OF PLANTS OTHER THAN LICHENS. SLOPES RANGE FROM 0 TO 90 PERCENT.

LANDSCAPE AND CLIMATE PROPERTIES														
ANNUAL AIR TEMPERATURE		FROST FREE DAYS		ANNUAL PRECIPITATION		ELEVATION (FT)		DRAINAGE CLASS		SLOPE (PCT)				
ESTIMATED SOIL PROPERTIES														
DEPTH (IN.)	USDA TEXTURE	UNIFIED			AASHTO			PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO.		CLAY (PCT)				
0-60	UWB							>10 IN (PCT)	3-10 IN (PCT)	4	10	40	200	(PCT)
DEPTH (IN.)	LIQUID LIMIT	PLASTICITY INDEX	MOIST BULK DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC (ME/100G)	CACO3 (PCT)	GYPSUM (PCT)			
0-60	-	-	-	-	-	-	-	-	-	-	-			
DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS			WIND EROD. GROUP	WIND EROD. INDEX	CORROSIVITY						
			K	Kf	T			STEEL	CONCRETE					
0-60	-	-	-	-	-	-	-	-	-					
FLOODING			HIGH WATER TABLE			CEMENTED PAV		BEDROCK		SUBSIDENCE		HYD	POTENTIAL	
FREQUENCY	DURATION	MONTHS	DEPTH (FT)	KIND	MONTHS	DEPTH (IN)	HARDNESS (IN)	DEPTH (IN)	HARDNESS (IN)	INITIAL (IN)	TOTAL (IN)	GRP	FROST ACTION	
NONE			>6.0											
SANITARY FACILITIES						CONSTRUCTION MATERIAL								
SEPTIC TANK ABSORPTION FIELDS	0-15%: SEVERE-DEPTH TO ROCK					ROADFILL	POOR-AREA RECLAIM							
	15+%: SEVERE-DEPTH TO ROCK, SLOPE						***							
SEWAGE LAGOON AREAS	0-7%: SEVERE-DEPTH TO ROCK					SAND	IMPROBABLE-EXCESS FINES							
	7+%: SEVERE-DEPTH TO ROCK, SLOPE													
SANITARY LANDFILL (TRENCH)	0-15%: SEVERE-DEPTH TO ROCK					GRAVEL	IMPROBABLE-EXCESS FINES							
	15+%: SEVERE-DEPTH TO ROCK, SLOPE													
SANITARY LANDFILL (AREA)	0-15%: SEVERE-DEPTH TO ROCK					TOPSOIL	0-15%: POOR-AREA RECLAIM							
	15+%: SEVERE-DEPTH TO ROCK, SLOPE						15+%: POOR-AREA RECLAIM, SLOPE							
DAILY COVER FOR LANDFILL ***	0-15%: POOR-AREA RECLAIM					POND RESERVOIR AREA	WATER MANAGEMENT							
	15+%: POOR-AREA RECLAIM, SLOPE						0-8%: SEVERE-DEPTH TO ROCK							
SHALLOW EXCAVATIONS	0-15%: SEVERE-DEPTH TO ROCK					EMBANKMENTS DIKES AND LEVEES	SEVERE-AREA RECLAIM							
	15+%: SEVERE-DEPTH TO ROCK, SLOPE						***							
DWELLINGS WITHOUT BASEMENTS	0-15%: SEVERE-DEPTH TO ROCK					EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER							
	15+%: SEVERE-SLOPE, DEPTH TO ROCK													
DWELLINGS WITH BASEMENTS	0-15%: SEVERE-DEPTH TO ROCK					DRAINAGE	DEEP TO WATER							
	15+%: SEVERE-DEPTH TO ROCK, SLOPE													
SMALL COMMERCIAL BUILDINGS	0-8%: SEVERE-DEPTH TO ROCK					IRRIGATION	0-3%: DEPTH TO ROCK							
	8+%: SEVERE-SLOPE, DEPTH TO ROCK						3+%: DEPTH TO ROCK, SLOPE							
LOCAL ROADS AND STREETS	0-15%: SEVERE-DEPTH TO ROCK					TERRACES AND DIVERSIONS	0-8%: DEPTH TO ROCK							
	15+%: SEVERE-DEPTH TO ROCK, SLOPE						8+%: SLOPE, DEPTH TO ROCK							
LAWNS, LANDSCAPING AND GOLF FAIRWAYS ***	0-15%: SEVERE-THIN LAYER					GRASSED WATERWAYS	0-8%: DEPTH TO ROCK							
	15+%: SEVERE-SLOPE, THIN LAYER						8+%: SLOPE, DEPTH TO ROCK							

RECREATIONAL DEVELOPMENT

CAMP AREAS	0-15%:SEVERE-DEPTH TO ROCK	PLAYGROUNDS	0-6%:SEVERE-DEPTH TO ROCK
	15+%:SEVERE-SLOPE,DEPTH TO ROCK		6+%:SEVERE-SLOPE,DEPTH TO ROCK
PICNIC AREAS	0-15%:SEVERE-DEPTH TO ROCK	PATHS AND TRAILS	0-15%:SLIGHT
	15+%:SEVERE-SLOPE,DEPTH TO ROCK		15-25%:MODERATE-SLOPE 25+%:SEVERE-SLOPE

REGIONAL INTERPRETATIONS

CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

CLASS- DETERMINING PHASE	CAPA- BILITY	CROPS												
		NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	
ALL	BS													

WOODLAND SUITABILITY

CLASS- DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS					POTENTIAL PRODUCTIVITY		TREES TO PLANT
		EROS'N HAZARD	EQUIP. LIMIT	SEEDL. MORT'Y	WINDTH HAZARD	PLANT COMPET	COMMON TREES	SITE PROD (INDX CLAS)	
							NONE		

WINDBREAKS

CLASS- DETERMINING PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT

WILDLIFE HABITAT SUITABILITY

CLASS- DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS								POTENTIAL AS HABITAT FOR:			
	GRAIN SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER TREES	SHRUBS	WETLAND PLANTS	SHALLOW WATER	OPENLD	WOODLD	WETLAND	RANGELD
ALL	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE											
		ALL											

POTENTIAL PRODUCTION (LBS./AC. DRY WT):  
 FAVORABLE YEARS  
 NORMAL YEARS  
 UNFAVORABLE YEARS

0  
0  
0

FOOTNOTES

\*\*\*THIS IS A RATING OVERRIDE. SEE THE INTERPRETATION OVERRIDE FILE FOR AN EXPLANATION OF THIS OVERRIDE.

MLRA(S): ALL  
REV. BTB, 7-86

ROCK OUTCROP CONSISTS OF EXPOSURES OF BARE, HARD BEDROCK OTHER THAN LAVA FLOWS AND ROCK-LINED PITS. THEY CONSIST MAINLY OF UNWEATHERED VOLCANIC AND METAMORPHIC ROCK, BUT INCLUDES SOME SEDIMENTARY ROCK SUCH AS CONSOLIDATED LIMESTONE AND CONGLOMERATE. SLOPES RANGE FROM 0 TO 100 PERCENT.

LANDSCAPE AND CLIMATE PROPERTIES												
ANNUAL AIR TEMPERATURE		FROST FREE DAYS		ANNUAL PRECIPITATION		ELEVATION (FT)		DRAINAGE CLASS		SLOPE (PCT)		
												0-100
ESTIMATED SOIL PROPERTIES												
DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO.				CLAY (PCT)				
				>10 IN	3-10IN	4	10		40	200		
0-60	UWB	-	-	-	-	-	-	-	-	-	-	
DEPTH (IN.)	LIQUID LIMIT	PLAS-TICITY INDEX	MOIST BULK DENSITY (G/CM3)	PERMEA-BILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC (ME/100G)	CACO3 (PCT)	GYPSUM (PCT)	
												0-60
DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS			CORROSIVITY						
			K	Kf	T	EROD. (GROUP)	EROD. INDEX	STEEL	CONCRETE			
0-60	-	-	-	-	-	-	-	-	-	-	-	-
FLOODING			HIGH WATER TABLE			CEMENTED PAN		BEDROCK		SUBSIDENCE		HYD/POTENTIAL FROST ACTION
FREQUENCY	DURATION	MONTHS	DEPTH (FT)	KIND	MONTHS	DEPTH (IN)	HARDNESS (IN)	DEPTH (IN)	HARDNESS (IN)	INIT. (IN)	TOTAL (IN)	
NONE-FREQUENT			>6.0			-	-	0	HARD	-	-	D
SANITARY FACILITIES						CONSTRUCTION MATERIAL						
SEPTIC TANK ABSORPTION FIELDS		NONE, RARE: SEVERE-DEPTH TO ROCK COMMON: SEVERE-FLOODING, DEPTH TO ROCK				ROADFILL		0-25%: POOR-DEPTH TO ROCK 25+%: POOR-DEPTH TO ROCK, SLOPE				
SEWAGE LAGOON AREAS		0-7% NONE, RARE: SEVERE-DEPTH TO ROCK 7+% NONE, RARE: SEVERE-DEPTH TO ROCK, SLOPE 0-7% COMMON: SEVERE-DEPTH TO ROCK, FLOODING 7+% COMMON: SEVERE-DEPTH TO ROCK, FLOODING, SLOPE				SAND		IMPROBABLE-EXCESS FINES				
SANITARY LANDFILL (TRENCH)		NONE, RARE: SEVERE-DEPTH TO ROCK COMMON: SEVERE-FLOODING, DEPTH TO ROCK				GRAVEL		IMPROBABLE-EXCESS FINES				
SANITARY LANDFILL (AREA)		NONE, RARE: SEVERE-DEPTH TO ROCK COMMON: SEVERE-FLOODING, DEPTH TO ROCK				TOPSOIL		0-15%: POOR-DEPTH TO ROCK 15+%: POOR-DEPTH TO ROCK, SLOPE				
DAILY COVER FOR LANDFILL		0-15%: POOR-DEPTH TO ROCK 15+%: POOR-DEPTH TO ROCK, SLOPE				POND RESERVOIR AREA		0-8%: SEVERE-DEPTH TO ROCK 8+%: SEVERE-DEPTH TO ROCK, SLOPE				
BUILDING SITE DEVELOPMENT						EMBANKMENTS DIKES AND LEVEES		SLIGHT				
SHALLOW EXCAVATIONS		0-15%: SEVERE-DEPTH TO ROCK 15+%: SEVERE-DEPTH TO ROCK, SLOPE				EXCAVATED PONDS AQUIFER FED		SEVERE-NO WATER				
DWELLINGS WITHOUT BASEMENTS		0-15% NONE, SEVERE-SLOPE, DEPTH TO ROCK 0-15% RARE, COMMON: SEVERE-FLOODING, DEPTH TO ROCK 15+% RARE, COMMON: SEVERE-FLOODING, SLOPE				DRAINAGE		DEEP TO WATER				
DWELLINGS WITH BASEMENTS		0-15% NONE, SEVERE-DEPTH TO ROCK 15+% NONE, SEVERE-DEPTH TO ROCK, SLOPE 0-15% RARE, COMMON: SEVERE-FLOODING, DEPTH TO ROCK 15+% RARE, COMMON: SEVERE-FLOODING				IRRIGATION		0-3% NONE, RARE: DEPTH TO ROCK 3+% NONE, RARE: SLOPE, DEPTH TO ROCK 0-3% COMMON: DEPTH TO ROCK, FLOODING 3+% COMMON: SLOPE, DEPTH TO ROCK, FLOODING				
SMALL COMMERCIAL BUILDINGS		0-8% NONE, SEVERE-DEPTH TO ROCK 8+% NONE, SEVERE-SLOPE, DEPTH TO ROCK 0-8% RARE, COMMON: SEVERE-FLOODING, DEPTH TO ROCK 8+% RARE, COMMON: SEVERE-FLOODING, SLOPE				TERRACES AND DIVERSIONS		0-8%: DEPTH TO ROCK 8+%: SLOPE, DEPTH TO ROCK				
LOCAL ROADS AND STREETS		0-15%: SEVERE-DEPTH TO ROCK 15+%: SEVERE-DEPTH TO ROCK, SLOPE				GRASSED WATERWAYS		0-8%: DEPTH TO ROCK 8+%: SLOPE, DEPTH TO ROCK				
LAWNS, LANDSCAPING AND GOLF FAIRWAYS		NONE, RARE, OCCAS: SEVERE-DEPTH TO ROCK FREQ: SEVERE-FLOODING, DEPTH TO ROCK										

RECREATIONAL DEVELOPMENT

CAMP AREAS	0-15%NONE:SEVERE-DEPTH TO ROCK	PLAYGROUNDS	0-6%:SEVERE-DEPTH TO ROCK
	15+%NONE:SEVERE-SLOPE,DEPTH TO ROCK		6%:SEVERE-SLOPE,DEPTH TO ROCK
PICNIC AREAS	0-15%RARE,COMMON:SEVERE-FLOODING, DEPTH TO ROCK	PATHS AND TRAILS	0-15%NONE,RARE,OCCAS:SLIGHT
	15+%RARE,COMMON:SEVERE-FLOODING,SLOPE		15-25%NONE,RARE,OCCAS:MODERATE-SLOPE
	0-15%:SEVERE-DEPTH TO ROCK		0-15%FREQ:MODERATE-FLOODING
	15+%:SEVERE-SLOPE,DEPTH TO ROCK		15-25%FREQ:MODERATE-SLOPE,FLOODING
			25+%:SEVERE-SLOPE

REGIONAL INTERPRETATIONS

REGIONAL INTERPRETATIONS			
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CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

CLASS- DETERMINING PHASE	CAPA- BILITY	CROPS AND PASTURE											
		NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR
NONE,RARE	85												
OCCAS,FREQ	8W												

WOODLAND SUITABILITY

CLASS- DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS				POTENTIAL PRODUCTIVITY		TREES TO PLANT
		EROS'N	EQUIP.	SEEDL.	TWINTH	COMMON TREES	SITE PROD	
		HAZARD	LIMIT	MORT'Y	HAZARD	COMPET	NONE	

WYNDBREAKS

CLASS- DETERMINING PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
	NONE							

WILDLIFE HABITAT SUITABILITY

CLASS- DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS								POTENTIAL AS HABITAT FOR:					
	GRAIN	GRASS	WILD SEED	LEGUME	HERB.	HARDWD TREES	CONIFER	SHRUBS	WETLAND	SHALLOW	OPENLD	WOODLD	WETLAND	RANGELD
ALL	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE											
		ALL											

POTENTIAL PRODUCTION (LBS./AC. DRY WT):  
 FAVORABLE YEARS 0  
 NORMAL YEARS 0  
 UNFAVORABLE YEARS 0

FOOTNOTES



MLRA(S): ALL  
REV. LNL, 1-92

BADLAND IS MODERATELY STEEP TO VERY STEEP BARREN LAND DISSECTED BY MANY INTERMITTENT DRAINAGE CHANNELS. THE AREAS ARE ORDINARILY NOT STONY. BADLAND IS MOST COMMON IN SEMIARID AND ARID REGIONS WHERE STREAMS CUT INTO SOFT GEOLOGIC MATERIAL. LOCAL RELIEF GENERALLY RANGES BETWEEN 300 TO 700 FEET. POTENTIAL RUNOFF IS VERY RAPID AND EROSION IS ACTIVE. SLOPES RANGE FROM 1 TO 200 PERCENT.

LANDSCAPE AND CLIMATE PROPERTIES													
ANNUAL AIR TEMPERATURE		FROST FREE DAYS		ANNUAL PRECIPITATION		ELEVATION (FT)		DRAINAGE CLASS		SLOPE (PCT)			
										1-200			
ESTIMATED SOIL PROPERTIES													
DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO.				CLAY (PCT)					
				>10 IN (PCT)	3-10 IN (PCT)	4	10		40	200			
0-60 UWB				0	0	-	-	-	-	-	-		
0-60 WUB				0	0	-	-	-	-	-	-		
DEPTH (IN.)	LIQUID LIMIT	PLASTICITY INDEX	MOIST DENSITY (G/CM3)	BULK DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC (ME/100G)	CACO3 (PCT)	GYP SUM (PCT)	
	0-60	-	-	-	-	-	-	-	-	-	-	-	
0-60	-	-	-	-	-	-	-	-	-	-	-	-	
DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS			WIND EROSION GROUP		CORROSIVITY					
			K	Kf	T	GROUP	INDEX	STEEL	CONCRETE				
0-60	-	-	-	-	-	-	-	-	-				
0-60	-	-	-	-	-	-	-	-	-				
FLOODING			HIGH WATER TABLE			CEMENTED PAN		BEDROCK		SUBSIDENCE		HYD/POTENTIAL	
FREQUENCY	DURATION	MONTHS	DEPTH (FT)	KIND	MONTHS	DEPTH (IN)	HARDNESS (IN)	DEPTH (IN)	HARDNESS (IN)	INIT. (IN)	TOTAL (IN)	GRP	FROST ACTION
NONE-RARE			>6.0			-		0-3	SOFT	-		D	-
SANITARY FACILITIES						CONSTRUCTION MATERIAL							
SEPTIC TANK ABSORPTION FIELDS	1-15% SEVERE-DEPTH TO ROCK 15+% SEVERE-DEPTH TO ROCK, SLOPE					ROADFILL	1-25% POOR-DEPTH TO ROCK 25+% POOR-DEPTH TO ROCK, SLOPE						
SEWAGE LAGOON AREAS	1-7% SEVERE-DEPTH TO ROCK 7+% SEVERE-DEPTH TO ROCK, SLOPE					SAND	IMPROBABLE-EXCESS FINES						
SANITARY LANDFILL (TRENCH)	1-15% SEVERE-DEPTH TO ROCK 15+% SEVERE-DEPTH TO ROCK, SLOPE					GRAVEL	IMPROBABLE-EXCESS FINES						
SANITARY LANDFILL (AREA)	1-15% SEVERE-DEPTH TO ROCK 15+% SEVERE-DEPTH TO ROCK, SLOPE					TOPSOIL	1-15% POOR-DEPTH TO ROCK 15+% POOR-DEPTH TO ROCK, SLOPE						
DAILY COVER FOR LANDFILL	1-15% POOR-DEPTH TO ROCK 15+% POOR-DEPTH TO ROCK, SLOPE					POND RESERVOIR AREA	WATER MANAGEMENT						
							1-8% SEVERE-DEPTH TO ROCK 8+% SEVERE-DEPTH TO ROCK, SLOPE						
BUILDING SITE DEVELOPMENT													
SHALLOW EXCAVATIONS	1-15% SEVERE-DEPTH TO ROCK 15+% SEVERE-DEPTH TO ROCK, SLOPE					EMBANKMENTS DIKES AND LEVES	SLIGHT						
DWELLINGS WITHOUT BASEMENTS	1-8% NONE: MODERATE-DEPTH TO ROCK 8-15% NONE: MODERATE-SLOPE, DEPTH TO ROCK 15+% NONE: SEVERE-SLOPE 1-15% RARE: SEVERE-FLOODING 15+% RARE: SEVERE-FLOODING, SLOPE					EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER						
DWELLINGS WITH BASEMENTS	1-15% NONE: SEVERE-DEPTH TO ROCK 15+% NONE: SEVERE-DEPTH TO ROCK, SLOPE 1-15% RARE: SEVERE-FLOODING, DEPTH TO ROCK 15+% RARE: SEVERE-FLOODING, DEPTH TO ROCK, SLOPE					DRAINAGE	DEEP TO WATER						
SMALL COMMERCIAL BUILDINGS	1-4% NONE: MODERATE-DEPTH TO ROCK 4-8% NONE: MODERATE-SLOPE, DEPTH TO ROCK 8+% NONE: SEVERE-SLOPE 1-8% RARE: SEVERE-FLOODING 8+% RARE: SEVERE-FLOODING, SLOPE					IRRIGATION	1-3% DEPTH TO ROCK 3+% SLOPE, DEPTH TO ROCK						
LOCAL ROADS AND STREETS	1-8% NONE: MODERATE-DEPTH TO ROCK 8-15% NONE: MODERATE-DEPTH TO ROCK, SLOPE 1-8% RARE: MODERATE-DEPTH TO ROCK, FLOODING 8-15% RARE: MODERATE-DEPTH TO ROCK, SLOPE 15+% SEVERE-SLOPE					TERRACES AND DIVERSIONS	1-8% DEPTH TO ROCK 8+% SLOPE, DEPTH TO ROCK						
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	1-15% SEVERE-DEPTH TO ROCK 15+% SEVERE-SLOPE, DEPTH TO ROCK					GRASSED WATERWAYS	1-8% DEPTH TO ROCK 8+% SLOPE, DEPTH TO ROCK						

RECREATIONAL DEVELOPMENT

CAMP AREAS	1-15%:NONE:SEVERE-DEPTH TO ROCK	PLAYGROUNDS	1-6%:SEVERE-DEPTH TO ROCK
	15+%:NONE:SEVERE-SLOPE,DEPTH TO ROCK		6+%:SEVERE-SLOPE,DEPTH TO ROCK
PICNIC AREAS	1-15%:RARE:SEVERE-FLOODING,DEPTH TO ROCK	PATHS AND TRAILS	1-15%:SLIGHT
	15+%:RARE:SEVERE-FLOODING,SLOPE,DEPTH TO ROCK		15-25%:MODERATE-SLOPE
			25+%:SEVERE-SLOPE

REGIONAL INTERPRETATIONS

CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

CLASS- DETERMINING PHASE	CAPA- BILITY	CROPS AND PASTURE												
		N	R	R	I	R	R	I	R	R	I	R	R	I
ALL	BE													

WOODLAND SUITABILITY

CLASS- DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS				POTENTIAL PRODUCTIVITY				TREES TO PLANT	
		EROS'N HAZARD	EQUIP. LIMIT	SEEDL. MORT'Y	WINDTH/HAZARD	PLANT COMPET	COMMON TREES	SITE PROD INDX	PROD CLAS		
										NONE	

WINDBREAKS

CLASS-DETERMIN'G PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
	NONE							

WILDLIFE HABITAT SUITABILITY

CLASS- DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS								POTENTIAL AS HABITAT FOR:									
	GRAIN SEED	GRASS	WILD LEGUME	WILD HERB	HARDWD TREES	CONIFER	SHRUBS	PLANTS	WETLAND	SHALLOW WATER	OPENLD	WOODLD	WETLAND	RANGELD	WILDLF	WILDLF	WILDLF	WILDLF
ALL	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE											
		ALL											

POTENTIAL PRODUCTION (LBS./AC. DRY WT):

FAVORABLE YEARS	0
NORMAL YEARS	0
UNFAVORABLE YEARS	0

FOOTNOTES

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## Appendix B

### Administration of Cultural Resource Laws and Regulations



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**Administration of Cultural Resource  
Laws and Regulations**

- A. Antiquities Act of 1906 (16 U.S.C. 431).
- B. Historic Sites Act of 1935 (16 U.S.C. 461-467).
- C. Reservoir Salvage Act of 1960 (16 U.S.C. 469), as amended by Public Law 93-291.
- D. Historical and Archeological Preservation Act of 1974 (16 U.S.C. 469).
- E. National Historic Preservation Act of 1966 (NHPA) (16 U.S.C. 470).
- F. American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996).
- G. Archaeological Resources Protection Act of 1979 (16 U.S.C. 470).
- H. Executive Order 11593, for "Protection and Enhancement of the Cultural Environment," May 13, 1971.
- I. National Register of Historic Places (36 CFR Part 60).
- J. The Protection of Historic Properties (36 CFR Part 800).
- K. Determination of Eligibility for Inclusions in the National Register of Historic Places (36 CFR Part 63).
- L. Protection of Archeological Resources: Uniform Regulations (43 CFR Part 7).
- M. Protection of Properties on the National Register of Historic Places (426 DM 1).
- N. Curation of Federally Owned and Administered Archeological Collections; Final Rule (36 CFR Part 79).
- O. Preservation of Historic Property (519 DM 1).
- P. Native American Graves Protection and Repatriation Act (25 U.S.C.A. 3001-3013).



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## Appendix C

### Owyhee Reservoir Task Force Recommendations





October 1990  
Final

U.S. BUREAU OF RECLAMATION  
OWYHEE RESERVOIR RESOURCE MANAGEMENT PLAN

OWYHEE RESERVOIR TASK FORCE RECOMMENDATIONS

The U.S. Bureau of Reclamation (Reclamation) is currently preparing a comprehensive Resource Management Plan (RMP) for the Owyhee Reservoir resource area. The purpose of this RMP is to provide a 10-year framework for the orderly and coordinated management of the land and water resources under Reclamation's jurisdiction at Owyhee Reservoir. Management practices and principles, in accordance with existing laws, regulations, and policies, are to be applied to provide for the protection of fish, wildlife, and other natural resources, cultural resources, public health and safety, public access and a wide variety of outdoor recreational opportunities.

This document presents the goals, objectives and actions recommended by the Owyhee Reservoir Task Force. These recommendations center around six major issues: 1) recreation and related visitor services, 2) natural resources, 3) reservoir operations, 4) fisheries, 5) adjacent land uses, and 6) access. For each issue -- goals, objectives, recommended actions and a summary of the group's discussion are presented.

I. RECREATION AND RELATED VISITOR SERVICES

1. Goal: Optimize mixed use of Owyhee Reservoir project lands for recreation to meet future recreational demands and trends consistent with the existing character of the reservoir area.
  - A. Objective: Prioritize recreation proposals and develop facilities to serve land and water-based recreation users according to the priorities.

Action: Designate and manage the following areas for day and/or overnight use.

OWYHEE RIVER RECREATION PROPOSALS

Develop and Manage for Day and Overnight Use

1. Snively Hot Springs (BLM administered lands)  
Alternative: Siphon Site would be developed as overnight use area if BLM is unable to develop Snively as overnight use area.

Designate and Manage for Primitive Day and Overnight Use

1. Other river corridor sites on BOR and BLM lands

Control motorized access and travel within river corridor to protect riparian and other resource values. Provide signage to direct recreationists to specific use areas. In cooperation with BLM, provide portable vault toilets and picnic tables at selected locations.

Develop and Manage for Day Use Only

1. Government Camp - Expand existing day-use area; Improve bridge crossing; Develop restrooms and additional picnic sites.

## OWYHEE RIVER RECREATION PROPOSALS

### Develop and Manage for Day Use Only

2. Siphon Site (If not developed as overnight use area)

### RESERVOIR RECREATION SITES

#### Develop and Manage for Overnight Use

1. Bensley Flat - Develop as "low density" overnight use facility; Provide fire rings/grills and interpretive signage. Provide for monitoring the effect(s) of overnight recreation on bighorn sheep in the area. Facility locations/placement would be determined in consultation with the Oregon Department of Fish and Wildlife.
2. Between Deadmans Gulch and Pelican Point - Provide fire rings and grills; At a separate site nearby, provide a potable water supply and toilet facilities.

#### Designate and Manage for Primitive Overnight Use (No facilities proposed)

1. Wildhorse Basin
2. Cherry Creek
3. Acton Gulch (Across from Bensley Flat)
4. Painted Canyon

#### Develop and Manage for Day Use

1. Pelican Point Airstrip - Provide potable water and sanitation facilities (unclear whether picnic tables, fire rings and grills were recommended).

Task Force Discussion: The Task Force reviewed potential recreation sites and developed a list of those most suitable for day and/or overnight use. The intent of the above recommendations is to provide additional recreational opportunities while preserving the primitive nature of the resource area. Several additional proposals were suggested by the Task Force but were not further developed including additional RV camping, group camping and long-term/extended-stay facilities.

The Task Force as a whole did not recommend prohibiting day and/or overnight use in any particular areas. However, some task force members do not want to allow overnight use in east side areas used by bighorn sheep (i.e. Bensley Flat, Painted Canyon) in order to minimize potentially adverse impacts on these bighorn sheep populations.

With regards to car access camping opportunities at Owyhee Reservoir, the Task Force recommended that car camping be limited to the Owyhee Reservoir State Park, Leslie Gulch, Dry Creek, and Watson areas. All the Owyhee Reservoir recreation sites recommended above for day and/or overnight use are boat-in recreation sites.

The following recommendations were made by the Bureau of Land Management (BLM) regarding recreation site improvements at Leslie Gulch. However, these and other recommendations pertaining to Leslie Gulch would be pursued in accordance with the Memorandum of Understanding between Reclamation and the BLM.

The BLM identified the following needs at Leslie Gulch:

- (a) Boat docks associated with the boat ramp.
- (b) Potable water development.
- (c) Improved fish cleaning station.
- (d) Foot access picnic site including tables, grills, directional/informational signs, and bulletin board.
- (e) Improved parking area for boat trailers and motor vehicles.
- (f) Developed overnight facilities including tables, grills, fire rings, sanitary facilities, and trash cans.
- (g) Sanitary dump station for float boaters.
- (h) Maintain and gravel roads/parking areas.

8. Objective: Develop an effective cabin-site lease policy which maintains a balance between public and private use of public lands.

Action: Provide a mechanism in the Resource Management Plan to modify the cabin lease program at Owyhee Reservoir. Program modification might be necessary to reflect future changes in Bureau of Reclamation and/or the Department of the Interior cabin site regulations, policies and/or guidelines.

Task Force Discussion: Several Task Force members are concerned about the annual cost of cabin site leases at Owyhee Reservoir. While presently there does not appear to be excess demand for cabin site leases, some members attribute this to current lease fees being too high.

One task force member recommended that cabins located outside recognized cabin site lease areas (Fisherman's Cove and Dry Creek) should be treated the same as those within recognized lease areas.

Reclamations's current lease policy is to set lease fees at market value and not to allow additional leases.

- C. Objective: Develop a program to accommodate and manage organized competitive recreation events at Owyhee Reservoir.

Action: Competitive Power Boating: Allow competitive power boating but restrict it to seasons and times that do not pose a public safety hazard or conflict with general public use of the reservoir.

Action: Competitive Fishing Derbies: Continue to allow competitive fishing derbies (i.e. bass tournaments) but design these events to minimize effects on the reservoir fishery. Specifically, the task force suggested that (1) fishing derbies not conflict with fish spawning activities, and (2) consultation with the Oregon Department of Fish and Wildlife be completed prior to final approval by Reclamation.

Task Force Discussion: Task Force members are supportive of the positive economic benefits to the area from competitive events.

- D. Objective: Explore opportunities and recommend appropriate measures to enhance dispersed land-based recreation use.

Action: No associated facilities are recommended for dispersed land-based recreation activities.

Task Force Discussion: The Task Force favors dispersed recreation over developed recreation opportunities. Overall, Task Force members discourage development of specific trails and facilities in association with dispersed recreation activities.

Potential trails identified by the Task Force for further consideration by Reclamation include: (1) the Owyhee River corridor and (2) from Owyhee Dam to the Lake Owyhee Resort. In addition, the designation of a "untreated" trail corridor between the Lake Owyhee Resort and Leslie Gulch was identified for further consideration by Reclamation and the Bureau of Land Management.

- E. Objective: Evaluate the effect of and recommend appropriate measures to control Off-Road Vehicle (ORV) use on Reclamation lands.

Action: Consider restrictions on ORV use in sensitive areas.

Task Force Discussion: The Task Force was divided on this issue. Many felt that ORV use should be eliminated on BOR lands. Because insufficient data was available regarding the impact of ORV activity within the Owyhee Reservoir resource area, the group recommended an assessment be done to verify the extent of the problem and to identify specific areas of sensitivity where ORV use should be prohibited. Overall, the Task Force favored restricting ORV use to areas where it will not significantly affect the environment or the quality of the recreation experience for other visitors.

Through the RMP process, Reclamation will develop a "Travel Management Plan" for the Owyhee Reservoir resource area. The "Travel Management Plan" would designate which lands, roads and trails in the resource area would be "open to motorized travel". All other river and reservoir areas not specifically designated would be "closed to motorized travel". It is important to note that Reclamation's ORV policy is all lands, roads, and trails are closed to ORV use unless designated open.

The Task Force recommended that Reclamation allow off-road vehicle use below the reservoir's high water line for boat launching and fishing purposes. Further guidance on which roads and/or areas should be designated "open to motorized travel" should be sought in cooperation with the Bureau of Land Management, interested groups and individuals. Consideration of natural resource values and environmental sensitivity needs to be the primary consideration in travel management determinations/restrictions. The general feeling of the Task Force is to limit but not prohibit ORV use within the Owyhee Reservoir resource area.

2. **GOAL:** Increase public awareness of recreational opportunities and natural and cultural resource values.

A. **Objective:** Develop a visitor information and interpretive program.

**Action:** Develop a self-service information kiosk below Owyhee Dam with information about the reservoir, recreation opportunities, and visitor use and safety information.

**Task Force Discussion:** One Task Force member suggested that Reclamation explore the potential for staffing an information booth in the vicinity of Owyhee Dam to assist in visitor information services. Comments to this suggestion centered on the existing lack of need or demand for such a service. Other options could include staffing a mobile visitor center/booth with a volunteer (similar to camp host concept).

**Action:** Develop interpretive signage at the following locations:

Bensley Flat  
Watson Cemetery  
Indian Hot Springs  
Owyhee Tunnel  
Owyhee Dam

**Task Force Discussion:** One Task Force member objected to drawing attention to Indian Hot Springs through brochures and other information mediums (kiosk display, advertisements, etc.). The primary concern is to minimize the potential effect increased boat-in activity would have on fish spawning activities in adjacent shoreline areas. An alternative view to minimize fish spawning conflicts is to discourage or prohibit boat-in access to the Indian Hot Springs and Watson sites during the fish spawning/ egg incubation periods. The public should be aware of this potential resource conflict at the Indian Hot Springs and Watson sites.

**Action:** Develop an interpretive museum or center if demand warrants.

**Action:** Develop information brochure(s) on hiking, hunting, bird-watching, picnicking, sightseeing and other land-based recreation opportunities.

**Action:** Develop a series of brochures covering topics such as recreation facilities and opportunities, history of the dam and reservoir area, natural resources -- wildlife, plants, geology, etc.

**Action:** Support community activities to market the Owyhee Reservoir area through radio, television, public service announcements, and newspapers.

**Task Force Discussion:** Task Force recommendations focused on the need for additional visitor information and improved publicity of the recreation opportunities at Owyhee Reservoir.

- B. Objective: Provide education about and protection for unique natural and cultural resources within the resource area.

Action: Areas of special resource value (fossil sites, cultural resource sites, etc.) should not be identified on recreation maps but an explanation of their value and the importance of protecting these special resource values should be included in all public information materials.

Task Force Discussion: Task Force members feel that the isolated and undeveloped nature of Owyhee Reservoir provides unique recreational opportunities. Information on the special resource values specific to the Owyhee Reservoir area needs to be more effectively disseminated to the public. However, this publicity should focus on the primitive nature of the reservoir area and not encourage overdevelopment of the area. Similarly, the location of unique cultural and natural resources should not be disclosed.

3. **Goal:** Provide appropriate support services and facilities to enhance the quality and safety of the recreation experience.

- A. Objective: Develop and maintain signs and other measures which alert visitors to hazardous conditions associated with the dam, gloryhole, roads, and reservoir (underwater structures).

Action: Identify hazards with signage and/or other appropriate devices.

Task Force Discussion: Several Task Force members recommended against signage to identify potential hazards on the reservoir because they would detract from the aesthetics of the reservoir.

- B. Objective: Develop an emergency communications system on the reservoir.

Action: Locate an emergency phone or radio at Fisherman's Cove.

Task Force Discussion: Task Force members identified Fisherman's Cove as the best site for locating an emergency communications system on the reservoir. The cabins sites located at Fisherman's Cove would help discourage vandalism and theft.

Task Force members were also concerned about the availability of a life flight station. The Lake Owyhee Resort is currently registered with life flight; the response time is 20-25 minutes.

- C. Objective: Develop facilities which are accessible to the handicapped.

Action: Develop handicap accessible recreation facilities and sites including a primitive site on the reservoir and on the river below Owyhee Dam.

Task Force Discussion: The Task Force recommended that at least one secluded/primitive site on the river and one on the reservoir be handicapped accessible so as to provide an equal opportunity for the handicapped to experience a primitive recreational setting.

Section 504 of the Rehabilitation Act of 1973 does not require that each existing facility or every part of a facility be accessible to and usable by handicapped persons. The important factor is that the experience offered by the facility, program, or activity be available for enjoyment by all persons.

It is the policy of the Bureau of Reclamation to provide the highest level of accessibility and integration possible and feasible for persons with visual, hearing, mobility, and mental impairments into the diverse programs and activities offered to the public by or through Reclamation.

- D. Objective: Allow concessionaire developments which will expand and/or improve on the recreational services and facilities presently provided, such as grocery/gift shop, expanded restaurant facilities, boat rental, and lodging.

Action: Upgrade the Lake Owyhee Resort. Expand the grocery/gift shop, restaurant, and lodging. Enhance opportunities for marina and boat rental associated with existing lease.

Task Force Discussion: Many Task Force members feel strongly that the present resort needs to be upgraded. At the same time, all agree that a second resort is not called for, given the present level of demand and the desire to limit the extent to which Owyhee Reservoir is developed. Other recreational opportunities which could be considered in the future include a golf course, skeet range, jet ski concession, playground and boat tours.

Currently, the lease between Reclamation and the Lake Owyhee Resort is being renegotiated. It is important to recognize that any facility expansion at the resort must be supported by public demand and need. Furthermore, it is the responsibility of the leasee to accomplish additional facility improvements/developments.

The lease agreement between Reclamation and the resort requires that additional facilities not included in the approved overall development plan may be constructed upon the written approval of Reclamation.

Oregon State Parks has also expressed an interest in acquiring the resort as an expansion to the State Park at Owyhee Reservoir.

- E. Objective: Provide visitor amenities to enhance the quality of the recreation experience.

Actions: Explore the possibility of developing a potable water supply between Deadmans Gulch and Pelican Point. Also advise visitors of the general lack of potable water on the reservoir beyond the State Park/Resort area.

Actions: Provide toilets at Pelican Point and Government Camp.

Provide adequate parking at Owyhee Dam.

Extend boat ramp at State Park.

Add additional fish-cleaning station at the State Park day-use area.

Provide dump stations and mooring facilities for houseboats at the State Park and/or Lake Owyhee Resort.

Support additional recreation facility development at the Leslie Gulch recreation site as proposed by the Bureau of Land Management.

Support scheduled road improvement work in the Owyhee Reservoir area. Malheur County has received grant funds to improve and asphalt surface the road leading from Owyhee Dam to the Lake Owyhee Resort. The parking area associated with the boat launch at the resort will be asphalt surfaced with parking stripes.

Designate swimming areas in high use areas including the State Park and/or resort.

Encourage the State Park to provide lighting at boat launch facilities.

Task Force Discussion: Task Force members were concerned about whether developing a potable water supply was feasible at the reservoir. The preferred location for both water and sanitation was near Pelican Point since this is approximately the halfway point on the reservoir and both boaters and pilots would have access to facilities at this location. One concern about providing vault toilets is the need for on-going maintenance.

The development of a potable water supply at Pelican Point has raised some natural resource and safety concerns. Most of the shoreline area between Pelican Point and Deadman's Gulch provides important largemouth bass and black crappie spawning habitat. If a potable water supply were developed near those shoreline areas used for fish spawning, fishery impacts would occur during the spring spawning period due to the expected increase in boater traffic moving in and out of the area. By locating the water supply site on the southern end of Pelican Point, fish spawning impacts could be minimized since the availability of suitable spawning habitat in this area is low.

Another concern is to site water supply and sanitation facilities so they would not affect the quality of the recreation experience in the proposed campground between Deadman's Gulch and Pelican Point or result in a safety hazard with adjacent airstrip traffic.



F. Objective: Minimize User Conflicts

Action: Evaluate and adopt measures to minimize user conflicts as they arise while providing for the maintenance and enhancement of recreational opportunities and natural resource values.

Task Force Discussion: The Task Force believes there are few user conflicts at Owyhee Reservoir at the present time, but user conflicts may develop over time. The Task Force considered segmenting the reservoir into "high density" and "low density" development areas. The area around the dam, the most developed area, would remain the high-density area. Some user conflicts could be managed by imposing reservoir "speed limits" or "wake zone" restrictions, but these may be difficult to enforce.

G. Objective: Provide on-site presence and enforcement of regulations to ensure protection of resource values, facilities, and the public.

Action: Keep the sheriff on the lake and increase patrols as needed. Explore and evaluate different approaches to obtain the support needed to protect recreational facilities, special resource values, and to ensure rules and regulations applicable to the Owyhee Reservoir resource area are enforced. Coordinate enforcement activities with the Malheur County Sheriff and Marine Patrol, BLM, Oregon State Parks, and Oregon State Police. Develop adequate penalties to discourage vandalism.

Task Force Discussion: Vandalism is a key concern, especially at recreation sites below the Owyhee Dam and at special cultural and natural resource sites. As use of the resource area increases, vandalism is likely to become a more serious problem. A combination of public education, strong enforcement, adequate civil penalties, and community support may be necessary.

The Task Force recommended that Reclamation explore with the Malheur County Sheriff the possibility of (1) mobilizing a volunteer sheriff's boat posse at Owyhee Reservoir, (2) entering into a Memorandum of Understanding for law enforcement activities on lands and waters managed by Reclamation, and (3) funding additional law enforcement activities at Owyhee Reservoir.

Overall, the concensus was that Reclamation should take the lead on law enforcement coordination within the Owyhee Reservoir resource area.

4. Goal: Provide a quality recreation environment.

A. Objective: Evaluate mechanisms to work with the military to minimize fly over maneuvers which impact on the quality of the recreation experience.

Action: Recommend a buffer zone around Owyhee Reservoir to be excluded from military airspace.

Task Force Discussion: Frequent low-flying aircraft threaten the quality of the recreation experience at Owyhee Reservoir and disturb bighorn sheep and other wildlife in the area.

- B. Objective: Establish more shade trees to provide cover in developed recreation areas.

Action: Establish shade trees at proposed overnight and day-use recreation developments. Establish volunteer program to ensure success of tree and other desired plantings.

Task Force Discussions: Establishment of new shade trees requires regular watering which, in turn, requires on-site personnel or volunteers.

- C. Objective: Evaluate the carrying capacity of the reservoir and maintain an appropriate level of development.

Action: Develop Owyhee Reservoir for low-intensity recreational use.

Task Force Discussion: The Task Force insists that the primitive and remote character of Owyhee Reservoir is unique and should be preserved. However, the Task Force also believes that the Owyhee Reservoir RMP should provide a wide variety of recreational opportunities through mixed use.

## II. NATURAL RESOURCES

1. **Goal:** Preserve, protect and maintain the special natural and cultural resource values.

- A. Objective: Prevent or minimize development in areas which would adversely impact special scenic or wilderness characteristics.

Action: Development in areas bordering wilderness study areas should be designed to a level that is consistent with adjacent land use objectives. All facilities should be designed to have minimal visual impact on scenic views.

Task Force Discussion: The Resource Management Plan should include a mechanism for review of recommendations in response to wilderness designations.

- B. Objective: Eliminate the removal or vandalism of sensitive and rare natural and cultural resources.

Action: Develop regulations with penalty provisions to control removal or vandalism of sensitive and rare natural and cultural resources. Reclamation should take lead and work with law enforcement officials to develop effective control mechanisms.

Task Force Discussion: See I.3.G

- C. Objective: Ensure development and management of use areas to minimize impacts to natural and cultural resources.

Action: Visitor information, facility developments and use designations should be used to encourage recreational use patterns which minimize conflicts with natural and cultural resources.

Action: Adopt a "Pack-in/Pack-out" management policy on the reservoir and develop strategies for publicizing and enforcing this policy.

- D. Objective: Apply Federal environmental quality and state requirements to ensure appropriate protection of threatened and endangered species.

Action: Implement U.S. Fish and Wildlife Service and Oregon Department of Fish and Wildlife recommendations with respect to Federal and state threatened and endangered species protection. Protect those plant species listed by the Oregon Department of Agriculture as Threatened, Endangered, Sensitive, or of Special Concern.

2. Goal: Manage wildlife habitat to protect and enhance game and non-game wildlife.

- A. Objective: Manage and protect existing wildlife habitat and identify potential areas for wildlife management enhancement.

Action: Minimize recreational developments within bighorn sheep habitat.

- B. Objective: Maintain first-form withdrawals on Reclamation lands.

Action: Incorporate first-form withdrawals and a policy to maintain them in the RMP. Prepare strong justification for continuing first-form withdrawals located within the Owyhee Reservoir resource area.

Restore to the Bureau of Land Management those lands under first-form withdrawal along the Owyhee River upstream of Owyhee Reservoir. These withdrawn lands are now protected under the National Wild and Scenic Rivers Act. Restoration of these lands to the BLM would simplify implementation of the wild and scenic river management plan for the Owyhee River corridor.

3. Goal: Maintain Owyhee Reservoir water quality levels which are suitable for swimming, fish production and consumption, and which are aesthetically appealing.

- A. Objective: Work with all parties/agencies, to ensure that land use practices do not adversely affect Owyhee Reservoir water quality.

Action: Support and/or recommend restrictions on proposals which could have an adverse effect on river or reservoir water quality.

Action: Support and/or recommend measures to control non-point source pollution in the watershed. (A non-point source cannot be traced to a specific, identifiable point of entrance to water. Non-point sources usually originate from land-use activities and are carried to lakes and streams by runoff).

Task Force Discussion: Task Force members feel that it is important that the RMP protect the water quality of Owyhee Reservoir. Of particular concern is the mercury level present in reservoir fish tissues. If these levels become further elevated, restrictions on the consumption of reservoir fish may be necessary.

### III. RESERVOIR OPERATIONS

1. **Goal:** Manage reservoir operations to ensure existing irrigation commitments are met. Where feasible and without affecting these existing commitments, meet other water resource needs in the resource area.

A. Objective: Within the constraints of existing irrigation and power operation commitments, develop a reservoir operation which enhances reservoir and river recreation, reservoir and downstream fisheries, and flood control benefits.

Action: Work with the Owyhee Irrigation District to manage reservoir operations to meet other water resource needs.

Conduct hydrologic simulations to evaluate various reservoir operation scenarios on irrigation water supplies and electric power generation.

Task Force Discussion: Task Force members were very concerned about potential effects on reservoir operations from measures recommended in the RMP. The option of assisting the district to find ways to provide recreation, fishery and flood control benefits without adversely affecting existing irrigation commitments was a compromise solution.

Flood control is an inherent part of any reservoir operation. Hydrologic studies are in progress and results are expected by the end of October 1990.

2. **Goal:** To the extent practicable, minimize liabilities associated with dam operation and maintenance.

A. Objective: Evaluate the need for and implement appropriate measures to protect the visitor.

Action: Examine and implement measures to minimize liabilities associated with Owyhee Dam and appurtenant structures.

#### IV. FISHERIES

1. **Goal:** Improve and manage the reservoir fishery to enhance recreational fishing opportunities.

A. **Objective:** Evaluate and develop solutions to existing reservoir fishery problems, to include:

- 1) Habitat development/improvement
- 2) Water quality improvement/reservoir operations
- 3) Recommendations for management of undesirable non-game species and control of catch and size limits.

**Action:** Support the proposed ODFW fishery study and provide a mechanism in the RMP to modify the plan as needed to respond to the findings and recommendations of the study.

**Task Force Discussion:** Task Force members feel that a healthy and productive fishery is critical to recreational use at Owyhee Reservoir. The reservoir fishery has declined since the 1950's and the exact causes of this change are not known. Possible problems may stem from adverse effects from tournaments, problems with spawning resulting from reservoir fluctuations, and the need for improved fisheries habitat.

The Task Force recommends BOR's involvement in the ODFW fishery study and recommends that the following specific actions be considered:

- 1) Do not conduct bass tournaments during spawning season
- 2) Change the release locations for the tournaments
- 3) Use photo tournament method during spawning season
- 4) Intall reservoir structures to improve fish habitat
- 5) Monitor mercury levels in Owyhee Reservoir fish tissues to ensure public health requirements are being met

2. **Goal:** Provide a high-quality recreational fishery below Owyhee Dam.

A. **Objective:** Develop and evaluate solutions to existing fishery needs, within the limits of existing irrigation and power operation commitments, including:

- 1) habitat improvement
- 2) reduced river fluctuations
- 3) water quality improvement
- 4) establishment of year-round streamflows

**Action:** Work with the irrigation district in exploring options for providing year-round streamflows.

Support the ODFW's recommendation to introduce brown trout for a trophy fishery and continue stocking rainbow trout for consumption.

Task Force Discussion: ODFW would like to see year-round minimum streamflows on the river. Task Force members support a healthy downstream fishery, but are concerned about changes to reservoir operations which would affect irrigation water supplies.

## V. ADJACENT LAND USES

1. Goal: Ensure that adjacent land uses and the Owyhee Reservoir RMP are compatible.

A. Objective: Seek compatibility with county, state and private land use plans.

Action: Review relevant plans, identify potential conflicts and resolve conflicts with appropriate entities.

B. Objective: Maintain compatibility with BLM land-use plans and practices which are environmentally acceptable and consistent with sound resource management practices.

Action: Review BLM land-use plans and practices and evaluate compatibility with Owyhee Reservoir RMP. If necessary, update Owyhee Reservoir RMP when wilderness area designations are decided.

Task Force Discussion: Compatibility with BLM land-use designations and management plans is important because most of the reservoir lands border wilderness study areas. The Task Force members believe that their recommendations are consistent with wilderness designation. However, some members do not wish to endorse current BLM plans and practices with respect to other land uses, such as mining and grazing. Therefore, compatibility with BLM plans and practices is an objective only where those practices are deemed environmentally acceptable and represent sound resource management.

C. Objective: Develop consistent programs for management of grazing and other land uses to minimize erosion, and to protect riparian and other sensitive areas.

Action: Eliminate cattle grazing within the State Park and resort areas. BOR and BLM should work with livestock permittees to minimize any impacts of cattle grazing that conflict with recreational use, wildlife habitat and riparian protection during spring, summer and fall.

Task Force Discussion: The Task Force believes that grazing of cattle along the Owyhee River below the dam is a recognized use, particularly in the winter time when other uses are minimal. At other times of the year, there may be conflicts between cattle grazing, recreational use, and riparian protection.

The Task Force recognizes the high value of tributary drainages, notably those with live water and riparian areas, to the overall

long-term economic productivity of the reservoir area. Other measures suggested to protect riparian areas on which the Task Force identified a need but could not reach consensus are as follows:

- 1) Develop long-term goals and guidelines for restoring productive riparian areas and increasing the seasonal amounts of water for wildlife and other uses.
- 2) Develop priorities for designing and implementing measures to restore tributary drainage riparian areas.
- 3) Select a priority tributary drainage for early action in implementing the Owyhee Reservoir RMP.

## VI. ACCESS

### 1. Goal: Provide better vehicular access to the reservoir.

- A. Objective: Improve road access to Owyhee Dam and Lake Owyhee Resort to accommodate all types of vehicles, including recreational vehicles (RV's).

Action: If requested by the county, assist in evaluating options for improvement of the existing road.

Task Force Discussion: Other options for vehicular access were discussed by the Task Force but cost was deemed a prohibitive factor for all options except improvements to the existing road. Malheur County/Nyssa Road District would take the lead on road improvements unless the County and District are successful in getting the state or another entity, to assume responsibility. Any major road improvement work between Owyhee Dam and the resort would result in adverse short-term affects on reservoir water quality.

### 2. Goal: Explore the potential of improving the Pelican Point airstrip to enhance recreation use of the reservoir.

- A. Objective: Explore opportunities and implement appropriate measures to maintain state-constructed airstrip for low-intensity, fly-in camping/picnicking at Pelican Point.

Action: Allow for improvement and maintenance of Pelican Point airstrip consistent with other recreation proposals for the area.

Task Force Discussion: With respect to the airstrip, Task Force members recommended several measures which would require actions by agencies other than Reclamation. These include evaluating the viability of maintaining grading equipment access at Pelican Point (road access to Pelican Point is controlled by the BLM). Improvement and maintenance of the airstrip is the responsibility of the Oregon State Aeronautics Board.

