HENRY HAGG LAKE
Resource Management Plan

U.S. Department of the Interior
Bureau of Reclamation

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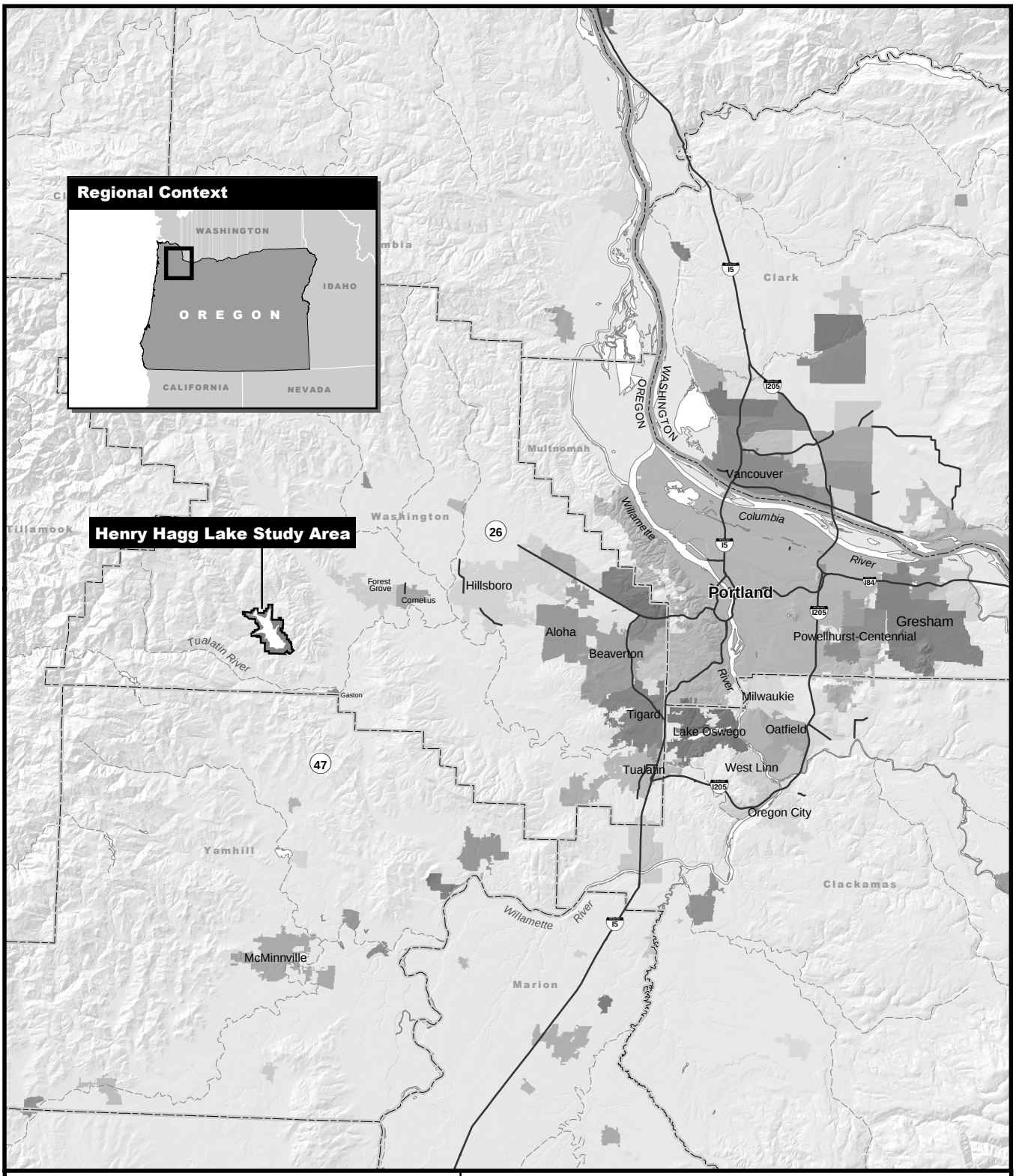

Regional Location Map

Henry Hagg Lake RMP

Highway
Stream
County Boundary
State Boundary

N

0 5 10
Miles

1:530,000

Source: ESRI, USBR, USGS, EDAW, 2003

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Acronyms and Abbreviations

af	Acre-foot
AF-10	Agricultural Forest – 10 (Land Use Designation)
AF-20	Agricultural Forest – 20 (Land Use Designation)
AF-5	Agricultural Forest – 5 (Land Use Designation)
AINW	Archaeological Investigations Northwest, Inc.
ARPA	Archaeological Resources Protection Act
BLM	Bureau of Land Management
BMP	Best Management Practice
BOD	Biological Oxygen Demand
BP	Before present
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	Cubic feet per second
COE	U.S. Army Corps of Engineers
CWA	Clean Water Act
CWS	Clean Water Services
dB	Decibel
dBA	a-weighted decibel
DLUT	Department of Land Use and Transportation
DM	Department Manual
DO	Dissolved oxygen
EA	Environmental Assessment
EFC	Exclusive Forest and Conservation (Land Use Designation)
EFU	Exclusive Farm Use (Land Use Designation)
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FONSI	Finding of No Significant Impact
FWCA	Fish & Wildlife Coordination Act
GRFD	Gaston Rural Fire Department
HR	House Rule
HUWC	Hillsboro Utility Water Commission
IPM	Integrated Pest Management
ITA	Indian Trust Asset
IWG	Interagency Work Group
LOS	Level of Service
mph	Miles per hour
MPN	Most Probable Number
NAGPRA	Native American Graves Protection and Repatriation Act
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
NGO	Non-Government Organization
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service

Acronyms and Abbreviations (continued)

NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NTU	Nephelometric Turbidity Unit
O&M	Operations & Maintenance
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ODEQ	Oregon Department of Environmental Quality
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish & Wildlife
ONHP	Oregon Natural Heritage Program
ORV	Off-road vehicle
PAM	Planning Aid Memorandum
PL	Public Law
PSU	Portland State University
PWC	Personal watercraft
Reclamation	U.S. Bureau of Reclamation
R-IND	Rural Industrial
RM	River Mile
RMP	Resource Management Plan
SC	Sensitive Critical
SHPO	State Historic Preservation Office
SoC	Species of Concern
SOD	Sediment Oxygen Demand
SU	Sensitive Undetermined
SV	Sensitive Vulnerable
TCP	Traditional Cultural Property
TES	Threatened, Endangered, or Sensitive
TVID	Tualatin Valley Irrigation District
USA	Unified Sewerage Agency
USFWS	U.S. Fish & Wildlife Service
USGS	U.S. Geological Survey
WACCCA	Washington County Consolidated Communication Agency
WACO	Washington County, Facilities Management

Chapter 1

Introduction

CHAPTER 1.0
INTRODUCTION

1.1 RMP Program and Policy

The Pacific Northwest Region of the Bureau of Reclamation (Reclamation) is conducting a multi-year program to prepare a Resource Management Plan (RMP) for each of its major facilities. This program is guided by Federal legislation and policies to ensure that Federal lands are managed to serve a wide range of public purposes. RMP preparation is specifically authorized in Title 28 of Public Law 102-575. It is also an outcome of *Assessment '87*, a Reclamation study that examined the future direction of its programs. This study established a broad framework for moving forward into the 21st century, with increased emphasis on the improved management of projects and the protection of the environment. Each RMP is intended to provide the management framework needed to balance the development, use, and protection of Reclamation lands and their associated natural, cultural, and recreational resources. It is Reclamation's blueprint for future resource management decisions to guide Reclamation, managing partners, and agency cooperators, as well as inform the public about the resource management policies and actions to be implemented over the life of the RMP.

Reclamation's resource management policy is to provide a broad level of stewardship to ensure and encourage resource protection, conservation, and multiple use, as appropriate. Management practices and principles established in this RMP, in accordance with existing Federal laws, regulations, and policies, provide for the protection of fish, wildlife, and other natural resources; cultural resources; public health and safety; and applicable uses of Reclamation lands and water areas, public access, and outdoor recreation.

1.2 Purpose and Scope of the Plan

The Henry Hagg Lake RMP is being prepared in cooperation with Reclamation's non-Federal managing partner at Henry Hagg Lake – Washington County, Facilities Management (WACO), the local agency responsible for managing recreation facilities on Reclamation lands at Scoggins Valley Park/Henry Hagg Lake.

The Henry Hagg Lake RMP is a 10-year plan to provide management direction for lands and waters under Reclamation jurisdiction in the vicinity of Henry Hagg Lake in Washington County, Oregon about 30 miles southwest of the city of Portland, Oregon. Collectively, the entire area is referred to as the "RMP study area" in this document.

Reclamation currently does not have an RMP for its lands around Henry Hagg Lake. The purpose of this RMP is to address current and anticipated future issues to permit the orderly and coordinated development and management of lands and facilities and the water surface under Reclamation jurisdiction in the RMP study area. The plan will be used as the basis for directing activities on Reclamation lands and the reservoir in a way that maximizes overall public and resource benefits, and that provides guidance for managing the area during the next 10 years.

Through implementation of the RMP, Reclamation aims to balance competing and con-

flicting demands for differing uses and to maximize compatibility with surrounding land uses, while affording an appropriate level of resource protection and enhancement.

Over the course of implementing the RMP, it will be reviewed, reevaluated, and revised (if necessary) in cooperation with all involved agencies and Tribes to reflect changing conditions and management objectives. If a proposed modification to the RMP would significantly affect area resources or public use, opportunities for public involvement will be provided. The RMP will be fully updated at the end of its 10-year life.

In addition to this introductory chapter, the RMP contains the five main chapters, summarized below.

Chapter 2 summarizes the relevant natural, visual, cultural, and socioeconomic resources around the reservoir. The resource inventory describes existing conditions and lays the framework for identifying suitable resources for a variety of land and water uses, as well as sensitive resources that require special protection, enhancement, or restoration.

Chapter 3 summarizes existing land use and management. The range of existing land uses is described and existing land use agreements identified. These include: Project facilities and general operations (i.e., Scoggins Dam and Henry Hagg Lake); agreements, easements and permits; encroachments; public facilities, utilities and services; recreational uses; and access and transportation.

Chapter 4 provides a detailed description of the RMP planning process, including the public involvement program and input received through newsbrief response forms, meetings/workshops, and agency consultation. This chapter also describes Reclamation's efforts regarding its trust responsibilities to the affected Tribes. All of this information helped identify the range of issues and concerns, establish goals and objectives, identify the range of alternative plans for study, and modify the Preferred Alternative, which became the RMP.

Chapter 5 is the core of the RMP and provides a detailed description of the Goals, Objectives, and Management Actions associated with the plan. The Goals, Objectives, and Management Actions are organized according to the following six themes: (1) natural resources; (2) cultural resources; (3) Indian sacred sites; (4) Indian Trust Assets; (5) recreation and access; and (6) land use, management, and implementation.

Chapter 6 presents the implementation program associated with the Management Actions set forth in Chapter 5. This includes a description of program phasing, related actions, priorities, and responsible entities, as well as the process involved with amending and updating the plan.

1.3 Relationship to Tualatin Valley Water Supply Feasibility Study

Clean Water Services (CWS) is a wastewater service agency serving 122 square miles in urban Washington County, small portions of Portland and Lake Oswego, and parts of Multnomah and Clackamas Counties. In response to increasing water use demands in the Tualatin River Basin, CWS, in cooperation with several municipalities and Tualatin Valley Irrigation District (TVID), is preparing a Water Supply Feasibility Study (WSFS) and associated Environmental Impact Statement (EIS) to study alternatives for increasing water supply in the Tualatin River Basin. Reclamation is providing technical assistance in assessing alternative water supply source options, which include:

- Expansion of Henry Hagg Lake by raising Scoggins Dam 20 feet;

- Expansion of Henry Hagg Lake by raising Scoggins Dam 40 feet; and

- Exchange of Willamette River water for irrigation.

Options to be considered as components of all supply alternatives involve water conservation, waste water reuse, aquifer storage and recovery, and near-term additional supply from Portland. A No Action Alternative will also be analyzed.

The WSFS was started in November 2001 as a collaborative effort led by CWS. A preferred alternative is scheduled to be identified in the summer of 2004. In preliminary studies, scientists and engineers identified potential water sources to be evaluated. These potential sources and the planned WSFS approach were presented for public review and comment during scoping meetings in January 2002. Subsequently, it is planned that information on alternatives, impacts, and possible mitigation will be presented to the general public for review. Public comments will become part of the body of knowledge used in selecting a preferred alternative. Because the preferred alternative might involve Federal action, the study will complete the investigation and analysis necessary to develop a Planning Report and Environmental Impact Statement (PR/EIS) pursuant to NEPA. A draft PR/EIS would be presented to the public for comment under this scenario.

Raising the dam 20 or 40 feet would inundate most recreation facilities at, and portions of the road around, Henry Hagg Lake. While long-range timing is difficult to predict, implementation of the WSFS preferred alternative may occur in 2008, within the planning period for this RMP. Outcomes from the WSFS that would affect Henry Hagg Lake would be considered in the next RMP process. To ensure full coordination among the interested parties, both CWS and TVID were represented on the Ad Hoc Work Group for the Henry Hagg RMP process (see Section 4.0 for more information on the role of the Ad Hoc Work Group).

This RMP was developed with the understanding that the potential dam raise project at Henry Hagg Lake would replace any affected recreation amenities (including structures, trails, parking, roadways, infrastructure, and land) on a like-for-like basis as part of the cost of that project. Such expenditure would not be subject to cost sharing by Reclamation. This RMP recognizes that it would not be in the public's interest to invest in substantial recreation development at Scoggins Valley Park that does not currently exist as of January 1, 2004 and would need to be replaced if the dam were raised. Therefore, recreational development improvements prior to the final decision on the dam raise will concentrate on elements that are portable and/or do not require large capital expenditures for permanent facilities.

In addition, Reclamation, WACO, and ODFW have developed a plan for maintaining and monitoring the elk meadows located around Henry Hagg Lake and just downstream of the dam in the Reclamation Zone. Some of these elk meadows could be inundated from a dam raise, depending on the height of the dam improvement. Similar to recreation resources, this RMP assumes that inundated elk meadows would be replaced in the vicinity of Henry Hagg Lake, and that these costs are not subject to cost-sharing with Reclamation. The two new elk meadows that will be developed under this RMP will be out of the zone of influence from any dam raise.

1.4 Location and Description of the RMP Study Area

Henry Hagg Lake is located in western Washington County, Oregon, approximately 30 miles southwest of the city of Portland. The study area lies within the 38-square-mile drainage basin of Scoggins Creek, in the foothills of the Oregon Coast Range. The reservoir is an impor-

tant recreation resource in the region, both for local residents as well as those from the Portland metropolitan area. As the region continues to grow, Reclamation expects that more people will use the area. This increasing recreation use, as well as the potential conflicts among recreation, aesthetic, and natural resources, is an important reason for preparing a management plan for the area's resources

As shown in Figure 1.4-1, the RMP study area consists of Reclamation-owned lands surrounding Henry Hagg Lake. Reclamation's jurisdiction includes Henry Hagg Lake (1,132 acres) and adjacent lands (1,449 acres). Reclamation lands generally consist of a strip of land around the reservoir with about 11 miles of shoreline. Lands surrounding the Reclamation lands are a patchwork of private and Federal lands, including several private residences directly adjacent to Scoggins Valley Park.

Primary road access to Henry Hagg Lake is provided by Highway 47 and Scoggins Valley Road.

Photo 1-1. Aerial view of Scoggins Dam, Henry Hagg Lake, and surrounding area.

1.5 Project Summary

Construction on Henry Hagg Lake began in 1972 and was completed in 1975 to provide irrigation service for the Tualatin Valley, municipal and industrial water supply for eight communities, flood control, recreation opportunities, maintenance of water quality, and fish and wildlife enhancement. Henry Hagg Lake is part of Reclamation's Tualatin Project, which supplies irrigation water to the Tualatin Valley, supplies municipal water to local communities, and provides flood control. With a surface area of 1,132 acres, the reservoir has a storage capacity of 59,950 acre-feet (af). The reservoir and surrounding park are owned by the United States, under Reclamation's jurisdiction, while water-related recreation features, natural resources, and lands of the surrounding park are managed, operated and maintained by WACO, Reclamation's non-Federal managing partner. The park features many day use picnic areas, two boat launches, a fishing pier, and several miles of trails. In 1973, WACO entered into a 50-year lease agreement with Reclamation for administration of Scoggins Valley Park for public outdoor recreation use and for fish and wildlife enhancement. Planning for the park facilities was done by the National Park Service (NPS) in 1970. Using the NPS plan, work began on park recreational facilities in 1975. As the facilities became available, they were opened for use by the public. The last NPS plan based facility was completed in 1978. Due to an increase in popularity and recreational use during the 1980s, WACO developed a Master Plan (1989) that identified additional or not yet developed recreational facilities to meet this growing demand. A 1994 NEPA EA evaluated three management options for Henry Hagg Lake (Reclamation 1994). The preferred alternative was chosen and provides the guidance under which the park has been managed. This RMP supersedes management under the 1994 EA. The park is open for day use from the first Saturday in March through the last Sunday prior to Thanksgiving.

[Insert Figure 1.4-1 here]

Back of Figure 1.4-1

Photo 1-2. Scoggins Dam and spillway at full pool.

1.6 Overview of Public Involvement, Agency, and Tribal Coordination

Reclamation conducted an extensive public involvement program as part of the RMP planning process to ensure representation and participation by all those interested in the future of Henry Hagg Lake. To achieve full representation, the program was designed to reach a user population that was dispersed over a broad geographical area, representing diverse points of view, and enthusiastic in participating in the RMP planning process.

The public involvement program consisted of four primary elements: (1) four newsbriefs mailed to agencies, Tribes, elected officials, organizations, media, and individuals; (2) two public meetings/workshops; (3) four meetings with a group formed as part of the RMP planning process to represent key stakeholders (including agencies, Tribes, and interest groups in the area); and (4) a public web site providing access to newsbriefs, draft materials, and meeting announcements. These elements, as well as additional agency and Tribal consultation efforts, are discussed in further detail in Chapter 4.

Chapter 2

Existing Conditions

CHAPTER 2.0
EXISTING CONDITIONS

2.1 Natural Resources

2.1.1 Climate

The climate of the Scoggins Valley is relatively mild throughout the year, characterized by cool, wet winters and warm, dry summers. The climatic conditions closely resemble the Mediterranean climates that occur in California, although Oregon's winters are somewhat wetter and cooler. Similar to most of Oregon, the Scoggins Valley has a predominant winter rainfall climate. Typically about 50 percent of the annual total precipitation falls from December through February, with lesser amounts in the spring and fall, and with very little during the summer.

There is considerable variation in precipitation within the Willamette Valley ranging from annual totals below 40 inches in the Portland area to upwards of 80 inches in the Cascade and Coast Range foothills. Elevation is the most important determinant of precipitation totals. Extreme temperatures in Scoggins Valley are rare; only about 5 days on average per year are at or above 90 degrees (F) and about 51 days a year have temperatures below freezing. Snow fall is limited to about 5 inches per year (Oregon Climate Service 2002). Winters are likely to be cloudy with an average of 80 percent cloud cover during the coldest months. Twenty six days are generally cloudy in January for instance. During the summer sunshine is more abundant with average cloud cover less than 40 percent and more than half the days in July are clear.

The Scoggins Valley area is in attainment with federal air quality standards (Oregon Department of Environmental Quality 2002). The general vicinity is rural and other than the nearby lumber mill there are few pollution generators. Henry Hagg Lake is outside of the nearby Portland Metropolitan Service District, which extends west as far as Forest Grove. This district is considered a maintenance area by the U.S. Environmental Protection Agency because it had a history of non-attainment of air quality standards but is currently meeting these standards.

2.1.2 Topography

Much of the land surrounding the reservoir is hilly and has slopes of 20 percent or greater (Figure 2.1-1) (Reclamation 1994). Elevations within the park range between 180 and 450 feet but adjacent features extend to above 1,000 feet. Level areas can be found adjacent to the reservoir particularly between Scoggins and Tanner Creeks and north of the Sain Creek cove. In many areas moderate slopes lead from the reservoir edge at full pool (Photo 2-1).

Photo 2-1. Aerial view of Henry Hagg Lake and surrounding foothills and Coastal Mountain Range.

The creeks leading into the reservoir flow through narrow, often steep canyons. Downstream of the dam Scoggins Creek flows through a wide, level valley dominated by agriculture.

2.1.3 Geology

Henry Hagg Lake and the Scoggins Creek drainage basin lie on the eastern side of the Coast Range. The geology in the area consists of Tertiary volcanic rocks and marine sediments. The volcanics consist of basaltic flows and the sediments are poorly indurated (cemented into a hard mass) marine sandstone, shale, siltstone, and claystone.

There are four distinguishable formations that comprise most of the drainage area. These include, in order of decreasing age, the Lower Eocene Siletz River Formation (pillow flows and breccia), the Middle Eocene Yamhill Formation (cemented siltstone and claystone), the Upper Eocene Tillamook Volcanics (basalt flows), and Tertiary Intrusive Rocks that consist primarily of dikes and sills of basalt (Reclamation 2000).

Extensive weathering of the Tertiary formations has occurred as the result of precipitation and time. Outcrops of unweathered rock are rare and the degree of weathering is more or less uniform in depth throughout the area. Weathering generally ranges from 20 to 30 feet in depth below ground surface. The residual soil is composed of soft, tan to brown, moist, lean to fat clay to clayey sand with scattered decomposed fragment of sedimentary and volcanic rock. A thin surface layer of topsoil mantles the residual soil. The topsoil consists of organic silt with lesser amounts of fine sand (Reclamation, 2000)

2.1.4 Soils

Soils in the vicinity of Henry Hagg Lake are derived from the weathered marine sediments and volcanic rocks that form the east slopes of the Coast Range. Soil profiles in the area generally consist of a thin layer of topsoil mantling a deeper layer of residual soils. Area topsoil is composed of organic silt with lesser amounts of fine sand. The underlying sediments consist of material formed from extensive weathering and mixing of the existing marine sediments with the Tertiary volcanic rock formations. This residual soil is generally well-drained and characterized by a soft, tan-to-brown, moist, clay-to-clayey sand with scattered decomposed fragments of sedimentary and volcanic rock (Reclamation 2000).

The moderately steep topography of the Scoggins Valley, coupled with the extensive annual precipitation, has resulted in area soil deposits created largely through alluvial processes. The 14 soil types that occur in the vicinity of Henry Hagg Lake are listed in Table 2.1-1 and illustrated in Figure 2.1-2 (USDA 1982). The specific locations of occurrence of soil types in and around Scoggins Valley Park are shown in Figure 2.1-1.

Many of the soil types located on the steeper slopes (>10%) in the study area represent moderate to severe erosion hazards. In general, the geologic process of sediment accumulation that resulted in the formation of the majority of study area soil types also resulted in soil characteristics conducive to erosion. Subsurface material formed from alluvial (related to surface water), colluvial (sediment deposited at the base of slopes), and eolian (wind-weathered) processes tend to be non-cohesive and subject to slippage along steep slopes. However, these same soil types tend to be well-drained with slow runoff in more level areas, which may mitigate the potential for erosion.

Soil erosion in surrounding lands and the resulting deposition of sediments into Henry Hagg Lake have been long-standing concerns of land managers (Photos 2-2 and 2-3). In planning for park development prior to the construction of Scoggins Dam, potential sediment yield and lost reservoir capacity

Figure 2.1-1 Slope and Hydrography

Back of figure 2.1-1

Figure 2.1-2 Soils

Back of figure 2.1-2

Table 2.1-1: Soil types adjacent to Henry Hagg Lake.

Map Unit	Soil Type	Slope	Depth to Bedrock	Erosion Hazard	Soil Characteristics
6B	Carlton Silt Loam	0-7%	>65 in	slight-moderate	moderately well-drained silty clay loam; permeability is moderate to slow
8C	Chehalem Silty Clay Loam	3-12%	>50 in	slight-moderate	gently sloping to moderately steep on alluvial fans; runoff is slow to medium,
10	Chehalis Silt Loam	Nearly level	>60 in	slight	well-drained, silt loam surface with heavy silt loam subsoil; runoff slow
9	Chehalis Silty Clay Loam	Nearly level	>60 in	slight	deep, well-drained; runoff slow; located on smooth flood plains
19B,C,D,E	Helvetia silt loam	2-30%	>60 in	slight-severe (depending upon slope)	moderately well-drained; moderately slow permeability; slightly acid; four soil types and map units based on slope
29B,C,D,E,F	Laurelwood Silt Loam	3-60%	>70 in	slight-severe (depending upon slope)	deep, well-drained; moderate permeability; acidic, formed in silty eolian material overlying fine-textured uplands
30	McBee Silty Clay Loam	30-65%	>65 in	slight	moderately well-drained; moderate permeability; silty clay loam surface, dark clay loam subsoil
31B,C,D,E,F	Melbourne Silty Clay Loam	2-60%	>65 in	slight-severe (depending upon slope)	deep, well-drained; moderately slow permeability; silty clay loam, formed in residuum and colluvium weathered from sedimentary rock
35C,D,E,F,G	Olyic Silt Loam	5-90%	40-60 in	moderate –severe (depending upon slope)	well-drained; moderately slow permeability; silt loam surface layer; silty clay loam subsoil 30 inches thick
36C,D,E,F	Pervina Silty Clay Loam	7-60%	40-60+ in	moderate-severe (depending upon slope)	well-drained; moderately slow permeability, from sedimentary rock residuum and colluvium, over siltstone and shale at 40-60+ inches
38B,C,D,E,F	Saum Silt Loam	2-60%	50 in	slight-severe (depending upon slope)	well-drained; silt and silty clay loam; medium acid profile; slow runoff
39E,F	Tolke Silt Loam	5-60%	>60 in	moderate-severe	well-drained, from eolian materials in volcanic ash, moderate permeability
40	Udifluvents	nearly level	varies with subsoils	slight	heterogeneous mixture of soils deposited in concave streambeds, silt, loams, cobbles, pebbles; moderate permeability; runoff slow, often ponded
43	Wapato Silty Clay Loam	0-3%	varies with subsoils	slight	poorly drained; runoff slow; vernal ponding; bottomlands along streams

Source: USDA 1982.

were estimated. No formal written report is available documenting these sediment yield estimates. However, Table 2.1-2 presents data on estimated potential sediment yield and capacity reduction presumably based upon 1955 planning studies as reported by Water Resources Services to Reclamation (pers. comm., Ferrari 2000). The estimated sediment yields are slightly higher than estimates for other western reservoirs likely due to assumed local precipitation, surrounding steep topography, or actual data from sediment load sampling prior to park development (Reclamation 2000).

Photo 2-2. Shoreline erosion near Elks Picnic Area.

Actual rates of sediment deposition in Henry Hagg Lake are thought to be close to the pre-reservoir estimates identified above. Reclamation, in a report entitled Geologic Report on Sediment Accumulation and Distribution in Henry Hagg Lake (Reclamation 2000), documents the nature and extent of sediment deposits at the mouths of Scoggins, Sain, and Tanner Creeks. The investigation focused on exposed sediments during a mild drought period in November 1999. The majority of the lakebed sediment deposition was found to occur below elevation 270.0 feet, corresponding to the level at which the reservoir is maintained for flood storage during the winter storm period when the majority of the sedimentation occurs.

The area of accumulation around the mouths of Scoggins, Sain, and Tanner Creeks was estimated at 60 acres, 30 acres, and 10 acres respectively. The depth of post-reservoir deposits in these areas averaged 2.5 feet, ranging from 0.5 to 5 feet. Based upon this 2.5 feet average depth, the total volume of sediments exposed at low water during 1999 field studies was estimated at 250 af (Reclamation 2000).

Photo 2-3. Shoreline erosion control structure at Sain Creek Picnic Area (at low pool).

Using data collected from the exposed sediments investigated in November 1999, Reclamation was able to estimate the amount of submerged lakebed sediments accumulated since the construction of Scoggins Dam. The total area of sediment accumulation in the irregularly shaped, submerged depositional area was estimated at 100 acres. Based on an average thickness of 2.5 feet, the volume of submerged sediments was estimated at 250 af. Thus, Reclamation concluded that in 1999 the total volume of accumulated sediments (ex-

Table 2.1-2: Pre-reservoir estimated sediment yield and capacity reduction.

Original capacity	59,910 af
Drainage area	40.6 square miles
Projected annual sediment yield	0.51 af/square mile
Projected sediment inflow	2,000 af/100 years
Lost capacity in 100 years	3.3%

Source: Reclamation 2000.

posed at low water plus those submerged at low water) deposited in Henry Hagg Lake was approximately 500 af. A bathymetric survey has been scheduled for the near future to more precisely assess the actual sediment accumulation in Henry Hagg Lake since dam construction (Reclamation 2000).

The combination of underlying lithology and surface soils in the Scoggins Creek watershed makes the lands around Henry Hagg Lake highly susceptible to slumping and landslide activity. DLUT has monitored landslide activity in the vicinity of local access roads – in particular, Scoggins Valley Road and West Shore Drive – since prior to their development. Repair and mitigation for landslide activity along park roads are frequent and widespread (pers. comm., G. Clemmons, 2002). In the 1970s, extensive slide activity was noted on Scoggins Valley Road along the north shore of the reservoir and north of Nelson Cove, and on West Shore Drive near the current location of Recreation Area C. More recent land movements have been noted along West Shore Drive south of Scoggins Creek and along Scoggins Valley Road 0.75 mile north of the dam (pers. comm., G. Clemmons, 2002). In addition, extensive localized areas of slippage along Scoggins Valley Road north of the reservoir and on all park roads in general resulted from the extensive precipitation and associated flooding of 1996. In addition, Reclamation surveyed the landslide activity in 1999 (Reclamation 1999). Figure 2.1-3 shows the location of known major slides in Scoggins Valley Park recorded since the creation of Henry Hagg Lake.

Reclamation identified landslides in several areas as early as 1968. Slopes within slides vary in steepness from 5 to 60%. Since completion of the perimeter road in 1975, landslides have caused persistent maintenance problems for Washington County Road Operations and Maintenance personnel. The slides occur in both natural formation and man-placed fill materials and seem to be activated primarily by increases in precipitation and general raising of the local groundwater. In response to the landslides, a number of studies and corrective measures were initiated. Based on a 1980 engineering review, major road relocation was performed on critical areas, specifically Slides B, C, and F (Figure 2.1-3). In conjunction with this road work, horizontal drains were installed at most of the significant slide areas (Reclamation 1999).

Drains were installed at eight locations between 1974 and 1986. The 1999 inventory indicated that two of the eight sets of drains (Slides E and F) were still providing visible drainage. Of the remaining six sets, four could not be found and were assumed to have been sheared by subsequent slide movement, covered by slide debris and vegetation, or excavated during repair of the landslide-damaged road. The horizontal drains installed at Slides B and F were destroyed shortly after installation. Regular maintenance was recommended to keep the remaining drains functional.

Although all of the critical landslides along Scoggins Valley Road are active, it appears that most are not affecting safe operation of the road. Slide C, south of Scoggins Creek, has undergone steady deformation of the past few years and continues to be a road maintenance problem.

A number of landslides also occur outside of the park boundary on private timber lands. One notable slide is located about 2 miles north of the reservoir and was estimated at a volume of 50,000 cubic yards. While outside of the park, these slides have affected water quality in the reservoir as streams carry the mobile sediment.

2.1.5 Hydrology and Water Quality

2.1.5.1 Surface and Groundwater

Henry Hagg Lake is maintained by a watershed of 40.6 square miles located in the foot

hills of the northern Coast Range of Oregon. Water is conveyed to the reservoir via three primary tributaries: Scoggins Creek from the northwest, Tanner Creek from the northeast, and Sain Creek from the west. Combined inflow from these major tributaries ranges from more than 2,000 cfs during months of high precipitation to a flow of less than 10 cfs during the low-flow summer period of May through October (USGS 2002a, 2002b).

Most streams in the Scoggins Creek watershed are perennial. However, flows vary with seasonal extremes, with high peaks in winter and very low flows during the summer months. The period from November to March accounts for 84% of annual flow in the gauged, unregulated streams of the Upper Tualatin-Scoggins Creek watershed (BLM 2000). Table 2.1-3 shows average streamflow both above and below Henry Hagg Lake for representative data year 2000. The percentage flow contribution for each significant tributary is estimated at 69% for Scoggins Creek, 28% for Sain Creek, and 3% for Tanner Creek (Reclamation 2000).

Scoggins Dam and Henry Hagg Lake are part of the Tualatin Project, a Reclamation project first conceptualized in the 1960s and developed in the mid 1970s specifically to provide water storage for municipal and industrial uses, water quality control in the downstream reaches of the Tualatin River, recreational opportunities, conservation of fish and wildlife resources, flood control, and irrigation. Of the 53,640 af of active capacity at Henry Hagg Lake, approximately 14,000 af are designated for supplemental municipal and industrial purposes, and 16,900 af of water are made available to improve water quality in the Tualatin River through scheduled releases to augment natural low flows (Reclamation 2002).

The original natural surface hydrology of the Scoggins Creek subbasin, a component of the larger Tualatin River drainage basin, directed water from the upper reaches of the subbasin above the Sain Creek and Tanner Creek tributaries through approximately 7 miles of relatively high gradient riffle habitat to enter the Tualatin River at river mile (RM) 62.8. From this point in the Tualatin River mainstem to its confluence with the Willamette River upstream of Oregon City, Oregon at Willamette RM 28.5, flows were generally slow moving, passing through wide reaches with peripheral wetland and riparian habitat.

Ecosystems within the Tualatin River watershed have been significantly affected by human development and encroachment with resultant changes to the natural Scoggins Creek and Tualatin River watercourses including: channel straightening and relocation, bank armoring, draining of peripheral and associated wetland habitat, riparian vegetation removal, general urbanization of adjacent lands, and the damming of the natural stream channels both at Scoggins Dam and Tualatin RM 3.4. Since the implementation of the Tualatin Project and construction of Scoggins Dam, flow not diverted for municipal and industrial or agricultural uses is conveyed downstream to augment Tualatin River flows to maintain a minimum monthly mean flow of 120 cfs from

Table 2.1-3: Scoggins, Tanner, and Sain Creek monthly flow data (2000).

	Monthly Average Flow in cfs											
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
In-flow to Henry Hagg Lake												
Scoggins Creek	127	124	87.9	29.1	30.1	30.1	8.81	3.74	4.00	7.07	15.8	44.0
Tanner Creek	12.0	7.90	7.58	2.87	1.77	1.33	0.90	0.00	0.00	0.03	0.33	1.39
Sain Creek	70.9	60.2	53.7	20.4	17.6	14.9	6.46	2.13	1.82	3.45	7.09	25.5
Combined In-flow	210	192	149	52.4	49.5	46.3	16.2	5.87	5.82	10.6	23.2	70.9
Out-flow from Henry Hagg Lake												
Scoggins Creek	205	64.7	105	22.4	47.8	80.1	131	179	143	116	51.8	10.0

Source: Compiled from USGS Stream Gauge Records and USA 2000.

Figure 2.1-3 Landslides

[Fig 3.3-1 in EA]

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June to August and 150 cfs for September to November as measured at Tualatin RM 33.3 (Tualatin River Watershed Council 2002). Flow augmentation is not necessary December – May.

Precipitation within the Tualatin River watershed is characterized by a typical Mediterranean climate with prolonged winter rainfall and summer drought conditions. Higher elevation precipitation, such as found in the upper reaches of the Scoggins Creek subbasin, can amount to 100 to 120 inches annually, while lower elevations, such as the lower reaches of the Tualatin mainstem, typically receive 36 to 48 inches annually (ODEQ 2001). Surface flows conveyed through the Scoggins Creek and Tualatin River watercourses from Henry Hagg Lake travel a total distance of approximately 68 miles, from an elevation of 283.5 feet at the Scoggins Dam spillway crest to 49 feet above sea level where the Tualatin River flows into the Willamette River mainstem (Reclamation 2002; ODEQ 2001).

A description of surface hydrology pertaining to Henry Hagg Lake would be incomplete without mention of the irrigable land affected by Scoggins Creek flow. Some 17,000 acres of land encompassing an area approximately 17 miles long and 15 miles wide located west of the metropolitan area of Portland receive irrigation water from Henry Hagg Lake (Reclamation 2002). By making a dependable water supply available throughout the growing season, the creation of Henry Hagg Lake has ensured increased agricultural production of a variety of crops. Irrigation water is released from the dam into Scoggins Creek and pumped into a gravity-fed distribution network of over 100 miles of pipe at the Patton Valley Pumping Plant on Scoggins Creek about 2.5 miles downstream of the dam and the Spring Hill Pumping Plant 9 miles downstream of the dam on the Tualatin River. In addition, 4,800 acres of land located nearby the watercourses are served by direct pumping of released storage water from Scoggins Creek and the Tualatin River (Reclamation 2002).

2.1.5.2 Water Quality

The Oregon Department of Environmental Quality (ODEQ) monitors and regulates the quality of Oregon's streams, lakes/reservoirs, estuaries, and groundwater. Water quality standards are established to protect the "Beneficial Uses" associated with a particular water body. In general, protected Beneficial Uses pertain to fisheries, aquatic life, drinking water, recreation, and irrigation. Oregon Administrative Rules (OAR Chapter 340, Division 41, Table 6) list specifically identified Beneficial Uses occurring within the Tualatin River watershed (Table 2.1-4) applicable to Henry Hagg Lake and the Scoggins Creek subbasin (ODEQ 2001). Water quality standards for individual pollutants are established to protect the Beneficial Use(s) most sensitive to potential impacts.

ODEQ is mandated according to Section 303(d) of the Federal Clean Water Act (CWA) to list water bodies within the state where one or more water quality standards are not being met. This 303(d) list includes the Tualatin River mainstem and many tributaries and/or stream reaches within the Tualatin River watershed. The Tualatin River mainstem is listed as *water quality limited* for not meeting water quality standards pertaining to ammonia, phosphorous, temperature, bacteria, and dissolved oxygen (DO), Scoggins Creek is listed only for seasonal DO insufficiencies in the lower reaches below Scoggins Dam (ODEQ 2001).

The portion of Scoggins Creek included on the 303(d) list for DO violations includes the lower reach from Scoggins Dam to its confluence with the Tualatin River. This listing pertains only to the time period from November 1 through April 30 when DO levels in the creek have been identified as dropping below DO water quality standards. The lower reach of Scoggins Creek is considered spawning habi-

Table 2.1-4: Beneficial uses identified by ODEQ as occurring in the Tualatin River subbasin.

Beneficial Uses most sensitive to DO insufficiency, as noted in lower Scoggins Creek, are shaded.

Beneficial Use	Occurring	Beneficial Use	Occurring
Public Domestic Water Supply	X	Salmonid Fish Spawning	X
Private Domestic Water Supply	X	Salmonid Fish Rearing	X
Industrial Water Supply	X	Resident Fish and Aquatic Life	X
Irrigation	X	Anadromous Fish Passage	X
Livestock Watering	X	Wildlife and Hunting	X
Boating	X	Fishing	X
Hydro Power	X	Water Contact Recreation	X
Aesthetic Quality	X	Commercial Navigation & Transportation	

Source: ODEQ 2001.

tat for cutthroat trout (*Oncorhynchus clarki*), coho salmon (*O. kisutch*), and steelhead (*O. mykiss*). Based on these Beneficial Uses identified as most sensitive to the effects of low DO, the DO water quality criterion is established at 11.0 mg/L (ODEQ 2001). For the years 1994-1998, DO concentrations were found to be below this water quality standard in 19 of 55 samples collected in the lower reach of Scoggins Creek. The median DO concentration for all samples collected during this time period is 11.4 mg/L, and the median DO percent saturation was 94% (ODEQ 2001).

Previous analyses of the DO levels in the lower reaches of Scoggins Creek have been complicated by the fact that no DO data had been collected in the reservoir itself. Prior to 1999, Scoggins Creek subbasin water quality information that included data on DO levels had only been collected at old Highway 47 (RM 1.5). Without specific information on DO levels in Henry Hagg Lake, the cause of the low DO levels in the downstream reaches of Scoggins Creek could not be confirmed. The low levels of DO were thought to result from either low DO levels in the water released from Henry Hagg Lake or from DO sinks downstream of the dam. DO sinks may develop from high biological oxygen demand (BOD) in runoff draining to Scoggins Creek; potentially high BOD discharges from the Forestex lumber mill located along Scoggins Creek downstream of the dam; and high sediment oxygen demand (SOD) resulting from decomposing organic material in creek bed sediment (ODEQ 2001).

To better understand the cause of the low DO levels in lower Scoggins Creek, the Unified Sewerage Agency (USA, now called Clean Water Services) developed the Henry Hagg Lake Watershed Monitoring Program, a 5-year comprehensive water quality monitoring program initiated in 1999. In addition to DO data, Clean Water Services now collects data on water temperature, pH, conductivity, turbidity, transparency, water chemistry, suspended solids, macroinvertebrates, and bacteria at various depths in Henry Hagg Lake and its three principal tributaries (USA 2000). A summary of water quality criteria for Henry Hagg Lake based upon these data is presented in Table 2.1-5.

Initial water quality data for Henry Hagg Lake collected by USA appear to confirm that the low DO levels in the downstream reaches of Scoggins Creek result from relatively low DO levels in the impounded waters of Henry Hagg Lake. However, because Scoggins Dam represents a fish passage barrier preventing the spawning of salmonids sensitive to decreased levels of DO, the reservoir and tributaries in the upper reaches of the Scoggins Creek subbasin are considered suitable for all identified Beneficial Uses as defined by ODEQ.

Table 2.1-5: Approximate range of Henry Hagg Lake water quality criteria based upon 2000 collection data.

	Water Temp (°C)	pH	DO (mg/L)	Conductivity (µS/cm)	Turbidity (NTUs)	Transparency (in.)	Total Coliform/100 ml (MPN)	NH_3, total N (mg/L)
Summer Months	10.0-25.0	5.8-7.2	0.5-8.0	50.0-60.0	2.0-10.0	80-150	20-200	<0.01-0.01
Winter Months	5.0-12.0	6.8-7.8	9.0-12.0	60.0-130.0	8.0-40.0	40-140	5-70	<0.01-0.01

Source: USA 2000.

Although Henry Hagg Lake and Scoggins Creek are not 303(d) listed for temperature violations, water temperature in the reservoir and the Scoggins Creek subbasin is an important water quality consideration. Water is released from Scoggins Dam to both augment flows and improve water quality in the Tualatin River, which is listed for temperature violations, with temperatures in the lower reaches of the Tualatin often exceeding the 64°F (17.8°C) temperature criterion during the summer months (ODEQ 2001). Like most reservoirs, Henry Hagg Lake undergoes seasonal thermal stratification and thus influences downstream temperatures differently depending on the time of the year. Henry Hagg Lake is a bottom release reservoir and draws from the deeper hypolimnion water layer, which is significantly cooler than Tualatin River flows during the early summer months. In the late summer when the reservoir has been drawn down, Scoggins Dam releases from the warmer epilimnion water which can, at times, exceed temperatures in the mainstem Tualatin.

Turbidity, suspended sediments, and sediment deposition into the reservoir are major water quality concerns in Henry Hagg Lake. The lithology and sedimentary soils of the Scoggins Creek watershed make the area highly susceptible to surface erosion. In addition, the sedimentary formations in the watershed are weak and susceptible to slumping and landslide activity. Eroded sediments are conveyed through surface waters to Henry Hagg Lake. This has resulted in the accumulation of approximately 500 af of sediments, which represents a total loss of 0.83% of reservoir volume (Reclamation 2000). Although the rate of sediment accumulation (estimated at 19.2 af per year) is approximately consistent with the pre-reservoir estimate of 20 af per year, the large amount of sediment entering Henry Hagg Lake may be largely responsible for problems with water quality. Specifically, this sediment contributes to BOD and the diminished DO levels in the reservoir and the lower reaches of Scoggins Creek.

2.1.6 Vegetation

2.1.6.1 Cover Types

Figure 2.1-4 shows the general vegetation cover types within the RMP study area and on the adjacent lands. During drawdown, the shoreline is dominated by extensive exposed mudflats. Exposed unvegetated mudflats consisting of the bathymetric sediment deposits of Henry Hagg Lake can extend from the high water shoreline over 1,000 feet (depending on topography) during periods of low precipitation and when the water level is lowered to provide storage for winter flood control (Reclamation 2000). When the water level is high, cover types along the immediate shoreline include emergent wetlands, riparian shrub, and areas where upland grassland and forested habitat extend to the waterline.

Cover types not directly associated with the waters of Henry Hagg Lake or its tributaries are generally upland mesic communities with low-to-moderate slopes ranging from 5 to 25%. Upland cover types in the RMP study area can be divided into two general descriptive categories: forested and grassland.

Forested areas account for more than 70% of the upland habitat in the RMP study area and include: conifer forest, mixed (coniferous/deciduous) forest, clearcuts less than 1 year old, clearcuts 1 to 5 years old, and managed tree farms (Photo 2-4). Grassland areas in the vicinity of Henry Hagg Lake include: general upland grassland (typically used for agriculture), upland grassland with mixed shrub, and those grassland areas designated as elk mitigation meadows. The following narrative describes the primary components of each vegetation category. Vegetation association acreages are listed in Table 2.1-6.

Photo 2-4. Grasslands, mixed forest, coniferous forest, and clearcuts as seen from Henry Hagg Lake.

Conifer Forests

Much of the forested land in the Scoggins Creek watershed is managed for timber harvest. Thus, all forested areas in the region are second-growth, with the most mature forested areas in the vicinity of the reservoir estimated at approximately 90 to 110 years old (Reclamation 1994). Within Scoggins Valley Park, where the forested areas are no longer managed for timber harvest, most stands have not been thinned, resulting in dense coniferous stands with a poorly developed understory. A recent exception is Recreation Area A East, where some marketable timber was removed and underbrush was thinned.

Conifer forest in and around Scoggins Valley Park is dominated by second growth Douglas fir (*Pseudotsuga menziesii*) with lesser components of western hemlock (*Tsuga heterophylla*) and western red cedar (*Thuja plicata*). Limited understory species in these dense stands often include a thin ground cover of trailing blackberry (*Rubus ursinus*), occasionally mixed with Pacific rhododendron (*Rhododendron macrophyllum*), vine maple (*Acer circinatum*), and red-osier dogwood (*Cornus stolonifera*).

Clearcuts

Much of the land surrounding the RMP study area is managed for logging. Two clearcut classifications were used in the vegetation cover map to provide information on the relative stage of regeneration and general habitat values for wildlife. These clearcuts were dominated by Douglas-fir before harvest. Clearcuts have been classified as < 1 year old or 1-5 years old. The < 1 year old clearcuts have minimal vegetative cover from regenerating trees and shrubs. The clearcuts that are classified as 1 to 5 years old have sapling trees and often dense upland shrubs such as ocean

Table 2.1-6: Area of vegetation associations on Reclamation lands at Henry Hagg Lake*.

Vegetation Association	Area in Acres
Conifer Forest	810
Mixed Forest	111
Upland Grassland	140
Elk Meadow	110
Mixed Shrub/Upland Grassland	195
Riparian	14
Wetland	34
Developed	35

*Other vegetation associations described below occur outside Reclamation boundary. Acreage is approximate.
Source: Provided by EDAW 2002.

Figure 2.1-4 Vegetation Associations

[Figure 3.5-1 in the EA]

Back of Figure 2.1-4

spray (*Holodiscus discolor*) and elderberry (*Sambucus* sp.), and young deciduous trees, particularly red alder (*Alnus rubra*).

Tree Farms

Several Christmas tree farms are located adjacent to the RMP study area. These differ from the young clearcuts because of the regular spacing of conifers up to 10 feet tall.

Mixed Forest

A deciduous overstory component is often evident in forested stands near the shores of Henry Hagg Lake. Red alder is a fast-growing hardwood species that is often first to establish in disturbed areas. This species can be found around the recreation facilities and reservoir shoreline in the park. Alder also dominates much of the riparian forest near the reservoir and its tributaries. Big-leaf maple (*Acer macrophylum*) is often a minor stand component in upland Douglas-fir forests and is prevalent in many of the forested stands rimming the periphery of the reservoir.

Upland Grasslands

Upland grassland areas in the RMP study area include a mixture of elk meadows and unmaintained grasslands within the park boundary. Outside the park, upland grassland are dominated by livestock pastures and private agricultural pastures. Elk meadows are sites maintained in upland grassland habitat as mitigation for habitat loss from the construction of Scoggins Dam and are discussed in a following subsection (2.1.6.2). Unmaintained grassland habitat in the park occurs along the northern margin of the reservoir.

Mixed Shrub/Upland Grassland

A shrub component consisting of native willow species (*Salix* sp.) and non-native invasive weedy species such as Scot's broom (*Cytisus scoparius*) and Himalayan blackberry (*Rubus discolor*) has established in some upland grassland areas. Himalayan blackberry is common along the north shore and other open areas. Scot's broom is a common vegetation component in the open areas such as the field near Recreation Area A West that is the septic field. This vegetation association is a small component of the vegetation at Henry Hagg Lake and generally occurs along the northern shoreline.

Wetland

Wetlands perform many important ecological functions. These include providing primary production in the food chain, stabilizing the shoreline, improving water quality, providing flood control, contributing to groundwater recharge and streamflows, and offering essential fish and wildlife habitat. Wetland and riparian communities in the RMP study area are generally located along the shores of Henry Hagg Lake at the mouth of tributaries of Scoggins Creek and Tanner Creek.

Species in the emergent wetland communities along the reservoir shore include sedges (*Carex* sp.), rushes (*Juncus* sp.), and a variety of wetland grass species. In addition, many of the localized areas of emergent wetland have a component of shrubby hydrophytic vegetation including willow (*Salix* sp.), red-osier dogwood, and black cottonwood (*Populus balsamifera*) saplings. The limited emergent wetland communities along the shores of Henry Hagg Lake may go through periods of desiccation and re-establishment or relocation in response to the seasonal and extended cycles of reservoir fluctuation.

Riparian Vegetation

Riparian vegetative communities define the native structural vegetation developed along lake and creek shores (Photo 2-5). Within Scoggins Valley Park, this includes the non-upland vegetative communities shading the reservoir and its associated tributaries. Overstory species common to riparian communities in the RMP study area include red alder, black

cottonwood, willow, and Oregon ash (*Fraxinus latifolia*). Common riparian understory species include beaked hazelnut (*Corylus cornuta*), ocean spray (*Holodiscus discolor*), and vine maple. These species are also found in abundance along stand edges, canopy gaps, and moist draws. Riparian habitat in the RMP study area predominantly occurs along the stream channels of the three major tributaries: Sain, Scoggins, and Tanner Creeks.

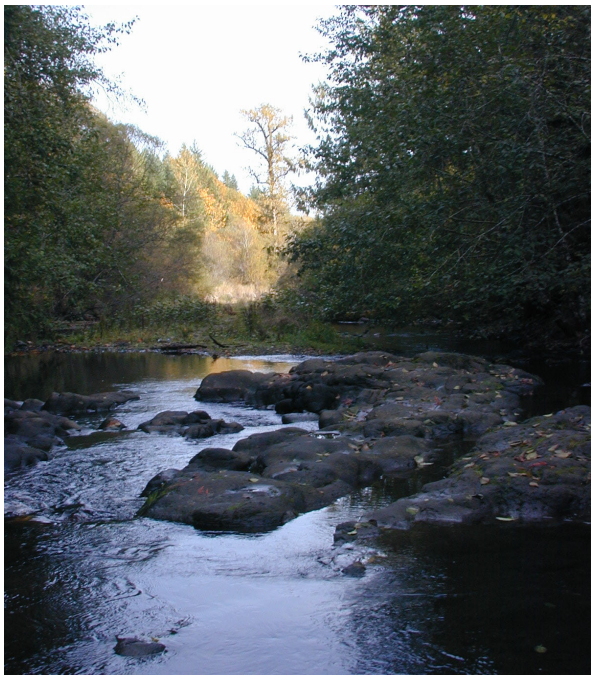

Photo 2-5. Riparian vegetation along Scoggins Creek.

Developed Areas

Areas in the RMP study area classified as developed are dominated by buildings, docks, boat ramps, and parking lots. Recreation Area A East was given a Developed/Forested classification because of the second-growth forest that remains around the existing roads and parking lot.

2.1.6.2 Elk Meadows

Construction of Scoggins Dam and the subsequent filling of the reservoir flooded agricultural fields used as wintering elk (*Cervus elaphus*) habitat. Originally, nine elk meadows were designated around the reservoir as mitigation for the loss of wintering forage in the valley behind the dam. While there does not appear to be a final written agreement between ODFW and Reclamation, notes from meetings indicate the direction for management of these parcels. In general, these parcels were to be fertilized and mowed to maintain healthy grass forage for wintering elk. Over the years, there were changes to the management and location of some of the elk meadows. Figure 2.1-5 illustrates the parcels currently being managed as elk meadows.

Currently there are 10 parcels within the park designated as elk meadows and maintained by WACO (Figure 2.1-5). These parcels total 110 acres in area. Five parcels that were originally designated as elk meadows along the northern half of the reservoir were not implemented and are not currently maintained by WACO. In addition, two parcels (#3 and 4) below the dam that were not originally designated as elk meadows are intensely managed for elk forage. Parcel 3 is managed by WACO, and Parcel 4 is managed by TVID through a lease agreement with a local farmer. The farmer is allowed to keep the hay cutting from the field in exchange for maintenance of this parcel.

Reclamation worked with ODFW and USFWS through the RMP process to develop an appropriate management plan for the elk meadows that satisfies the general goals for these parcels originally discussed between Reclamation and ODFW. The collaboration has resulted in an Elk Mitigation Meadows and Monitoring Plan (Appendix D). The plan calls for the rehabilitation and maintenance of the existing 110 acres of elk meadow with the addition of about 30 acres of elk meadow. This new meadow is proposed for a parcel of land between Recreation Area A East and Area A West that is currently the drainfield for Recreation Area A West. This site is currently infested with Scot's broom and Himalayan blackberry. The plan includes provisions for monitoring elk use of the meadows. If elk

Figure 2.1-5 Elk Meadows

[Figure 3.5-2 in the EA]

Back of Figure 2.1-5

do not use the rehabilitated meadows, further implementation strategies will be determined by Reclamation in coordination with USFWS and ODFW at the end of the 10-year RMP period.

2.1.6.3 Noxious Weeds

Infestations of noxious weeds have established in Scoggins Valley Park in areas of previous disturbance. For the purpose of this study, noxious weeds include plant species on the Oregon Department of Agriculture (ODA) Oregon Noxious Weed List. The Oregon State Weed Board, a division of ODA, defines a noxious weed as "exotic, non-indigenous, species that are injurious to public health, agriculture, recreation, wildlife, or any public or private property" (ODA 2002). Major infestations of noxious weeds in the park are primarily limited to Himalayan blackberry and Scot's broom. These species are found in grassland habitats around the reservoir. Both species are ODA "B" designated weeds indicating "a weed of known economic importance which occurs in the state in small enough infestations to make eradication/containment possible; or is not known to occur, but its presence in neighboring states makes future occurrence in Oregon seem imminent" (ODA 2002).

Noxious weeds upstream of the reservoir during the Scoggins Creek Density Management, Wildlife Enhancement and Watershed Restoration Project include St. John's wort (*Hypericum perforatum*), bull or common thistle (*Cirsium vulgare*), English holly (*Ilex aquifolium*), and tansy ragwort (*Senecio jacobaea*) (BLM 2001). All of these weed species are found commonly throughout western Oregon in open dry areas and are likely present within the RMP study area. These species all have an ODA "B" designation. Tansy ragwort also has an ODA "T" designation indicating a "priority noxious weed designated by the State Weed Board as a target weed species on which the department will implement a statewide management plan" (ODA 2002).

There is currently no weed control plan for Scoggins Valley Park. The managing partner actively manages noxious weeds in the park through a program of seasonal mowing of the elk mitigation meadows, and spraying of trails, parking areas, and picnic areas for noxious weeds. Less developed areas of the park do suffer from infestation of non-native species, including Himalayan blackberry and Scots broom. However, Reclamation is in the process of developing a comprehensive Integrated Pest Management (IPM) Plan. The IPM Plan also will include provisions for controlling other pests, such as zebra mussels.

2.1.6.4 Rare and Sensitive Species

Rare and sensitive species include those species listed as Federal Species of Concern (SoC) that also have an Oregon Natural Heritage Program (ONHP) rank of 3 or 4. The USFWS (in correspondence to Reclamation dated May 17, 2002) identified special status plant species that historically occurred or potentially could occur in the vicinity of Henry Hagg Lake. None of the special status plant species identified by the USFWS as potentially occurring in the study area meet criteria for rare and sensitive species as defined in this RMP. All identified special status plant species meet more-sensitive TES criteria (Federal listing with an ONHP rank of 1 or 2) and are thus discussed in Section 2.1.8.

2.1.7 Fish & Wildlife

The diversity of habitats within the RMP study area supports a wide variety of mammals, amphibians, reptiles, and birds. The following describes general use and occurrence of fish and wildlife populations in and around Scoggins Valley Park. Section 2.1.8 identifies rare and sensitive fish and wildlife species potentially occurring in the RMP study area and discusses those species that are protected under the Federal Endangered Species Act (ESA) or have other Federal or state status.

2.1.7.1 Fish

Prior to creation of Henry Hagg Lake, game fish populations in Scoggins Creek and its tributaries were limited to cold water species. Two salmonid species in particular, the cutthroat trout (*Oncorhynchus clarki*) and steelhead (*O. mykiss*), dominated the Scoggins Creek fisheries. These two species had adapted to the freshwater habitat existing above Willamette Falls, which represented a significant fish passage barrier during low-flow summer months. Cutthroat trout native to the Scoggins Creek watershed were largely limited to the resident non-migratory form, while steelhead, anadromous (sea migrating) rainbow trout, adapted by migrating during the high-flow winter months. Both of these native cold water populations were greatly impacted by the creation of the reservoir and to fisheries changes resulting from human development. Both of these native cold water species are now afforded protected status (see Section 2.1.8).

Construction of Scoggins Dam significantly altered upstream fish habitat, and a warm water fishery consisting of introduced species now exists in the reservoir. Warm water species including bluegill (*Lepomis macrochirus*), yellow perch (*Perca flavascens*), largemouth bass (*Micropterus salmoides*), and smallmouth bass (*M. dolomieui*) are now a thriving fishery in Henry Hagg Lake. Table 2.1-7 lists fish species common to Henry Hagg Lake.

Upon introduction of warm water species to Henry Hagg Lake, ODFW changed their management of the reservoir to consider both trout and warm water fish (OPRD 1988). ODFW in the past stocked cutthroat trout in Henry Hagg Lake, but this practice was discontinued to preserve the genetic viability of native cutthroat populations. Currently, ODFW stocks only rainbow trout in the reservoir with 60,000 fingerling and over 100,000 legal size (8-10 inch) rainbow trout placed in Henry Hagg Lake in 2002 (ODFW 2002). As evidence of the continued viability of the warm water fishery in Henry Hagg Lake, it should be noted that the largest and second largest smallmouth bass caught in Oregon were taken from Henry Hagg Lake (ODFW 2002).

As mitigation for the loss of anadromous fish habitat resulting from the construction of Scoggins Dam, Reclamation was to fund the release of hatchery winter steelhead in the lower reach of Scoggins Creek below the dam. From 1975 to 1979, approximately 10,000 steelhead smolt were released into lower Scoggins Creek each year. However, this practice was discontinued to protect the genetic viability of native winter-run steelhead stocks (pers. comm., Caldwell, 2002). Coho salmon (*Oncorhynchus kisutch*) were also released during the period of steelhead stocking in lower Scoggins Creek. Over 700,000 coho smolt were released during the period of 1975 to 1979, resulting in a small residual anadromous run of the species which may still contribute to the downstream fishery in the Scoggins Creek watershed (ODFW 1992). About $30,000 of annual funding is now used for restoration efforts addressing salmonid habitat in the Tualatin River basin rather than for fish stocking.

2.1.7.2 Wildlife

Amphibian and Reptiles

Many amphibian species are likely to be found in the forested, riparian, and lakeshore areas in Scoggins Valley Park. Some of the more common species likely include the rough-skinned newt (*Taricha granulosa*), ensatina (*Ensatina eschscholtzii*), long-toed salamander (*Ambystoma macrodactylum*), western red-backed salamander (*Plethodon vehiculum*), Pacific tree frog (*Pseudacris regilla*), western fence lizard (*Sceloporus occidentalis*), and northwestern garter snake (*Thamnophis ordinoides*). Table 2.1-8 lists common reptile and amphibian species potentially occurring in the vicinity of Henry Hagg Lake based upon species range and distribution and known available habitat types in the park.

Table 2.1-7: Fish species common to Henry Hagg Lake.

Game Fish		
Common Name	**Scientific Name**	**Comments**
Cutthroat trout	*Oncorhynchus clarki*	Species formerly stocked in Henry Hagg Lake. Meets status criteria for rare and sensitive species. See Section 2.1.8 below.
Rainbow trout	*Oncorhynchus mykiss*	Species currently stocked in Henry Hagg Lake by ODFW.
Largemouth bass	*Micropterus salmoides*	Introduced, non-native species.
Smallmouth bass	*Micropterus dolomieui*	Introduced, non-native species.
Bluegill	*Lepomis macrochirus*	Introduced, non-native species.
Pumpkinseed sunfish	*Lepomis gibbosus*	Introduced, non-native species.
Yellow perch	*Perca flavescens*	Introduced, non-native species.
Non-Game Fish		
Common Name	**Scientific Name**	**Comments**
Brown bullhead	*Amerius nebulosis*	Introduced, non-native species.
Yellow bullhead	*Amerius natalis*	Introduced, non-native species.
Largescale sucker	*Catostomus macrocheilus*	
Mosquitofish	*Gambusia affinis*	Introduced, non-native species.
Speckled dace	*Rhinichthys osculus*	
Redside shiner	*Richardsonius balteatus*	
Threespine stickleback	*Gasterosteus aculeatus*	
Reticulate sculpin	*Cottus perplexus*	

Source: ODFW 1992; ODFW/USA 1995.

Birds

The diverse constellation of vegetative communities in Scoggins Valley offers suitable habitat for a variety of birds. Avian species common to the coniferous forests surrounding Henry Hagg Lake include the American robin (*Turdus migratorius*), Swainson's thrush (*Catharus ustulatus*), black-capped chickadee (*Poecile atricapillus*), dark-eyed junco (*Junco hyemalis*), and American crow (*Corvus brachyrhynchos*). Waterfowl species likely to be found using the open water habitat of the reservoir itself include the Canada goose (*Branta Canadensis*), mallard (*Anas platyrhynchos*), and common merganser (*Mergus merganser*). Common raptors include the red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and bald eagle (*Haliaeetus leucocephalus*). Some of the other more common species are listed in Table 2.1-9.

The only avian species affecting previous management decisions at Scoggins Valley Park is the bald eagle. Reclamation has identified seven primary bald eagle perch sites in the park. Park personnel maintain a 165-foot vegetation buffer around these perch sites and restrict construction and other potentially disturbing activities within a 0.5-mile radius of the perch sites during the months of October through May. The bald eagle is a TES species further addressed in Section 2.1.8 below.

Mammals

Common mammal species potentially occurring in the vicinity of Henry Hagg Lake are listed in Table 2.1-10. Most of these species are associated with the second-growth forested habitat surrounding the reservoir. Park management considerations pertaining to mammal species are limited to the Roosevelt elk (*Cervus elaphus roosevelti*), described below.

Approximately 50 to 80 Roosevelt elk are known to use the Scoggins Valley Park area on a year-round basis (Reclamation 1994). Typically, these elk herds move to the lower elevations around the reservoir during the winter months (USFWS 1992). As mitigation for the loss of elk grazing habitat resulting from the formation of Henry Hagg Lake, nine grassland areas (totaling approximately 140 acres) were set aside in 1974 to be managed as elk grazing meadows.

Table 2.1-8: Common reptile and amphibian species occurring in the vicinity of Henry Hagg Lake.

Reptiles		
Common Name	**Scientific Name**	**Comments**
Common garter snake	*Thamnophis sitalis*	Widespread and abundant.
Northwestern garter snake	*Thamnophis ordinoides*	Widespread and abundant.
Rubber boa	*Charina bottae*	Common
Western fence lizard	*Sceloporus occidentalis*	Common in dry forests and meadows
Northern alligator lizard	*Elgaria coerulea*	Less prevalent.
Amphibians		
Common Name	**Scientific Name**	**Comments**
Northwestern salamander	*Ambystoma gracile*	Common and widespread
Long-toed salamander	*Ambystoma macrodactylum*	Common and widespread.
Rough-skinned newt	*Taricha granulosa*	Common and widespread.
Ensatina	*Ensatina eschscholtzii*	Common
Western red-backed salamander	*Plethodon vehiculum*	Widespread and abundant
Pacific tree frog	*Pseudacris regilla*	Widespread and abundant.
Bullfrog	*Rana catesbeiana*	Introduced non-native species.

Source: Csuti et al. 1997.

Table 2.1-9: Common bird species occurring in the vicinity of Henry Hagg Lake.

Common Name	Scientific Name	Comments
Pied-billed grebe	*Podilymbus podiceps*	Winter and migrant visitor.
Great blue heron	*Ardea herodias*	Nests near Henry Hagg Lake.
Mallard	*Anas platyrhynchos*	Winters in large numbers on reservoir.
Green-winged teal	*Anas crecca*	Winters in large numbers on reservoir.
American wigeon	*Anas americana*	Winters in large numbers on reservoir.
Northern pintail	*Anas acuta*	Winters in large numbers on reservoir.
Ring-necked duck	*Aythya collaris*	Winters in large numbers on reservoir.
American coot	*Fulica Americana*	Nests on Henry Hagg Lake.
Mourning dove	*Zenaida macroura*	Year-round resident.
Red-tailed hawk	*Buteo jamaicensis*	Year-round resident.
Great horned owl	*Bubo virginianus*	Year-round resident.
Rufous hummingbird	*Selasphorus rufus*	Breeding resident.
Northern flicker	*Colaptes auratus*	Year-round resident.
Hairy woodpecker	*Picoides villosus*	Year-round resident.
Steller's jay	*Cyanocitta stelleri*	Year-round resident.
American crow	*Corvus brachyrhynchos*	Year-round resident.
Tree swallow	*Tachycineta bicolor*	Breeding resident.
Cliff swallow	*Petrochelidon pyrrhonota*	Breeding resident.
Black-capped chickadee	*Poecile atricapillus*	Year-round resident.
Bushtit	*Psaltriparus minimus*	Year-round resident.
Red-breasted nuthatch	*Sitta Canadensis*	Year-round resident.
Winter wren	*Troglodytes troglodytes*	Year-round resident.
Golden-crowned kinglet	*Regulus satrapa*	Year-round resident
Swainson's thrush	*Catharus ustulatus*	Breeding resident.
American robin	*Turdus migratorius*	Year-round resident.
European starling	*Sturnus vulgaris*	Introduced non-native pest species.
Golden-crowned kinglet	*Regulus satrapa*	Year-round resident.
Orange-crowned warbler	*Vermivora celata*	Breeding resident.
Yellow-rumped warbler	*Dendroica coronata*	Breeding resident.
Western tanager	*Piranga ludoviciana*	Breeding resident.
Spotted towhee	*Pipilo maculates*	Year-round resident.
Song sparrow	*Melospiza melodia*	Year-round resident.
White-crowned sparrow	*Zonotrichia leucophyrs*	Year-round resident.
Dark-eyed junco	*Junco hyemalis*	Year-round resident.
Black-headed grosbeak	*Pheucticus melanocephalus*	Breeding resident.
Red-winged blackbird	*Agelaius phoeniceus*	Breeds in wetlands and shoreline habitat.
Brewer's blackbird	*Euphagus cyanocephalus*	Year-round resident.
House finch	*Carpodacus mexicanus*	Year-round resident.
American goldfinch	*Carduelis tristis*	Year-round resident.

Source: Prepared by EDAW 2002.

Table 2.1-10: Common mammal species occurring in the vicinity of Henry Hagg Lake.

Common Name	Scientific Name	Comments
Virginia opossum	*Didelphis virginiana*	Introduced species native to eastern U.S.
Townsend's mole	*Scapanus townsendii*	Common and widespread.
Little brown myotis bat	*Myotis lucifugus*	Breeding status only.
Common raccoon	*Procyon lotor*	Abundant and widespread.
Striped skunk	*Mephitis mephitis*	Widespread.
Coyote	*Canis latrans*	Widespread and abundant.
Red fox	*Vulpes vulpes*	Introduced species.
Townsend's chipmunk	*Tamias townsendii*	Associated with coniferous forest.
Common porcupine	*Erethizon dorsatum*	Widespread.
Roosevelt elk	*Cervus elaphus roosevelti*	Managed game species.
Black-tailed deer	*Odocoileus hemionus*	Managed game species.

Source: Csuti et al. 1997.

These elk mitigation meadows were initially seeded with a grass-legume mixture specifically designed to encourage elk foraging. Management of the elk mitigation meadows is currently limited to yearly mowing, and non-native invasive plant species have established in limited areas in the meadows. Data on actual use of the meadows by elk are not available. The Elk Mitigation Meadows Maintenance and Monitoring Plan (2003) outlines monitoring of the elk meadows to determine the use of these areas by the elk over the 10-year life of the RMP (see Appendix D). Specifics regarding current management of elk meadows are found in Section 2.1.6 (Vegetation).

2.1.7.3 Rare and Sensitive Species

Rare and sensitive species include those species listed as Federal Species of Concern (SoC) that also have an ONHP rank of 3 or 4.

In a letter to Reclamation dated May 17, 2002, the USFWS identified Federal listed special status species that historically occurred or could potentially occur in the Henry Hagg Lake RMP study area (Appendix A). Of these species, 13 meet criteria for rare and sensitive species defined as those species with a Federal SoC listing and an Oregon Natural Heritage Program (ONHP) rank of 3 or 4. Table 2.1-11 lists the rare and sensitive wildlife species potentially occurring in the RMP study area, along with their National Marine Fisheries Service (NMFS) or USFWS, ODFW, and ONHP status. In addition, a summary of the life history and potential for occurrence in the study area for each of the 1 fish, 5 bird, and 7 mammal species meeting rare and sensitive species criteria is provided below.

Fish

The cutthroat trout (*Oncorhynchus clarki*) is a freshwater salmonid inhabiting gravelly lowland streams, rivers, lakes, estuaries, and nearshore coastal waters (Scott & Crossman 1973). Anadromous and freshwater-restricted forms of the species exist. Although the anadromous form of coastal cutthroat trout is thought to be one of only three species of anadromous salmonids that have historically occurred above Willamette Falls (NOAA 1999), it is believed that occurrence in the Tualatin River subbasin is now largely restricted to the freshwater-migratory (non-searun) forms (ODFW 1992). The cutthroat trout population in the Willamette River and its tributaries above the falls is considered a distinct Evolutionarily Significant Unit (ESU) and is listed as a Federal SoC with an ONHP rank of 4. Scoggins Creek below the dam and all upper tributaries contributing to Henry Hagg Lake are considered spawning habitat for cutthroat trout.

Henry Hagg Lake has, in the past, been stocked with cutthroat trout, though this practice was discontinued in 1986 to preserve the genetic diversity of native populations (ODEQ 2001). CWS is currently studying the fish

Table 2.1-11: Rare and sensitive wildlife species potentially occurring in the vicinity of Henry Hagg Lake.

Species	Federal Status	Oregon State Status	ONHP Status
Fish (1)	**NMFS[1]**	**ODFW[2]**	**ONHP[3]**
Coastal cutthroat trout, Upper Willamette ESU (*Oncorhynchus clarki clarki*)	SoC	--	4
Birds (5)	**USFWS[4]**	**ODFW[2]**	**ONHP[3]**
Band-tailed pigeon (*Columba fasciata*)	SoC	--	4
Olive-sided flycatcher (*Contopus cooperi*)	SoC	--	4
Yellow-breasted chat (*Icteria virens*)	SoC	SC	4
Acorn woodpecker (*Melanerpes formicivorous*)	SoC	--	4
Mountain quail (*Oreotyx pictus*)	SoC	SU	4
Amphibians and Reptiles (0)	**USFWS[4]**	**ODFW[2]**	**ONHP[3]**
Mammals (7)	**USFWS[4]**	**ODFW[2]**	**ONHP[3]**
White-footed vole (*Arborimus albipes*)	SoC	SU	4
Red tree vole (*Arborimus longicaudus*)	SoC	--	3
Silver-haired bat (*Lasionycteris noctivagans*)	SoC	SU	4
Long-eared myotis (*Myotis evotis*)	SoC	SU	4
Long-legged myotis (*Myotis volans*)	SoC	SU	4
Yuma myotis (*Myotis yumanensis*)	SoC	--	4
Camas pocket gopher (*Thomomys bulbivorus*)	SoC	--	3

Source: USFWS 2002; ODFW 2002; ONHP 2002.

Footnotes:
[1] NMFS Listing: SoC=Species of Concern.
[2] ODFW Status: E= Endangered; T= Threatened; SC= Sensitive Critical- species for which listing as threatened or endangered is not imminent and can be avoided through protective measures; SP/R= Sensitive Peripheral/Rare- species that are on the edge of their range or that are naturally rare; SU= Sensitive Undetermined- species for which status is unclear.
[3] ONHP Status: 1= taxa that are threatened with extinction or presumed to be extinct throughout their entire range; 2= taxa that are threatened with extirpation or presumed to be extirpated in the state of Oregon; 3= List 3- taxa for which more information is needed before status can be determined, but which may be threatened or endangered in Oregon or throughout their range; 4= List 4- taxa which are of conservation concern but are not currently threatened or endangered.
[4] USFWS Classification: SoC= Federal species of concern.

populations of Henry Hagg Lake tributaries to determine the status and distribution of native cutthroat trout.

Birds

Band-tailed pigeons (*Columba fasciata*) are game birds occurring in the lowland coniferous and mixed deciduous-coniferous forests of Oregon (Csuti et al. 1997). Throughout the species' range on the Pacific Coast, band-tailed pigeons are frequently associated with the presence of oaks and are subject to extensive movements, often in small flocks. The species has a Federal SoC status with an ONHP rank of 4. The species is known to nest in the densely forested stands within and surrounding the RMP study area (pers. comm., Gillson, 2002).

The olive-sided flycatcher (*Contopus cooperi*) is a relatively common songbird species inhabiting the coniferous forests of Oregon (Csuti et al. 1997). Although the species is most abundant in open forests with substantial vertical density and available dead perching snags, it occupies a variety of forest types from sea level to subalpine environments. Olive-sided flycatchers are listed as a Federal SoC with an ONHP rank of 4. This species likely occurs where suitable habitat exists in the study area.

The yellow-breasted chat (*Icteria virens*) is a riparian-associated songbird that nests in thick brushy understory in mixed deciduous-coniferous forests and especially along the margins of streams, wetlands, rivers, and other waterbodies (Csuti et al. 1997; Ehrlich et al.

1988). Within the study area, this species is likely to occur along the shores of Henry Hagg Lake, Scoggins Creek, and its tributaries where dense riparian vegetation is present. It is known to nest in localized areas along the reservoir shoreline (pers. comm., Gillson, 2002). The species has a Federal SoC status and an ONHP rank of 4.

Acorn woodpeckers (*Melanerpes formicivorous*) are an oak-dependent woodpecker species occurring in Oregon in both oak savanna and oak-conifer woodland habitat (Csuti et al. 1997). The species is a cooperative breeder, typically nesting in cavities in oaks or other deciduous trees. Acorn woodpeckers are a Federal SoC with an ONHP rank of 4. The USFWS identified the species as potentially occurring in the study area although their occurrence in the immediate RMP study area is unlikely without suitable oak-dominated habitat. The nearest known breeding colony is located in Forest Grove, but there are no known records for this species in the park (pers. comm., Gillson, 2002).

The mountain quail (*Oreotyx pictus*) is a ground-dwelling game bird occurring in montane and coastal coniferous forests, chaparral, and juniper woodland habitat of Oregon (Csuti et al. 1997; Ehrlich et al. 1988). It prefers open forests with a sparse overstory and ample undergrowth of brushy vegetation. The species is a Federal SoC with an ONHP rank of 4. Mountain quail have been located about 4 miles above the reservoir on Scoggins Valley Road, and they are thought to move to lower elevations nearer the reservoir during the winter (pers. comm., Gillson, 2002).

Amphibians and Reptiles

The USFWS identified three amphibian and reptile species with Federal special status listings as potentially occurring in the vicinity of Henry Hagg Lake. The more-sensitive statuses of these three species meet TES criteria. These species are addressed in Section 2.1.8.

Mammals

Within Oregon, the white-footed vole (*Arborimus albipes*) is generally believed to be a rare species of the Coast Range, but it is also known to occur on the Pacific side of the Cascade Mountains. Due to its rarity, relatively little is known about this small rodent. It is presumed to be a burrowing, nocturnal species favoring riparian stands of alder in coniferous forests (Csuti et al. 1997). Suitable habitat for the white-footed vole exists in the study area, and the margins of its range extend into the vicinity of Henry Hagg Lake. The white-footed vole is a Federal SoC with an ONHP rank of 4 and an SU (Sensitive Undetermined) status with ODFW.

The red tree vole (*Arborimus longicaudus*) is one of the world's most specialized voles, subsisting on a diet limited almost exclusively to Douglas fir needles (Csuti et al. 1997). The species spends the majority of its life in the coniferous overstory, building nests of fir needles typically located over 50 feet above the ground. The red tree vole is a Federal SoC with an ONHP rank of 3. This species may occur in the fir-dominated forests around Henry Hagg Lake although the vole's presence in the study area is unknown.

Four bat species meeting rare and sensitive species criteria may occur in the study area. These include the silver-haired bat (*Lasionycteris noctivagans*), the long-eared myotis (*Myotis evotis*), the long-legged myotis (*M. volans*), and the Yuma myotis (*M. ymanensis*). All four species have a Federal status of SoC with an ONHP rank of 4, and three of the species carry a status of SU with ODFW. Because it is difficult to determine the specific status of bat species in a localized area without extensive field studies, the specific status of these species in Oregon is largely speculative. All four species are relative habitat generalists and can be found in a variety of common forest types in Oregon. They are nocturnal, with most foraging activity focused in the early evening hours and spend days

roosting in small crevices in trees, structures, and cliff faces. All four species may occur in the study area in suitable forest habitat and are likely to be found foraging above the waters of Henry Hagg Lake and associated tributaries.

The Camas pocket gopher (*Thomomys bulbivorous*) is one of three mammals endemic only to Oregon (Csuti et al. 1997). This relatively large (11.5 in.) pocket gopher is restricted to the Willamette Valley area and is thought to have persisted by readily adapting to the conversion of land for agriculture. Camas pocket gophers occur in grassy areas in the lowlands and hills and may be found in the study area in pastures, roadsides, and open agricultural land. The species has a Federal status of SoC with an ONHP rank of 3.

2.1.8 Threatened, Endangered, and Sensitive (TES) Species

There are several TES species of flora and fauna potentially occurring within the RMP study area (Table 2.1-12). For this review, TES species are defined as those species with a Federal designation and an ONHP rank of 1 or 2, as well as those species with an Oregon State listing of Endangered or Threatened. Species presence data from State and Federal sources, such as the USFWS, NMFS, Reclamation, ODFW, and ONHP, have been reviewed. In total, 20 TES species (8 plant, 2 fish, 5 bird, 2 amphibian, 1 reptile, and 2 mammal species) are known to potentially occur within the Henry Hagg RMP study area. Federal protection is afforded to those species listed or proposed as Threatened or Endangered by the USFWS under the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884). ESA-related correspondence is included in Appendix A.

2.1.8.1 Plants

The following species accounts provide a general description, natural history and probability of occurrence for each TES plant species potentially occurring in the vicinity of Henry Hagg Lake.

White-Topped Aster

The white-topped aster (*Aster curtus*) is a perennial herb with unbranched stems topped by a cluster of flowering heads. It is a grassland species with a range in Oregon generally limited to vicinities around the Willamette Valley. Its native habitat of fire-maintained grassland has been significantly impacted by human development and invasion by Douglas-fir and Scot's broom (WNHP 2002). The species is a Federal SoC with an ONHP rank of 1 and is listed as Threatened by ODA. Limited amounts of suitable grassland habitat exist in the RMP study area, although there are no records for this species in Scoggins Valley Park.

White Rock Larkspur

White rock larkspur (*Delphinium leucophaeum*) is a slender perennial that grows from a cluster of bulbs. Suitable habitat for the species includes undisturbed sites on dry bluffs, open ground, and moist meadows, although it is now largely restricted to roadside ditches. It is known to occur only in Oregon only in the north Willamette Valley (WNHP 2002). There are no known records for this species in the study area. It is listed as Endangered with ODA and is a Federal SoC with an ONHP rank of 1.

Peacock Larkspur

The peacock larkspur (*Delphinium pavonaceum*) is endemic to the grassland communities of the central Willamette Valley.

It is a Federal SoC and State (ODA) endangered species with an ONHP rank of 1. As the species' range is limited only to the central Willamette Valley, it is unlikely to occur in the RMP study area, although the USFWS identified the species as potentially occurring in the general study area.

Table 2.1-12: TES plant and wildlife species potentially occurring in the vicinity of Henry Hagg Lake.

Species	Federal Status	Oregon State Status	ONHP Status
Plants* (8)	**USFWS[1]**	**ODA[2]**	**ONHP[3]**
White-topped aster (*Aster curtus*)	SoC	LT	1
White rock larkspur (*Delphinium leucophaeum*)	SoC	LE	1
Peacock larkspur (*Delphinium pavonaceum*)	SoC	LE	1
Willamette daisy (*Erigeron decumbens*)	LE	LE	1
Shaggy horkelia (*Horkelia congesta*)	SoC	C	1
Thin-leaved peavine (*Lathyrus holochlorus*)	SoC	--	1
Kincaid's lupine (*Lupinus sulphureur kincaidii*)	LT	LT	1
Nelson's checker-mallow (*Sidalcea nelsoniana*)	LT	LT	1
Fish (2)	**NMFS[4]**	**ODFW[5]**	**ONHP[3]**
Pacific lamprey (*Lampetra tridenta*)	SoC	SV	2
Steelhead, Upper Willamette River ESU, winter run (*Oncorhynchus mykiss*)	LT	SC	1
Birds (5)	**USFWS[1]**	**ODFW[5]**	**ONHP[3]**
Streaked horned lark (Eremophila alpestris strigata)	C	SC	2
American peregrine falcon (*Falco peregrinus*)	--	LE	2
Bald eagle (*Haliaeetus leucocephalus*)	LT	LT	2
Oregon vesper sparrow (*Pooecetes gramineus affinis*)	SoC	SC	2
Purple martin (*Progne subis*)	SoC	SC	2
Amphibians and Reptiles (3)	**USFWS[1]**	**ODFW[5]**	**ONHP[3]**
Northwestern pond turtle (*Clemmys marmorata marmorata*)	SoC	SC	1
Northern red-legged frog (*Rana aurora aurora*)	SoC	SV	2
Oregon spotted frog (*Rana pretiosa*)	C	SC	1
Mammals (2)	**USFWS[1]**	**ODFW[5]**	**ONHP[3]**
Pacific western big-eared bat (C*orynorhinus townsendii townsendii*)	SoC	SC	2
Fringed myotis (*Myotis thysanodes*)	SoC	SU	2

Source: USFWS 2002; ODA 2002; ONHP 2002; NMFS 2002; ODFW 2002.

Footnotes:

1 USFWS Classification: SoC= Federal species of concern; LE=Listed Endangered; LT=Listed Threatened; C=Candidate taxa.
2 ODA Classification: LE=Listed Endangered; LT=Listed Threatened.
3 ONHP Status: 1= taxa that are threatened with extinction or presumed to be extinct throughout their entire range; 2= taxa that are threatened with extirpation or presumed to be extirpated in the state of Oregon; 3= List 3- taxa for which more information is needed before status can be determined, but which may be threatened or endangered in Oregon or throughout their range; 4= List 4- taxa which are of conservation concern but are not currently threatened or endangered.
4 NMFS Listing: SoC=Species of Concern; LT=Listed Threatened.
5 ODFW Status: LE= Listed Endangered; LT= Listed Threatened; SC=Sensitive Critical - species for which listing as threatened or endangered is pending; SV= Sensitive Vulnerable- species for which listing as threatened or endangered is not imminent and can be avoided through protective measures; SP/R= Sensitive Peripheral/Rare- species that are on the edge of their range or that are naturally rare; SU= Sensitive Undetermined- species for which status is unclear.

Willamette Daisy

The Willamette daisy (*Erigeron decumbens*) is a Federal endangered species with an ONHP rank of 1 and ODA listing of Endangered. It is found in relatively undisturbed upland and wet prairie communities, as well as high quality prairie remnants that contain a diversity of native forb and grass species. There are recorded occurrences of the Willamette daisy near Gaston, OR (S35, T1S., R4W) in 1991. However, there have been no surveys or reported occurrences of the daisy within the park's boundary.

Shaggy Horkelia

Shaggy horkelia (*Horkelia congesta*) is a rare native herb topped with a cluster of white flowers, generally restricted to wetland prairie vegetative communities. It is a Federal SoC and State (ODA) candidate species with an ONHP rank of 1. Although the USFWS identified the species as potentially occurring in the study area, it is unlikely to exist in the park without suitable habitat.

Thin-Leaved Peavine

Thin-leaved peavine (*Lathyrus holochlorus*) is a Federal SoC with an ONHP rank of 1. It has been identified in suitable habitat of open woods and clearings in and around the Willamette Valley (ACOE 2002). This species has not been recorded in the vicinity of Henry Hagg Lake or in Washington County (ONHP 2001) although no surveys for the species have been conducted in the RMP study area.

Kincaid's Lupine

Kincaid's lupine (*Lupinus sulphureur kincaidii*) is a long-lived perennial herb of upland prairies. It is a Federal and State (ODA) Threatened species with an ONHP rank of 1. This species is notable as a host plant for the Fender's blue butterfly (*Icaria icaroides fenderi*), a Federal endangered invertebrate species. Kincaid's lupine is not known to occur in the study area and, because its range is restricted to localized areas in the Willamette Valley, the species is unlikely to occur in Scoggins Valley Park.

Nelson's Checker-Mallow

Nelson's checker-mallow (*Sidalcea nelsoniana*) is a Federal and State (ODA) Threatened species with an ONHP rank of 1. The species occurs along streams, in meadows, and in other relatively open areas such as along roadsides. There have been recorded occurrences in wetland pastures (S5, T2N, R2W) outside the park boundaries. However, no surveys have been performed for this species within the park.

2.1.8.2 Wildlife

The following species accounts provide a general description, natural history, and probability of occurrence for each TES wildlife species potentially occurring in the vicinity of Henry Hagg Lake.

Fish

Pacific Lamprey

The parasitic Pacific lamprey (*Lampetra tridenta*) is an elongate (maximum length 27 inches), almost cylindrical fish, round in cross section over half of its length to a more laterally compressed tail. There are numerous forms of this species. Anadromous populations subsist as adults by using suctorial discs (mouths) to attach to and extract fluids from typical open ocean hosts including salmon, sharks, and whales. Non-anadromous forms may or may not be parasitic, with parasitic land-locked lampreys utilizing both cold and warm water fish species as hosts (Scott and Crossman 1973).

Because Pacific lampreys are not game fish and are considered detrimental to viable commercial fisheries, their presence in freshwater systems is often overlooked. However, one of the only known commercial fisheries for this species existed on the Willamette River above the falls in the 1940s where "tons were taken annually for reduction" (Pike 1953 in Scott and Crossman 1973). A moderately strong swimming ability and capacity to cling to rocks allows this species to surmount most obstacles. The species may occur both upstream and downstream of Scoggins Dam. Little is known of this species' abundance and distribution in the study area, although lampreys have been noted in small numbers throughout the Tualatin River Basin (Friesen and Ward 1995). Pacific lampreys are a Fed-

eral SoC with an ONHP rank of 2 and an SV (Sensitive Vulnerable) listing with ODFW.

Steelhead

Steelhead (*Oncorhynchus mykiss*) are an anadromous salmonid species distinguished from freshwater resident forms of the taxon, called rainbow trout, by their tendency to spend a portion of their life cycle in saltwater. Steelhead exhibit extreme diversity in behavior and life history, both between and among populations. Populations and even individuals within populations vary in life cycle timing, spending between 1 and 7 years in freshwater prior to smoltification; between 1 and 3 years at sea; and up to 1 year in freshwater prior to spawning. Another life history variation among steelhead is the ability to spawn more than once (iteroparity), further compounding distinction between forms of *Oncorhynchus mykiss* (NOAA 1996).

Steelhead populations are often defined by the timing of their spawning. Both summer- and winter-run steelhead populations occur in the tributaries of the Upper Willamette River. However, the summer run steelhead population was introduced to the Upper Willamette basin, with an artificial summer-run steelhead fishery maintained through annual stocking. Within the Upper Willamette Basin, the native winter-run steelhead population, which migrates back to freshwater for spawning from November through April, was thought to have adapted to the hydrologic flow regime at Willamette Falls (Howell et al. 1985). The Upper Willamette River ESU consists only of the winter-run steelhead population and is protected as Federally Threatened, with an ONHP rank of 1 and an ODFW SC (Sensitive Critical) listing. Steelhead occur in Scoggins Creek below the dam where suitable gravel-substrate spawning habitat exists. They have been restricted to the lower reaches of Scoggins Creek and the Tualatin River basin since the construction of Scoggins Dam, which represents an impassable barrier to anadromous fish.

Birds

Streaked Horned Lark

The streaked horned lark (*Eremophila alpestris strigata*) is a Federal candidate species with an ONHP rank of 2 and an ODFW SC (Sensitive Critical) listing. Although overwintering and migratory horned larks may occur in Oregon, the protected subspecies, *strigata*, includes only horned larks known to breed in the state. Horned larks tend to nest in open areas with little or no vegetation. Suitable breeding habitat for the streaked horned lark includes agricultural areas, pastures, grasslands, sparsely vegetated shrublands, and alpine areas (Csuti et al. 1997). Although documented in Washington County and once common in the region, the streaked horned lark is now rarely seen (ONHP 2001). There are no known records for this species in Scoggins Valley Park. Although horned larks are unlikely to breed in the vicinity of Henry Hagg Lake, they could potentially over-winter in the suitable grassland habitat and unvegetated flats found in the park (pers. comm., Gillson, 2002).

American Peregrine Falcon

The American peregrine falcon (*Falco peregrinus*) is a raptor species that is specialized for capturing aerial avian prey including shorebirds, waterfowl, and songbirds (Ehrlich et al. 1988). Populations of the species were decimated by the use of DDT and other organochlorine contaminants, but recovery efforts associated with its listing as a Federal Endangered species in 1970 have allowed populations to return to near historic levels. Peregrine falcons were removed from the Federal list of Threatened and Endangered species in 1999 but remain protected as an Oregon State (ODFW) Endangered species, with an ONHP rank of 2.

In Oregon, there are over 80 known peregrine falcon nest sites with over 50 of these sites typically active during any given year (pers.

comm., Pagel, 2000). Peregrine falcons build their nests, or eyries, high on inaccessible ledges, rocks, or cliffs (Csuti et al. 1997). No peregrine falcon eyries are known to exist in the vicinity of Henry Hagg Lake, and no suitable nesting habitat for the species exists within the RMP study area. However, peregrine falcons are known to occur throughout Washington County (ONHP 2001), and Henry Hagg Lake represents suitable foraging habitat for the species. This species is a regular migrant winter visitor at the Forest Grove wetlands (pers. comm., Gillson, 2002).

Bald Eagle

Bald eagles (*Haliaeetus leucocephalus*) commonly over-winter in Scoggins Valley Park. In addition, in 2002 a breeding pair of bald eagles successfully reared young in a newly established nest approximately 0.75 mile up the Sain Creek drainage from Henry Hagg Lake, approximately 0.4 mile outside the Reclamation boundary. The bald eagle is a Federal (USFWS) and State (ODFW) listed Threatened species with an ONHP rank of 2. The species is associated with coasts, rivers, lakes, and marshes where it feeds on a diet consisting mainly of fish augmented with carrion, various water birds, and small mammals (Csuti et al. 1997). The species declined in abundance and was extirpated throughout much of its range (presumably due to the effects of the use of DDT) until it received protection as a Federal Endangered species in 1967. It is assumed that over-wintering bald eagles in Scoggins Valley Park forage on Henry Hagg Lake during the day and return to communal roost sites on the forested hillside southwest of the park at night (Reclamation 1994).

Perch sites and daytime roost sites are an important habitat requirement for foraging bald eagles. Suitable perching locations include large trees over-hanging a water body and dead snags. Reclamation's 1994 *Final Environmental Assessment of Scoggins Valley Park/Henry Hagg Lake Recreation Development* identified seven primary bald eagle perch sites used by over-wintering bald eagles in Scoggins Valley Park. Park personnel maintain a 165-foot vegetation buffer around these perch sites and restrict construction and other potentially disturbing activities within a 0.5-mile radius of the perch sites from November – March.

Oregon Vesper Sparrow

The Oregon vesper sparrow (*Pooecetes gramineus affinis*) is a Federal SoC with an ONHP rank of 2 and an ODFW status of SC (Sensitive Critical). The protected subspecies, *affinis*, occurs throughout the Oregon range of the vesper sparrow, although ODFW focuses protection efforts on sensitive populations in the western interior valleys (Csuti et al. 1997). Vesper sparrows occur in open habitats such as grasslands, pastures, juniper woodlands, meadows, and agricultural lands. The species breeds in Oregon during the summer months and migrates south to central California, the southwestern United States, and Mexico to over-winter (Csuti et al. 1997). Vesper sparrows were once common in western Oregon but have nearly vanished from the region since the early part of the century (Csuti et al. 1997). This species has been reported to breed rarely in the unmanicured Christmas tree farms around the park and has been heard in the lower clearcuts around the reservoir (pers. comm., Gillson, 2002).

Purple Martin

The purple martin (*Progne subis*) is a common neotropical swallow species with a fairly continuous breeding distribution in the eastern United States but a patchy distribution with notable absences throughout the west. In Oregon, the species' breeding range is regionally localized in distinct areas, generally located west of the Cascade Mountains (Csuti et al. 1997). Purple martins are Federal SoC with an ONHP rank of 2 and an ODFW status of SC (Sensitive Critical). The species has particular breeding habitat requirements, pre-

ferring to nest in tree cavities – or nest boxes – near open areas for foraging. There is at least one known spring record for this species in the park, and purple martins are thought to occasionally nest in the forested habitat surrounding Henry Hagg Lake (pers. comm., Gillson, 2002).

Amphibians and Reptiles

Northwestern Pond Turtle

The northwestern pond turtle (*Clemmys marmorata marmorata*) is one of two freshwater turtles native to Oregon. Formerly considered a common species in the Willamette Valley area, pond turtle populations have declined by as much as 96 to 98% since the beginning of the 20th century (Csuti et al. 1997). Population declines are thought to be from both the introduction of predator species such as bullfrogs (*Rana catesbeiana*) and bass, which feast on pond turtle hatchlings, and the transformation and degradation of suitable habitat. Pond turtles prefer stagnant or slow-moving water in small lakes, ponds, rivers, and sluggish streams and require basking sites on logs, rocks, mudbanks, or cattail mats (Csuti et al. 1997).

The northwestern pond turtle is a Federal SoC with an ONHP rank of 1 and an ODFW SC (Sensitive Critical) status. The species is thought to be largely affected by extreme manipulations in water level consistent with Henry Hagg Lake management. The Western Aquatic Turtle Research Consortium (WATRC) conducted a reconnaissance survey for pond turtles and reportedly located the species within the park boundaries (Reclamation 1994). However, the ONHP database does not include any records of this species in the RMP study area. The Pacific Northwest Turtle Project indicates that in 1999 a pregnant western pond turtle was picked up by children near Sain Creek within the park. A turtle rehabilitator was called and picked up the turtle, which subsequently lost her eggs. In addition, a western pond turtle was located about ½ mile southeast of Henry Hagg Lake in the spring of 2003 in an unnamed drainage.

Northern Red-Legged Frog

The northern red-legged frog (*Rana aurora aurora*) is a native frog species that was once common to a variety of habitat types, found peripheral to ponded water west of the Cascade Mountains on the Pacific Coast. The species was once common to abundant in the Willamette Valley region. However, northern red-legged frog populations have suffered significant declines since the introduction of the non-native bullfrog, which preys heavily on red-legged frogs (Csuti et al. 1997). Several recent surveys in western Oregon have failed to detect northern red-legged frogs in localized areas where they were once commonly found.

The northern red-legged frog is a Federal SoC with an ONHP rank of 2 and an ODFW SV (Sensitive Vulnerable) status. There are no known records of occurrence for this species in the vicinity of Henry Hagg Lake. However, suitable red-legged frog habitat exists along the periphery of all slow-moving water bodies in Scoggins Valley Park, especially in those areas with dense ground cover and aquatic or overhanging vegetation.

Oregon Spotted Frog

Although once thought to be common west of the Cascade Mountains, the Oregon spotted frog (*Rana pretiosa*) may now be extirpated from the Willamette Valley region. Populations of spotted frog are only known to be extant in localized areas where non-native predatory bullfrogs do not occur. Suitable spotted frog habitat includes the waters and vegetated shorelines of ponds, springs, marshes, and slow-moving streams. The species tends to prefer cool, permanent, quiet water bodies with a benthic layer of dead and decaying vegetation (Csuti et al. 1997).

The Oregon spotted frog is a Federal candidate species with an ONHP rank of 1 and an ODFW status of SC (Sensitive Critical). There have been documented occurrences of the spotted frog in the Gales Creek area (USFWS 1993). However, there have been no recorded occurrences of the frog in the Scoggins Valley Park area (OHNP 1993). Given the dramatic declines in populations of this species, spotted frogs are unlikely to occur in the RMP study area although suitable habitat exists in the park.

Mammals

Pacific Western Big-Eared Bat

The Pacific western big-eared bat (*Corynorhinus townsendii townsendii*) is a rare but relatively well-studied bat species occurring in localized regions of the state of Oregon. The species' occurrence is thought to be limited by the presence of suitable roost sites, which include buildings, caves, mines, and bridges (Csuti et al. 1997). Big-eared bats are very intolerant of human disturbance, in part accounting for their spotty distribution throughout the state. Confirmed range for this species in Oregon is often thought to be limited to localized areas around known roost sites, predominantly in the southwestern part of the state, although ONHP has documented the occurrence of the Pacific western big-eared bat in Washington County (ONHP 2001). No known roost sites have been identified within the RMP study area, and no known records of occurrence exist for this species in Scoggins Valley Park. The Pacific western big-eared bat is a Federal SoC with an ONHP rank of 2 and an ODFW status of SC (Sensitive Critical).

Fringed Myotis

The fringed myotis (*Myotis thysanodes*) is a rare bat species occurring in Oregon west of the Cascade Mountains and in localized areas in the northeast of the state. The species is most common in southwestern Oregon where it is known to breed at Oregon Caves National Monument. Fringed myotis may occur in a wide variety of habitats but seems to prefer forested or riparian areas (Csuti et al. 1997). The species is a Federal SoC with an ONHP rank of 2 and an ODFW SU (Sensitive Unknown) status. There are no known records of occurrence for the fringed myotis in the study area, although suitable habitat exists in and around the park.

2.2 Visual Resources

Scoggins Valley Park and Henry Hagg Lake are located in the foothills on the east side of the western Oregon's northern coastal mountain range. This landscape is characterized by rolling hills of secondary coniferous forest interspersed with patches of meadow associated with rural residential and agriculture activities.

The most prominent visual features at Scoggins Valley Park are Henry Hagg Lake and the surrounding forested hills. The visual environment at the reservoir is composed primarily of natural-appearing rural landscapes of both closed and open canopy forest, meadow, and riparian woodland. Human presence is evident within the landscape but generally does not detract from the high level of scenic resources available at the park. Roads, recreation facilities, limited residential development, and rural industry associated with forestry, such as clearcuts and a mill, characterize human presence at and near the park (Reclamation 1994).

The highest quality views of the reservoir exist from spring to early summer when the reservoir level is at its highest and the meadows are green with newly emerging growth (Photo 2-6).

These views can be compromised during low reservoir level conditions that expose large mudflat areas (Photo 2-7).

Photo 2-6. Henry Hagg Lake and surrounding landscape (at full pool).

Photo 2-7. View of Henry Hagg Lake and Scoggins Creek at low pool (October 2001).

The reservoir can be seen from several areas within the park, including the day use areas and a number of pullouts along the perimeter road. With the exception of the Sain Creek area and Recreation Area C, none of the recreation areas can be seen from the perimeter road due to vegetative buffers and topographic differences between day use areas and the road. The entire perimeter road, including Scoggins Valley Road, north of the reservoir, and West Shore Drive, on the south side of the reservoir, is designated as a "scenic route" by the Washington County Comprehensive Plan Rural/Natural Resource Plan Element. Scenic routes are identified as those being "excellent" scenic roads or "good" scenic roads with views of the Tualatin Valley or the Cascade Mountains (Washington County 2001). Under the Washington County Comprehensive Plan Rural/Natural Resource Plan Element, the park and nearby lands have been designated as a significant natural resource. The lands are designated as Wildlife Habitat, which are sensitive habitats identified by the ODFW and forested areas coincidental with water areas and wetlands (Washington County 2001).

Some day use areas, such as the Elks Picnic Area, Sain Creek Picnic Area, Recreation Area A West, and Recreation Area C, can be seen from the reservoir or across the reservoir (Photos 2-8 and 2-9).

Photo 2-8. View of Nelson Cove area.

Photo 2-9. View of Recreation Area C fishing pier from upland meadow.

Other recreation areas, such as Recreation Area A East and the Scoggins Creek Picnic Area, cannot be seen from the reservoir or across the reservoir due to shoreline vegetation that is more dense (Photo 2-10).

Several private residences are visible from the reservoir; similarly, these private residences also have views of the reservoir (Reclamation 1994).

Photo 2-10. View of Henry Hagg Lake and Scoggins Creek area at high pool (April 2002).

2.3 Noise

In general, the rural character of Scoggins Valley Park, Henry Hagg Lake, and the surrounding area is reflected by low ambient noise levels. Noise sources present are primarily from motorized recreational activities on the reservoir, visitors at the various recreation areas, vehicular noise on nearby roadways, and nearby local industry operations such as wood product production. The noise levels associated with these sources vary significantly depending on location, season, and time of day (Reclamation 1994).

Sensitive noise receptors in proximity to the park include residential dwellings adjacent to the park boundary. Of all the noise sources within the RMP study area, motorized recreational activities on the reservoir during the summer months and vehicular traffic on the interior road are the most prevalent. Noise from personal watercraft (PWC) and motorized boats is reflected off the water and, depending on wind and weather conditions, can be heard at locations far from their source. At the present time, however, none of the noise sources within the RMP study area are known to be significantly disruptive to visitors or wildlife. In the past 20 years there have been few complaints to park staff from nearby residents about high levels of noise (pers. comm., C. Wayland, April 2002). Complaints about noise made to the Washington County Sheriff are typically in response to parties and unauthorized fireworks (pers. comm., M. Alexander, April 2002). While weekends and holidays during summer months are expectedly noisier than other times, they remain within a reasonable level and during reasonable daytime hours. To facilitate this, the Sheriff clears the reservoir of users each evening prior to dusk and locks the gates to each boat ramp (pers. comm., C. Wayland, April 2002).

Noise measurements were taken over a 2-day period in June 1993. Sampling occurred near two residential locations adjacent to the park to determine existing sound levels from park activities such as boating, swimming, waterskiing, and PWC use. In this study, noise levels from non-park sources were estimated and differentiated from estimates of noise level from park sources only. The estimated park-source noise levels for the 2-day measurement period were used to estimate park-related noise levels during peak summer days by comparing the traffic volumes for these peak days with the traffic volumes for the 2-day measurement period. Generally, noise levels increased slightly both throughout the day and on the weekend, as shown in Table 2.3-1.

These data show that the park is a relatively quiet area with moderate increases in noise associated with increased recreation use. It was estimated that if no additional recreation development occurred at the park, noise levels would increase by 2 A-weighted decibels (dBA; decibels [dB] adjusted to account for the frequency of human hearing) for weekdays, Saturdays, and Sundays by the year 2010 due to increased recreation use (Reclamation 1994). It is likely that use of the park has increased more rapidly than originally estimated and that there is or will be a resulting increase in noise levels greater than originally estimated. For comparison, decibel measurements of particular noise levels are provided in Table 2.3-2.

Table 2.3-1: Estimated noise levels (dBA) from park sources (1994).

Site	Summer Peak			
	Period	**Weekday**	**Saturday**	**Sunday**
1) Recreation Area A East	6 am - 12 noon	44	45	46
	12 noon – 5 pm	45	46	47
	5 pm – 9 pm	46	47	48
	11 pm – 6 am	park closed	park closed	park closed
2) Recreation Area C	6 am - 12 noon	37	37	38
	12 noon – 5 pm	40	40	41
	5 pm – 9 pm	40	40	41
	11 pm – 6 am	park closed	park closed	park closed

Source: Reclamation 1994.

Table 2.3-2: Decibel levels of particular noises for comparison purposes.

Noise Level/Threshold	Decibels (dBA)
Jet Engine (close up)	160
Trumpet	150
Threshold of pain	130
Jet flyover at 1,000 feet	100-120
Gas lawn mower at 100 feet	90-100
Diesel truck at 50 feet	80-90
Garbage disposal at 3 feet	70-80
Normal speech at 3 feet	60-70
Quiet urban daytime	50-60
Dishwasher (next room)	40-50
Library	30-40
Concert hall (background)	20-30
Quiet rural nighttime	10-20
Threshold of hearing	0-10

Source: Cool Math website.

2.4 Cultural Resources

2.4.1 Historical Overview

Human occupation of the Willamette Valley is well documented to have occurred since approximately 6,000 years before present (BP), but most likely extends back to no less than 11,000 years BP. At the time of Euro-American explorations of the lower Willamette Valley in the early 1800s, the Tualatin Valley was the homeland of the Tualatin Indians. The Tualatin were the northernmost branch of the Kalapuyan peoples who occupied the Willamette Valley. The Tualatin practiced a lifeway that involved seasonal movements throughout a territory that extended from the valley bottom up into the Coast Range Mountains, ensuring access to the riverine, valley bottom, and montane zones and their associated resources. In the wintertime, the population collected in groups to live in semi-permanent villages in the valley bottom. In the summer and fall, the larger groups split into family groups who moved into the Coast Range to fish, hunt, and gather nuts and berries. Research indicates that the area from modern-day Gaston to Forest Grove was a center of Tualatin Tribal settlement, including a winter village near the mouth of Scoggins Creek and perhaps another only a few miles upstream. No record exists of settlements in the Scoggins Valley within the area inundated by Henry Hagg Lake. It is likely, however, that people residing in the winter villages downstream of the reservoir would have at least used the Scoggins Valley area in the summer and fall.

British and Americans first began to explore the lower Columbia River in 1792. Soon afterward, devastating epidemics swept through the lower Willamette Valley and along the Columbia. Following an epidemic in 1829, John McLaughlin estimated that 90% of the resident lower river and valley tribal people had died. The Tualatin were among those people. Soon after, the life of the survivors was further altered by intensive settlement of the region by Euro-Americans.

Euro-American settlement occurred rapidly once the riches of the land became known. In the 1820s, fur posts and agricultural settlements were established in the lower Willamette Valley. By the early 1830s, a number of farms had been established by former fur trappers in the lower valley. In 1840, four fur trader families settled on the Tualatin Plains. In 1841, American emigration to the Willamette Valley began in earnest, and by 1843 overland emigrants settled the remainder of the Tualatin Plains.

In 1851, the U.S. Government began treaty negotiations with remaining Willamette Valley Indian Tribes. The Government's goal was to move the Tribes east of the Cascades, but the Tribes ultimately negotiated small reservations in the Willamette Valley in exchange for ceding all other valley lands. Although Tribes moved to the negotiated locations, Congress failed to ratify those treaties due to pressure from Americans who wished to settle those lands. Soon thereafter, all valley Indians were rounded up and placed on a reservation on less-desirable lands on the Yamhill River. In 1854, further negotiations occurred, resulting in a treaty ratified in 1855. The Grand Ronde and the Siletz reservations were subsequently created, and most of the surviving Tualatin were moved to those locations in the late 1850s.

2.4.2 Archeological Investigations

In 1965, prior to construction of Scoggins Dam and Henry Hagg Lake, the University of Oregon completed an archeological survey of the reservoir and downstream impacts areas. Investigations are reported in Cole and Rice (1965). The contract for the survey was issued by the NPS, on Reclamation's behalf. The survey methods and scope are uncertain, but the fieldwork appears to have focused on areas along Scoggins Creek and its tributaries within the proposed reservoir area. Local residents were also contacted regarding the presence of artifacts and other deposits. Four prehistoric archeological sites were recorded, all based on information from local residents. Two sites, 35-WN-2 and 35-WN-3, were reported to have been circles of river cobbles thought by landowners to have been sweat lodges. Both had been plowed, removing the cobbles. Site 35-WN-1 was a location where the landowner had reported collecting projectile points, scrapers, and a mortar. This site was recorded without ground-truthing to confirm the report. All three of these sites were located within the projected reservoir pool area. The last site, 35-WN-4, was recorded well downstream of the reservoir.

In 1969, the NPS contracted with Oregon State University for additional surveys and for test excavations. The investigations are reported in Davis (1970). Davis determined 35-WN-2 and 35-WN-3 to be not eligible to the National Register based on surface examination. He proposed to conduct test excavations at 35-WN-1 and 35-WN-4. The landowner denied permission to access site 35-WN-1. There is no evidence that any further investigation occurred before this location was inundated by the reservoir. Davis was able to complete test excavations at 35-WN-4, which yielded artifactual material in a midden context dating to the Late Archaic period (200 to 2,000 years BP). Although the site was recommended to be eligible to the National Register, there is no evidence that any further investigation occurred. It is possible that the

site lay beyond the impact zone for any project-related development. Davis also recorded a fifth site, a petroglyph, well downstream of the reservoir.

Although not documented by the archeologists, one historic-period cemetery site was located in the valley. The annual project history (Reclamation 1971/1972) indicates that, in August 1971 "Eleven graves of an unknown pioneer group were excavated from the tunnel outlet, and the remains were reinterred in Mountain View Cemetery in Forest Grove, Oregon." Other than a photograph of the cemetery site showing the 11 burial pits, there is no other information offered in the project history.

In the early 1990s, a Reclamation archeologist completed supplemental surveys at the Sain Creek Picnic Area, Recreation Area C, and Scoggins Creek Picnic Area in advance of trenching and grading to implement improvements in those locations. Despite excellent visibility, no artifactual material or sites were found. In 1993, WACO contracted with Archaeological Investigations Northwest, Inc. (AINW) for additional surveys at recreational areas where they proposed further improvements under their recreational development master plan. AINW surveyed a total of 106 acres in seven locations (Elks Picnic Area; Sain Creek Picnic Area; Recreation Area C; Scoggins Creek Picnic Area; the southernmost development area at Recreation Area A West; Recreation Area A East; and the location where a fee booth pullout was to be constructed). The area surveyed at Recreation Area C extended much farther upstream than the existing development area. AINW found no artifactual material or sites and concluded that there was little probability that undetected subsurface sites were present. They recommended that no further investigations were needed prior to development (Ellis 1993).

In 2001, Reclamation began scoping actions in preparation for the Henry Hagg Lake RMP. The scoping actions included an assessment by Reclamation of whether additional cultural resources investigations were needed to assess impacts of alternatives identified in the RMP EA. Assessment indicated that most locations where development or focused use is being considered had been resurveyed in the 1990s by Reclamation staff or AINW and needed no further investigations to prepare the RMP EA. Areas that were not resurveyed in the 1990s were the existing elk meadows, potential new elk meadows, segments of the reservoir trail outside of the recreation areas, one existing recreation area, and the proposed site for the education & research center. Reclamation determined that any necessary resurvey of existing or potential elk meadows could be deferred until RMP implementation, because potential ground disturbances are likely to be limited to discing the soil to plant grass. These locations have been farmed in the past. It was determined that supplemental survey of trail segments could also be implemented under the RMP, since specific clearances would be needed in association with any new construction.

The recreation use area that hadn't been resurveyed is the uphill portion of Recreation Area A West. This is an existing recreational site, where facilities were constructed in the 1970s. Due to extensive ground disturbance that occurred during the original recreational development, Reclamation determined there is no potential for intact cultural resources. Therefore, no supplementary survey is needed for the RMP.

Reclamation determined that the proposed site for the education & research center did need to be resurveyed as part of RMP preparation, because implementation of the Proposed Action would involve extensive ground disturbance in areas where past disturbance was limited to plowing and timber cutting. Therefore, in April 2002, Reclamation contracted with AINW to survey a 69-acre area that may be affected if the education & research center were constructed. AINW completed the survey and recorded two 20th Century dump sites

(35-WN-49 and 02/801-3) and one lithic scatter (35-WN-50). Later in April, they returned to excavate shovel test probes at the lithic scatter to determine if the site might have subsurface components that would make it eligible to the National Register. They also excavated probes in areas where the surface visibility had been very poor, perhaps preventing surface detection of sites.

Results of the survey and test probing are reported in Ellis and Fagan (2002). In brief, the probing of densely vegetated areas failed to produce artifactual material. Dump site 35-WN-49 consists of approximately 70 to 100 items scattered in an area about 5 by 15 meters in size. The materials are a mix of agricultural and domestic refuse primarily dating from after WWII. It seems to represent either a single episode of deposition or a series of deposits over a short period of time. It is characteristic of small dumps frequently found in rural areas, and has little potential to provide additional or significant information about past occupation of the area.

Site 35-WN-50 was recorded as a scatter of seven flakes, one possible core, and an additional possible flake scattered along a 150-meter long segment of a dirt trail. AINW also noted one fragment of what may have been burned bone and a large river cobble that would had to have been transported to the location. When they returned, they recorded four additional flakes and a biface fragment but could not relocate all of the previously recorded materials. They excavated 12 shovel probes, one of which yielded a single flake from a disturbed context. Soils are shallow, with decaying bedrock encountered at about 30 cm below surface. The biface fragment is the distal end of a dart point but is not temporally diagnostic.

AINW recommended that both sites 35-WN-49 and 35-WN-50 be considered not eligible to the National Register, as neither had the potential to yield significant new information about past lifeways in the valley or region. Reclamation agreed with those recommendations. On August 19, 2002, Reclamation initiated consultation with the State Historic Preservation Officer (SHPO) on the eligibility of those sites to the National Register. On September 12, 2002, the SHPO concurred that 35-WN-49 and 35-WN-50 are not eligible to the National Register.

Site 02/801-3 is a dump or scatter of historic-period debris. The 15-mile shoreline Master Trail passes through this site, and debris is visible along both sides of the trail. Much of the visible debris is structural material (brick fragments, a chunk of concrete, window glass) and domestic material (ceramic and bottle glass fragments). It was difficult to determine the age of much of the material, but one ceramic fragment was of a feather-edge flow blue design. This style was most common from ca. 1800 to the 1840s. Additional research is needed to determine the source of the debris. U.S. Geological Survey (USGS) topographic sheets dated 1941 and 1956 show a building very near this location, and Reclamation appraisal records document an additional home in the vicinity. Insufficient information is currently available to determine if site 02/801-3 is eligible to the National Register. Reclamation does not propose to complete further research during RMP preparation.

2.4.3 Traditional Cultural Properties (TCPs)

As discussed above, the study area lies within the home area of the Tualatin band of the Kalapuya Indians. As part of the NEPA scoping process for the RMP, Reclamation notified the Confederated Tribes of the Grand Ronde Community of Oregon and the Siletz Tribe of our intent to prepare an RMP for the reservoir lands. The Tribes were asked to inform Reclamation if they were aware of any cultural resources or TCPs that might be in the study area or impacted by the Proposed Action. Reclamation indicated that we would be pleased to meet to discuss the RMP planning

process or any concerns they might have about impacts on resources important to the Tribes. On January 15, 2002, the Siletz and Grand Ronde Tribes were invited to participate in the Ad Hoc Work Group, and in 2003 the Draft EA was distributed to tribal chairmen and cultural resource leadership of the Siletz, Grand Ronde, and Warm Springs Tribes. No responses were received to the letters or invitations. Therefore, no TCPs have been identified in the vicinity of Henry Hagg Lake.

2.5 Indian Sacred Sites

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

As discussed in Section 2.4 (Cultural Resources), the study area lies within the home area of the Tualatin band of the Kalapuya Indians. The Tualatin were moved onto the Grand Ronde or the Siletz Reservations in the 1850s. As part of the NEPA scoping process for the RMP, Reclamation notified the Confederated Tribes of the Grand Ronde Community of Oregon and the Siletz Tribe of our intent to prepare an RMP for the reservoir lands. The Tribes were asked to inform Reclamation if they were aware of any Indian sacred sites that might be impacted by the Proposed Action. Reclamation indicated that we would be pleased to meet with the Tribes to discuss the RMP planning process or any concerns they might have. On January 15, 2002, the Siletz and Grand Ronde Tribes were invited to participate in the Ad Hoc Work Group, and in 2003 the Draft EA was distributed to tribal chairmen and cultural resource leadership of the Siletz, Grand Ronde, and Warm Springs Tribes. No responses were received to the letters or invitations. Therefore, no Indian sacred sites have been identified in the vicinity of Henry Hagg Lake.

2.6 Indian Trust Assets

Reclamation has an established policy to protect Indian Trust Assets (ITAs) from adverse impacts of its programs and activities and to enable the Secretary of the Interior to fulfill responsibilities to Indian Tribes. ITAs are legal interests in property held in trust by the United States for Indian Tribes or individuals. Examples of ITAs include lands, minerals, hunting and fishing rights, and water rights. ITAs can be found both on-reservation and off-reservation. The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to Indian Tribes or individuals by treaties, statutes, and executive orders.

The Confederated Tribes of the Warm Springs Reservation (Warm Springs Tribes) reserved the right to take fish at all usual and accustomed places through the June 25, 1855, Treaty with the Tribes of Middle Oregon. These usual and accustomed places include the lower Willamette River Valley. No other ITAs have been identified in the study area. Letters requesting information on possible ITAs have been sent to the Confederated Tribes of Grand Ronde Community of Oregon and the Confederated Tribes of Siletz, dated January 15, 2002, but no responses have been received to date.

2.7 Socioeconomics

2.7.1 Demographic Profile

During the 1990s, Washington County's population grew 42.9%, from 311,554 in 1990 to 445,342 in 2000. The state of Oregon's total population growth rate over this same time period was an increase of 20.4%, while the U.S. total population growth rate was 13.1% (U.S. Census Bureau 2000a).

The city limits of Portland (population 529,121) are adjacent to Washington County to the east. However, the Portland metropolitan area extends west into Washington County. Beaverton (population 76,129), a suburb of Portland, is the largest city in Washington County. The next largest cities are Hillsboro (population 70,186), Tigard (41,223), Tualatin (22,791), and Forest Grove (17,708). The closest town to Henry Hagg Lake is Gaston (600).

Table 2.7-1 shows the age distribution in both Washington County and the State of Oregon in 2000. For the most part, the population distribution and categorical shifts in Washington County resemble that of the state and the country, although population is growing at a much quicker pace.

2.7.2 Economic Setting

Before the 1970s, the agricultural and timber industries generally supported the local economies of the more rural sections of Washington County. The Scoggins Valley Mill is immediately downstream from the dam and is still in operation. The more urban east side of the county, where the Portland metropolitan area has expanded, has grown from a traditional timber resource-based economy (pulp, paper, and lumber manufacturing) to an economy based on high technology manufacturing and commerce. Economic growth in the area has increased in the 1990s, particularly due to the unprecedented population growth of Washington County because of opportunities in the high technology sector. More than 1,300 manufacturing companies are located in the Portland area. The five largest are Intel Corporation, Freightliner Corporation which builds heavy duty trucks, Nike Inc., Precisions Castparts Corporation which makes aerospace castings, and Consolidated Freightways Inc. (Oregon Bioscience website). Residential and commercial construction has been strong as a result of the growing economy, as have retail trade and services jobs. Significant suburban growth near Forest Grove was particularly evident during the 1990s. Rural residential growth has also increased steadily during this time.

As of 1999, there were 207,419 employees in the county with an annual payroll of over $7.7 billion. Currently forestry, logging, and agriculture provide only a very small fraction of those jobs. The industry that provides the most jobs in Washington County is manufacturing (37,147) with the majority of those being in computer, semiconductor, and other electronic product manufacturing. Retail trade (27,075), wholesale trade (17,670), and health care (14,935) are the other industry sectors that provide a large number of jobs in the county (U.S. Census 2000b).

Table 2.7-1: Washington County and Oregon State population and age distribution.

County	2000 population	% change since 1990	% of people under 5 years of age	% of people under 18 years of age	% of people over 65 years of age
Washington	445,342	42.9	7.9	26.9	8.8
Clackamas	338,391	21.4	6.5	26.2	11.1
Multnomah	660,486	13.1	6.4	22.3	11.1
Yamhill	84,992	29.7	7.0	26.9	11.7
Clark (WA)	345,238	45.0	7.8	28.7	9.5
Oregon	3,400,000	20.4	6.5	24.7	12.8
United States	281,400,000	13.1	6.8	25.7	12.4

Source: U.S. Census 2000a.

In 2000, there were 169,162 households in Washington County with an average of 2.61 persons per household. There were 176,758 high school graduates (39.7% of residents in the county) and 59,753 college graduates (13.4% of residents in the county). The 1997 median household income of Washington County was $49,753, well above the statewide median household income of $37,284. The percentage of county residents (6.7%) below the poverty level was significantly lower than the percent of state residents (11.6%) (U.S. Census 2000a).

2.7.3 Park Funding

There are many actions identified in the alternatives that would require funding commitments from WACO. While Reclamation often provides cost share monies up to 50% for recreation development and 75% for fish and wildlife enhancements, all operation and maintenance costs are paid by WACO. Reclamation does not subsidize the operation and maintenance costs at Henry Hagg Lake. The County relies heavily on revenues generated from user fees to meet these costs. This RMP provides for additional facilities that will require maintenance. To provide these services, WACO may need to increase user fees and/or identify additional sources of revenues to offset the ever-increasing maintenance costs.

Scoggins Valley Park's primary revenue source is from park-generated funds such as user fees, reservation fees, citation fees, and concessionaire fees. The secondary revenue source is from tax-generated funds associated with recreation at the park such as the State's Recreational Vehicle tax, and the Marine Fuel tax. Park-generated funds are expected to amount to $401,637 ($384,637 in user fees and $1,700 in reservation fees) in 2003, and tax-generated funds are expected to amount to $165,250 ($161,000 from the Recreational Vehicle tax and $4,250 from the Marine Fuel tax). Nominal fees are collected from concessionaires, totaling approximately $3,500 in 2003. A third revenue source, if needed, is the County general fund, which is maintained through property taxes. For example, the Park requested $7,258 from the County general fund to supplement the $490,000 revenue budgeted in 2002 to meet expenses. It is unclear at this point whether the Park will need to request County funds to supplement the revenue budgeted for 2003 (pers. comm., C. Wayland, 2003). In 2001, an atypical fiscal year due to drought conditions, the resulting low reservoir level, and the decrease in Park usage, the park had to request $70,304 from the County general fund to meet operating expenses. In contrast, from 1999-2000, the park was able to contribute over $18,000 back into the County general fund because revenue exceeded expenditures for those years (pers. comm., C. Wayland, 2002).

One of the annual expenditure items is the loan payment made by WACO to Reclamation for a portion of the park's development fees. Reclamation funded development of the park, planned by the NPS, with the agreement that WACO would repay 50% of the approximate $2.4 million initial development cost over the 50-year period of the lease. According to lease agreement No. 14-06-100-7961, Article 17 states that the agreement shall be effective November 15, 1973 and remain in effect for a period of 50 years from the due date of WACO's first annual installment. The first installment by WACO to Reclamation was made March 1st, 1980 after final costs for the development of the park were determined. After 2003, there will be 27 more annual installments on the loan, the last being on March 1, 2030, at which point the agreement will terminate. Approximately $505,337 has been paid by WACO to Reclamation thus far, and there is approximately $597,186 left on the contract as of 2002. The annual payment for 2002 was approximately $43,360 (pers. comm., C. Wayland, 2002).

Chapter 3

Existing Land Use and Management

CHAPTER 3.0
EXISTING LAND USE AND MANAGEMENT

3.1 Land Status and Management

3.1.1 Project Facilities and General Operations

Reclamation administers the lands within the boundaries of Scoggins Valley Park, owned by the United States. This includes all lands, facilities, and improvements. The park and water recreation resources are maintained and operated by WACO for public use and fish and wildlife enhancement under a management agreement with Reclamation. Reclamation has final authority on all matters pertaining to contract agreements between WACO and other entities. Land ownership, management, and status are illustrated in Figure 3.1-1.

Scoggins Dam is maintained and operated by TVID, under contract with Reclamation, who is responsible for dam and reservoir operations and water supply releases to contract users (Photos 3-1 and 3-2). The operational goal of TVID is to fill the reservoir in the spring and draw it down in the fall, specifically to bring the reservoir volume up to 53,640 af by May 1st and draw back down to 33,040 af by November 1st. Table 3.2-1 lists additional data about the dam and reservoir.

3.1.2 Reservoir Operations

Reservoir operations are not part of the RMP but are summarized to provide a general context. Henry Hagg Lake is the major storage reservoir facility of the Tualatin River Project and has an active storage capacity of 53,640 af and a water surface area of 1,132 acres at normal full pool elevation. The dam facilities are operated by the Tualatin Valley Irrigation District (TVID) under the general supervision of Reclamation's Lower Columbia Area Office in Portland. Reclamation's Bend Field Office, Bend, Oregon, and the Pacific Northwest Regional Office, Boise, Idaho, provide the day-to-day contact/coordination with TVID on operational and maintenance issues associated with the project. The project must meet a minimum flow to Scoggins Creek below the dam of 10 cubic feet per second (cfs), except in October and November when releases must be 20 cfs. Irrigation and other water uses typically draw the reservoir down to about 22,000 af or less by November 1. Flood control rules do not allow the reservoir to fill above 33,040 af until after January 15, after which maximum levels are prescribed by a fill curve that does not allow the reservoir to fill completely before May 1. Temporary storage above the fill curve is only allowed during flood control events, after which the reservoir must be drafted back down.

Photo 3-1. Scoggins Dam at low pool (October 2001).

Photo 3-2. Scoggins Dam, spillway, and operations facilities below the dam.

TVID operates and maintains Scoggins Dam and water releases from the reservoir. During the year, the water surface level can fluctuate from a maximum of 1,132 surface acres of water to a minimum of 411 surface acres. TVID manages the reservoir with a goal of reaching 53,640 af on May 1 of each year. The high water level is maintained until orders are received from the various contracting entities and outflow demands exceed inflow. Project specifications are summarized in Table 3.1-1.

3.1.3 Land Status and Management

Henry Hagg Lake was created in 1975 when Reclamation built Scoggins Dam as part of the Tualatin Project. The project was created to supply irrigation water to the Tualatin Valley, municipal water to local communities, and provide for flood control. Recreation development and fish and wildlife enhancements are also authorized project purposes. The TVID was formed by Oregon Statute in 1962 (prior to the development of the Tualatin Project) for the purpose of shepherding the project through the U.S. Congress (Reclamation 1994). During construction of the dam, TVID signed a 50-year operation and maintenance agreement with Reclamation to manage Scoggins Dam and to supervise water supply releases (pers. comm., J. Rutledge, 2002). TVID operates and maintains the dam under the general supervision of the Manager of Reclamation's Lower Columbia Area Office. Reclamation pays for 40% of the operations and maintenance (O&M) of the dam; all other contracting entities, including TVID, split the remaining 60%. In 2001, the responsible contracting entities were TVID (21%), Clean Water Services (14%), Hillsboro (9%), Forest Grove (8%), Beaverton (7%), and Lake Oswego (1%).

Table 3.1-1: Project specifications.

Normal Full Pool	
Elevation	303.5 ft
Active Storage	53,640 af
Surface Area	1,132 ac
Shoreline	11 mi
Minimum Pool (Inactive and Dead Storage)	
Elevation	235.3 ft
Storage	6,310 af
Surface Area	411 ac
Allocation of Capacity	
Active/Joint Use Storage	53,640 af
Inactive/Dead Storage	6,310 af
Scoggins Dam	
Structural Height	151 ft
Crest Elevation	313 ft
Crest Length	2,700 ft
Spillway Crest Elevation	283.5 ft

Source: Reclamation (2002)

Insert Figure 3.1-1 Existing Recreation Sites and Facilities

Back of Figure 3.1-1

For capital improvement projects related to issues such as dam safety, Reclamation assumes financial responsibility (pers. comm., L. Busch, 2002).

WACO entered into a separate 50-year lease agreement with Reclamation in March 1973 to administer Scoggins Valley Park and Henry Hagg Lake for public recreation use and fish and wildlife enhancement. The ownership of lands and developed facilities at the park remain the property of the United States (Reclamation 1994).

Reclamation funded development of the park, which was planned by NPS. Two of three planned phases for the park's recreation facilities (representing approximately 55% of the original development plan) were completed in 1976. The third phase of the NPS plan was not developed because the level of park attendance in the early 1980s did not warrant its completion (Reclamation 1974).

Due to an increase in popularity and recreational use during the 1980s WACO developed a Master Plan (1989) that identified additional recreational facilities to meet growing demand. Because the area is owned by the United States, this property development represented a Federal action, thereby requiring that an Environmental Assessment be prepared to comply with NEPA to evaluate the Master Plan and to develop a proposed action based on the Master Plan (1994). In 1997, recreation development that resulted from the Master Plan included upgrades to the Sain Creek Picnic Area such as power and water, paved parking, paths through the area, picnic tables, drinking fountains, and a covered pavilion (pers. comm., C. Wayland, 2002).

The Reclamation Zone is an area around the dam where Reclamation may restrict public use for safety concerns and to preserve the integrity of the dam. Fishing is currently allowed in the Reclamation Zone, but signs are posted to warn people away from the dam water intake structures. No public use is allowed on the downstream face of the dam or near the outlet structure.

3.1.4 Contractual Agreements

The park is currently managed by WACO through the Facilities Management Division. There are other portions of the park or park activities that fall under the management responsibility of other entities contracted by WACO. ODFW is responsible for fish management at the reservoir. WACO is responsible for wildlife habitat management at the reservoir. Agreements exist between WACO and the U.S. Coast Guard Auxiliary Flotilla 712 and other volunteer public service entities. In addition, WACO has contracts with two private concessionaires to provide goods and services to users of the park. There are no agricultural or timber leases on lands within the park. Also, there are no permits issued by Reclamation or WACO to private parties for items such as boat docks or mooring buoys (pers. comm., C. Wayland, 2002).

A Memorandum of Understanding (MOU) between Reclamation and ODFW (formerly the Fish Commission of Oregon) was established in 1973 with no termination date. This is a mitigation agreement for construction, operation, and maintenance of a fish hatchery, as well as trapping, holding, rearing, and stocking of anadromous fish for mitigation purposes due to the construction of the Scoggins Dam (Reclamation 1973). ODFW has discontinued its steelhead hatchery stocking program, requiring development of an alternative mitigation plan. Reclamation published an EA/FONSI in May 2001 that identified habitat restoration as the preferred mitigation plan. Agreements will be developed as needed to implement this plan.

As a component of mitigation for development of the dam, ODFW required Reclamation to maintain elk meadows at the park. The lease agreement between Reclamation and WACO included wildlife enhancements that

have encompassed mowing of the elk meadows. WACO had agreements with private contractors that allowed them to cut and bale hay from these pastures, including the Reclamation zone at the south end of the reservoir. WACO mows several of the pastures also as a way to reduce the threat of fire late in the summer when the grass would become tall and dry. A few of the pastures, such as the one below the dam next to Scoggins Creek, are currently managed by private contractors through agreements with the TVID. The private contractor, a local farmer, disked and seeded the pasture below the dam in early 2002 and cut and baled hay from it in the summer of 2002 (per. comm., C. Wayland, 2002).

The WACO Sheriff maintains a contract with the Oregon State Marine Board. From Memorial Day to Labor Day, the Sheriff provides marine patrol services and is the primary provider of law enforcement on the reservoir. The State Marine Board annually funds the sheriff's marine patrol and provides a building at Recreation Area A West boat ramp from which the patrol operates. Potential activities include boat inspections, emergency response, righting capsized vessels, towing disabled vessels, and removing hazards in the water (pers. comm., C. Wayland, 2002).

While there is no contractual agreement between WACO and the U.S. Coast Guard Auxiliary Flotilla 712, there is a verbal agreement between them. The Coast Guard Auxiliary facilitates boater safety on the reservoir by providing education and assisting the public in their boating safety needs. The services they provide are addressed in more detail in Section 3.3, Public Utilities and Services. WACO also has verbal agreements with a volunteer retired State Police group and a Sheriff's mounted posse to provide additional enforcement during busy summer weekends. These are also discussed in more detail in Section 3.3.6, Law Enforcement (pers. comm., C. Wayland, 2002).

There are two private concessionaires at the park who have contracts with WACO to provide goods and services. Each year when the park opens, they set up temporary facilities. One of these provides boat rentals and is located at the head of the Recreation Area C Boat Ramp, the other provides food service from a mobile truck also located at the Recreation Area C Boat Ramp (pers. comm., C. Wayland, 2002).

In June 2001, WACO entered into a license agreement (effective until December 31, 2011) with Reclamation that allows them to dispose of rock and soil generated from road maintenance activities throughout Washington County. A 13-acre parcel of land located between the dam and Scoggins Valley Road north of the Stimson Mill (NW ¼ of Section 21, T 1S, R4W) has been designated as the site where soil and rock disposal and storage may occur (Washington County 2001).

3.1.5 Easements

There are 44 access easements (also referred to as warranty deeds with "exceptions") that have been granted by Reclamation to private landowners whose properties are adjacent to Reclamation-owned land and accessible only from the perimeter County Roads within the park. Additionally, Reclamation currently has one road easement with Stimson Lumber in which an existing road was relocated onto Reclamation lands. Reclamation has recently issued a phone line easement on Reclamation lands. No flowage easements exist with regard to the shoreline of the reservoir, and there are no easements of any kind adjacent to the shoreline.

3.1.6 Encroachments on Reclamation Lands

There are no known encroachments on park lands by surrounding landowners or related items such as decks, sheds, storage, fences,

trailers, or landscaping which might be located across property lines (pers. comm., C. Wayland, 2002).

3.1.7 Adjacent Land Use Patterns

Land ownership directly adjacent to the park consists primarily of private interests. Approximately half of the private ownership adjacent to the park boundary consists of about 70 private residences and small farms, ranging in size from less than 1 acre to several hundred acres. Access to these private properties from public roads is often via easements. The other half of private ownership adjacent to the park boundary consists of private timber holdings. Easements also provide access to nearby forest areas where logging and timber management activities occur (Reclamation 1994; pers. comm., C. Wayland, 2002).

Scoggins Valley Park is located within an area designated by the Washington County Comprehensive Plan as an Exclusive Forest and Conservation (EFC) District (Washington County Website). The intent of the EFC District is to provide for "forest uses and the continued use of lands for renewable forest resource production, retention of water resources, recreation, and agriculture." While the purpose of the EFC District is to encourage use of lands primarily for forest practices, the existence of parks within the district is also permitted (Washington County 1991). All of the land in the park boundary is within the EFC District; a significant amount of the land within several miles of the park boundary, particularly north, west, and south of the park, is in the EFC District as well. A significant portion of the land approximately 1 mile east of the park is designated as Exclusive Farm Use (EFU) (WACO 2002). According to the Washington County Comprehensive Plan, this zoning district intends "to preserve and maintain commercial agriculture land for farm use consistent with existent and future needs for agricultural products, forests, and open spaces" (Washington County 1991).

While the majority of lands adjacent to the park boundary are designated as EFC, there are lands nearby that are designated as EFU (previously discussed), Rural Industrial (R-IND), Agricultural and Forest-5 (AF-5), Agricultural and Forest-10 (AF-10), and Agricultural and Forest-20 (AF-20). Parcels with these designations are generally located in three small, separate clusters within the vicinity of the reservoir (Washington County Website). The first cluster is southeast of the reservoir, immediately downstream of Scoggins Dam, where approximately 210 acres of land are zoned as R-IND. According to the Washington County Comprehensive Plan, this zoning district "provides for county industrial uses needed to support the natural resource base consistent with the rural character and rural level of services" (Washington County 1991). The Stimson Mill, which operates a timber product processing and manufacturing facility, owns this land. Across Scoggins Valley Road from the Stimson Mill are 22 parcels, ranging in size from ¼ acre to 5 acres, zoned as AF-5. According to the Washington County Comprehensive Plan this zoning district "provides for rural residential uses while retaining the area's rural character and conserving its natural resources" and requires a 5-acre minimum lot size for the creation of new parcels (Washington County 1991). There are several more parcels along Scoggins Valley Road that are zoned either AF-5, R-IND, and EFU. Farther east, most of the land is designated as EFU (Washington County Maps and Lands Record Website).

The second cluster of parcels near the park not designated as EFC is located approximately ½ mile north of the reservoir on Stepien Road and is comprised of several small parcels designated as AF-20. This zoning district provides for rural residential uses while retaining the area's rural character and conserving its natural resources, similar to AF-5, but requires a 20-acre minimum lot size for the creation of new parcels (Washington County 1991). The third cluster is located at Cherry Grove, a

small community approximately 2 miles southwest of the reservoir. Parcels designated EFU, AF-5, AF-10, and AF-20 exist in Cherry Grove (Washington County Website). The AF-10 zoning district also provides for rural residential uses similar to AF-5 and AF-20, but requires a 10-acre minimum lot size for the creation of new parcels (Washington County 1991).

In 1994, when the EA was completed for the 1989 Master Plan, the park was considered a non-conforming use within the EFC District. As a requirement for capital improvements made to the park in the mid-1990s, a land use application was submitted for review by the Washington County Department of Land Use and Transportation (DLUT) in order to bring the park into conformance with local land use regulations. This application was approved to allow for recreation improvements and to replace the park's non-conforming status with a Special Use Approval (Reclamation 1994; pers. comm., C. Wayland, 2002).

3.2 Public Services and Utilities

Most U.S.-owned and WACO-managed public facilities at Henry Hagg Lake consist of recreation facilities such as day use areas with restrooms (discussed in greater detail in Section 3.3, Recreation). Utility infrastructure varies around the reservoir, ranging from limited facilities such as Scoggins Creek Picnic Area to fully developed facilities that provide electricity, water, and wastewater disposal. Police, fire, and emergency services are provided to the area by the Washington County Sheriff's Department and the Gaston Rural Fire District, as discussed below.

3.2.1 Electrical

West Oregon Electric Co-op provides electrical service in the area. Electrical power is available to most recreation sites, supplying light and power for restroom facilities and maintenance needs. Specifically, service provided at the park administration station and maintenance yard, Recreation Area A East, Recreation Area A West, Recreation Area C, Sain Creek Picnic Area, and Elks Picnic Area is 480-volt, 3-phase. Power is also supplied to the water service plant adjacent to the Sain Creek Picnic Area. Public outlets that are 110-volt, single-phase are available in the pavilions at Recreation Area C. Site lighting is limited to surface-mounted fixtures at restrooms, and no roadway lighting is provided in the park. Distribution lines around the park are overhead pole-mounted. No natural gas is available within the park (pers. comm., C. Wayland, 2002).

3.2.2 Potable and Non-Potable Water

Four separate water systems supply water to various areas of the park, two potable and two non-potable. These systems currently supply an adequate amount of water to park facilities. Potable water is supplied to the north side of the park (Recreation Area A East and Recreation Area A West) by the Hillsboro Utility Water Commission (HUWC) system. The 12-inch diameter supply line to these areas is owned by HUWC and connects to a pumping station. The pumping facilities and 4-inch diameter transmission line from the pumping station are owned and maintained by WACO. The service line to the ranger station and maintenance yard from the 4-inch diameter transmission line is 1½-inch in diameter, and the service lines extending to the two recreation areas are ¾-inch diameter. All water supplied on this system is metered (pers. comm., C. Wayland, 2002).

Potable water is supplied to Recreation Area C and the Sain Creek Picnic Area by a system of wells. Water from the wells is pumped to Restroom 8 at the Sain Creek Picnic Area where it is pressurized and chlorinated before being distributed back to both areas. This system was installed during the 1997 upgrade to

the Sain Creek Picnic Area (pers. comm., C. Wayland, 2002).

Non-potable water is supplied to Recreation Area C and the Sain Creek Picnic Area by Sain Creek surface flows that are filtered and stored in a 15,000-gallon tank located at an old water treatment plant and pumping station approximately ¼ mile south of the creek. They are pressurized at the pumping station and distributed to both areas (pers. comm., C. Wayland, 2002).

Non-potable water is supplied at the Elks Picnic Area by an in-house water supply system. A pump and 600-gallon storage tank are located at the restroom and supplies water to two flush toilets only. These facilities are owned and operated by WACO. No water is currently provided to the Scoggins Creek Picnic Area (pers. comm., C. Wayland, 2002).

3.2.3 Wastewater

Wastewater is currently treated using conventional, on-site treatment and disposal units in all locations. All vault toilets in the park have been converted to flush toilets that utilize conventional septic disposal systems. There are currently six restrooms in operation and two boat waste dump stations in the park. There are three inactive restrooms located in Recreation Area A East, which is closed. WACO currently contracts with a local company to pump the solid waste from storage tanks associated with the septic systems. All tanks are pumped approximately once per year (pers. comm., C. Wayland, 2002).

Recreation Areas A East and A West share a common drain field disposal system. At Recreation Area A East, three restrooms drain to a septic tank system where solids are settled from the waste stream and primary treatment is provided. Each of the two septic tanks has an effective volume of 5,340 gallons. The effluent then drains to a concrete pumping vault where pumps convey it to a gravity drain field across the park road between Recreation Areas A West and A East. At Recreation Area A West, waste from two restrooms and one boat waste dump drain to a septic tank system similar to one used in Recreation Area A East. The effluent from this system is also pumped to the same gravity drain field that contains 14,000 lateral feet of 4-inch diameter perforated pipe. No evidence of distress or overloading of the drain fields has occurred, and none of the effluent has surfaced through the park road cutback downstream of the drain field (Reclamation 1994; pers. comm., C. Wayland, 2002).

Recreation Area C has a system similar to that of Recreation Area A. There are two restrooms in Recreation Area C, each of which has a septic tank system with an effective volume of 5,340 gallons. One of these systems also receives waste from a boat waste dump station. The effluent then drains to a concrete pumping vault where pumps convey it to a gravity drain field containing 3,550 lateral feet of 4-inch diameter perforated pipe located between the recreation area and park road. The system was checked in 1997 during upgrades to nearby Sain Creek Picnic Area, and there were no signs of distress or overloading in the system (U.S. Department of Interior 1994; pers. comm., C. Wayland, 2002).

The Elks Picnic Area has a restroom with two flush toilets. Two 1,000-gallon holding tanks collect sewage and require pumping approximately two to three times a year at current usage rates. The Scoggins Creek Area has portable toilets that are supplied by a private contractor who maintains them and pumps them weekly (pers. comm., C. Wayland, 2002).

3.2.4 Solid Waste

Solid waste collection occurs at trashcans located in the day use areas of the park; park employees check them daily and empty them at least once a week, depending on use levels. An average of 15-20 cubic yards of solid

waste is collected on a weekly basis during the summer season. WACO contracts with a local company to collect solid waste (pers. comm., C. Wayland, 2002). It is taken to a transfer station in Forest Grove and then to the Hillsboro Landfill in Washington County, which has capacity for approximately 25 more years.

3.2.5 Fire Protection and Emergency Services

Both the Gaston Rural Fire District (GRFD) and the Oregon Department of Forestry (ODF) are responsible for fire protection at the park. In general, GRFD is responsible for the southern two-thirds of the park, while ODF is responsible for the northern third of the park. The district line crosses the reservoir and park near the Recreation Area C Boat Ramp. In the case of fire response, GRFD and ODF are both first alarm providers for the park area and respond to calls, assisting each other during the response. However, ODF does not respond to emergency calls for medical or rescue situations. GRFD and ODF operate under a mutual aid agreement with each other as well as other fire protection providers in the area to assist each other when additional services are required (pers. comm., G. Juber, 2002 and J. Smith, 2002).

Response time to the dam or the Recreation Area C Boat Ramp by the GRFD is less than 5 minutes, while areas on the opposite side of the reservoir generally take up to 20 minutes to reach. In 2001, GRFD responded to 42 calls at the park and in the surrounding area (Scoggins Valley), including 21 for first aid, 20 for fire, and one other. GRFD has received funds from WACO in the past to provide service to the park. Washington County currently has an intergovernmental agreement with the GRFD that provides for an annual payment of $10,000 to provide compensation for emergency response services to Henry Hagg Lake. ODF response time is about 12-15 minutes, depending on the location of personnel and equipment at the time of the call. In the last 3 years (1999-2001), ODF has made seven runs responding to calls, four of which were in response to wildfires (pers. comm., G. Juber, 2002).

As of June 2002, GRFD personnel include one part-time chief, two full-time firefighters, and additional part-time assistance equaling 3 full-time positions. There are also 36 volunteer firefighters who work for the GRFD. GRFD equipment includes one rescue vehicle, three 1,000-gallon pumpers with the capacity to pump 250 gallons per minute, one 3,000-gallon water tender, two light brush-rigs, and two staff vehicles (pers. comm., J. Smith, 2002). ODF maintains a crew of 12 firefighters during the summer season, which typically begins around the end of June and ends with the coming of fall rains sometime in October. The Protection Unit Forester is one of two full-time positions supported year-round by ODF. ODF equipment for the Forest Grove Protection District includes three 500-gallon fire engine brush-rigs and three 200-gallon fire engine brush-rigs (pers. comm., G. Juber, 2002). The ODF office for the Forest Grove Protection District is in Forest Grove.

Both the GRFD and Metro-West Ambulance service respond to emergency calls in or near the park. When a 911 call is placed, the Washington County Consolidated Communication Agency (WACCCA) dispatch service determines which entities should respond to the call and contacts the appropriate dispatcher. GRFD responds to all fire and accident/emergency calls, while Metro-West typically only responds to emergency calls involving serious trauma, reports of chest pain, or drowning and water-related accidents. GRFD may request assistance from Metro-West at any time. Individuals requiring emergency medical facilities are transported to either Emanuel Hospital or Health Center and Oregon Health Sciences University Hospital. Lifeflight provides helicopter transport for critical cases to trauma centers at the same two hospitals (pers. comm., J. Smith, 2002).

There are several near-drownings and approximately one drowning death each year, as was the case in 2001 (pers. comm., M. Alexander, 2002). In 2001, Metro-West made a total of six runs to the park and eight runs to roads near the park, such as Scoggins Valley Road. Response to the park was for chest pain, a bee sting reaction, trauma, and possible near drowning. Response to roads surrounding the park was primarily for motor vehicle accidents. Response time for Metro-West is 11 minutes to the park entrance and up to 30 minutes once in the park. Response times vary depending on the location of the nearest ambulance (pers. comm., J. Lee, 2002).

3.2.6 Law Enforcement

The Washington County Sheriff's Department provides law enforcement throughout the county, having jurisdiction in all of the county's unincorporated areas. There is currently no specific contract between the Sheriff and Reclamation, and there is no specific assignment to the park.

On November 12, 2001, Congress passed Public Law 107-69. This law requires that the Secretary of Interior issue regulations necessary to maintain law and order and protect persons and property within Reclamation projects and on Reclamation lands. It also authorizes the Secretary to enter into agreements with State, Tribal, and local law enforcement agencies to carry out law enforcement at Reclamation sites and facilities, and to reimburse those agencies for their services.

The Sheriff has not established specific response times to the park. One deputy is on patrol in that area of the district and typically responds in less than 45 minutes. Historically, response times have varied due to the officer's location at the time of the call. Typical park disturbances that require law enforcement are vandalism, theft, domestic disturbances, alcohol-related misconduct, and more recently, gang activity. In 2000, a gang-related shooting occurred elsewhere in Washington County and the body was left on Herr Road outside of the park boundary (pers. comm., M. Alexander, 2002). Prank 911 calls are frequently placed from pay phones in the park. These calls are responded to on a routine basis in case there is an actual emergency. Disturbances are often reported by surrounding property owners and are typically related to littering, vandalism, parties, and unauthorized fireworks. Park rangers are always present during operating hours, have the authority to cite visitors for park rule violations, and communicate with the Sheriff as needed (pers. comm., A. Julian, 2002).

The Washington County Sheriff, the primary provider of law enforcement on the reservoir, has an annual contract with the State Marine Board to provide marine patrol services from Memorial Day to Labor Day. In 2002, the reservoir began opening earlier than in previous years (March 1) for fishing season and began closing later (November) than in past years. The Sheriff requested additional funds from the State Marine Board to patrol the reservoir during this time. Due to this request being denied, the WACO Sheriff did not provide marine patrols prior to Memorial Day or after Labor Day in 2002. The Sheriff's marine patrol has a building at the Recreation Area A Boat Ramp from which the patrol operates. Their equipment includes an 18-foot boat, a flat bottom boat, and a zodiac (inflatable) boat. Potential activities include boat inspections (both on the water and at the boat ramp), emergency response, righting capsized vessels, towing disabled vessels, removing hazards in the water, and checking for fishing licenses (pers. comm., A. Julian, 2002).

Boater conflicts on the reservoir are fairly limited due to the high visibility of enforcement at the park and on the reservoir and because the reservoir has been divided into two sections. A buoy line is located from approximately the Recreation Area A West Boat Ramp across the reservoir to a point immediately south of the Sain Creek inlet. The south-

east side of the lake has a 35 mph speed limit allowing for pleasure boating, water-skiing and PWC use. The northwest side of the reservoir is designated as a no-wake zone and allows for slow boating, windsurfing, sailing, canoeing, and kayaking. Boater conflicts that do arise are typically in regard to congestion on the reservoir and at the boat ramps during hot summer, heavy use days (pers. comm., C. Wayland, 2002).

The Sheriff's Marine Patrol is augmented by U.S. Coast Guard Auxiliary Flotilla 712, a volunteer retired State Police program, and the Sheriff's Mounted Posse. The Coast Guard Auxiliary Flotilla maintains a booth at the park from which they perform safety checks and generally assist the public. They do not, however, provide any law enforcement functions. At the request of the Sheriff, the Auxiliary provides boats and personnel on the water to offer assistance, particularly during busy weekends and holidays. Their primary role is to provide education and distribute printed materials to facilitate boater safety. There is no formal contractual agreement between WACO and the Coast Guard Auxiliary Flotilla. For the past 4-5 years, enforcement of park and reservoir rules has been augmented by volunteer State Police who work covertly on the reservoir. They have the authority to cite boaters for rule infractions, such as those related to safety and alcohol use. This service is provided to WACO at the discretion of the volunteers and no formal contract exists. In addition, enforcement is also provided by the Sheriff's Mounted Posse on summer weekends. The Mounted Posse patrols the park grounds on horseback and provides general assistance and information. This service is also provided to WACO at the discretion of the Mounted Posse with no formal contract. Collectively, these providers maintain a high level of visibility at the reservoir, which lessens the potential for user conflict (pers. comm., C. Wayland, 2002).

3.3 Recreation

Washington County is in an area serviced by Metro, a regional government that serves three adjacent counties and 24 cities in the Portland, Oregon metropolitan area. Metro's Regional Parks and Greenspaces Department operates 21 regional parks and natural areas. Only one of Metro's facilities, Blue Lake Regional Park, is similar to Henry Hagg Lake; however, Blue Lake itself is only 64 surface acres. Approximately 15 miles west of Portland, Blue Lake Regional Park provides opportunities for boating, fishing, picnicking, swimming, and special events. Surrounding counties also provide numerous recreation facilities close to the Portland metropolitan area. Most of these facilities, however, are associated with one of the many large rivers in the area (e.g., Columbia River) and provide a somewhat different recreation environment than found at Henry Hagg Lake. Nonetheless, these facilities provide similar recreation opportunities such as boating, picnicking, swimming, and fishing. Nearby, in Washington State, Vancouver-Clark Parks & Recreation Department is a significant recreation provider for the city of Vancouver and Clark County. The department operates three parks (Vancouver Lake Park, Salmon Creek Park, and Lacamas Lake Park) that are somewhat similar to Henry Hagg Lake, although these parks are much smaller in size (200-400 acres) and, unlike at Henry Hagg Lake, motorized boats are not permitted (Vancouver-Clark Parks & Recreation Department 2002). Overall, due to its large size, Henry Hagg Lake is a unique recreation facility in the Portland metropolitan area.

3.3.1 Recreation Facilities

Existing recreation facilities at Henry Hagg Lake/Scoggins Valley Park are located in five primary areas: Recreation Area A West, Scoggins Creek Picnic Area, Recreation Area C, Sain Creek Picnic Area, and Elks Picnic

Area. A sixth area, Recreation Area A-East, was closed in 1989 due to vandalism and other security concerns. Recreation Area A West, Recreation Area A East, and Recreation Area C were developed by Reclamation as part of the original reservoir project; subsequently, Elks Picnic Area, Sain Creek Picnic Area, and Scoggins Creek Picnic Area were developed by Washington County with cost-share funding from Reclamation. Table 3.3-1 and Figure 3.3-1 list and show existing recreation facilities found at each of these areas (Photo 3-3).

As previously stated, the reservoir is divided almost equally into two sections by a buoy line. On the north end of the reservoir, a no-wake rule is enforced, while the south end has a 35 mph speed limit. This division has some effect on the type and level of activities occurring at the different recreation facilities. In general, the boat ramp at Recreation Area A West is used predominantly by recreational motor boaters and for PWC use, while the boat ramp at Recreation Area C gets more use by anglers, sail boaters, and other no wake or non-motorized boaters. Other uses at these two facilities include picnicking and shore fishing. Recreation Area C has more picnic tables, a larger area available for shore fishing, and receives more group and family use than Recreation Area A West. Almost all of the reservoir's shoreline is accessible for swimming; however, there are no designated swimming areas or lifeguards.

Henry Hagg Lake/Scoggins Valley Park has two concessionaires, both operating daily and located at Recreation Area C. A local boat rental company has been operating at Henry Hagg Lake since 1991 and rents out a variety of boats including paddleboats, rowboats, electric motorboats, canoes, and kayaks. In 2003, motorboats were rented on an hourly ($12/hour) or daily ($40/day) basis. Kayaks, canoes, and paddleboats were also rented by the hour ($8) or all day ($30). The concessionaire is open daily from opening day through Labor Day. In 2003, the concessionaire paid a fee of $2,800 to operate at the park. The other concessionaire is a mobile food stand that has been operating in the park since 1999 and serves a variety of food and beverages. This concessionaire paid a fee of $3,600 to operate at the park for a 3-year period. Park staff indicated that there has never been any type of problems or complaints with either of the concessionaires (pers. comm., Wayland, 2002). Both contracts for these concessionaires are currently expired; however, the County intends to develop new 2- to 3-year contracts in February 2004 after the RMP is finalized (pers. comm., C. Wayland, 2003).

Photo 3-3. Aerial view of Recreation Area C (center) and adjacent Cove Area (right).

Recreation Area A West is a 2-acre site located just past the entrance to Scoggins Valley Park (Photo 3-4). The site provides picnic tables, a large barbecue, potable water, a restroom, and boat launch. The boat launch has an 800-foot long concrete ramp with three lanes as well as a dock. The picnic area located on a hillside above the boat launch is accessible to persons with disabilities (accessible). By providing visual and physical

Photo 3-4. Recreation Area A West, as seen from the water.

separation from the boat launch and parking area, this site provides a quiet, somewhat secluded area for picnicking away from the noise and activity of the boat and vehicle traffic. The picnic area has 22 single-unit picnic sites, as well as a small group area with six tables.

Recreation Area A East is a 25-acre site that is densely wooded and has parking, three restrooms, and a picnic area. Under the direction of the 1994 NEPA EA, this area was to be opened for camping. It was used as a day use area but was indefinitely closed in 1989 because of public safety concerns prompted by vandalism and uncontrolled parties. Since then, WACO has conducted selective timber harvesting and clearing of nearly all underbrush to more easily view the site for enforcement and in anticipation that the site would be reopened as a day use or camping area under the direction of the RMP.

Table 3.3-1: Overview of existing recreation facilities at Henry Hagg Lake.

		Recreation Areas						
	Facility	Recreation Area A West	Recreation Area A East	Recreation Area C	Sain Creek Picnic Area	Scoggins Creek Picnic Area	Elks Picnic Area	Total
Access & Parking	Road Access (Paved/Gravel)	P	P	P	P	G	G	
	Interior Circulation	P	P	P	P	G	G	
	Car Parking Spaces	38	129	146	104	Undefined	Undefined	**417**
	Boat Trailer/Car Parking	61		166		Undefined	Undefined	**227**
	Boat Ramps (lanes)	3		3				**6**
	Courtesy Docks	1		2				**3**
	Fishing Docks			1				**1**
Day Use Areas & Facilities	Picnic Sites - Single Units	22		46	34	15	10	**127**
	Group Picnic Shelters			1	2			**3**
	Trails/Paths	*		*		*	*	
	Informal/Interpretation							
Other Support Facilities	Flush Restrooms, 2-Unit						1	**1**
	Flush Restrooms, 4-Unit							**0**
	Flush Restrooms, 6-Unit	2	3	2	1			**8**
	Portable Toilets, 1-Unit					1		**1**
	Sinks	8	12	8	4			**32**
	Potable Water	*	*	*	*	*	*	
	Electrical Hookups			*	*			
	Maintenance/Storage Facilities	*						
	Accessible Facilities	*	*	*	*	*	*	*

*Indicates existence of facility, but number not relevant or known.
Source: Washington County Parks 2002

Figure 3.3-1 Existing Recreation Sites and Facilities.

Back of Figure 3.3-1.

Scoggins Creek Picnic Area is a 2-acre site with a gravel parking area and 15 picnic tables and barbecue grills. Other facilities include one portable toilet and two trash receptacles. The site is located in a shaded spot on the northwest tip of the reservoir where Scoggins Creek flows into the reservoir and provides direct access to the creek for wading or fishing (Photo 3-5). This site is less developed than the others and has more of a natural and secluded character. There is moderate erosion and vegetation damage along the creek bank due to a combination of fluctuations in the creek's water level and the impacts of footpaths leading to the creek bank.

Photo 3-5. Scoggins Creek Picnic Area.

Recreation Area C is a 38-acre site on the west side of Henry Hagg Lake. Facilities at this site include a boat launch, an accessible fishing pier completed in 2000, a covered group picnic area, and restrooms (Photos 3-6 and 3-7).

The group picnic area, known as The Pavilion, is a large covered, open air picnic structure adjacent to the parking area above the boat ramp. It is accessible and provides 24 picnic tables, six serving tables, two large barbeque grills, and water and electricity hook-ups. The Pavilion overlooks the west end of Henry Hagg Lake, offering good water views and easy access to the shoreline. The site is typically reserved for large group events and can accommodate groups of up to 800 people. In addition to the group picnic area, there are 46

Photo 3-6. Recreation Area C fishing pier as seen from the water.

Photo 3-7. Fishing pier during low water as seen from adjacent Cove Area.

individual picnic sites set in a large grassy area with scattered groups of shade trees. The fishing pier is a large, well-built structure situated away from the boat launch near the individual picnic sites. The boat launch has three lanes, two docks, and is approximately 800 feet long. The docks operate on a rail and cable system that is often difficult to operate and maintain with water fluctuations.

Sain Creek Picnic Area is a 6-acre site located in a small cove at the confluence of Sain Creek and Henry Hagg Lake just south of Recreation Area C. The site has newer, attractive facilities overlooking the reservoir among a large grassy area and several groups of large, mature trees. This site has two group picnic areas, as well as 34 individual picnic sites. The larger group picnic area, known as

Torvend Pavilion, is covered and provides 12 picnic tables, two serving tables, electrical outlets, concrete counters and sink, and a stove flume (Photo 3-8). The accessible site is typically reserved for large group events and can accommodate groups of up to 250 people. The smaller group area provides six tables and two serving tables. Sain Creek Picnic Area overlooks the west end of Henry Hagg Lake, offering good water views and easy access to the shoreline when the water levels are high. Other facilities include benches, restrooms, and drinking fountains.

Elks Picnic Area is a 6-acre site on the south end of the reservoir close to the dam. As the site is adjacent to the dam face, it is a popular bank fishing spot. This site provides fishing access, 10 picnic tables, 4 benches, and restrooms. At one time, this site provided an accessible fishing elevator; however, wave action eroded the bank and the elevator was decommissioned. The fishing pier at Recreation Area C was built to replace this access. This site appears largely as a gravel parking area; however, there is a large wooded area adjacent to the fishing access trail and restroom.

Photo 3-8. The Torvend Pavilion at Sain Creek Picnic Area.

In addition to these facilities, Henry Hagg Lake features an easy to moderate, 15-mile shoreline trail referred to as the Master Trail. This trail offers hiking, bicycling, and wildlife viewing opportunities. It has a natural surface, with some roots and rocks, and varies in width. Volunteer groups perform periodic litter and debris clearing as well as minor regrading, while the County does vegetation clearing to maintain an unobstructed trail corridor. There are several pull-offs from the reservoir's perimeter road that provide access to short access trails leading to the Master Trail. The Master Trail utilizes the reservoir's perimeter road shoulder in three areas where there are no trail segments along the shoreline. These areas are located at Scoggins Creek, Sain Creek, and across the dam. The perimeter road shoulder is utilized in these and several other areas because the shoreline has either washed out or eroded. In these cases, trail users use the access trails up to the perimeter road and utilize the road shoulder until the next access trail. The perimeter road shoulder provides a 10.5-mile long, 8-foot wide signed bicycle lane, maintained by the Washington County Department of Land Use and Transportation.

3.3.2 Recreation Activities and Use Levels

Henry Hagg Lake/Scoggins Valley Park is currently used solely for day use activities. Water-based recreation activities are most prevalent; however, land-based activities are also popular and attract many visitors (Titre and Ballard 1999). Outdoor recreation activities include boating, fishing, swimming, water-skiing, picnicking, wildlife viewing, hiking, and bicycling (Photos 3-9, 3-10, and 3-11). Equestrian use is not currently allowed in the park. Annual visitation figures for Henry Hagg Lake for the period between 1990 and 2001 are provided in Table 3.3-2.

The original recreation development plan for Henry Hagg Lake, completed in 1970, projected that visitor recreation days would reach 500,000 within 10 years of initial development

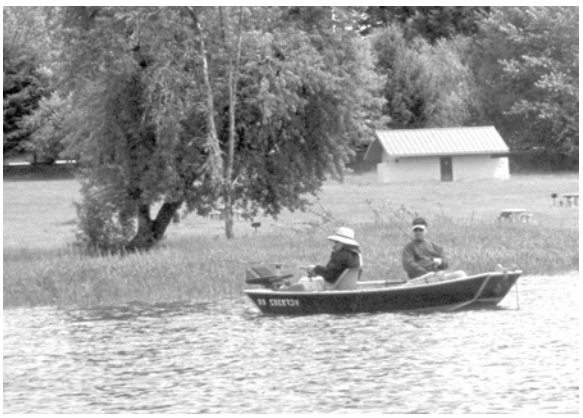

Photo 3-9. Out for a day of fishing on the reservoir.

Photo 3-10. Bank fishing at Sain Creek Picnic Area.

(NPS 1970). Estimated visitation figures shown in Table 3.3-2, however, indicate that visitor recreation days had not reached this projected number in 1990, 20 years after initial development.

In 2002, annual attendance grew considerably; however, much of this growth can be attributed to extending the recreation season by 3 months, which was done in 2002. The new recreation season is March through November. Overall, there has been a trend of increasing annual attendance over the years. Attendance grew to 706,000 in 2002, which is a park record. Attendance from the mid-1990s until the present has fluctuated primarily due to wet or dry conditions (i.e., 1994 through1998 were generally wet years resulting in a full reservoir; conversely, 1998 through 2001 were dry, low pool years). In 2003 (through October 28), attendance was 638,730.

3-11. Bicyclists take a break to enjoy the view over the reservoir.

Entry into Henry Hagg Lake/Scoggins Valley Park requires either a daily or seasonal pass for both vehicles and boats. Daily passes are available for purchase at the park entrance fee booth. A 2003 vehicle daily pass was $4.00, while a vehicle with boat daily pass was $5.00. Season passes are also available. Beginning in 2002, the recreation season was extended from the first weekend in March through November 24th. These dates correspond with the fishing season set by ODFW; prior to 2002, the recreation season opened the last weekend in April and closed October 31st. Approximately 120,000 recreation visitor days were recorded during March and April of 2002, indicating a strong demand during this time of year for the recreation facilities provided at Henry Hagg Lake. Season passes, which allow multiple park visits during the season, are available at several retail outlets throughout the Portland area and surrounding communities. Season passes are sold in the following increments: vehicle pass, $40; boat pass, $50; and senior citizen pass, $35 (boat or vehicle). In addition, a second pass can be purchased for $20 and can be used in the event that a family wishes to visit the park with two vehicles. No senior citizen rates apply to daily passes. Either a daily pass or season pass must be displayed while visiting the park.

Table 3.3-2: Annual attendance at Henry Hagg Lake.

Year	Annual Attendance	Percent Change in Annual Attendance from the Previous Year
1990	457,266	N/A
1991	459,295	0.4 percent
1992	488,207	6.3 percent
1993	486,119	-0.4 percent
1994	591,272	21.6 percent
1995	633,449	7.1 percent
1996	700,382	10.6 percent
1997	687,954	-1.8 percent
1998	670,052	-2.6 percent
1999	617,912	-7.8 percent
2000	599,656	-3.0 percent
2001	456,175	-23.9 percent
2002	706,000	54.8 percent
2003	638,730[1]	N/A

[1]2003 data are for March 1 through Oct. 28.
Source: Washington County Parks 2001-2002

In 1999, a survey of recreation users at Henry Hagg Lake was administered, with a sample size of 360 (Titre and Ballard 1999). Survey results provide useful information regarding visitor profiles and perceptions of the park and its facilities. The results of these completed surveys are the basis for the visitor information presented below. However, the sample size is small and provides only a limited view of park user perspectives.

The 1970 Recreation Development Plan for Scoggins Reservoir concluded that "recreation values of Scoggins Reservoir will be primarily of local significance" (NPS 1970). The 1999 Recreation User Survey provided information that supports this early projection by asking respondents the location of their primary residence. As shown in Table 3.3-3, 76% of respondents were from the nearby communities of Hillsboro, Beaverton, Portland, and Forest Grove. The remainder of visitors were from a variety of other communities.

These numbers are supported by the fact that most visitors (97%) traveled from less than 50 miles and that the close, convenient location of the park was the feature respondents listed most (23%) when asked what they liked best about the park. These numbers suggest that Henry Hagg Lake largely serves as an easily accessible recreation facility for nearby residents.

The Recreation User Survey asked respondents to indicate all of the types of recreation activities they participated in while visiting Henry Hagg Lake. The reservoir is known as one of the premier fishing lakes in Oregon; therefore, it is not surprising that fishing was the activity most participated in by park users (47%). The popularity of fishing at Henry Hagg Lake is further supported in that fishing boats were the most common boat type in use on the lake (43%). ODFW stocks the reservoir with fingerling and catchable rainbow

Table 3.3-3: Location of primary residence of visitors to Henry Hagg Lake.

Location of Primary Residence	Percent
Hillsboro	23%
Beaverton	21%
Portland	19%
Forest Grove	12%
Other communities	25%
Total	**100%**

Source: Titre and Ballard 1999

trout. The reservoir is also home to large and small mouth bass, yellow perch, and bullhead, which have established self-reproducing populations. As noted in Table 3.3-4, other popular activities include picnicking, boating, and a variety of other activities. While nearly half of the park users participate in fishing, this wide range of numbers indicates that the park provides numerous outdoor recreation opportunities.

In addition to indicating the types of recreation activities they participated in, respondents were also asked if they had any favorite locations at Henry Hagg Lake. Almost two-thirds (66%) of users indicated that they had a favorite place. As shown in Table 3.3-5, the most frequently mentioned favorite place was C-ramp, followed by Sain Creek Picnic Area, Elks Picnic Area, the dam, and various other locations. "Good fishing" was the reason most often indicated when respondents were asked why a certain area was a favorite place. This large number of favorite places indicates that the park provides numerous facilities with a wide variety of recreation experiences and opportunities.

Respondents were asked to list changes and improvements they would like to see at Henry Hagg Lake. Desired changes included adding camping, improvement of fishing (especially higher limits), and increasing boating restrictions. Many of the respondents indicated a desire for no changes. Overall, most of the desired changes were related to management issues rather than facility-related (see Table 3.3-6). This suggests that most visitors are satisfied with the number and quality of existing facilities. As shown in Table 3.3-7, when asked what specific facilities should be added, camping was mentioned most by respondents, followed by none, restrooms and drinking fountains, fishing docks, and a variety of other facilities. The fact that a significant number of respondents indicated that they desired no new facilities suggests that many visitors are satisfied with the number and variety of existing facilities. However, nearly one-third of respondents mentioned a desire for camping facilities, indicating a strong desire for overnight use which is not currently provided at Henry Hagg Lake.

Overall, according to the 1999 survey, visitors perceive few problems with capacity and conflict in the area. Only 3% of respondents indicated a conflict or problem during their experience at the park. Those that did experience a conflict reported boating-related conflicts (45%) and discourteous people (40%) as problems. Although use has generally been increasing, it appears the vast majority of park users are not experiencing conflicts with other users. Overall, visitors who participated in the survey were satisfied with their visit to Henry Hagg Lake. These survey results suggest that park management is successfully contributing to the positive experience of visitors.

Table 3.3-4: Activities participated in at Henry Hagg Lake.

Activity	Percent participating
Fishing	47%
Picnicking	20%
Boating	13%
Biking	7%
Swimming	4%
Other	4%
Hiking	3%
Wildlife viewing	2%
Total	**100%**

Source: Titre and Ballard 1999

Table 3.3-5: Visitors' favorite locations at Henry Hagg Lake.

Place	Percent Indicating as a Favorite Location
C-Ramp	20%
Sain Creek Picnic Area	14%
Elks Picnic Area	12%
Dam	10%
Scoggins Creek Picnic Area	8%
A-Ramp	7%
Fishing Pier (Accessible)	6%
Trails	7%
Tanner Creek	2%
Other	14%
Total	**100%**

Source: Titre and Ballard 1999.

Table 3.3-6: Desired changes at Henry Hagg Lake.

Changes	Percent
Add camping	15%
Improve fishing/higher limits	15%
More boating restrictions	15%
None	14%
Better zoning, designations, reservations	10%
Clean up/general maintenance	6%
More fishing piers/docks	6%
Better patrol/enforcement	5%
Lower fees	5%
Other	9%
Total	**100%**

Source: Titre and Ballard 1999

Table 3.3-7: Desired new facilities at Henry Hagg Lake.

Desired New Facilities	Percent
Camping	27%
None	14%
Restrooms/drinking fountains	10%
Fishing docks	8%
Swimming areas	6%
Parking areas/roads	5%
Picnic areas	5%
Trails	5%
Nature interpretation	5%
Other	15%
Total	**100%**

Source: Titre and Ballard 1999

3.3.3 Park Security and Safety

Security and safety patrols are conducted by the Washington County Sheriff's Office, Oregon State Police, and park rangers. The Oregon State Marine Board provides funding for the Sheriff's Office to provide marine patrol services. Daily marine patrol is provided from Memorial Day through Labor Day and on weekends through September. No marine patrol is provided during other periods of the recreation season. Marine patrol facilities and equipment include one patrol boat and a boathouse adjacent to the Recreation Area A West boat ramp. The Sheriff's Marine Patrol is augmented by U.S. Coast Guard Auxiliary Flotilla 712, and a volunteer retired State Police program. The Coast Guard Auxiliary Flotilla maintains a booth at the park from which

they perform safety checks and generally assist the public. Their primary role is to provide education and distribute printed materials to facilitate boater safety. In addition, a bicycle patrol officer is provided by the Sheriff's Office on weekends from Memorial Day through Labor Day, and a Mounted Posse (usually three officers on horseback) is provided by volunteer officers on holiday weekends. Oregon State Police do occasional patrols through the park, largely to cite visitors for fish and wildlife violations, and also respond to call-in reports on an as-needed basis (pers. comm., C. Wayland, 2003). Additional information regarding law enforcement is provided in Section 3.3, Public Utilities and Services.

There are two full-time park rangers at Henry Hagg Lake/Scoggins Valley Park. Park rangers are authorized to cite visitors for any violation of the general rules and regulations set forth in the Washington County Code Park Ordinance (Chapter 11.08). Public use regulations are posted on 17 bulletin boards throughout the park. Common violations for which visitors receive a citation include failure to purchase/display a park pass, unauthorized parking, off-road vehicle (ORV) use (prohibited in all areas of the park), open fires, and unauthorized fishing or camping (pers. comm., R. Blake, 2002). Citations result in a penalty fee of $48 for failure to display a park pass and $129 for all other violations. Approximately 10 years ago, however, the park instituted a program through which visitors receiving a violation for failure to purchase/display a park pass have the option to pay for the pass before leaving the park, with a $5 late charge. If visitors pay for the pass before leaving the park, the $48 penalty fee is waived and the pass fee and late charge funds are maintained in the park budget rather than going to the County court system (pers. comm., Blake, 2002). This program has successfully reduced the number of violations for failure to purchase/display a park pass and has enabled the park to recover park fees that would otherwise be lost to the County.

3.3.4 Special Events

Throughout the year, there are several special sporting events held at Henry Hagg Lake (Photos 3-12 and 3-13).

Photo 3-12. ODFW-sponsored "Free Fish Day" at Recreation Area C.

These include bicycle, swimming, and running races; triathlons; water-skiing events; and unique events like "hi-tech adventure racing." In addition, Reclamation and the Bass Anglers Sportman's Society, along with several other agencies, sponsors an annual event called Catch a Special Thrill. This event involves taking approximately 30 disabled youths out in boats to go fishing.

Photo 3-13. Learning the art of casting during Free Fish Day.

Applicants of special events may request exclusive use of the park or only of a portion of the park. No more than two applications for

exclusive use of the park are approved each year. Special events require a Special Event Application that has to be reviewed and approved by the Park Supervisor. The cost of the permit varies depending upon the number of people participating in the event and the number of required facilities. In addition, there is a $100 processing fee for all Special Event Applications. Those events requiring additional, or special handling for traffic, crowd control, or other law enforcement services must also be approved by the Washington County Sheriff's Department. If the roads within the park are used for the event, such as for a bicycle race, then the permit also requires the approval of the Washington County Land Use and Transportation Department. For larger events, such as a triathlon, Sheriff's Reserve Officers provide event support and traffic control. Park rangers monitor each event and complete an evaluation form that is submitted to the Park Supervisor for review. For certain events, specific areas of the park may be closed to the public for the duration of the special event. If this is the case, the event organizers and park rangers provide advance notification of the closures to the public, and signage is erected at the park entrance and the affected areas.

Specific areas of Henry Hagg Lake are also available for group use for events such as reunions and large picnics. These events require an approved Group Use Application, reservation fee, and security deposit. The amount of the reservation fee and security deposit depend on the size of the group. Four areas are available for reservation: Recreation Area A West and Sain Creek for small groups, and Recreation Area C Ramp Pavilion and Sain Creek Pavilion for large groups.

3.4 Transportation and Access

The majority (76%) of visitors to Henry Hagg Lake and Scoggins Valley Park reside in the nearby communities of Forest Grove, Hillsboro, Beaverton, and Portland and travel less than 50 miles to the park (Titre and Ballard 1999). Primary vehicle access to the park is by way of Highway 47, which junctions with Scoggins Valley Road, the main arterial of the park. Tualatin Valley Highway (Oregon Highway 8) and Sunset Highway (US 26) are feeders to Highway 47. All three highways carry heavy traffic volumes and are the primary travel routes to the park. No air, rail, bus, or shuttle services are provided to or within the park. Overall, access to the park by road, access within the park by road and trail, and current signage function quite well (pers. comm., C. Wayland, 2002).

3.4.1 Major Arterials

Scoggins Valley Road is the primary vehicular access directly to and within the park. The road enters the park from the southeast and runs along the north and east perimeter of Henry Hagg Lake. The perimeter road on the south and west shore of the reservoir is West Shore Drive, which crosses the dam and intersects with Scoggins Valley Road northeast of the dam. These two roads provide access to the park's seven recreation areas. The Scoggins Valley/West Shore road (perimeter road) is an 11-mile, 2-way, 2-lane road. It has a paved asphalt surface with 12 to 14 foot wide lanes and 6 to 8 foot wide paved shoulders. The road has no traffic lights and one stop sign at the dam close to the park entrance. The speed limit is posted at 35 mph at the park entrance and 45 mph after the dam. Approximately 10 turnouts are located along the perimeter road. The majority are located on the lakeside and provide view access. Other turnouts provide additional parking access to trailheads.

Park visitors primarily use the perimeter road, but it also supports residential traffic, utility vehicles, and logging trucks. The road gets peak usage on weekends and holidays during summer months. The results of a 1992 traffic study which evaluated level of service (LOS)

during the peak hour of an average Saturday designated Scoggins Valley Road as LOS C, which is considered acceptable (Reclamation 1994). The study also indicated that 10% of the traffic on the road consisted of heavy traffic, while 90% were passenger cars. Logging trucks did not constitute a significant volume of traffic on the weekends. A recent traffic count and studies of recreational use indicated that peak hours of usage on Scoggins Valley/West Shore Road are 7-9 a.m. and 2-3 p.m. (pers. comm., Thompson, 2001; Titre and Ballard 1999). In 2001 there were 480,186 park users, the two busiest months being May (97,347 park users) and July (95,591 park users). Due to drought conditions and low reservoir levels, the number of park users in 2001 was considerably less compared to previous years. Between 1996 and 2000, the park accommodated between 600,000 and 700,000 visitors a year (pers. comm., C. Wayland, 2002).

The perimeter road is a County Road maintained by the Washington County Department of Land Use and Transportation (DLUT). The perimeter road has been evaluated and is up to standard with regard to design, safety, and capacity. Unstable underlying soils is the biggest maintenance issue on the road, and there are ongoing maintenance efforts to correct this problem (pers. comm., C. Wayland, 2001). Other maintenance and operations issues with the perimeter road include collision and vandalism of road signs and some instances of speeding (pers. comm., Thompson, 2001).

The Washington County Sheriff's response to roads surrounding the park in 2001 was primarily related to motor vehicle accidents (pers. comm., Julian, 2002).

3.4.2 Local Roads

In addition to the main perimeter road, approximately 20 local roads exist within the boundaries of the park. WACO maintains eight access roads, all of which junction with the perimeter road. These include Tanner Creek, Stepien, Sain Creek, Lee, Herr, Nelson, Scott Hill, and Hankins roads. All roads are 18 to 22 feet wide, and most have stop signs at their junction with the perimeter road. Logging trucks use Tanner Creek, Stepien, Sain Creek, and Lee roads. Herr Nelson, Scott Hill, and Hankins roads primarily serve residential vehicles.

The remaining local roads are owned by Reclamation and are maintained by WACO. These roads consist of 12 to 14 foot wide single-lane gravel roads and generally do not have stop signs at their junction with the perimeter road. While these roads are intended for fire access, 44 easements provide more than 300 people access to their homes and properties (Washington County 1992).

3.4.3 Parking

The park has designated parking areas at each of the seven recreation areas around the reservoir. In addition, there is some parking availability along the perimeter road. Parking facilities are adequate except for approximately 10 days out of each summer season when the lots become full and people have to park on the perimeter road (pers. comm., C. Wayland, 2002). In a recent study of park users, 15.9% of respondents rated parking facilities as "excellent," 61.5% as "good," 17.3% as "fair," 2.5% as "poor," and 2.8% had no opinion (Titre and Ballard 1999).

3.4.4 Trails

A 10.5-mile multi-use trail runs along the reservoir on the shoulder of the perimeter road. The 6 to 8 foot wide paved lanes are located on both sides of the road and are used by bicyclists and joggers. The lanes also provide additional parking, particularly for anglers in the Sain Creek area. There have not been significant conflicts or safety issues presented by the multi-purpose function of the trail (pers. comm., C. Wayland, 2001).

A 15-mile "Master Trail" generally runs along the reservoir between the shoreline and the perimeter road (Photos 3-14 and 3-15).

Photo 3-14. The "Master Trail" located adjacent to the reservoir.

Hikers, joggers, and bikers use the 5-foot wide dirt trail, with gravel in places where the incline exceeds 8%. Twenty-eight footbridges span ravines and waterways along the trail. The Master Trail and the multi-purpose trail on the perimeter road also support special use events including running races, bicycle races, triathlons, and biathlons. Several smaller trails provide access from the perimeter road to the Master Trail. In addition, hikers have forged several unofficial trails on their own accord. For the most part, this system of unofficial trails has stabilized and no new undesirable footpaths have recently been created (pers. comm., C. Wayland, 2002).

The Master Trail and the multi-purpose trail are generally in good condition (pers. comm., C. Wayland, 2001). The only complaints regarding the paved multi-use trail along the perimeter road have been from cyclists who want the lane swept more often to clear away bark, which falls from logging trucks onto the shoulder. The Master Trail is also in good condition, as there have been ongoing improvements to address erosion issues (pers. comm., C. Wayland, 2001). In a recent study

Photo 3-15. A portion of the Master Trail that runs through trees and over a creek.

of park users, 17.6% of respondents rated trails as "excellent," 35.2% as "good," 8.9% as "fair," 0.3% as "poor," and 38% had no opinion (Titre and Ballard 1999).

3.4.5 Reservoir/Boat Access

Access to the reservoir for activities such as boating, picnicking, and fishing is provided in seven areas: two recreation areas with boat ramps and picnic facilities (Recreation Area A West and Recreation Area C), three picnic areas (Scoggins Creek, Sain Creek, and Elks), the Recreation Area C Extension (Cove) Area, and the currently closed Recreation Area A East. Anglers access the reservoir at Elks Picnic Area, Sain Creek, and Recreation Area C. Boat access is provided by two boat ramps at Recreation Areas A West and C. These ramps have concrete surfaces, and the adjacent parking lot has a hard paved surface. The Recreation Area A West Boat Ramp usually fills up by 11 a.m. on weekends while the Recreation Area C Boat Ramp only fills up about six

times a year. These boat launch facilities are adequate, and expanding boat launch facilities may overtax the capacity of the reservoir (pers. comm., C. Wayland, 2001). However, the current system, which relies on a series of cables and anchors to raise and lower docks to adjust for fluctuations in reservoir level, is labor intensive to operate and expensive to maintain. A new system using pilings and sliding dock sleeves is expensive but easier to operate and less expensive to maintain (pers. comm., C. Wayland, 2001).

3.4.6 Accessibility

The Park won the U. S. Department of the Interior's Conservation Service Award for its development of accessible facilities. The Park continues to strive for 100% accessibility on all new and existing facilities. These facilities include:

- A 520-foot hiking and viewing trail by the Recreation Area A West Boat Ramp;
- A 260 foot by 10 foot accessible fishing pier by the Recreation Area C Boat Ramp (Photo 3-16);
- Uniform accessibility throughout the park including accessible parking, picnic areas, shelters, garbage cans, water fountains, public phones, and associated access routes.

Photo 3-16. The fishing pier is accessible to all visitors.

Chapter 4

The RMP Planning Process

CHAPTER 4.0
THE RMP PLANNING PROCESS

4.1 Overview

This chapter summarizes the principal factors that most influenced development of the Henry Hagg Lake RMP (as illustrated in Figure 4.1-1). These factors were identified through the following two fundamental processes:

1. Review and analysis of regional and study area resource inventory data, and current land use and management practices; and Federal laws and Reclamation policies and authorities (see Appendix B).
2. A public involvement program and agency and Tribal consultation, focused on feedback and input from public meetings/workshops, newsbriefs, Ad Hoc Work Group (AHWG) meetings, and other meetings and communications.

A detailed Problem Statement defining the major opportunities, constraints, and planning issues was developed based on input from the processes listed above (see Appendix C).

The most commonly mentioned issues by those providing input during development of the RMP were about possible camping opportunities at Recreation Area A East; the need to preserve water quality at the reservoir; and

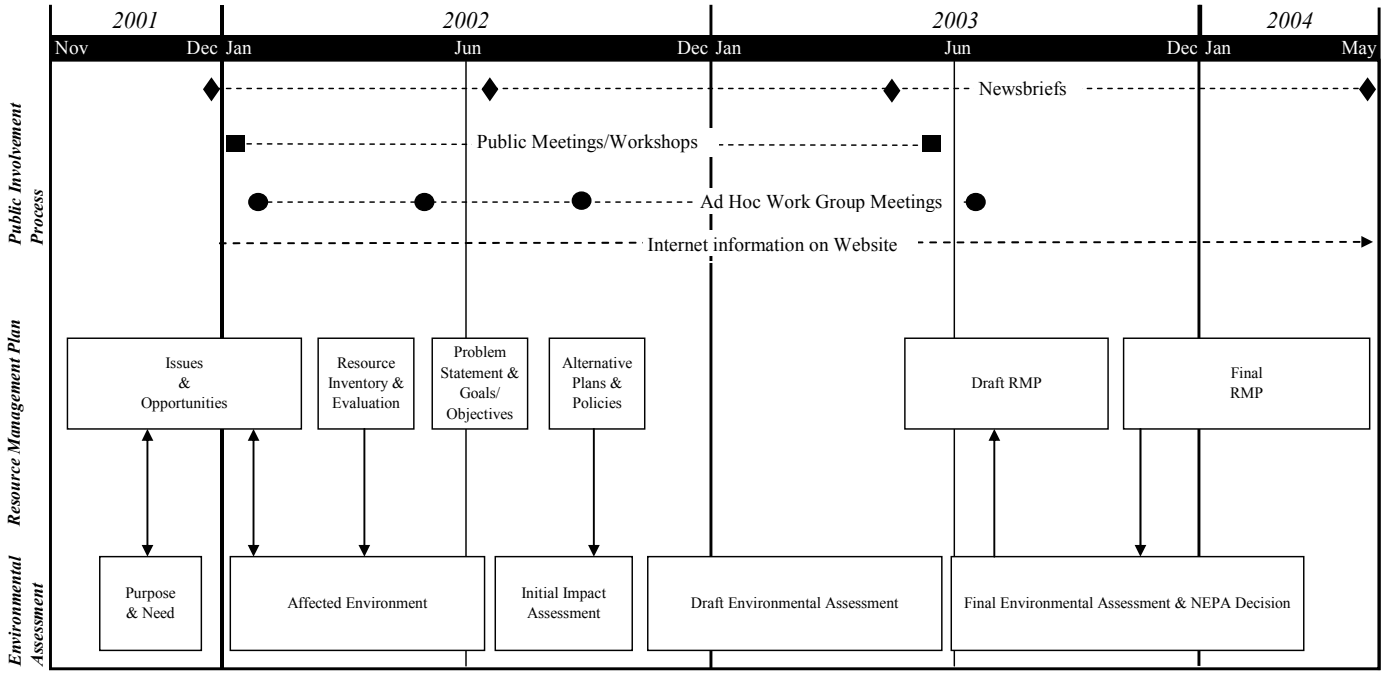

Figure 4.1-1: RMP planning process and RMP schedule.

law enforcement. Also mentioned frequently were the preservation of the elk meadow mitigation lands, as well as specific comments related to recreation facility design and management. Table 4.1-1 lists the primary issues of concern raised in the first public meeting and through written comment in response to the first newsbriefs, AHWG meetings, and agency and stakeholder meetings. These issues are described in detail in the Problem Statement contained in Appendix C. While not all issues of concern are listed in Table 4.1-1, the Problem Statement provides a comprehensive review and understanding of all of the issues, needs, and opportunities (including all relevant perspectives) that are addressed by the RMP.

The Problem Statement was also used to guide the development of the RMP Goals and Objectives, which are the foundation upon which alternative Management Actions were developed (described in detail in Chapter 5). The range of alternatives was reviewed by the public and the Ad Hoc Work Group. The alternatives were also identified and analyzed in the Draft Environmental Assessment (EA) for the Henry Hagg Lake RMP to investigate potential environmental effects (Reclamation 2003).

Letters of comment on the Draft EA were received from a Federal agency (1 letter); 3 State agencies (3 letters), local agencies (5 letters), organizations (5 letters), and the general public (3 letters). The Preferred Alternative was selected and modified using these consultation and assessment processes.

Table 4.1-1: Primary issues of concern identified during the initial RMP phase, based on public input.

- Balancing recreation uses with natural and cultural resources, and managing conflicting uses
- Promoting sustainable uses
- Addressing crowding on lands and on the reservoir
- Examining the potential to increase the season of use
- Maintaining, protecting, and managing wildlife and wildlife habitat (including wetlands)
- Restoring natural habitat
- Protecting endangered and sensitive species
- Controlling the spread of noxious weeds
- Examining fisheries issues, such as the fish stocking program
- Protecting water quality
- Controlling and reducing erosion
- Considering impacts to visual resources
- Potentially renaming recreation facilities
- Considering additional recreation facility developments and improvements
- Considering a leash-free zone for pets
- Examining the potential reopening of Recreation Area A East for day use or camping
- Examining trail improvements (such as development of an equestrian trail) and maintenance
- Considering additional concession opportunities
- Improving boating opportunities, including establishing a non-motorized zone, better enforcement of a no-wake zone, and providing a boat ramp for non-motorized craft
- Managing the reservoir fishery, including improvements at boat and bank fishing facilities
- Considering development of the Tualatin Watershed Education and Research Center
- Pursuing additional education & interpretation opportunities
- Managing traffic and parking in the study area
- Improving shoreline access
- Enhancing accessibility for people with disabilities
- Increasing law enforcement in the study area (especially for unauthorized ORV use and hunting)
- Improving trash cleanup, particularly along the shoreline where bank fishing takes place
- Examining the current fee structure
- Examining the timing of special events
- Protecting cultural resources
- Protecting Indian sacred sites, if we are informed such are present.

4.2 Public Involvement Program

Reclamation initiated a public involvement program in December 2001 and continued it throughout the planning process to support development of the RMP (see Figure 4.1-1). The program included: (1) four newsbriefs; (2) two public meetings/workshops; (3) four meetings with the AHWG representing key agencies, organizations, and stakeholders in the study area; and (4) a project website providing information to the public and a forum in which to comment on the process. Each of these program components is described in further detail below.

4.2.1 Newsbriefs

The first newsbrief was mailed in December 2001 to about 400 individuals and organizations. It explained the RMP planning process, announced the project schedule, introduced the team members, and provided a mail-in response form for submitting issues and initial comments on the management and facilities in the study area. This information was used to help form the Goals and Objectives for the RMP.

In August 2002, the results of the mail-in response form and the issues raised at the first public meeting were summarized in a second newsbrief. These issues were listed in a table and categorized by issue type (natural resources; land use and management; general and administrative; and recreation). Newsbrief #2 also listed the membership of the Ad Hoc Work Group, as well as provided a summary of the resource inventory conducted for Henry Hagg Lake.

The third newsbrief was mailed in May 2003, announcing the availability of the Draft EA for public and agency review. The newsbrief focused on describing the Draft Goals and Objectives established for the RMP planning process, as well as the alternatives as presented in the EA. In addition, it announced the time, location, and date of the official public meeting and described the public comment process for the EA.

The fourth and final newsbrief was mailed in May 2004 to announce the Final EA and the RMP. It also summarized comments received on the Draft EA and provided an overview of the RMP, including implementation.

4.2.2 Public Meetings

The first public meeting/workshop was held on January 17, 2002 in Hillsboro, Oregon. The purpose of this meeting was to conduct public scoping of the issues at Henry Hagg Lake. Approximately 30 people attended the meeting. Reclamation provided information about the RMP planning process, then the participants broke into small work groups to discuss important issues and opportunities the RMP should address.

The second public meeting was held May 22, 2003, in Hillsboro. Approximately seven people attended the meeting. The meeting followed a similar format, beginning with presentation of the alternatives. Attendees could then ask questions of the RMP team at stations that emphasized particular portions of the plan.

4.2.3 Ad Hoc Work Group

The Ad Hoc Work Group met four times: in February, May, and September 2002, and June 2003. As part of the May 2002 meeting, the group spent a day touring the Henry Hagg Lake study area and becoming more familiar with site-specific issues (Photos 4-1 and 4-2).

The 22 members brought a wide variety of viewpoints, and, although some were able to participate more than others, the group was of considerable assistance in the alternatives development process. The Preferred Alternative was arrived at through Ad Hoc Work Group discussions, public comments from the second

set of public meetings, and the recommendations of agency scientists and planners. The entities represented in the Ad Hoc Work Group are listed in Table 4.2-1.

Photo 4-1. While on a site tour, the AHWG stops to discuss the proposed Education and Research Center on the meadow overlooking Nelson Cove.

At the first meeting, the group was introduced to the planning process and asked to identify their issues of concern. This information was recorded and used to help draft the Problem Statement and form the draft Goals and Objectives for the RMP.

At the second meeting, an overview of the resource inventory was presented, focusing on potential opportunities and constraints. The Team also presented and took initial comments on the draft Problem Statement. In conjunction with the second meeting, the AHWG took part in a tour of Henry Hagg Lake.

The primary intent of the third meeting was to gather AHWG comments on the Draft Goals

Photo 4-2. The AHWG discussing resource issues at Scoggins Creek Picnic Area.

and Objectives, as well as to present and receive feedback on a preliminary set of alternatives, including a no action (i.e., status quo) alternative and two action alternatives (Photo 4-3).

Photo 4-3. Members of the planning team and AHWG discussing some of the details in the alternatives developed as part of the RMP planning process.

Table 4.2-1: Ad Hoc Work Group.

Adjacent Land Owner	Oregon Equestrian Trails
Clean Water Services	Oregon State Marine Board
Coast Guard Auxiliary	Oregon Road Runners Club
Gaston Fire Department	Portland State University Center for Lakes and Reservoirs
Joint Water Commission Water Treatment Plant	Portland Urban Mountain Pedallers
Mazamas	Trout Unlimited and Tualatin River Watershed Council
Marine Patrol	Tualatin Valley Irrigation District
NW Outdoor Science School	U.S. Fish and Wildlife Service
Oregon Bass and Panfish Club	Washington County Board of Commissioners
Oregon Department of Fish and Wildlife, Fisheries Biologist	Washington County Parks and Recreation Advisory Board
Oregon Department of Fish and Wildlife, Wildlife Biologist	Washington County Parks Department

The primary purposes of the fourth and final meeting were to: (1) summarize the final EA alternatives, in particular the Preferred Alternative; (2) receive AHWG feedback on the contents of the Draft EA; and (3) present and receive feedback on the RMP management actions and Implementation Program.

In response to AHWG comments, the Draft EA and RMP were significantly revised. In particular, the proposed campground at Recreation Area A East was eliminated as a component of the Preferred Alternative, primarily because of AHWG comments and dialog on this issue.

4.2.4 World Wide Web

A Henry Hagg Lake RMP web site was set up on Reclamation's Pacific Northwest (PN) Region's homepage and updated as a way to provide relevant information to the public. Newsbriefs, contact names/addresses, draft materials, the Draft EA, and meeting announcements were posted on this website. The site also provided a forum for individuals to provide comments on the RMP planning process.

4.3 Tribal Consultation

4.3.1 Overview of Government-to-Government Consultation with Tribes

Reclamation contacted staff members of the Siletz, Warm Springs, and Grand Ronde Tribes to discuss the preparation of the RMP and to identify cultural resources, ITAs, TCPs, and Indian sacred sites. Members of the Tribes were invited to participate on the Ad Hoc Work Group. The Tribes did not respond to Reclamation's correspondence.

The Draft EA was distributed to representatives from the Siletz, Warm Springs, and Grand Ronde Tribes. No response was received from the Tribes, and no ITAs, TCPs, or Indian sacred sites were identified in the vicinity of Henry Hagg Lake.

4.3.2 National Historic Preservation Act Requirements

The National Historic Preservation Act of 1966 (NHPA) (as amended through 1992) requires agencies to consult with Indian Tribes if a proposed Federal action may affect properties to which the Tribes attach religious or cultural significance. The implementing regulations of the NHPA, 36 CFR 800, address procedures for consultation in more detail. Reclamation complied with these requirements in preparing the RMP.

4.3.3 Indian Trust Assets

Indian Trust Assets are legal interests in property held in trust by the United States for Indian Tribes or individuals. The Secretary of the Interior, acting as the trustee, holds many assets in trust for Indian Tribes or Indian individuals. Examples of trust assets include lands, minerals, hunting and fishing rights, and water rights. While most ITAs are on-reservation, they may also be found off-reservation.

The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to Indian Tribes or Indian individuals by treaties, statutes, and executive orders. These are sometimes further interpreted through court decisions and regulations.

The Confederated Tribes of the Warm Springs Reservation (Warm Springs Tribes) reserved the right to take fish at all usual and accustomed places through the June 25, 1855, Treaty with the Tribes of Middle Oregon. These usual and accustomed places include the lower Willamette River Valley. No other ITAs have been identified in the study area. Letters requesting information on possible

ITAs have been sent to the Confederated Tribes of Grand Ronde Community of Oregon and the Confederated Tribes of Siletz, dated January 15, 2002, but no response was received.

4.3.4 Sacred Sites

Sacred sites are defined in Executive Order 13007 as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian Tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion...."

Reclamation informed the Siletz and Grand Ronde Tribes about the RMP and requested that they inform Reclamation if they were aware of Indian sacred sites within the study area. The notification and consultation processes were coordinated with the NHPA consultation process. The Tribes have not responded.

4.3.5 Other Laws and Regulations

The relationship between Federal agencies and sovereign Tribes is defined by several laws and regulations addressing the requirement of Federal agencies to notify or consult with Native American groups or otherwise consider their interests when planning and implementing Federal undertakings. Among these are the following (also see Appendix B, Legal Mandates):

- National Environmental Policy Act (NEPA)
- American Indian Religious Freedom Act
- Archaeological Resources Protection Act
- Native American Graves Protection and Repatriation Act
- Executive Order 12875, Enhancing the Intergovernmental Partnership
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- Presidential Memorandum: Government-to-Government Relations with Native American Tribal Governments
- Executive Order 13007, Indian Sacred Sites
- Executive Order 13175 of November 6, 2000, Consultation and Coordination with Indian Tribal Governments (EO 13175 revokes EO 13084 issued My 14, 1998).

4.4 Agency Coordination

Reclamation consulted with several Federal and local agencies throughout the RMP process to gather valuable input and to meet regulatory requirements. This coordination was integrated with the public involvement process.

Coordination on fish and wildlife issues to meet the requirements of the U.S. Fish and Wildlife Coordination Act (FWCA) was accomplished by consulting with the USFWS. Information about this consultation is provided in Appendix A.

The evaluation of endangered species contained in the EA served as Reclamation's biological evaluation of potential effects to listed and proposed for listing species including bald eagles, Kincaid's lupine, Nelson's checkermallow, Steelhead, and one candidate species (the Oregon spotted frog), as required under the ESA. Reclamation has determined that the

Preferred Alternative will not affect any of these species.

Reclamation worked with ODFW and USFWS through the RMP process to develop an appropriate management plan for the elk meadows that satisfies the general goals for these parcels originally discussed between Reclamation and ODFW. The collaboration has resulted in the 2003 Elk Mitigation Meadows Maintenance and Management Plan (Appendix D).

Chapter 5

Resource Management

CHAPTER 5.0

RESOURCE MANAGEMENT

5.1 Introduction

This chapter describes Reclamation's and WACO's decisions regarding strategies that will guide use and management of Reclamation's lands over the next 10 years. Some background on Reclamation's approach, authorities, or policies is provided for each of the primary categories; these are followed by specific Goals, Objectives, and Management Actions. Specific guidelines and procedures are provided for management as needed.

5.2 Goals, Objectives, and Management Actions

Management Actions are specific tasks intended to guide Reclamation management and staff, as well as managing partners, in the activities required to properly manage Reclamation lands. They were derived from the Goals and Objectives developed over the course of preparing the RMP and associated EA. Guidelines and standards provide additional direction and clarification for selected Management Actions, where needed. Figure 5.2-1 shows some of the Management Actions that are specific to a geographic location.

Management Actions are intended to be implemented over the next 10 years and are included here because they are considered the most appropriate actions for managing these lands. Inclusion of these actions is dependent on funding. Following are the six primary categories and associated subcategories described in this chapter:

- Natural Resources (Section 5.2.1) includes wildlife and vegetation management, fishery resources, erosion and water quality, and scenic resources;
- Cultural Resources (Section 5.2.2);
- Indian Sacred Sites (Section 5.2.3);
- Indian Trust Assets (Section 5.2.4);
- Recreation and Access (Section 5.2.5) includes boating and other water-based uses, and shoreline and other land-based uses; and
- Land Use, Management, and Implementation (Section 5.2.6) separately describes each of these topics.

5.2.1 Natural Resources (NAT)

Reclamation's approach to managing natural resources is to preserve and enhance native wildlife populations and their habitat in accordance with an approved land use or resource management plan; and encourage its land-management partners to follow suit.

The principles in Public Law 89-72, Federal Water Projects Recreation Act of 1965, as amended by Title 28 of Public Law 102-575 will continue to be adhered to for fish and wildlife-related activities and management considerations. Basically, Title 28 states that if a non-Federal public entity has agreed to manage fish and wildlife resources on Reclamation lands, Reclamation may share those costs for up to 75% of the total cost.

In accordance with the Endangered Species Act (ESA) of 1973 (P.L. 93-205), Federal and Reclamation policies provide 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 consultations with the FWS on all proposed actions that may affect any Federally listed or candidate threatened or endangered species. This consultation process is designed to ensure that Federal activities will not jeopardize the continued existence of threatened or endangered species, or on designated areas (critical habitats) that are important in conserving these species. ESA-related correspondence is included in Appendix A.

Federal policy and Reclamation's approach also 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."

Noxious weeds reduce the quantity and quality of forage and wildlife habitat, contaminate food stocks, and restrict waterways. Reclamation will strive to reduce, and eliminate if possible, noxious weeds on all of its lands and assist adjacent landowners (wherever possible) in their efforts at eradicating noxious weeds. It is Reclamation's approach to prepare and implement Integrated Pest Management Plans for lands under its jurisdiction. Reclamation also works with local agencies under the guidance of the IPM Plan.

Reclamation's approach to managing soil resources and water quality focuses on reducing soil erosion from various sources or the improper use of hazardous materials. All development and/or Management Actions will consider and respond to this approach.

Reclamation, in coordination with ODFW and WACO, has developed an Elk Mitigation Meadows Maintenance and Monitoring Plan for the elk meadows at Henry Hagg Lake, dated May 2003 (see Appendix D). This plan provides for a schedule of meadow rehabilitation, maintenance, and monitoring over the 10-year period. Monitoring of elk use of the meadows will provide data to evaluate the success of the meadow rehabilitation program and allow Reclamation and WACO to adjust management as needed.

5.2.1.1 Wildlife, Vegetation, and Habitat Management

GOAL NAT 1: Protect, conserve, and enhance wildlife habitat and natural resources on Reclamation lands.

Objective NAT 1.1: Avoid or minimize impacts of RMP actions on Federal and State designated species of special concern, including Federally listed rare, endangered, or threatened species.

Management Actions

NAT 1.1.1: Use existing and future information in adaptive management of rare, sensitive, and protected species and their habitat. If any species that occur on Reclamation land are listed under the ESA during the 10-year RMP period, Reclamation will coordinate with USFWS and take appropriate action.

Figure 5.2-1

Resource Management Plan Map

Back of Figure 5.2-1

NAT 1.1.2: Limit construction and any necessary live tree removal to between March 31 and October 31 to protect wintering eagles.

NAT 1.1.3: Cooperate with USFWS to monitor eagle use on Reclamation land and water.

NAT 1.1.4: Protect eagle perch trees on Reclamation lands around reservoir.

NAT 1.1.5: Provide signs and brochures to educate public not to handle turtles they may encounter. Also provide information for fisherman on proper handling of caught turtles.

NAT 1.1.6: TES and rare species surveys will be conducted as necessary, but prior to the start of construction. Any established search protocols will be followed.

Objective NAT 1.2: Minimize adverse impacts to wildlife and vegetation in all actions considered to accommodate public demand at recreation sites or on the surface and shoreline of Henry Hagg Lake; and utilize management practices that protect and enhance resource values of and for native species (plants and animals) in all decisions related to habitat management and land use.

Management Actions

NAT 1.2.1: Install and maintain bird/bat boxes where appropriate.

NAT 1.2.2: Disturbed areas resulting from construction will be replanted with native vegetation, as feasible, in coordination with ODFW, as feasible. Plant species will be selected to match the site's soil type, topographic position, elevation, and surrounding vegetation.

NAT 1.2.3: To the maximum extent practicable, all existing trees, shrubs, and other naturally occurring vegetation will be preserved and protected from construction operations and equipment, except where clearing operations are required for permanent structures, approved construction roads, trails, or excavations operations.

NAT 1.2.4: To the maximum extent practicable, all maintenance yards, field offices, and staging areas will be arranged to preserve trees, shrubs, and other vegetation.

NAT 1.2.5: Clearing will be restricted to that area needed for construction. In sensitive habitat areas including, but not limited to, wetlands and riparian areas, clearing may be restricted to only a few feet beyond areas required for construction.

NAT 1.2.6: To reduce environmental damage, stream corridors, wetlands, riparian areas, steep slopes, or other critical environmental areas will not be used for equipment or materials storage or stockpiling; construction staging or maintenance; field offices; hazardous material or fuel storage, handling, or transfer; or temporary access roads.

NAT 1.2.7: To the maximum extent possible, staging areas, access roads, trails, and other site disturbances will be located in disturbed areas, not in native or naturally occurring vegetation.

NAT 1.2.8: The width of all new permanent access roads will be kept to the absolute minimum needed for safety, avoiding wetland and riparian areas where possible. Turnouts and staging areas will not be placed in wetlands.

NAT 1.2.9: Minimize the amount of waste material and trash accumulations around construction areas and storage yards.

NAT 1.2.10: Remove all unused materials and trash from construction and storage sites during the final phase of work. All removed material will be placed in approved sanitary landfills or storage sites, and work areas will be left to conform to the natural landscape.

NAT 1.2.11: Grade disturbed land following construction to provide proper drainage and blend with the natural contour of the land.

Objective NAT 1.3: Protect and/or enhance wetland and riparian habitats at and adjacent to Henry Hagg Lake in accordance with existing Federal regulations and consistent with this RMP.

Management Actions

NAT 1.3.1: Plant woody species in riparian zones, specifically Tanner and Scoggins Creeks.

NAT 1.3.2: Allow for a feasibility study to install cofferdam at Tanner Creek to enhance wetlands.

NAT 1.3.3: Allow the environmental education and research center to investigate the feasibility of installing a cofferdam at Nelson Cove to enhance wetlands as part of the center.

Objective NAT 1.4: Work with partner agencies to study and effectively control aquatic and terrestrial noxious and invasive weeds on Reclamation lands and waters, including invasive aquatic species such as zebra mussels (and other mollusks).

Management Actions

NAT 1.4.1: Develop and implement an Integrated Pest Management Plan.

NAT 1.4.2: Continue to coordinate with federal, state, and local agencies to control noxious and invasive weeds and invasive aquatic mollusks.

Objective NAT 1.5: Manage lands designated as elk meadows for the primary purpose of providing forage areas for elk; other uses of these areas should be considered secondary in importance and allowed only if shown to not pose disturbance to elk unless mitigated.

Management Actions

NAT 1.5.1: Manage elk meadows according to long-term management plan signed by Reclamation, WACO, and ODFW, including development of an additional 30 acres of meadows as designated in the plan, to total 140 acres of managed elk meadows.

NAT 1.5.2: Maintain elk meadows with vegetative buffer between the meadows and reservoir to protect water quality.

NAT 1.5.3: Allow disc golf at Sain Creek meadow, including gravel parking lot for 8 cars, with a seasonal closure consistent with park operating season.

NAT 1.5.4: Mitigate for any impacts to elk habitat from future development as needed.

NAT 1.5.5: Using monitoring data, work with ODFW to evaluate the use of elk meadows over the course of the next 10 years and adjust management as needed.

Objective NAT 1.6: Manage lands located between developed recreation sites as land use buffer zones to protect habitat for waterfowl, other migratory birds, and upland wildlife.

Management Actions

NAT 1.6.1 Maintain vegetative buffer zones adjacent to recreation sites.

5.2.1.2 Fishery Resources

GOAL NAT 2: Protect and enhance the quality of the fishery at Henry Hagg Lake

Objective NAT 2.1: Continue to cooperate with ODFW in ongoing monitoring of reservoir fishery conditions and improvements, as needed.

Management Actions

NAT 2.1.1: Cooperate with ODFW and fishing clubs on appropriate enhancement projects.

NAT 2.1.2: Construction activities that could impact fish will be undertaken during non-spawning periods.

5.2.1.3 Water Quality

GOAL NAT 3: Protect and improve water quality in Henry Hagg Lake and its tributaries.

Objective NAT 3.1: Provide adequate sanitation and waste management facilities at all recreation sites (e.g., restrooms, floating restrooms, trash containers, RV and boat dump stations, fish cleaning stations, as appropriate) to protect water quality.

Management Actions

NAT 3.1.1: Provide appropriate drainage control, sanitation, and waste management facilities at all parking lots and recreation sites.

NAT 3.1.2: Parking lots will be designed to promote efficient vehicle and boat traffic to prevent congestion and pollution.

NAT 3.1.3: Waste facilities should be connected, whenever possible, to sanitary sewer systems instead of septic tanks to avoid water quality problems from failed tanks.

NAT 3.1.4: Add a floating restroom near the buoy line.

Objective NAT 3.2: Protect, enhance, restore, and develop wetland and riparian habitats as a key means of improving the quality of water entering the reservoir.

Management Actions

NAT 3.2.1: See NAT 1.3.1.

Objective NAT 3.3: Continue to prohibit motorized vehicular use on the shoreline (outside of designated recreation sites or access ways) and within the drawdown area of the reservoir.

Management Actions

NAT 3.3.1: Prohibit motor vehicle use outside of designated areas. Sign and barrier where necessary.

Objective NAT 3.4: Manage the use of chemical fertilizers, herbicides, and pesticides on Reclamation lands in a manner that does not adversely affect water quality.

Management Actions

NAT 3.4.1: See NAT 1.4.2

Objective NAT 3.5: Minimize the potential for pollutants to enter Henry Hagg Lake and its tributaries from activities on Reclamation lands.

Management Actions

NAT 3.5.1: Continue current water quality program in conjunction with CWS and TVID water quality sampling efforts.

NAT 3.5.2: Require construction methods that prevent entrance or accidental spillage of pollutants into watercourses and underground water sources. Potential pollutants and wastes include refuse, garbage, cement, concrete, sewage effluent, industrial waste, oil and other petroleum products, aggregate processing tailings, mineral salts, drilling mud, and thermal pollution.

NAT 3.5.3: Prevent eroded materials from entering streams or watercourses during dewatered activities associated with structure foundations or earthwork operations adjacent to, or encroaching on, streams or watercourses.

NAT 3.5.4: Ensure that construction water discharged into surface waters are free of settling material. Use appropriate treatment for water pumped from behind cofferdams and wastewater from aggregate processing, concrete batching, or other construction operations to prevent pollution of surface water.

NAT 3.5.5: If required, use rip-rap that is free of contaminants and will not significantly contribute to reservoir turbidity.

NAT 3.5.6: Install and maintain water quality treatment measures for recreation facilities.

5.2.1.4 Erosion and Sedimentation

GOAL NAT 4: Control soil erosion in priority areas where erosion causes concern for water quality, safety, and damage to resources and facilities.

Objective NAT 4.1: Enforce restrictions on recreational and other uses in shoreline areas where such uses can significantly increase erosion and cannot be mitigated.

Management Actions

NAT 4.1.1: See NAT 3.3.1

NAT 4.1.2: Comply with all Federal and State laws related to control and abatement of water pollution. Dispose of all waste material and sewage from construction activities or project-related features according to Federal and State pollution control regulations.

NAT 4.1.3: Instruct contractors on the potential need to obtain a National Pollutant Discharge Elimination System (NPDES) permit as established under Public Law 92B500 and amended by the Clean Water Act (Public Law 95B217).

Objective NAT 4.2: Protect and/or restore shoreline vegetation and tributary riparian vegetation to control erosion.

Management Actions

NAT 4.2.1: See NAT 1.3.1.

Objective NAT 4.3: Cooperate with applicable agencies and affected private landowners to work on getting BMPs instituted on surrounding lands where offsite activities may affect Reclamation lands and Henry Hagg Lake.

Management Actions

NAT 4.3.1: Coordinate with applicable agencies and affected private landowners on sediment and erosion control projects upstream of Reclamation lands.

Objective NAT 4.4: Implement an effective erosion control program (standards, guidelines, and BMPs) in all construction, operations, and maintenance programs on Reclamation lands while considering program effects on other resources (natural, scenic, cultural).

Management Actions

NAT 4.4.1: Employ applicable recognized BMPs in the design and construction of facilities to prevent possible soil erosion and subsequent water quality impacts.

NAT 4.4.2: Utilize the planting of grasses, forbs, trees, or shrubs beneficial to wildlife, or the placement of riprap, sand bags, sod, erosion mats, bale dikes, mulch, or excelsior blankets to prevent and minimize erosion and siltation during construction and during the period needed to reestablish permanent vegetative cover on disturbed sites.

NAT 4.4.3: Initiate erosion control and site restoration measures as soon as a particular area is no longer needed for construction, stockpiling, or access. Arrange schedules to minimize exposure of soils.

NAT 4.4.4: Slope cuts and fills for relocated and new roads to facilitate revegetation.

NAT 4.4.5: Place soil or rock stockpiles, excavated materials, or excess soil materials outside sensitive habitats including water channels, wetlands, riparian areas, and on native or naturally occurring vegetation. Shape and revegetate waste piles to provide a natural appearance.

5.2.2 Cultural Resources (CUL)

Cultural resources are historic properties that reflect our Nation's heritage. Historic properties include prehistoric and historic archeological sites, buildings, traditional cultural properties (TCPs), and historically significant places that are eligible for inclusion in the National Register of Historic Places (National Register). TCPs are National Register-eligible properties that have special heritage value to contemporary communities (usually Indian communities) because of association with cultural practices or beliefs that are important in maintaining the cultural identify of that community.

Federal law requires Federal agencies to identify, evaluate, and appropriately manage National Register-eligible historic properties that are affected by their actions or are located on lands they administer. A list of these laws is provided in Appendix B. Agencies are required to assess resource significance, evaluate impacts on significant sites, and select resource management actions in consultation with the State Historic Preservation Office (SHPO), the Advisory Council on Historic Preservation (the Advisory Council), and other affected or interested parties. Indian tribes must be consulted where cultural resources of concern to a tribe could be present, or where human burials affiliated with a tribe could be affected by agency actions. Reclamation implements these laws using processes defined in regulations (particularly 36 CFR 800 for the National Historic Preservation Act (NHPA) and 45 CFR 10 for the Native American Graves Protection and Repatriation Act (NAGPRA). Reclamation Manual LND 02-01 (Cultural Resource Management) directs the agency to implement cultural resources management actions in a positive manner that fulfills the spirit, as well as the letter, of the law.

The requirements of Federal law and Reclamation cultural resource management policy also apply to other parties who manage or use Reclamation lands under a permit, lease, use agreement, or other legal instrument. Those parties are responsible for notifying Reclamation of proposed actions on those lands; implementing actions to identify and evaluate resources that could be affected by their use or action; and implementing actions to protect National Register-eligible resources or mitigating unavoidable effects to

eligible sites resulting from their use or actions. Reclamation is responsible for defining the necessary identification, evaluation, and management or mitigation actions, and for ensuring that managing partners, lessees, and permittees observe these terms and conditions and act as responsible stewards of the resources on those lands.

Reclamation's policy is to avoid or minimize adverse effects to National Register-eligible historic properties whenever possible. If adverse effects are unavoidable, Reclamation typically mitigates the adverse effects through a site documentation or data recovery method that has been developed in consultation with the SHPO and other interested parties. For impacted TCPs, Reclamation would work with affected Indian tribes to identify means to minimize impacts, and seek to mitigate damaging impacts when mitigation is possible.

The following Goals and Objectives outline actions that Reclamation has determined are necessary to meet the agency's cultural resource management responsibilities under the law. Reclamation will continue to use consultative processes defined in 36 CFR 800 to determine site eligibility, impacts from new actions or existing uses, and appropriate treatment.

Goal CUL 1: Seek to protect and preserve cultural resources, including prehistoric and historic-period archeological sites and traditional cultural properties.

Objective CUL 1.1: In accordance with Section 106 of the National Historic Preservation Act (NHPA) seek to protect National Register-eligible sites from impacts from new undertakings.

Management Actions

CUL 1.1.1: Complete archeological surveys when ground-disturbing actions are proposed in unsurveyed locations. Complete site evaluation actions to determine National Register eligibility to sites threatened by new actions, land use, or project operations, and address impacts to eligible sites.

Objective CUL 1.2: In accordance with Section 110 of the NHPA, implement proactive management of cultural resources, focusing on protecting identified resources from damage.

Management Actions

CUL 1.2.1: Complete tribal consultations, as necessary, to determine if traditional cultural properties (TCPs) are present in areas of new ground disturbing actions, or are in or near focused use areas. If present, assess and address impacts from new actions or existing use.

CUL 1.2.2: If Indian tribes identify culturally important resources within new development areas, avoid adverse impacts to those resource locations when avoidance will allow accomplishment of broader agency responsibilities, is cost effective, and lies within Reclamation's authority.

CUL 1.2.3: Monitor National Register-eligible or unevaluated sites or TCPs that are in or near focused use areas.

CUL 1.2.4: In the event of discovery of human remains of Indian origin, complete protective actions and tribal notification and consultation actions per 45 CFR 10.

CUL 1.2.5: Complete research to determine if site 02/801-3 is eligible to the National Register. If eligible, identify and

implement actions to either avoid further impacts or to mitigate impacts.

CUL 1.2.6: Design facilities to avoid or minimize cultural resource damage.

Objective CUL 1.3: Increase awareness of cultural resources compliance and protection requirements among resource management partners.

Management Actions

CUL 1.3.1: Integrate cultural resource management requirements and goals into other management plans completed under the RMP, including the Elk Meadows Management Plan and the Integrated Pest Management Plan.

Objective CUL 1.4: With local partners, provide opportunities for public education on area prehistory and history, including the importance of and requirements for protecting these resources.

Management Actions

CUL 1.4.1: Work with local partners to provide educational information about resource value and interpret area history.

5.2.3 Indian Sacred Sites (ISS)

No Indian Sacred Sites have been identified at Henry Hagg Lake. Reclamation will avoid impacts to any Indian Sacred Sites if they are identified in the future.

Goal ISS 1: Comply with requirements of Executive Order 13007 (Indian Sacred Sites)

Objective ISS 1.1: Seek to avoid damage to Indian sacred sites (when present and identified), when avoidance is consistent with accomplishing Reclamation's mission and larger public responsibilities.

Management Actions

ISS 1.1.1: Consult with Indian tribes to determine if sacred sites are present in areas of new ground disturbing actions, or in locations where sites might be damaged by existing public land uses. If present, seek to avoid damages and maintain access when implementing new actions.

Objective ISS 1.2: Provide for access by traditional religious practitioners to sacred sites, when consistent with mission.

Management Actions

ISS 1.2.1: Consult to determine if sacred sites are present in areas of focused public use. If present, seek to resolved impacts and maintain access.

5.2.4 Indian Trust Assets (ITA)

Goal ITA 1: Protect and conserve Indian Trust Assets as specified in applicable Federal mandates.

Objective ITA 1.1: Seek to avoid any action that would adversely impact Indian Trust Assets as defined in tribal treaties or court decisions.

Management Actions

ITA 1.1.1: Use NEPA process to assess potential impacts to ITAs.

5.2.5 Recreation and Access (REC)

Reclamation's approach to providing and maintaining public recreational opportunities, facilities, and interpretive programs is to work with non-Federal managing partners in accordance with an approved RMP. The RMP is intended to protect the health and safety of the users, protect land and water resources from environmental degradation, and protect cultural resources from damage. Recreation facilities under Reclamation jurisdiction will be operated and maintained in a safe and

healthful manner and be universally accessible.

All new construction is required to be 100% accessible to persons with disabilities, wherever possible, in accordance with current Federal accessibility standards. These standards include (but are not limited to) parking lots and spaces, access routes, camping sites, restrooms, concessions, entrance booths, trails, interpretive displays, and all signage.

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 must comply with Federal laws and regulations concerning natural and cultural resource protection.

As described in Chapter 1, Section 1.2, WACO is Reclamation's non-Federal managing partner and is responsible for managing all aspects of recreation at Henry Hagg Lake.

The principles in Public Law 89-72, Federal Water Projects Recreation Act of 1965, as amended by Title 28 of Public Law 102-575, will continue to be adhered to for recreation-related development and management considerations. Basically, Title 28 states that if a non-Federal public entity has agreed to manage recreation on Reclamation lands, Reclamation may share development costs for up to 50% of the total cost. At Henry Hagg Lake, recreation-related costs will continue to be cost-shared with WACO dependent upon the availability of funding.

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. It is Reclamation's approach to assist with the development of interpretive programs to educate the public on resources and to provide information to visitors to improve their experience in the area, as well as to increase their awareness of natural and cultural resource values and public health and safety protection.

Table 5.2-1 provides a summary description of all recreation and access-related improvements and new facilities by site as proposed in this RMP. These items are also described under the applicable Objectives and Management Actions and shown on Figure 5.2-1. It is important to note that clearances for cultural resources (CUL 1.1.1) and threatened and endangered species (NAT 1.1.6) would be undertaken prior to any of the improvements or new facilities proposed in this RMP. All site/facility design will utilize sustainable design standards, fire-wise design standards (access, water availability, building durability), facilities will be accessible to persons with disabilities, signage will be consistent with WACO/Reclamation sign standards, and low directional lighting will be used where lighting is necessary. Finally, an asterisk next to an item in a Recreation-related Management Action denotes that implementation is dependent on the decision to raise the dam.

5.2.5.1 Land-Based Recreation

GOAL REC 1: Provide adequate sites and facilities for land-based recreational uses while affording the public a quality recreational experience, consistent with natural and cultural resource objectives.

Objective REC 1.1: In all recreation facility development, focus first on expansion and capacity optimization at existing sites before developing any new sites.

Table 5.2-1: Proposed recreation and access related activities at Henry Hagg Lake.

Topic/Recreation Area	Proposed Activities
	Applicable to the Entire Area
Access	• *Where feasible, widen the perimeter road shoulder from 7' to 10' and sign/stripe for bicycles, pedestrians, and overflow parking • *Develop connections to existing Master (shoreline) Trail – multiple use, bike and pedestrian, 15 miles long. Perimeter road – 10.5 mile long • *Fully develop the Master (shoreline) Trail to route entire trail off the paved road • Allow for development of a new, independent equestrian trail to be constructed and maintained by equestrian groups on the upper side of the perimeter road; include an accessible staging/parking area with sanitation facilities for up to 25 users.
Management, Enforcement, Coordination, etc.	• Work with managing partner to conduct a recreational carrying capacity and demand study in preparation for the RMP update, taking into account the results of the potential dam raise. • Continue to comply with WACO's Scoggins Valley Park reservation application system, including current policies and fees for special use. • Continue to provide adequate enforcement of no-wake regulations in applicable areas of the reservoir commensurate with use levels. • Continue to provide adequate information related to boating safety and rules and regulations at the fee station and all boat ramps commensurate with use levels
	Site-Specific Actions
Recreation Area A West	• Add the following to the existing facilities: ➢ *Self-adjusting pier (replacement of existing boat floats) ➢ *Fish-cleaning station ➢ Designate concession area ➢ *Boat dump facility ➢ New picnic shelter ➢ Play structure ➢ Permanent concession facility ➢ *Expanded parking for 30 vehicles/trailers and 20 cars
Recreation Area A East	• Re-open for day use and add: ➢ One group picnic area ➢ One group shelter ➢ One play structure ➢ Allow limited special event use, including periodic overnight use
Scoggins Creek Picnic Area	• Add the following to the existing facilities: ➢ *New groundwater supply ➢ *Permanent vault restroom facility ➢ Six picnic tables ➢ One sheltered group picnic site ➢ *Play structure ➢ *Boardwalk and interpretive signs ➢ Pave parking lot
Recreation Area C	• Add the following to the existing facilities: ➢ One sheltered group picnic area ➢ *One restroom ➢ One play structure ➢ One permanent concession facility (approximately 400 sq. ft.) ➢ *245 car parking ➢ *Self-adjusting boat float (replacement of existing boat floats) ➢ *Fish-cleaning station

Table 5.2-1: Proposed recreation and access related activities at Henry Hagg Lake.

Topic/Recreation Area	Proposed Activities
Recreation Area C Extension (Cove Area)	• Allow for the development of facilities according to the following two-phased approach: Phase One ➢ Recondition existing parking area and turn around with 35 marked parking spaces, curbs, and entry and exit ways ➢ Install accessible pathway to waters edge *Phase Two ➢ Expand parking area from 35 to 70 parking spaces ➢ Add roadway from Cove entrance to connect with parking/roadway system at Recreation Area C Boat Ramp ➢ Add 8 accessible parking slots in proximity to accessible fishing pier ➢ Add accessible restroom between new accessible parking area and accessible fishing pier ➢ Install non-motorized (kayak, canoe, etc.) boat launch
Sain Creek Picnic Area	• Add one play structure
Fee Station and Entry Road	• If feasible and justified due to security concerns and carrying capacity limitations, work with Washington County Commissioners, Land Use & Transportation Department, and neighboring landowners to implement a limited access plan whereby park traffic is required to access the area through the fee station and local traffic is afforded a separate, gated access
Elks Picnic Area	• Enhance the existing facilities by paving the parking area

NOTE: All new facilities will be designated in accordance with current standards for accessibility for persons with disabilities.
* Asterisk denotes that implementation of the action is dependent on outcome of dam raise project; see Section 1.3.

Management Actions

REC 1.1.1: Work with managing partner to conduct a recreational carrying capacity and demand study in preparation for the RMP update, taking into account the results of the potential dam raise.

Objective REC 1.2: Coordinate with managing partner (WACO) to provide additional day use sites and facilities in an effort to meet increasing demand in a manner reflecting the physical constraints and safe use of the area being served.

Management Actions

REC 1.2.1: Add the following to the existing facilities at Boat Ramp/Recreation Area A West:

- *Self-adjusting boat float (replacement of existing boat floats)
- *Fish-cleaning station
- Designate concession area
- *Boat dump facility
- New picnic shelter
- Play structure
- Permanent concession facility
- *Expanded parking for 30 vehicles/ trailers and 20 cars

REC 1.2.2: Add the following to the existing facilities at Scoggins Creek Picnic Area:

- *New groundwater supply
- *Permanent vault restroom facility
- Six picnic tables
- One sheltered group picnic site
- Play structure
- *Boardwalk and interpretive signs
- Pave parking lot

REC 1.2.3: Add the following to the existing facilities at Boat Ramp/Recreation Area C:

- One sheltered group picnic area.
- *One restroom
- One play structure
- One permanent concession facility (approximately 400 sq. ft.)
- *245 car parking
- *Self-adjusting boat float (replacement of existing boat floats)
- *Fish-cleaning station

REC 1.2.4: Allow for the development of facilities at the Recreation Area C Extension (Cove Area) according to the following two-phased approach:

Phase One

- Recondition existing parking area and turn around with 35 marked parking spaces, curbs, and entry and exit ways
- Install accessible pathway to waters edge

*Phase Two

- Expand parking area from 35 to 70 parking spaces
- Add roadway from Cove entrance to connect with parking/roadway system at Recreation Area C Boat Ramp
- Add 8 accessible parking slots in proximity to accessible fishing pier
- Add accessible restroom between new accessible parking area and accessible fishing pier
- Install non-motorized (kayak, canoe, etc.) boat launch

REC 1.2.5: Add one play structure to the existing facilities at the Sain Creek Picnic Area

REC 1.2.6: Enhance the existing facilities at the Elks Picnic Area by paving the parking area.

Objective REC 1.3: Coordinate with managing partner (WACO) to assure special events are scheduled and carried out to avoid resource degradation and minimize conflicts with other park users.

Management Actions

REC 1.3.1: Continue to comply with WACO's Scoggins Valley Park reservation application system, including policies and fees for special use.

Objective REC 1.4: Coordinate with managing partner (WACO) to reduce and/or eliminate the environmental degradation that accompanies unauthorized activities (e.g., littering, off-leash dogs) in accordance with County Code (11.08).

Objective REC 1.5: Contribute to an environment that supports viable concession services, where appropriate; with concession management to follow Reclamation's policy.

Management Actions

REC 1.5.1: Provide for permanent concession facilities at Recreation Area A West and Area C (see REC 1.2.1 and 1.2.3, respectively).

Objective REC 1.6: Provide opportunities for wildlife observation and other natural resource based interpretation and education at appropriate locations.

Objective REC 1.7: When specific plans for the dam raise are finalized, the development of tent and RV camping opportunities shall be more thoroughly explored, and if feasible, implemented at a suitable location within Scoggins Valley Park.

Management Actions

REC 1.7.1: Re-open Recreation Area A East for day use and add:

- One group picnic area

- One group shelter
- One play structure

Allow limited special event use, including periodic overnight use.

5.2.5.2 Shoreline and Water-Based Recreation

GOAL REC 2: Provide adequate shoreline and water-based facilities to support the demand for boating and other water-based uses consistent with natural and cultural resource objectives.

Objective REC 2.1: Coordinate with managing partner (WACO) to enhance and provide safe shoreline fishing opportunities and associated parking at Henry Hagg Lake.

Management Actions

***REC 2.1.1:** Provide fish-cleaning stations at Recreation Area A West and Area C (see REC 1.2.1 and 1.2.3, respectively).

***REC 2.1.2:** Provide 8 additional (accessible) parking spaces near the accessible fishing pier at Recreation Area C (see REC 1.2.4).

***REC 2.1.3:** Provide accessible restroom near the accessible fishing pier at Recreation Area C (see REC 1.2.4).

Objective REC 2.2: Coordinate with managing partner (WACO) to improve boat launch ramps and associated infrastructure at Henry Hagg Lake consistent with natural and cultural resource protection and conservation objectives.

Management Actions

***REC 2.2.1**: Implement improvements to self-adjusting boat floats by replacing existing boat floats at recreation Area A West and Area C (see REC 1.2.1 and 1.2.3, respectively).

***REC 2.2.2**: Provide a boat dump facility at Recreation Area A West (see REC 1.2.1).

***REC 2.2.3**: Install a new non-motorized boat launch at the Recreation Area C Extension (Cove) Area (see REC 1.2.4)

5.2.5.3 Water Surface Management

GOAL REC 3: Manage the Henry Hagg Lake water surface to accommodate a variety of uses in a safe manner while minimizing conflicts among users.

Objective REC 3.1: Ensure that provision, permitting, and/or expansion of shoreline facilities does not result in providing levels of water access that exceed safe use of the reservoir's water surface.

Management Actions

REC 3.1.1: Conduct a recreational carrying capacity and demand study (see REC 1.1.1).

Objective REC 3.2: Coordinate with managing partner (WACO) and County Sheriff to adequately enforce no-wake boating regulations within the area of the reservoir designated for such use.

Management Actions

REC 3.2.1: Continue to provide adequate enforcement of no-wake regulations in applicable areas of the reservoir commensurate with use levels.

Objective REC 3.3: Coordinate with managing partner (WACO), County Sheriff, and Coast Guard Auxiliary to provide information to reservoir users regarding boating safety and operating rules and regulations.

Management Actions

REC 3.3.1: Continue to provide adequate information related to boating safety and rules and regulations at the fee station and all boat ramps commensurate with use levels.

5.2.5.4 Access

GOAL REC 4: Provide appropriate vehicular and non-motorized access to recreation sites at Henry Hagg Lake consistent with natural, cultural resource, and safety and security objectives.

Objective REC 4.1: Coordinate with WACO to provide for adequate vehicular access to and parking at all designated recreation areas at Henry Hagg Lake; this includes appropriate motor vehicle parking and staging areas adjacent to or near sites designated for non-motorized uses. Such access and parking should be sized in a manner reflecting the physical constraints and safe use of the area being served.

Management Actions

***REC 4.1.1:** Expand parking for 30 vehicles/trailers and 20 cars at Recreation Area A West (see REC 1.2.1).

***REC 4.1.2:** Pave the existing gravel parking area at Scoggins Creek Picnic Area (see REC 1.2.2).

***REC 4.1.3:** Expand parking for 245 cars at Boat Ramp/Recreation Area C (see REC 1.2.3).

REC 4.1.4: Allow for the following road/parking improvements at the Recreation Area C Extension (Cove Area) according to the following two-phased approach (see REC 1.2.4):

Phase One

- Recondition existing parking area and turn around with 35 marked parking spaces, curbs, and entry and exit ways

*Phase Two

- Expand parking area from 35 to 70 parking spaces
- Add roadway from Cove entrance to connect with parking/roadway system at Recreation Area C Boat Ramp
- Add 8 accessible parking slots in proximity to accessible fishing pier

REC 4.1.5: Pave the existing gravel parking area at the Elks picnic Area (see REC 1.2.6).

Objective REC 4.2: Coordinate with managing partner (WACO) and County road department to widen road shoulders adjacent to designated recreation areas to accommodate parking outside of the bike lane, where possible.

Management Actions

***REC 4.2.1:** Where feasible, widen the perimeter road shoulder from 7' to 10' and sign/stripe for bicycles, pedestrians, and overflow parking.

Objective REC 4.3: Coordinate with WACO to provide for and maintain non-motorized trail opportunities (hiking and bicycling) at Henry Hagg Lake.

Management Actions

REC 4.3.1: Develop connections to existing Master (shoreline) Trail – multiple use, bike and pedestrian, 15 miles long. Perimeter road – 10.5 mile long.

Objective REC 4.4: All new or existing facilities and programs will be designed or retrofitted in accordance with current Federal

standards for accessibility to persons with disabilities**.**

Management Actions

REC 4.4.1: All new and remodeled facilities will be designed and constructed in accordance with current standards for accessibility for persons with disabilities.

Objective REC 4.5: Continue Reclamation policy of prohibiting ORV use on Reclamation lands and work with managing partner (WACO) to actively enforce this regulation.

Objective REC 4.6: Coordinate with managing partner (WACO) to completely separate the Master (shoreline) Trail from its current segments along the County road.

Objective REC 4.7: Coordinate with managing partner (WACO) and equestrian groups to provide for and maintain equestrian trails (separate from hiking and bicycling trails) and trail heads at Henry Hagg Lake.

Management Actions

***REC 4.7.1:** Fully develop the Master (shoreline) Trail to route entire trail off the paved road.

REC 4.7.2: Allow for development of a new, independent equestrian trail to be constructed and maintained by equestrian groups on the upper side of the perimeter road; include an accessible staging/parking area with sanitation facilities for up to 25 users. Use of facilities will be limited to the Park's season of use lessening erosion/sedimentation to surface waters.

Objective REC 4.8: Coordinate with managing partner (WACO) and the County Department of Land Use and Transportation, if feasible and justified due to security concerns and carrying capacity limitations, to implement a limited access concept plan whereby park traffic is required to access the area through the fee station and local traffic is afforded a separate, gated access.

Management Actions

REC 4.8.1: If feasible and justified due to security concerns and carrying capacity limitations, work with Washington County Commissioners, Land Use & Transportation Department, and neighboring landowners to implement a limited access plan whereby park traffic is required to access the area through the fee station and local traffic is afforded a separate, gated access.

5.2.6 Land Use, Management, and Implementation (LMI)

Reclamation's general land use approach is to: (1) manage the lands in a manner consistent with Federal laws and regulations, and the principles of good stewardship to accomplish Project purposes and serve the public interest; (2) seek opportunities for coordinated and cooperative land use planning with other Federal, State, and local agencies; and (3) develop RMPs that best support the public interest, preserve and enhance environmental quality, and are compatible with project purposes and needs. As part of this approach, Reclamation strives to maintain a current inventory of all land holdings and uses.

Law enforcement services on Reclamation lands are provided through contract and agreements with local partners. Enforcement efforts are required to address trespass and encroachment; willful damage or destruction of facilities, lands, or resources; and dumping on Reclamation lands.

Trespass and unauthorized use, when allowed to continue, deprive the public of their rightful use and enjoyment of the public lands. Willful damage or destruction of facilities, lands, or resources could endanger the public, prevent provision of project services, and destroy valuable natural and cultural

resources, as well as cost money to repair. Prohibited acts on Federal land include: (1) construction, placing, or maintaining any kind of road, trail, structure, fence, enclosure, communication equipment, pump, well, or other improvement without a permit; (2) extracting materials or other resources without a permit; (3) damage or destruction of facilities or structures, including abandoned buildings; and (4) excavation, collection, or removal of archeological or historical artifacts. Reclamation's general approach is to facilitate and ensure the proper use of land resources consistent with the requirements of law and BMPs. The primary management emphasis is to provide the public as a whole non-exclusive use of Federal lands while still protecting the environmental values and natural and cultural resources.

Reclamation's approach is to clear, and keep clear, all lands from 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, or which have caused or are causing damage to significant environmental values or natural or cultural resources.

Unauthorized uses and trespasses are best resolved before they become well established. When a violation does occur, Reclamation's first priority is to negotiate a solution to resolve the violation. In the event such negotiations fail, Reclamation will take actions necessary to protect the public interest and project lands, including legal action through the courts.

GOAL LMI 1: Allow for expanded recreation opportunities and other uses while balancing the need for the preservation of natural and cultural resources, and open space and scenic values.

Objective LMI 1.1: Ensure that siting and design of all new facilities on Reclamation lands maximize compatibility and integration with the open, rural environment of the reservoir and surrounding area.

Management Actions

LMI 1.1.1: Design new facilities to be compatible with scenic values.

LMI 1.1.2: To the maximum extent possible, preserve existing and use native plants for landscaping. Facilities shall incorporate sustainable development elements as much as possible and be designed and positioned in a manner that is least intrusive to the area's scenic qualities.

Objective LMI 1.2: Require compliance with applicable design standards, guidelines, and BMPs for erosion control structures and any other permitted improvements along the shoreline of Reclamation lands (also see Objective NAT 4.4).

Objective LMI 1.3: Coordinate with the Northwest Regional Education Service District, Portland State University, WACO, and other pertinent entities to authorize development of the Tualatin Watershed Education & Research Center and use of the center for local community events and programs.

Management Actions

LMI 1.3.1: Authorize development of Education & Research Center as proposed:

- Outdoor School, which may include:

- Equipped classrooms for elementary and high school age students and field laboratories for college studies;
- A large lecture hall;
- A dining hall serving up to 230 people during meals and events;
- Overnight lodging for 140 elementary students and 48 counselors in cabins, and accommodations for 25 staff and teachers;
- A boathouse and dock for study excursions to the reservoir and nearby wetlands;
- An outdoor study area with artificial streams and ponds for research; and
- A covered campfire facility, amphitheater, outdoor learning shelters, and pathways.
- Portland State University Field Research Station.
- Community Center

The facility shall fully incorporate sustainable development elements and be designed and positioned in a manner that is least intrusive to the area's scenic qualities.

Objective LMI 1.4: Coordinate with the Northwest Regional Education Center Service District and Portland State University to ensure that the Tualatin Watershed Education & Research Center meets the requirement to replace the existing elk pasture meadow in an approved location on Reclamation-controlled lands, existing or future.

Management Actions

LMI 1.4.1: Replace the existing elk meadow with an equivalent amount and quality acreage

GOAL LMI 2: Ensure that reservoir operations are not disturbed as a result of other uses and activities.

Objective LMI 2.1: Require that the Reclamation Zone (operation and maintenance) be described (history, purpose, function) and shown on publicly distributed materials.

Management Actions

LMI 2.1.1: Show and describe Reclamation Zone on publicly distributed materials and signage.

Objective LMI 2.2: Safety and security of the dam and area surrounding the dam has priority over public access to this area; if deemed necessary for safety and security reasons this area will be closed to public access.

Management Actions

LMI 2.2.1: Recreation use to be conditionally permitted within the Reclamation Zone.

GOAL LMI 3: Ensure protection of the public, and public resource values and facilities.

Objective LMI 3.1: Require that Reclamation's policies be followed in all fire prevention and suppression activities on Reclamation lands.

Management Actions

LMI 3.1.1: Develop a Fire Prevention and Management Plan in cooperation with applicable agencies.

Objective LMI 3.2: Allow for current emergency service agreements to continue and be expanded or modified as needed---Oregon Department of Forestry for fire suppression along the northern portion of Reclamation lands, and Gaston Rural Fire Department for fire suppression along the southern portion of Reclamation lands and medical emergencies within the entire Scoggins Valley Park.

Management Actions

LMI 3.2:1: Continue emergency service agreements with Oregon Department of Forestry for fire suppression along the northern portion of Reclamation lands, and Gaston Rural Fire Department for fire suppression along the southern portion of Reclamation lands and medical emergencies within the entire Scoggins Valley Park.

LMI 3.2:2: Coordinate agency input to review proposed facilities and develop and Emergency Action Plan regarding safety and emergency services access and closure.

Objective LMI 3.3: Cooperate with other interested agencies and parties to improve emergency communications ability at Henry Hagg Lake.

LMI 3.3.1: Make land available and lease at fair market value to facilitate installation of a communications structure.

Objective LMI 3.4: Work with managing partner (WACO), County Sheriff's Department, and the Oregon State Marine Board to ensure an adequate level of law enforcement on Reclamation lands and Henry Hagg Lake.

Management Actions

LMI 3.4.1: Maintain adequate enforcement commensurate with levels of public use.

GOAL LMI 4: Provide informational, educational, and interpretive materials to increase public awareness of recreational opportunities, use restrictions, safety concerns, and natural and cultural resource values.

Objective LMI 4.1: Using Reclamation's and Washington County's sign manuals as appropriate, develop clear, consistent signage to guide public access to and use of Reclamation lands and park facilities.

Management Actions

LMI 4.1.1: Inventory existing signs and determine a prioritized list of additional sign needs.

LMI 4.1.2: Design, purchase, construct, and install signs as funding allows.

Objective LMI 4.2: Provide informative and concise public information materials on a continuing basis (including adequate funding for reproduction of these materials) at: fee station, recreation areas, roadside pullouts; and through local merchants, chambers of commerce, government offices, and other means (such as the World Wide Web). Develop an interpretive program that illustrates the prehistoric, historic, and current land use practices, as well as natural features surrounding and visible from Henry Hagg Lake (e.g., tribal use of the area, agricultural use of the valley, forestry practices, geology, etc.).

Management Actions

LMI 4.2.1: Continue Washington County information program that includes:

- Web site, Brochures, Bulletin boards, Special event notices
- County newsletter, Press releases, Neighborhood newsletter
- Park Advisory Board meetings
- Outreach program
- Natural resource information, including wildlife and human interactions (e.g., turtles, elk).

LMI 4.2.2: Develop interpretative program to highlight:

- Natural history
- Reclamation Project history
- Surrounding Forest Practices
- Pre-history & history

GOAL LMI 5: Achieve timely implementation of RMP programs and projects.

Objective LMI 5.1: Establish and maintain a clear phasing schedule and list of priorities for RMP implementation; and update on an annual basis.

Management Actions

LMI 5.1.1: Track and annually update progress on the management actions in the RMP implementation schedule.

Objective LMI 5.2: Seek Reclamation and managing partner (WACO) joint funding to implement RMP recreation development and fish and wildlife enhancement efforts according to the priority list and phasing schedule.

Management Actions

LMI 5.2.1: Pursue implementation through a variety of sources including, but not limited to:

- Title 28 cost share program for recreation enhancements, which allows a 50% Federal contribution to match a 50% non-Federal managing partner contribution.
- Title 28 cost share program for fish and wildlife enhancement, improvement, and restoration projects, which allows a 75% Federal contribution to match a 25% non-Federal managing partner contribution.
- Oregon State Marine Board Grants.
- Land and Water Conservation Fund Grants.
- Other Federal, State, and local cost share and grant programs.

Objective LMI 5.3: Keep stakeholders, surrounding landowners, and the public informed regarding the status of implementing the RMP.

Management Actions

LMI 5.3.1: Provide news releases to the local media for major projects and accomplishments. Post or provide implementation information for major actions at the Park.

Chapter 6

Implementation Program

CHAPTER 6.0

IMPLEMENTATION PROGRAM

6.1 Introduction

The success of this RMP will ultimately be measured by the degree to which it is implemented. This chapter provides a framework necessary to follow through with the Goals and Objectives, and implement the Management Actions presented in Chapter 5. This chapter consists primarily of a series of tables (Tables 6.1-1 through 6.1-6, presented at the end of this Chapter) that summarize prioritization, sequencing, responsibility for implementation, and key funding for each Management Action. The purpose of these tables is to assist resource managers, staff, and managing partners in implementing each of the many specific actions required to achieve the RMP's Goals and Objectives. These tables also provide a convenient mechanism to track implementation progress on a regular (annual) basis over the 10-year life of the plan.

6.2 Implementation Components

It should be noted that implementation in general for the Henry Hagg RMP is dependant on Federal funding and in many cases is also dependant on cost share requirements. The timing indicated in Tables 6.1-1 through 6.1-6 is an approximation only and will depend on the availability of Federal and non-Federal cost share funds. Implementation of the Henry Hagg RMP is organized into a series of specific Management Actions for each of the issues associated with Natural Resources; Cultural Resources; Indian Sacred Sites; Indian Trust Assets; Recreation and Access; and Land Use, Management, and Implementation. Tables 6.1-1 through 6.1-6 present a structure that addresses the key components of implementation. Each component is listed in a separate column in these tables and explained below.

6.2.1 Management Actions

Management Actions are specific action items intended to implement each Objective, consistent with Goals listed in Chapter 5. To avoid repetition with Chapter 5 in Tables 6.1-1 through 6.1-6, Management Actions are listed by number and abbreviated description. A full description of each Management Action is presented in Chapter 5.

6.2.2 Prioritization

Each Management Action is prioritized in a simple hierarchy ranging from "High" to "Low." High priority Management Actions are identified as critical to the success of this RMP. Management Actions identified as medium priority are still considered important, but not critical. Low priority Management Actions are those that should be implemented if resources are available. Mandatory actions are listed as "Required" elements.

6.2.3 Related Management Actions

If there are other related or linked Management Actions associated with other actions within the same resource topic they are identified in Column 3.

6.2.4 Timing and Sequencing

All Management Actions listed in the following tables are intended to be implemented during the life of this 10-year plan. The timing column identifies the specific time frame, by indicating which year the action is anticipated to commence. Management Actions to be implemented continuously, annually, or on an as-needed basis are also indicated.

6.2.5 Lead Agency

A single agency with lead responsibility for implementation of each Management Action is listed (underlined) in Column 5. Agencies playing support roles are also listed in this column (not underlined). In addition to Reclamation, responsible agencies include: WACO, the Education Center, ODFW, TVID, the Sheriff, State Police, Coast Guard, USFWS, CWS, and others.

6.2.6 Funding

Column 6 lists anticipated sources of funding for each Management Action. For example, potential funding and authority for recreation planning, enhancement, and development is from Reclamation's Title 28 cost sharing program with its partnering agencies.

6.2.7 Monitoring

Plan implementers are expected to monitor implementation progress through the life of the RMP. This column describes the type and timing of each specific Management Action to be implemented (as appropriate and needed).

6.3 Amending and Updating the RMP

6.3.1 Amending Information in the RMP

The RMP will be reviewed and amended on an as-needed basis. Any major changes or amendments to the RMP would require additional public involvement and NEPA analysis.

6.3.2 Updating the RMP

This RMP has an intended life of 10 years. Therefore, a thorough review will be needed to the RMP around 2013. Plan updates or plan amendments can be done whenever conditions warrant and require NEPA analysis and ample opportunity for public involvement, and agency and Tribal coordination.

Table 6.1-1. Management Actions for Natural Resources (NAT).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
Wildlife, Vegetation, and Habitat Management						
NAT 1.1.1: Use existing and future information in adaptive management of rare, sensitive, and protected species and their habitat. If any species that occur on Reclamation land are listed under the ESA during the 10-year RMP period, Reclamation will coordinate with USFWS and take appropriate action.	R	NAT 1.1.2, 1.1.3	Ongoing	Reclamation, ODFW, USFWS	Various	If needed
NAT 1.1.2: Limit construction and any necessary live tree removal to between March 31 and October 31 to protect wintering eagles.	R	NAT 1.1.1	Ongoing	WACO, Reclamation USFWS	N/A	N/A
NAT 1.1.3 Cooperate with USFWS to monitor eagle use on Reclamation land and water.	R	NAT 1.1.1	Initiate Year 1	WACO, Reclamation USFWS	Reclamation	Annual
NAT 1.1.4 Protect eagle perch trees on Reclamation land around reservoir.	R	NAT 1.1.3	Ongoing	WACO, Reclamation USFWS	N/A	N/A
NAT 1.1.5 Provide signs and brochures to educate public not to handle turtles they may encounter. Also provide information for fisherman on proper handling of caught turtles.	H	NAT 1.1.1	Initiate Year 1	WACO, Reclamation USFWS	Reclamation and WACO	N/A
NAT 1.1.6 TES and rare species surveys will be conducted as necessary, but prior to the start of construction. Any established search protocols will be followed.	R	NAT 1.1.1	Ongoing	Reclamation, WACO USFWS	Reclamation and WACO	If TES species located
NAT 1.2.1 Install and maintain bird/bat boxes where appropriate.	L	NAT 1.1.1	As opportunities arise	WACO, Reclamation	Various	Annually
NAT 1.2.2 Disturbed areas resulting from construction will be replanted with native vegetation as feasible in coordination with ODFW. Plant species will be selected to match the site's soil type, topographic position, elevation, and surrounding vegetation.	R	NAT 1.2.3	As needed	WACO, Reclamation	Reclamation and WACO	As needed to ensure planting success
NAT 1.2.3 To the maximum extent practicable, all existing trees, shrubs, and other naturally occurring vegetation will be preserved and protected from construction operations and equipment, except where clearing operations are required for permanent structures, approved construction roads, trails, or excavations operations.	R	NAT 1.2.2	As needed	WACO, Reclamation	Reclamation and WACO	N/A
NAT 1.2.4 To the maximum extent practicable, all maintenance yards, field offices, and staging areas will be arranged to preserve trees, shrubs, and other vegetation.	R	NAT 1.2.2	As needed	WACO, Reclamation	Reclamation and WACO	N/A
NAT 1.2.5 Clearing will be restricted to that area needed for construction. In sensitive habitat areas including, but not limited to, wetlands and riparian areas, clearing may be restricted to only a few feet beyond areas required for construction.	R	NAT 1.2.3	As needed	WACO, Reclamation	Reclamation and WACO	N/A

Table 6.1-1. Management Actions for Natural Resources (NAT).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
NAT 1.2.6 To reduce environmental damage, stream corridors, wetlands, riparian areas, steep slopes, or other critical environmental areas will not be used for equipment or materials storage or stockpiling; construction staging or maintenance; field offices; hazardous material or fuel storage, handling, or transfer; or temporary access roads.	R	NAT 1.2.3	As needed	WACO, Reclamation	Reclamation and WACO	N/A
NAT 1.2.7 To the maximum extent possible, staging areas, access roads, trails, and other site disturbances will be located in disturbed areas, not in native or naturally occurring vegetation.	R	NAT 1.2.5	As needed	WACO, Reclamation	Reclamation and WACO	N/A
NAT 1.2.8 The width of all new permanent access roads will be kept to the absolute minimum needed for safety, avoiding wetland and riparian areas where possible. Turnouts and staging areas will not be placed in wetlands.	R	NAT 1.2.5	As needed	WACO, Reclamation	Reclamation and WACO	N/A
NAT 1.2.9 Minimize the amount of waste material and trash accumulations around construction areas and storage yards.	R	NAT 1.2.10	As needed	WACO, Reclamation	Reclamation and WACO	N/A
NAT 1.2.10 Remove all unused materials and trash from construction and storage sites during the final phase of work. All removed material will be placed in approved sanitary landfills or storage sites, and work areas will be left to conform to the natural landscape.	R	NAT 1.2.9	As needed	WACO, Reclamation	Reclamation and WACO	N/A
NAT 1.2.11 Grade disturbed land following construction to provide proper drainage and blend with the natural contour of the land.	R	NAT 3.1.1	As needed	WACO, Reclamation	Reclamation and WACO	N/A
NAT 1.3.1 Plant woody species in riparian zones, specifically Tanner and Scoggins Creeks.	M	NAT 1.1.1	Initiate Year 4	WACO, Reclamation, ODFW	Various	Weekly immediately following planting to ensure success - then annually
NAT 1.3.2 Allow for a feasibility study to install cofferdam at Tanner Creek to enhance wetlands.	L	___	Funding dependent	WACO, Reclamation, ODFW	Various	Variable - intense immediately following construction
NAT 1.3.3 Allow the environmental education and research center to investigate the feasibility of installing a cofferdam at Nelson Cove to enhance wetlands as part of the center.	L	___	Funding dependent	Education Center/PSU, Reclamation, ODFW	Education Center/PSU	Variable - intense immediately following construction
NAT 1.4.1 Develop and implement an Integrated Pest Management Plan.	R	1.4.1	Initiate Year 1	Reclamation, WACO ODFW	Reclamation	Annually
NAT 1.4.2 Continue to coordinate with federal, state, and local agencies to control noxious and invasive weeds and invasive aquatic mollusks.	R	1.4.2	Ongoing	WACO, Reclamation, ODFW	WACO	Annually

Table 6.1-1. Management Actions for Natural Resources (NAT).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
Nat 1.5.1 Manage elk meadows according to long-term management plan signed by Reclamation, WACO, and ODFW, including development of an additional 30 acres of meadows as designated in the plan, to total 140 acres of managed elk meadows.	R	NAT 1.5.2	Initiate Year 1	WACO, Reclamation, ODFW	Reclamation	Annually
NAT 1.5.2 Maintain elk meadows with vegetative buffer between the meadows and reservoir to protect water quality.	R	NAT 1.5.1	Initiate Year 1	Reclamation, WACO ODFW,	Reclamation	Annually
NAT 1.5.3 Allow disc golf at Sain Creek meadow, including gravel parking lot for 8 cars, with a seasonal closure consistent with park operating season.	M	NAT 1.5.1	Initiate Year 1	Reclamation, WACO	Various	Annually
NAT 1.5.4 Mitigate for any impacts to elk habitat from future development as needed.	R	NAT 1.5.1, 1.2.2	As needed	WACO, Reclamation, ODFW	Various	As needed
NAT 1.5.5 Using monitoring data, work with ODFW to evaluate the use of elk meadows over the course of the next 10 years and adjust management as needed.	R	NAT 1.5.1	Year 1	Reclamation, WACO ODFW, USFWS	Reclamation	Annually
NAT 1.6.1 Maintain vegetative buffer zones adjacent to recreation sites	M	NAT 1.1.1, 1.2.5	Ongoing	WACO, Reclamation	WACO	If needed
NAT 2.1.1 Cooperate with ODFW and fishing clubs on appropriate enhancement projects.	M	NAT 2.2.1	Ongoing	WACO, Reclamation, ODFW	Various	As needed
NAT 2.1.2 Construction activities that could impact fish will be undertaken during non-spawning periods.	R	NAT 1.2.6	Ongoing	WACO, Reclamation, ODFW	Reclamation and WACO	N/A
NAT 3.1.1 Provide appropriate drainage control, sanitation, and waste management facilities at all parking lots and recreation sites.	R	NAT 3.1.2	As needed	WACO, Reclamation	Reclamation and WACO	As needed
NAT 3.1.2 Parking lots will be designed to promote efficient vehicle and boat traffic to prevent congestion and pollution.	R	NAT 3.1.2	As needed	WACO, Reclamation	Reclamation and WACO	N/A
NAT 3.1.3 Waste facilities should be connected, whenever possible, to sanitary sewer systems instead of septic tanks to avoid water quality problems from failed tanks.	R	NAT 3.1.1, 3.1.4	As needed	Reclamation, WACO	Reclamation and WACO	N/A
NAT 3.1.4 Add a floating restroom near the buoy line.	L	NAT 3.1.1	Year 5	WACO, Reclamation	Reclamation and WACO	As needed
NAT 3.2.1 See NAT 1.3.1						
NAT 3.3.1 Prohibit motor vehicle use outside of designated areas. Sign and barrier where necessary.	H	NAT 3.5.3	Ongoing	WACO, Reclamation	WACO	As needed
NAT 3.4.1 See NAT 1.4.2						
NAT 3.5.1 Continue current water quality program in conjunction with CWS and TVID water quality sampling efforts.	H	___	Ongoing	WACO, TVID, CWS	WACO	N/A

Table 6.1-1. Management Actions for Natural Resources (NAT).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
NAT 3.5.2 Require construction methods that prevent entrance or accidental spillage of pollutants into watercourses and underground water sources. Potential pollutants and wastes include refuse, garbage, cement, concrete, sewage effluent, industrial waste, oil and other petroleum products, aggregate processing tailings, mineral salts, drilling mud, and thermal pollution.	R	NAT 1.2.6, 2.2.3, 3.1.1	Ongoing	WACO, Reclamation	Reclamation and WACO	During construction and shortly after
NAT 3.5.3 Prevent eroded materials from entering streams or watercourses during dewatered activities associated with structure foundations or earthwork operations adjacent to, or encroaching on, streams or watercourses.	R	NAT 1.2.6, 2.2.3, 3.1.1	Ongoing	WACO, Reclamation	Reclamation and WACO	During construction and shortly after
NAT 3.5.4 Ensure that construction water discharged into surface waters are free of settling material. Use appropriate treatment for water pumped from behind cofferdams and wastewater from aggregate processing, concrete batching, or other construction operations to prevent pollution of surface water.	R	NAT 1.2.6, 2.2.3, 3.1.1	Ongoing	WACO, Reclamation	Reclamation and WACO	During construction and shortly after
NAT 3.5.5 If required, use rip-rap that is free of contaminants and will not significantly contribute to reservoir turbidity.	R	NAT 1.2.6, 2.2.3, 3.1.1	Ongoing	WACO, Reclamation	Reclamation and WACO	During construction and shortly after
NAT 3.5.6 Install and maintain water quality treatment measures for recreation facilities	R	NAT 3.1.1	Ongoing	WACO, Reclamation	Reclamation and WACO	During construction and shortly after
NAT 4.1.1 See 3.3.1						
NAT 4.1.2 Comply with all Federal and State laws related to control and abatement of water pollution. Dispose of all waste material and sewage from construction activities or project-related features according to Federal and State pollution control regulations.	R	NAT 3.1.1	Ongoing	WACO, Reclamation	Reclamation and WACO	N/A
NAT 4.1.3 Instruct contractors on the potential need to obtain a National Pollutant Discharge Elimination System (NPDES) permit as established under Public Law 92B500 and amended by the Clean Water Act (Public Law 95B217).	R	NAT 3.1.1, 4.1.2	As needed	WACO, Reclamation	N/A	As needed
NAT 4.2.1 See NAT 1.3.1.						
NAT 4.3.1 Coordinate with applicable agencies and affected private landowners on sediment and erosion control projects upstream of Reclamation lands.	M	NAT 3.5.3	Ongoing	Reclamation, ODFW, CWS, TVID	Various	As needed
NAT 4.4.1: Employ applicable recognized BMPs in the design and construction of facilities to prevent possible soil erosion and subsequent water quality impacts.	R	NAT 4.4.2 – 4.4.5	Ongoing	WACO, Reclamation	Various	As needed
NAT 4.4.2: Utilize the planting of grasses, forbs, trees, or shrubs beneficial to wildlife, or the placement of riprap, sand bags, sod, erosion mats, bale dikes, mulch, or excelsior blankets to prevent and minimize erosion and siltation during construction and during the period needed to reestablish permanent vegetative cover on disturbed sites.	R	NAT 4.3.2, 4.4.5	Ongoing	WACO, Reclamation	Various	As needed

Table 6.1-1. Management Actions for Natural Resources (NAT).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
NAT 4.4.3 Initiate erosion control and site restoration measures as soon as a particular area is no longer needed for construction, stockpiling, or access. Arrange schedules to minimize exposure of soils.	R	NAT 1.2.6, 2.2.3, 3.1.1	As needed	WACO, Reclamation	Reclamation and WACO	As needed
NAT 4.4.4 Slope cuts and fills for relocated and new roads to facilitate revegetate.	R	NAT 1.2.7, 1.2.8	As needed	WACO, Reclamation	Various	As needed
NAT 4.4.5 Place soil or rock stockpiles, excavated materials, or excess soil materials outside sensitive habitats including water channels, wetlands, riparian areas, and on native or naturally occurring vegetation. Shape and revegetate waste piles to provide a natural appearance.	R	NAT 1.2.6,	As needed	WACO, Reclamation	Various	As needed

[1]Underline denotes primary responsibility.
*Implementation is dependent on the decision to raise the dam.
N/A = not applicable.

Table 6.1-2. Management Actions for Cultural Resources (CUL).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
CUL 1.1.1 Complete archeological surveys when ground-disturbing actions are proposed in unsurveyed locations. Complete site evaluation actions to determine National Register eligibility to sites threatened by new actions, land use, or project operations, and address impacts to eligible sites. In accordance with Section 110 of the NHPA, implement proactive management of cultural resources, focusing on protecting identified resources from damage.	R	CUL 1.1	Ongoing	Reclamation, WACO	various	N/A
CUL 1.2.1 Complete tribal consultations, as necessary, to determine if traditional cultural properties (TCPs) are present in areas of new ground disturbing actions, or are in or near focused use areas. If present, assess and address impacts from new actions or existing use.	R	CUL 1.1 ISS 1.1	Ongoing	Reclamation, WACO	various	N/A
CUL 1.2.2 If Indian tribes identify culturally important resources within new development areas, avoid adverse impacts to those resource locations when avoidance will allow accomplishment of broader agency responsibilities, is cost effective, and lies within Reclamation's authority.	R	CUL 1.1 ISS 1.1	As needed	Reclamation, WACO	N/A	N/A
CUL 1.2.3 Monitor National Register eligible or unevaluated sites or TCPs that are in or near focused use areas.	H	CUL 1.1 1.2	As needed	Reclamation, WACO	various	Annually
CUL 1.2.4 In the event of discovery of human remains of Indian origin, complete protective actions and tribal notification and consultation actions per 45 CFR 10.	R	CUL 1 ISS 1.1	As needed	Reclamation, WACO	Reclamation	N/A
CUL 1.2.5 Complete research to determine if site 02/801-3 is eligible to the National Register. If eligible, identify and implement actions to either avoid further impacts or to mitigate impacts.	R	CUL 1.1 1.2	Initiate Year 2	Reclamation, WACO	Reclamation	Monitor site condition, if needed
CUL 1.2.6 Design facilities to avoid or minimize cultural resource damage.	R	CUL 1.1	As needed	Reclamation, WACO	N/A	N/A
CUL 1.3.1 Integrate cultural resource management requirements and goals into other management plans completed under the RMP, including the elk meadows management plan, fire management plan, and the Integrated Pest Management Plan.	H	CUL 1.3	As needed	Reclamation, WACO	N/A	As needed
CUL 1.4.1 Work with local partners to provide educational information about resource value and interpret area history.	M	CUL 1.4	As opportunities arise	Reclamation, WACO	various	N/A

[1]Underline denotes primary responsibility.
N/A = not applicable.

Table 6.1-3. Management Actions for Indian Sacred Sites (ISS).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
ISS 1.1.1 Consult with Indian tribes to determine if sacred sites are present in areas of new ground disturbing actions, or in locations where sites might be damaged by existing public land uses. If present, seek to avoid damages and maintain access when implementing new actions.	R	ISS 1.1 1.2	Ongoing	Reclamation, WACO	various	N/A
ISS 1.2.1 Consult to determine if sacred sites are present in areas of focused public use. If present, seek to resolved impacts and maintain access.	R	ISS 1.1 1.2	Ongoing	Reclamation, WACO	As needed	As needed

[1]Underline denotes primary responsibility.
N/A = not applicable.

Table 6.1-4. Management Actions for Indian Trust Assets (ITAs).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
ITA 1.1.1 Use NEPA process to assess potential impacts to ITAS.	R		Ongoing	Reclamation, WACO	various	N/A

[1]Underline denotes primary responsibility.
N/A = not applicable.

Table 6.1-5. Management Actions for Recreation and Access (REC).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
Land-Based Sites and Facilities						
REC 1.1.1: Work with managing partner to conduct a recreational carrying capacity and demand study in preparation for the RMP update, taking into account the results of the potential dam raise.	M		Initiate Year 7	Reclamation, WACO	Reclamation and WACO	Monitoring program determined from study results.
REC 1.2.1 Add the following to the existing facilities at Boat Ramp/Recreation Area A West: • *Self-adjusting boat float (replacement of existing boat floats) • *Fish-cleaning station • Designate concession area • *Boat dump facility • New picnic shelter • Play structure • Permanent concession facility • *Expanded parking for 30 vehicles/trailers and 20 cars	M		5 – 7 Years	WACO, Reclamation	WACO and Reclamation	N/A
REC 1.2.2 Add the following to the existing facilities at Scoggins Creek Picnic Area: • *New groundwater supply • *Permanent vault restroom facility • Six picnic tables • One sheltered group picnic site • Play structure • *Boardwalk and interpretive signs • Pave parking lot.	H		3 – 5 Years	WACO, Reclamation	WACO and Reclamation	N/A
REC 1.2.3 Add the following to the existing facilities at Boat Ramp/Recreation Area C: • One sheltered group picnic area. • *One restroom • One play structure • *One permanent concession facility (approximately 400 sq. ft.) • *245 car parking • *Self-adjusting boat float (replacement of existing boat floats) • *Fish-cleaning station	M		6 – 8 Years	WACO, Reclamation	WACO and Reclamation	N/A

Table 6.1-5. Management Actions for Recreation and Access (REC).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
REC 1.2.4 Allow for the development of facilities at the Recreation Area C Extension (Cove Area) according to the following two-phased approach: Phase One • Recondition existing parking area and turn around with 35 marked parking spaces, curbs, and entry and exit ways • Install accessible pathway to waters edge *Phase Two • Expand parking area from 35 to 70 parking spaces • Add roadway from Cove entrance to connect with parking/roadway system at Recreation Area C Boat Ramp • Add 8 accessible parking slots in proximity to accessible fishing pier • Add accessible restroom between new accessible parking area and accessible fishing pier • Install non-motorized (kayak, canoe, etc.) boat launch	M		4 – 6 Years	WACO, Reclamation	WACO and Reclamation	N/A
REC 1.2.5 Add one play structure to the existing facilities at the Sain Creek Picnic Area:.	L		6 – 8 Years	WACO, Reclamation	WACO and Reclamation	N/A
REC 1.2.6 Enhance the existing facilities at the Elks Picnic Area by paving the parking area.	H		3 – 5 Years	WACO, Reclamation	WACO and Reclamation	N/A
REC 1.3.1: Continue to comply with WACO's Scoggins Valley Park reservation application system, including policies and fees for special use.	H		Ongoing	WACO	N/A	N/A
REC 1.5.1: Provide for permanent concession facilities at Recreation Area A West and Area C (see REC 1.2.1 and 1.2.3, respectively).	H	REC 1.2.1 and 1.2.3	Initiate Year 1	WACO, Reclamation	Concessionaire	
REC 1.7.1: Re-open Recreation Area A East for day use and add: • One group picnic area • One group shelter • One play structure Allow limited special event use, including periodic overnight use.	H	—	Initiate Year 1	WACO, Reclamation	WACO and Reclamation	N/A
Shoreline and Water-based Recreation						
*REC 2.1.1: Provide fish-cleaning stations at Recreation Area A West and Area C (see REC 1.2.1 and 1.2.3, respectively).	M	REC 1.2.1 and 1.2.3	5 – 7 Years	WACO, Reclamation	WACO and Reclamation	N/A
*REC 2.1.2: Provide 8 additional (accessible) parking spaces near the accessible fishing pier at Recreation Area C (see REC 1.2.4).	M	REC 1.2.4	4 – 6 Years	WACO, Reclamation	WACO and Reclamation	N/A

Table 6.1-5. Management Actions for Recreation and Access (REC).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
*REC 2.1.3: Provide accessible restroom near the accessible fishing pier at Recreation Area C (see REC 1.2.4).	M	REC 1.2.4	4 – 6 Years	WACO, Reclamation	WACO and Reclamation	N/A
*REC 2.2.1: Implement improvements to self-adjusting boat floats by replacing existing boat floats at recreation Area A West and Area C (see REC 1.2.1 and 1.2.3, respectively).	M	REC 1.2.1 and 1.2.3	5 – 7 Years	WACO, Reclamation	WACO and Reclamation	N/A
*REC 2.2.2: Provide a boat dump facility at Recreation Area A West (see REC 1.2.1).	M	REC 1.2.1	5 – 7 Years	WACO, Reclamation	WACO and Reclamation	N/A
*REC 2.2.3: Install a new non-motorized boat launch at the Recreation Area C Extension (Cove) Area (see REC 1.2.4)	M	REC 1.2.4	4 – 6 Years	WACO, Reclamation	WACO and Reclamation	N/A
Water Surface Management						
REC 3.1.1. Conduct a recreational carrying capacity and demand study (see REC 1.1.1)	M	REC 1.1.1	Initiate Year 7	WACO, Reclamation	WACO and Reclamation	Monitoring program determined from study results.
REC 3.2.1. Continue to provide adequate enforcement of no-wake regulations in applicable areas of the reservoir commensurate with use levels.	H		Ongoing	Sheriff, WACO	Sheriff	N/A
REC 3.3.1. Continue to provide adequate information related to boating safety and rules and regulations at the fee station and all boat ramps commensurate with use levels.	H		Ongoing	WACO, Sheriff, Coast Guard	WACO	N/A
Access						
*REC 4.1.1. Expand parking for 30 vehicles/trailers and 20 cars at Recreation Area A West (see REC 1.2.1)	M	REC 1.2.1	5 – 7 Years	WACO, Reclamation	WACO and Reclamation	N/A
REC 4.1.2. Pave the existing gravel parking area at Scoggins Creek Picnic Area (see REC 1.2.2).	H	REC 1.2.2	3 – 5 Years	WACO, Reclamation	WACO and Reclamation	N/A
*REC 4.1.3. Expand parking for 245 cars at Boat Ramp/Recreation Area C (see REC 1.2.3)	M	REC 1.2.3	6 – 8 Years	WACO, Reclamation	WACO and Reclamation	N/A

Table 6.1-5. Management Actions for Recreation and Access (REC).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
REC 4.1.4. REC 1.2.4 Allow for the following road/parking improvements at the Recreation Area C Extension (Cove Area) according to the following two-phased approach (see REC 1.2.4): Phase One • Recondition existing parking area and turn around with 35 marked parking spaces, curbs, and entry and exit ways *Phase Two • Expand parking area from 35 to 70 parking spaces • Add roadway from Cove entrance to connect with parking/roadway system at Recreation Area C Boat Ramp • Add 8 accessible parking slots in proximity to accessible fishing pier	M	REC 1.2.4	4 –6 Years	WACO, Reclamation	WACO and Reclamation	N/A
REC 4.1.5. Pave the existing gravel parking area at the Elks picnic Area (see REC 1.2.6).	H	(see REC 1.2.6	3 – 5 Years	WACO, Reclamation	WACO and Reclamation	N/A
REC 4.2.1. *Where feasible, widen the perimeter road shoulder from 7' to 10' and sign/stripe for bicycles, pedestrians, and overflow parking.	L	REC 4.3.1	6 – 8 Years	WACO, Reclamation	WACO and Reclamation	N/A
REC 4.3.1. * Develop connections to existing Master (shoreline) Trail – multiple use, bike and pedestrian, 15 miles long. Perimeter road – 10.5 mile long.	L	REC 4.2.1 and 4.3.2	6 – 8 Years	WACO, Reclamation	WACO and Reclamation	N/A
REC 4.4.1 All new and remodeled facilities will be designed and constructed in accordance with current standards for accessibility for persons with disabilities.	R		Ongoing	WACO, Reclamation	WACO and Reclamation	5-Year Review
REC 4.7.1. *Fully develop the Master (shoreline) Trail to route entire trail off the paved road.	M	REC 4.3.1	6 – 8 Years	WACO, Reclamation	WACO and Reclamation	N/A
REC 4.7.2. Allow for development of a new, independent equestrian trail to be constructed and maintained by equestrian groups on the upper side of the perimeter road; include an accessible staging/parking area with sanitation facilities for up to 25 users. Use of facilities will be limited to the Park's season of use, lessening erosion/sedimentation to surface waters.	M		Initiate Year 1	WACO, Reclamation, Equestrian Group(s)	Others (Equestrian Group(s))	N/A

Table 6.1-5. Management Actions for Recreation and Access (REC).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
REC 4.8.1. If feasible and justified due to security concerns and carrying capacity limitations, work with Washington County Commissioners, Land Use & Transportation Department, and neighboring landowners to implement a limited access plan whereby park traffic is required to access the area through the fee station and local traffic is afforded a separate, gated access.	M	REC 1.1.1	4 – 6 Years	WACO, Reclamation	WACO and Reclamation	N/A

[1]Underline denotes primary responsibility.
*Implementation is dependent on decision to raise the dam.
N/A = Not applicable.
Note: All new facilities, programs, and information, will be designed in accordance with current standards for accessibility for persons with disabilities.

Table 6.1-6. Management Actions for Land Use, Management, Implementation (LMI).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
LMI 1.1.1: Design new facilities to be compatible with scenic values.	M	NAT 1.2.6 – 1.2.11	Ongoing	WACO, Reclamation	N/A	N/A
LMI 1.1.2: To the maximum extent possible, preserve existing and use native plants for landscaping. Facilities shall incorporate sustainable development elements as much as possible and be designed and positioned in a manner that is least intrusive to the area's scenic qualities.	M	NAT 1.2.2 – 1.2.4	Ongoing	WACO, Reclamation	N/A	N/A
LMI 1.1.3: Restore viewsheds through selective vegetation thinning.	M	NAT 1.2.5	Ongoing	WACO, Reclamation	WACO	N/A
LMI 1.3.1: Authorize development of Education & Research Center as proposed: • Outdoor School which may include: ➢ Equipped classrooms for elementary and high school age students and field laboratories for college studies; ➢ A large lecture hall; ➢ A dining hall serving up to 230 people during meals and events; ➢ Overnight lodging for 140 elementary students and 48 counselors in cabins, and accommodations for 25 staff and teachers; ➢ A boathouse and dock for study excursions to the reservoir and nearby wetlands; ➢ An outdoor study area with artificial streams and ponds for research; and ➢ A covered campfire facility, amphitheater, outdoor learning shelters, and pathways. • Portland State University Field Research Station. • Community Center The facility shall fully incorporate sustainable development elements and be designed and positioned in a manner that is least intrusive to the area's scenic qualities.	M	NAT 1.3.3	4 – 6 Years	Education Center, Reclamation	Education Center, PSU	As needed during construction per BMPs
LMI 1.4.1: Replace the existing elk meadow with an equivalent amount and quality acreage.	R	NAT 1.5.1 and 1.5.2	4 – 6 Years	Education Center, Reclamation, ODFW, WACO	Education Center, PSU	Ongoing
LMI 2.1.1: Show and describe Reclamation Zone on publicly distributed materials and signage.	M		Initiate Year 1	WACO, Reclamation, TVID	Reclamation and WACO	N/A

Table 6.1-6. Management Actions for Land Use, Management, Implementation (LMI).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
LMI 2.2.1: Recreation use to be conditionally permitted within the Reclamation Zone.	H	LMI 2.1.1	Ongoing	TVID, Reclamation, WACO	N/A	As needed
LMI 3.1.1: Develop a Fire Prevention and Management Plan in cooperation with applicable agencies	R		Year 1	Reclamation, WACO, Gaston FD, ODF, TVID	Reclamation	As needed
LMI 3.2.1: Continue emergency service agreements with Oregon Department of Forestry for fire suppression along the northern portion of Reclamation lands, and Gaston Rural Fire Department for fire suppression along the southern portion of Reclamation lands and medical emergencies within the entire Scoggins Valley Park. Note	H		Ongoing	Reclamation, ODF, Gaston RFD, TVID, WACO	Reclamation	N/A
LMI 3.2.2: Coordinate agency input to review proposed facilities and develop and Emergency Action Plan regarding safety and emergency services access and closure.	H		Initiate Year 1	Reclamation, WACO, TVID	Reclamation	Ongoing
LMI 3.3.1: Make land available and lease at fair market value to facilitate installation of a communications structure.	H		Year 1	TVID, Reclamation, WACO	N/A	N/A
LMI 3.4.1: Maintain adequate enforcement commensurate with levels of public use.	H	LMI 3.4.1 and 3.4.2	Ongoing	WACO, Sheriff, State Police, Coast Guard	WACO	As needed
LMI 4.1.1: Inventory existing signs and determine a prioritized list of additional sign needs.	M	LMI 4.1.2	Ongoing	WACO	WACO	N/A
LMI 4.1.2: Design, purchase, construct, and install signs as funding allows.	M	LMI 4.1.1	Ongoing	WACO, Reclamation	Reclamation and WACO	N/A
LMI 4.2.1: Continue Washington County information program that includes: • Web site, Brochures, Bulletin boards, Special event notices • County newsletter, Press releases, Neighborhood newsletter • Park Advisory Board meetings • Outreach program • Natural resource information, including wildlife and human interactions (i.e., turtles, elk)	H		Ongoing	WACO, Reclamation	WACO	N/A
LMI 4.2.2: Develop interpretative program to highlight: • Natural history • Reclamation Project history • Surrounding Forest Practices • Pre-history & history	M	LMI 4.2.1	Year 3	WACO, Reclamation, TVID, ODFW	Reclamation, ODFW, WACO	N/A
LMI 5.1.1: Track and annually update progress on the management actions in the RMP implementation schedule.	H	All actions	Initiate Year 1	Reclamation, WACO	Reclamation and WACO	Annually

Table 6.1-6. Management Actions for Land Use, Management, Implementation (LMI).

Action	Priority	Related Mgmt Actions	Timing/ Sequence	Lead Agency[1]	Funding	Monitoring
LMI 5.2.1: Pursue implementation through a variety of sources including, but not limited to: • Title 28 cost share program for recreation enhancements, which allows a 50% Federal contribution to match a 50% non-Federal managing partner contribution. • Title 28 cost share program for fish and wildlife enhancement, improvement, and restoration projects, which allows a 75% Federal contribution to match a 25% non-Federal managing partner contribution. • Oregon State Marine Board Grants. • Land and Water Conservation Fund Grants. • Other Federal, State, and local cost share and grant programs.	H	All applicable actions	Initiate Year 1	WACO, Reclamation	Reclamation and WACO	N/A
LMI 5.3.1: Provide news releases to the local media for major projects and accomplishments. Post or provide implementation information for major actions at the Park.	H		Ongoing	WACO	WACO	N/A

[1]Underline denotes primary responsibility.
* Implementation is dependent on decision to raise the dam.
N/A = Not applicable.
Note: All new facilities, programs, and information, will be designed in accordance with current standards for accessibility for persons with disabilities.

Chapter 7

Glossary of Terms

CHAPTER 7
GLOSSARY OF TERMS

Acre-foot	Volume of water (43,560 cubic feet) that would cover 1 acre land, 1 foot deep.
Action Alternative	A change in the current management approach.
Affected environment	Existing biological, physical, social, and economic conditions of an area subject to change, both directly and indirectly, as the result of a proposed human action. Also, the chapter in an environmental document describing current environmental conditions.
Alternatives	Courses of action that may meet the objectives of a proposal at varying levels of accomplishment, including the most likely future conditions without the management plan or action.
Amphibian	Vertebrate animal that has a life stage in water and a life stage on land (for example, salamanders, frogs, and toads).
Aquatic	Living or growing in or on the water.
Archeology	Related to the study of human cultures through the recovery and analysis of their material relics.
Archeological site	A discrete location that provides physical evidence of past human use.
Best Management Practices	Activities that are added to typical operation, construction, or maintenance efforts that help to protect environmental resources by avoiding or minimizing impacts of an action.
Community	A group of one or more interacting populations of plants and animals in a common spatial arrangement at a particular point in time.
Concentration	The density or amount of a substance in a solution (water quality).
Cubic foot per second (cfs)	As a rate of streamflow, a cubic foot of water passing a reference section in 1 second of time. A measure of a moving volume of water.
Cultural resource	Cultural resources are historic and traditional properties that reflect our heritage.

Drawdown	Lowering of a reservoir's water level; process of releasing reservoir storage.
Endangered species	A species or subspecies whose survival is in danger of extinction throughout all or a significant portion of its range.
Erosion	Refers to soil and the wearing away of the land surface by water, wind, ice, or other physical processes.
Exotic species	A non-native species that is introduced into an area.
Facilities	Manmade structures.
Fish and Wildlife Service Species of Concern	Species identified by the FWS for which further biological research and field study are needed to resolve these species' conservation status.
Habitat	Area where a plant or animal finds suitable living conditions.
Indian Sacred Sites	Defined in Executive Order 13007 as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site."
Indian Trust Assets	Legal interests in property held in trust by the United States for Indian Tribes or individuals, such as lands, minerals, hunting and fishing rights, and water rights.
Juvenile	Young animal that has not reached reproductive age.
Mitigation measures	Action taken to avoid, reduce the severity of, or eliminate an adverse impact. Mitigation can include one or more of the following: (1) avoiding impacts; (2) minimizing impacts by limiting the degree or magnitude of an action; (3) rectifying impacts by restoration, rehabilitation, or repair of the affected environment; (4) reducing or eliminating impacts over time; and (5) compensating for the impact by replacing or providing substitute resources or environments to offset the loss.
National Register of Historic Places	A Federally maintained register of districts, sites, buildings, structures, and properties that meet the criteria of significance defined in 36 CFR 63.
No Action Alternative	The outcome expected from a continuation of current management practices.

Perennial	Plants that have a life cycle that lasts for more than 2 years.
Precipitation	Rain, sleet, and snow.
Public involvement	The systematic provision for affected publics to be informed about and participate in Reclamation decision making. It centers around effective, open exchange and communication among the partners, agencies, organizations, and all the various affected publics.
Raptor	Any predatory bird, such as a falcon, eagle, hawk, or owl, that has feet with sharp talons or claws and a hooked beak.
Reptile	Cold-blooded vertebrate of the class Reptilia, comprised of turtles, snakes, lizards, and crocodiles.
Resident	A wildlife species commonly found in an area during a particular season: summer, winter, or year round.
Resource topics	The components of the natural and human environment that could be affected by the alternatives, such as water quality, wildlife, socioeconomic, and cultural resources.
Resource Management Plan	A 10-year plan developed by Reclamation to manage their lands and resources in the study area.
Riparian	Of, on, or pertaining to the bank of a river, pond, or lake.
Runoff	That part of precipitation that contributes to streamflow, groundwater, lakes, or reservoir storage.
Sediment	Unconsolidated solid material that comes from weathering of rock and is carried by, suspended in, or deposited by water or wind.
Songbird	Small to medium-sized birds that perch and vocalize or "sing," primarily during the breeding season.
Spawning	Laying eggs directly in water, especially in reference to fish.
Species	In taxonomy, a subdivision of a genus that (1) has a high degree of similarity, (2) is capable of interbreeding only within the species, and (3) shows persistent differences from members of allied species.
Threatened species	Any species that has the potential of becoming endangered in the near future and is listed as a threatened species under the Endangered Species Act.

Traditional Cultural Property	A site or resource that is eligible for inclusion in the National Register of Historic Places because of its association with cultural practices or beliefs of a living community.
Wetland habitat	Wildlife habitat associated with water less than 6 feet deep, with or without emergent and aquatic vegetation in wetlands.
Wetlands	Lands transitional between aquatic and terrestrial systems where the water table is usually at or near the land surface or the land is covered by shallow water. Often called marshes or wet meadows.

Chapter 8

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CHAPTER 8

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Appendix A

Agency and Tribal Consultation/Coordination

Appendix A-1

Agency Consultation

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Oregon Fish and Wildlife Office
2600 SE 98th Avenue, Suite 100
Portland, Oregon 97266
Phone: (503)231-6179 FAX: (503)231-6195

BUREAU OF RECLAMATION
LOWER COLUMBIA AREA OFFICE
APR 1 '04

TO	INIT	DATE
650	KB	4/1/04
FILE		

ACTION MADE

MAR 30 2004

Reply To: 8330.02374 (04)
File Name: 04HenryHaggLakeconcur
TS Number: 04-1576

Memorandum

To: Area Manager, Bureau of Reclamation, Lower Columbia Area Office, Portland, Oregon
ATTN: Karen Blakney

From: for State Supervisor/Deputy State Supervisor, Oregon Fish & Wildlife Office, Portland, Oregon

Subject: Request for Concurrence on the Henry Hagg Lake Resource Management Plan (RMP), Washington County, Oregon (USFWS reference # 1-7-04-I-0237)

This is in response to your memorandum dated February 13, 2004, transmitting your request for concurrence on the Henry Hagg Lake RMP's preferred alternative described as *Moderate Recreation Development with Resource Enhancement*. We received your memorandum on February 17, 2004. The project area includes Bureau of Reclamation lands and resources at Henry Hagg Lake in Washington County, Oregon and extends to lands within the boundaries of the surrounding Scoggins Valley Park. Proposed activities include a range of natural, cultural, and recreational management actions such as native vegetation plantings, riparian and wetland enhancement, elk meadow rehabilitation and maintenance, fisheries management, expansion and enhancement of existing recreational facilities, and development of an education and research center. The RMP covers a period of 10 years.

Of interest to the Fish and Wildlife Service (Service) is your evaluation of impacts to bald eagles (*Haliaeetus leucocephalus*), northern spotted owls (*Strix occidentalis caurina*), and six listed plant species: Golden Indian paintbrush (*Castilleja levisecta*), Willamette daisy (*Erigeron decumbens var. decumbens*), Howellia (*Howellia aquatilis*), Bradshaw's lomatium (*Lomatium bradshawii*), Kincaid's lupine (*Lupinus sulphureus var. kincaidii*), and Nelson's checkermallow (*Sidalcea nelsoniana*). A "no effect" determination has been made for the northern spotted owl and the six listed plant species; therefore, these species will not be considered further in this consultation. The BA also addresses impacts to a number of fish species under the jurisdiction of the National Marine Fisheries Service (NOAA Fisheries). The federal nexus for the proposed project is the Reclamation Recreation Management Act of 1992. Our review and comments are provided pursuant to section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1536 et seq.) (Act).

Bald eagle nesting activities typically occur between January 1 and August 31, while the wintering period for bald eagles is from November 1 through March 31. An active bald eagle nest located on the Sain Creek drainage is approximately 0.75 mile from Henry Hagg Lake and about 0.4 mile outside the project boundary. The nest is screened (i.e., not within line-of-site) from existing and planned recreational activities at the Lake. Resident and wintering bald eagles also use the project area for foraging and perching.

Increased recreational activities developed under the preferred alternative may have indirect negative impacts on wintering bald eagles and on eagle foraging activities; however, planned wetland and riparian enhancement projects under the RMP are expected to improve water quality and increase foraging opportunities for bald eagles at the Lake. Your analysis concludes that the project may impact bald eagles at Henry Hagg Lake but that these impacts are expected to be minimal in nature. Therefore, the Service concurs that the project may affect bald eagles but is unlikely to affect them adversely.

The requirements established under section 7(a) (2) and 7(c) of the Endangered Species Act of 1973, as amended (16 U.S.C 1531 et seq.), have been met, thereby concluding the consultation process. If you have any questions or need more information, please contact Kathi Larson at (503) 231-6179.

MAY 23 2002

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Oregon Fish and Wildlife Office
2600 S.E. 98th Avenue, Suite 100
Portland, Oregon 97266.
(503) 231-6179 FAX: (503) 231-6195

1060
65.50 KAB

Reply To: 8330.6461(02)
File Name: Sp646.wpd
TS Number: 02-5165

May 17, 2002

Ronald Eggers
U.S. Bureau of Reclamation
825 NE Multnomah Street, Suite 1110
Portland, OR 97232-2135

Subject: Henry Hagg Lake Resource Management Plan Project
USFWS Reference # (1-7-02-SP-646)

Dear Mr. Eggers:

This is in response to your letter, dated April 30, 2002, requesting information on listed and proposed endangered and threatened species that may be present within the area of the Henry Hagg Lake Resource Management Plan Project in Washington County. The U.S. Fish and Wildlife Service (Service) received your correspondence on April 30, 2002.

We have attached a list (Attachment A) of threatened and endangered species that may occur within the area of the Henry Hagg Lake Resource Management Plan Project. The list fulfills the requirement of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). U.S. Bureau of Reclamation (BR) requirements under the Act are outlined in Attachment B.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems on which they depend may be conserved. Under section 7(a)(1) and 7(a)(2) of the Act and pursuant to 50 CFR 402 *et seq.*, BR is required to utilize their authorities to carry out programs which further species conservation and to determine whether projects may affect threatened and endangered species, and/or critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) which are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (NEPA) (42 U.S.C. 4332 (2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to the Biological Assessment be prepared to determine whether they may affect listed and proposed species. Recommended contents of a Biological Assessment are described in Attachment B, as well as 50 CFR 402.12.

If BR determines, based on the Biological Assessment or evaluation, that threatened and endangered species and/or critical habitat may be affected by the project, BR is required to consult with the Service following the requirements of 50 CFR 402 which implement the Act.

Attachment A includes a list of candidate species under review for listing. The list reflects changes to the candidate species list published October 30, 2001, in the Federal Register (Vol. 66, No. 210, 54808) and the addition of "species of concern." Candidate species have no protection under the Act but are included for consideration as it is possible candidates could be listed prior to project completion. Species of concern are those taxa whose conservation status is of concern to the Service (many previously known as Category 2 candidates), but for which further information is still needed.

If a proposed project may affect only candidate species or species of concern, BR is not required to perform a Biological Assessment or evaluation or consult with the Service. However, the Service recommends addressing potential impacts to these species in order to prevent future conflicts. Therefore, if early evaluation of the project indicates that it is likely to adversely impact a candidate species or species of concern, BR may wish to request technical assistance from this office.

Your interest in endangered species is appreciated. The Service encourages BR to investigate opportunities for incorporating conservation of threatened and endangered species into project planning processes as a means of complying with the Act. If you have questions regarding your responsibilities under the Act, please contact Stacy Sroufe at (503) 231-6179. All correspondence should include the above referenced file number. For questions regarding salmon and steelhead trout, please contact National Marine Fisheries Service, 525 NE Oregon Street, Suite 500, Portland, Oregon 97232, (503) 230-5400.

Sincerely,

for Kemper M. McMaster
State Supervisor

Attachments
1-7-02-SP-646

cc: OFWO-ES
ODFW (nongame)

ATTACHMENT A

FEDERALLY LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES, CANDIDATE SPECIES AND SPECIES OF CONCERN THAT MAY OCCUR WITHIN THE AREA OF THE HENRY HAGG LAKE RESOURCE MANAGEMENT PLAN PROJECT 1-7-02-SP-646

LISTED SPECIES[1/]

Birds		
Bald eagle[2/]	*Haliaeetus leucocephalus*	T
Northern spotted owl[3/]	*Strix occidentalis caurina*	CH T
Fish		
Steelhead (Upper Willamette River)[4/]	*Oncorhynchus mykiss*	**T
Plants		
Golden Indian paintbrush[5/]	*Castilleja levisecta*	T
Willamette daisy[6/]	*Erigeron decumbens* var. *decumbens*	E
Howellia	*Howellia aquatilis*	T
Bradshaw's lomatium	*Lomatium bradshawii*	E
Kincaid's lupine[6/]	*Lupinus sulphureus* var. *kincaidii*	T
Nelson's checker-mallow	*Sidalcea nelsoniana*	T

PROPOSED SPECIES

None

CANDIDATE SPECIES[7/]

Birds	
Streaked horned lark	*Eremophila alpestris strigata*

SPECIES OF CONCERN

Mammals	
White-footed vole	*Arborimus albipes*
Red tree vole	*Arborimus longicaudas*
Pacific western big-eared bat	*Corynorhinus (=Plecotus) townsendii townsendii*
Silver-haired bat	*Lasionycteris noctivagans*
Pacific fisher	*Martes pennanti pacifica*
Long-eared myotis (bat)	*Myotis evotis*
Fringed myotis (bat)	*Myotis thysanodes*
Long-legged myotis (bat)	*Myotis volans*
Yuma myotis (bat)	*Myotis yumanensis*
Camas pocket gopher	*Thomomys bulbivorus*
Birds	
Band-tailed pigeon	*Columba fasciata*
Olive-sided flycatcher	*Contopus cooperi (=borealis)*
Yellow-breasted chat	*Icteria virens*
Acorn woodpecker	*Melanerpes formicivorus*
Mountain quail	*Oreortyx pictus*

Oregon vesper sparrow	*Pooecetes gramineus affinis*
Purple martin	*Progne subis*
Amphibians and Reptiles	
Tailed frog	*Ascaphus truei*
Northwestern pond turtle	*Clemmys marmorata marmorata*
Northern red-legged frog	*Rana aurora aurora*
Fish	
Pacific lamprey	*Lampetra tridentata*
Coastal cutthroat trout (Upper Willamette)	*Oncorhynchus clarki clarki*
Plants	
White top aster	*Aster curtus*
Pale larkspur	*Delphinium leucophaeum*
Peacock larkspur	*Delphinium pavonaceum*
Shaggy horkelia	*Horkelia congesta* ssp. *congesta*
Thin-leaved peavine	*Lathyrus holochlorus*

(LE) - Listed Endangered *(LT) - Listed Threatened* *(CH) - Critical Habitat has been designated for this species*
(PE) - Proposed Endangered *(PT) - Proposed Threatened* *(PCH) - Critical Habitat has been proposed for this species*
(S) - Suspected *(D) - Documented*

Species of Concern - Taxa whose conservation status is of concern to the Service (many previously known as Category 2 candidates), but for which further information is still needed.

(CF) - Candidate: National Marine Fisheries Service designation for any species being considered by the Secretary for listing for endangered or threatened species, but not yet the subject of a proposed rule.

** *Consultation with National Marine Fisheries Service may be required.*

[v] *U. S. Department of Interior, Fish and Wildlife Service, October 31, 2000, Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12*

[w] *Federal Register Vol. 60, No. 133, July 12, 1995 - Final Rule - Bald Eagle*

[x] *Federal Register Vol. 57, No. 10, January 15, 1992, Final Rule-Critical Habitat for the Northern Spotted Owl*

[y] *Federal Register Vol. 64, No. 57, March 25, 1999, Final Rule - Middle Columbia and Upper Willamette River Steelhead*

[z] *Federal Register Vol. 62, No. 112, June 11, 1997, Final Rule-Castilleja levisecta*

[aa] *Federal Register Vol. 65, No. 16, January 25, 2000, Final Rule-Erigeron decumbens var. decumbens, Lupinus sulphureus ssp. kincaidii and Fender's blue butterfly*

[bb] *Federal Register Vol. 66, No. 210, October 30, 2001, Notice of Review - Candidate or Proposed Animals and Plants*

ATTACHMENT B

FEDERAL AGENCIES RESPONSIBILITIES UNDER SECTION 7(a) and (c) OF THE ENDANGERED SPECIES ACT

SECTION 7(a)-Consultation/Conference

Requires:

1) Federal agencies to utilize their authorities to carry out programs to conserve endangered and threatened species;

2) Consultation with FWS when a Federal action may affect a listed endangered or threatened species to insure that any action authorized, funded or carried out by a Federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of Critical Habitat. The process is initiated by the Federal agency after they have determined if their action may affect (adversely or beneficially) a listed species; and

3) Conference with FWS when a Federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed Critical Habitat.

SECTION 7(c)-Biological Assessment for Major Construction Projects[1]

Requires Federal agencies or their designees to prepare a Biological Assessment (BA) for construction projects only. The purpose of the BA is to identify proposed and/or listed species which are/is likely to be affected by a construction project. The process is initiated by a Federal agency in requesting a list of proposed and listed threatened and endangered species (list attached). The BA should be completed within 180 days after its initiation (or within such a time period as is mutually agreeable). If the BA is not initiated within 90 days of receipt of the species list, the accuracy of the species list should be informally verified with our Service. No irreversible commitment of resources is to be made during the BA process which would foreclose reasonable and prudent alternatives to protect endangered species. Planning, design, and administrative actions may be taken; however, no construction may begin.

To complete the BA, your agency or its designee should: (1) conduct an on-site inspection of the area to be affected by the proposal which may include a detailed survey of the area to determine if the species is present and whether suitable habitat exists for either expanding the existing population or for potential reintroduction of the species; (2) review literature and scientific data to determine species distribution, habitat needs, and other biological requirements; (3) interview experts including those within FWS, National Marine Fisheries Service, State conservation departments, universities, and others who may have data not yet published in scientific literature; (4) review and analyze the effects of the proposal on the species in terms of individuals and populations, including consideration of cumulative effects of the proposal on the species and its habitat; (5) analyze alternative actions that may provide conservation measures and (6) prepare a report documenting the results, including a discussion of study methods used, any problems encountered, and other relevant information. The BA should conclude whether or not a listed species will be affected. Upon completion, the report should be forwarded to our Portland Office.

---

[1] A construction project (or other undertaking having similar physical impacts) which is a major Federal action significantly affecting the quality of the human environment as referred to in NEPA (42 U.S.C. 4332. (2)c). On projects other that construction, it is suggested that a biological evaluation similar to the biological assessment be undertaken to conserve species influenced by the Endangered Species Act.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Oregon Fish & Wildlife Office
2600 S.E. 98th Avenue, Suite 100
Portland, Oregon 97266
(503) 231-6179 FAX: (503) 231-6195

Reply To: 7263.0021
File Name: Henry Hagg Lake Resource Mgt Plan, Updated Planng. Aid Memo., WA County, OR
TS Number: 03-750

Memorandum

To: Regional Director, Bureau of Reclamation, Pacific NW Region, Boise, Idaho

From: for State Supervisor/Deputy State Supervisor, Fish and Wildlife Service, Oregon Fish and Wildlife Office, Portland, Oregon

Subject: Henry Hagg Lake Resource Management Plan, Scoggins Valley Recreation Area, Washington County, Oregon

This memorandum is an update of a 1992 Fish and Wildlife Service (Service) planning aid memorandum on the impacts to fish and wildlife of proposed recreational developments and improvements at Henry Hagg Lake, Scoggins Valley Park, Washington County, Oregon. The Bureau of Reclamation (Bureau) is preparing a Resource Management Plan (RMP) to address newly proposed recreational developments at the park. The scope of this memorandum is general in nature and does not constitute the formal report on the project within the meaning of Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat 401 as amended; 16 U.S.C. 661 et seq.).

The configuration of Henry Hagg Lake depicting the developed recreation areas at the lake and the boundaries of Scoggins Valley Park are depicted in Figure 1. A 1994 Hagg Lake Recreation Management Plan addressed several development scenarios for the park that were to be phased in over a period of several years:

In Phase I (Fiscal Year 1993), the Sain Creek day use facilities were to be expanded to include a larger parking area, a restroom, 20 parking sites, and a new picnic shelter. During Phase I, construction of parking improvements in the "Cove" area (near Recreation Area "C"), Scoggins Creek, the Elks Lodge Access area, and at Boat Ramp "C" were also scheduled.

In Phase II (Fiscal Year 1994), new parking areas, a picnic shelter, picnic sites, and a restroom were to be constructed at the "Cove" day use facilities; parking improvements and a restroom

added to the Elks Lodge day use area; picnic tables, a picnic shelter, and composting restrooms added to the Scoggins Creek day use area; a number of improvements including concessions, play structures, paved parking, and a gravel overflow parking area constructed at Boat Ramp "C"; improvements to the park's trail system made; and an amphitheater, along with parking, portable toilets, and concessions, developed in a meadow area northwest of Boat Ramp "A" (this development was later dropped).

In Phase III, which was to occur at some later date, the day use facilities at Area "A" East were to be converted to overnight facilities with camping for both tent and recreational vehicle (RV) campers, and overnight moorage developed at Boat Ramp "A". Thinning of approximately 20 acres of timber was needed to develop Area "A" East for camping. This development was to also involve construction of a sanitary waste disposal station for the RV campers, new roads, a new shower facility, concessions, play structures, and a picnic shelter. Development of walk-in camping sites was also planned for the Scoggins Creek facilities during this time period; however, it was decided that habitat impacts and the difficulty in patrolling these sites made development of isolated camping sites infeasible.

Almost all of the recreational developments described above for Phases I and II are presently in place. However, the overnight camping facilities at Recreational Area "A" East described under Phase III have not yet been constructed.

The proposed Resource Management Plan (RMP) is being developed by the Bureau as a document that will guide the future direction of development, management, and recreation at Henry Hagg Lake and Scoggins Valley Park over the next ten years. Draft goals and objectives have been developed that focus on natural resources, cultural resources, Indian sacred sites, Indian trust assets, recreation and access, and land use management and implementation. A series of draft management alternatives has been developed by the Bureau with input from an ad hoc working group comprised of Federal, State, County, and special-interest group representatives; consulting agencies; and members of the general public. These alternatives (i.e., the "No Action" alternative; minimal recreation development with resource enhancement (Alternative B); and moderate recreation development with resource enhancement (Alternative C)) are presented in Table 1. For each alternative, the table presents a matrix of topics that are applicable to the entire project area and topics that are applicable to specific shoreside areas. Note that the "No Action" alternative is not static but is, in many cases, a continuation of the 1994 Recreation Management Plan, implementing actions previously approved under that plan (but not yet completed) where funding and willing partners are available.

Fish and Wildlife Resources

Henry Hagg Lake is an extremely popular recreation site attracting people from throughout the Portland metropolitan area. Fish species present in the lake include rainbow trout, largemouth bass, smallmouth bass, yellow perch, bullhead, crappie, and bluegill. The trout are stocked by the Oregon Department of Fish and Wildlife (ODFW) and fishing for trout and bass is very popular.

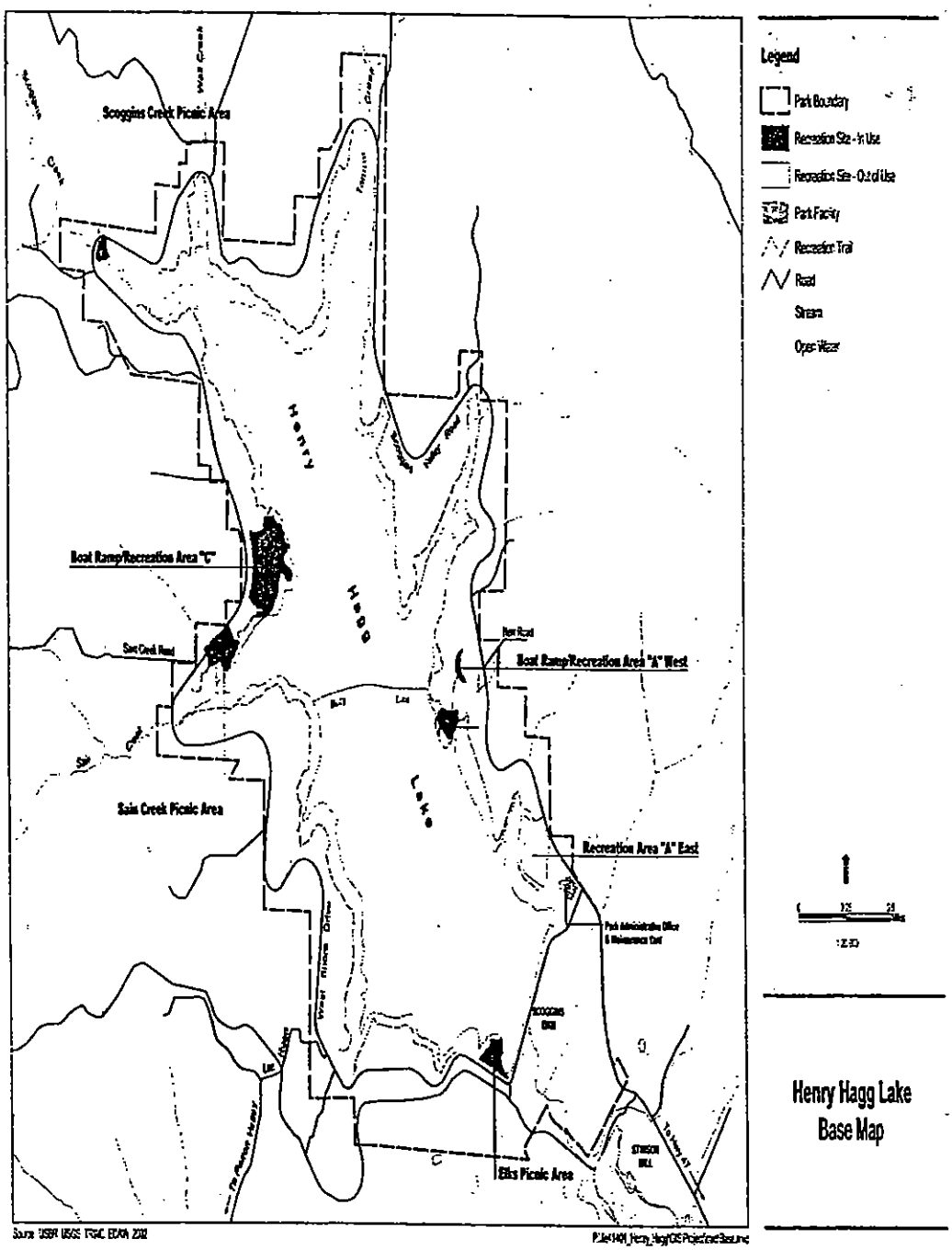

Figure 1. Henry Hagg Lake and Scoggins Valley Park, Washington County, Oregon

Henry Hagg Lake Resource Management Plan – Draft EA Alternatives			
Area and Topic	**Alternative A-No Action[1]: Continuation of Existing Management Practices**	**Alternative B: Minimal Recreation Development with Resource Enhancement**	**Alternative C: Moderate Recreation Development with Resource Enhancement [Preferred Alternative]**
TOPICS APPLICABLE TO THE ENTIRE AREA			
Overall Wildlife and Vegetation Management	Develop native vegetation buffers at developed areas and monitor impacts from recreation use.	Install bird/bat boxes where appropriate. Plant woody species in riparian zones, specifically - Tanner and Scoggins Creeks. Maintain buffer zones adjacent to recreation sites. *Install coffer dam at Tanner Creek cove to enhance wetlands.	Same as Alternative B, plus: • *Install coffer dam at Nelson Cove to enhance wetlands as part of the Education Center and tied to additional studies for feasibility.
Elk Meadows	No development proposed in elk meadows, set aside for wildlife values. Develop long-term management plan for rehabilitation and maintenance of elk meadows (approximately 140 acres total).	RMP to include long-term management plan for the rehabilitation and maintenance and monitoring of elk meadows (i.e., specific actions for each site). Main objectives to: enlarge, rehabilitate, and maintain a minimum of 140 acres of elk meadows. Maintain elk meadows with vegetative buffer between the meadows and reservoir to help protect water quality Allow disc golf at Sain Creek meadow, including gravel parking lot for 8 cars, with a seasonal closure consistent with park operating season. Mitigate for any impacts to elk habitat from future development, as needed. Using monitoring data, work with ODFW to evaluate the need for elk meadows over the course of the next 10 years.	Same as Alternative B.

Table 1. Proposed Resource Management Plan alternatives, Henry Hagg Lake, Washington County, Oregon

Henry Hagg Lake Resource Management Plan – Draft EA Alternatives			
Area and Topic	**Alternative A-No Action[1]: Continuation of Existing Management Practices**	**Alternative B: Minimal Recreation Development with Resource Enhancement**	**Alternative C: Moderate Recreation Development with Resource Enhancement [Preferred Alternative]**
TOPICS APPLICABLE TO THE ENTIRE AREA (CONT.)			
Noxious Weeds	Conduct weed control according to Washington County ordinances.	Develop and implement an Integrated Pest Management Plan.	Same as Alternative B.
Rare, Threatened, and Endangered Species	Comply with Federal Endangered Species Act regarding all pertinent activities. Construction and necessary tree removal limited to between March 31 and October 31 for the protection of wintering eagles Protect eagle perch sites around lake.	Same as Alternative A plus: • Cooperate with USFWS to monitor eagle use on Reclamation land and water.	Same as Alternative B.
Fisheries Management	Continued management of fisheries in reservoir by ODFW. Provide mitigation for installation of floating docks and their effect to fish habitat.	Same as Alternative A, plus: • Cooperate with ODFW and fishing clubs on habitat enhancement projects.	Same as Alternative B.
Water Quality & Erosion and Sedimentation Control	Provide erosion control for construction-related activities. Provide appropriate drainage control at parking lots and add garbage cans.	Same as Alternative A, plus: • Coordinate w/ applicable agencies to install woody debris in place of portions of diversion dams where appropriate. • Coordinate with applicable agencies on sediment and erosion control projects upstream of Reclamation lands. • Continue to cooperate with CWS and TVID water quality sampling efforts.	Same as Alternative B, plus: • Add a floating restroom near buoy line.
Cultural Resources General	Comply with Sections 106 and 110 of NHPA; ARPA, and NAGPRA.	Same as Alternative A.	Same as Alternative A.

Table 1, cont'd.

Henry Hagg Lake Resource Management Plan – Draft EA Alternatives			
Area and Topic	**Alternative A-No Action: Continuation of Existing Management Practices**	**Alternative B: Minimal Recreation Development with Resource Enhancement**	**Alternative C: Moderate Recreation Development with Resource Enhancement [Preferred Alternative]**
TOPICS APPLICABLE TO THE ENTIRE AREA (cont)			
Identification & Evaluation	Complete archeological surveys in previously unsurveyed areas when new ground disturbing actions are proposed. Complete test excavations at archeological sites if needed. Complete tribal consultations to determine if TCP's are present in areas of new ground disturbing actions, or are in or near focused use areas. If present, assess impacts on Register eligible TCPs as needed.	Same as Alternative A.	Same as Alternative A.
Protection	Unless justified, develop no new features within the boundaries of a Register-eligible archeological site or TCP. Monitor Register-eligible or unevaluated sites or TCPs in or near focused use areas to allow early detection of damage. Implement management or mitigation actions to address identified adverse effects on Register-eligible sites or TCPs.	Same as Alternative A plus: Work with local partners to provide educational information about resource value and interpretive information about area prehistory and history.	Same as Alternative B.
Indian Sacred Sites	Comply with EO 13007 for any new undertakings. Complete tribal consultations to determine if sacred sites are present in areas of new ground disturbing actions. Seek to avoid damages and maintain access from new undertakings, when consistent with accomplishing agency mission and law.	Same as Alternative A, plus; • If existing public land uses are found to damage sacred sites, seek to resolve impact in a manner that preserves public land use while maintaining access.	Same as Alternative B.
Indian Trust Assets	Consult on actions that may affect ITAs and seek to avoid impacts.	Same as Alternative A.	Same as Alternative A.

Table 1, cont'd.

Henry Hagg Lake Resource Management Plan – Draft EA Alternatives			
Area and Topic	**Alternative A-No Action[1]: Continuation of Existing Management Practices**	**Alternative B: Minimal Recreation Development with Resource Enhancement**	**Alternative C: Moderate Recreation Development with Resource Enhancement [Preferred Alternative]**
TOPICS APPLICABLE TO THE ENTIRE AREA (cont.)			
Public Information	Continue Washington County information program that includes: • Web site • Brochures • Bulletin boards • Special event notices • County newsletter • Press releases • Neighborhood newsletter • Park Advisory Board meetings • Outreach program	Same as Alternative A, plus: Develop interpretative program to highlight: • Natural history • Reclamation Project history • Forest Practices • Pre-history & history	Same as Alternative B.
RMP Implementation	No Actions identified.	Establish, maintain, and annually update a planning schedule and list of priority actions. Until a decision is made regarding raising the dam, focus RMP implementation on critical operation, maintenance, and capacity accommodation (where feasible), and avoid high cost capital improvement projects. Seek joint funding opportunities to implement RMP actions. Keep stakeholders, surrounding landowners, and the public informed of RMP implementation status.	Same as Alternative B.
Reclamation Zone (operation and maintenance area around the dam)	No actions identified.	Recreation use to be conditionally permitted within the Reclamation Zone, however, during low water this area may be closed for safety reasons. Show and describe Reclamation Zone on publicly distributed materials.	Same as Alternative B.

Table 1, cont'd.

Henry Hagg Lake Resource Management Plan – Draft EA Alternatives			
Area and Topic	**Alternative A-No Action[1]: Continuation of Existing Management Practices**	**Alternative B: Minimal Recreation Development with Resource Enhancement**	**Alternative C: Moderate Recreation Development with Resource Enhancement [Preferred Alternative]**
RESOURCE TOPICS APPLICABLE TO THE ENTIRE AREA (cont.)			
Scenic Values	Design new facilities to be compatible with scenic values. Use native plants for landscaping. Buffer views of new parking areas from road using plantings. Restore viewsheds through selective vegetation thinning.	Same as Alternative A.	Design new facilities to be compatible with scenic values. Use native plants for landscaping. Restore viewsheds through selective vegetation thinning.
Safety and Emergency Services	Continue emergency service agreements with Oregon Department of Forestry and Gaston Rural Fire Department. Coordinate agency input to review proposed facilities and campground regarding safety and emergency services access. Provide 24-hour staff presence at proposed campground.	Continue emergency service agreements with Oregon Department of Forestry and Gaston Rural Fire Department. Coordinate agency input to review proposed facilities and campground regarding safety and emergency services access. Maintain clear and open view corridors between the perimeter road and parking areas for law enforcement/monitoring.	Same as Alternative A.
Enforcement	Park rangers to continue to provide enforcement. Continue to coordinate with Washington County sheriff's department, Oregon State Police, and Coast Guard Auxiliary.	Same as Alternative A, plus: • Maintain adequate enforcement commensurate with levels of public use.	Same as Alternative B.
Special Events	Continue to comply with WACO's Scoggin's Valley Park reservation application system, including current policies and fees for special use.	Same as Alternative A.	Same as Alternative A.

Table 1, cont'd.

Henry Hagg Lake Resource Management Plan – Draft EA Alternatives			
Area and Topic	**Alternative A-No Action[1]: Continuation of Existing Management Practices**	**Alternative B: Minimal Recreation Development with Resource Enhancement**	**Alternative C: Moderate Recreation Development with Resource Enhancement [Preferred Alternative]**
TOPICS APPLICABLE TO SPECIFIC SHORESIDE AREAS			
Fee Station and Entry Road	No additions or changes to existing facility.	Same as Alternative A.	If feasible and justified due to security concerns and carrying capacity limitations, work with Washington County Commissioners, Land Use & Transportation Department, and neighboring landowners to implement a limited access concept plan whereby Park traffic is required to access the area through the fee station and local traffic is afforded a separate, gated access.
Park Administrative Office & Maintenance Yard	No actions identified	Construct an addition to the existing vehicle storage shed (60'x 26') for equipment and vehicle storage.	Same as Alternative B.
Recreation Area "A" East	Add the following to the existing facilities: • Showers in existing buildings • One group picnic area • One play structure • 70 overnight campsites (30 tent walk-in, 40 drive-in or RV sites) • 15 unit group camp • 40 slip boat dock • RV dump site Limit camping to between Apr 1 - Oct 31	Re-open as day use area and add: • Play structure • Group shelter	Open the area for camping under a 2-phased program as follows (with Phase 1 as a pilot program to test the overall success of opening the area for camping): <u>Phase 1</u> • Camp host site • Showers in existing buildings • One group picnic area • 50 campsites (tent sites) • Increased security *<u>Phase 2</u> • Group shelter • One play structure • 50 campsites (RV sites) • 15 unit group camp area • RV dump site • 40 slip boat dock Limit camping to between April 1 – Labor Day.
Boat Ramp/Recreation Area "A" West	Add the following to the existing facilities: • Pave, add curbs, striping, and arrows (as needed) to the existing 17,000 sf gravel parking area. • Group picnic shelter • One restroom	Add the following to the existing facilities: • Self adjusting pier (replacement of existing boat floats) • Fish-cleaning station • Designate concession area • Boat dump facility	*Same as Alternative B, plus: • New picnic shelter • Play structure • Permanent concession facility • Expanded parking for 30 vehicles/trailers and 20 cars

Table 1, cont'd.

Henry Hagg Lake Resource Management Plan – Draft EA Alternatives

Area and Topic	Alternative A-No Action[1]: Continuation of Existing Management Practices	Alternative B: Minimal Recreation Development with Resource Enhancement	Alternative C: Moderate Recreation Development with Resource Enhancement [Preferred Alternative]
TOPICS APPLICABLE TO SPECIFIC SHORESIDE AREAS (cont.)			
Access and Trails Hiking and Biking	Develop connections to existing Master (shoreline) Trail – multiple use, bike and pedestrian, 15 miles long. Perimeter road – 10.5 mile long.	Same as Alternative A.	Same as Alternative A, plus: • *Where feasible, widen the road shoulder from 7' to 10' and sign/stripe for bicycles, pedestrians, and overflow parking. • *Fully develop the Master (shoreline) Trail to route entire trail off the paved road.
Equestrian	No trail proposed.	Same as Alternative A.	Allow for development of a new, independent equestrian trail to be constructed and maintained by equestrian groups on the upper side of the perimeter road; include an accessible (UFAS/ADA compliant) staging/parking area with sanitation facilities for up to 25 users.
Nelson Cove – Tualatin Watershed Education & Research Center	Maintain existing elk meadow with no recreation development.	Same as Alternative A.	Authorize development of Education & Research Center as fully proposed, including: • Outdoor School. • Portland State University Field Research Station • Community Center for neighboring landowners.
Scoggins Creek Picnic Area	Add to existing facilities: • New groundwater supply • Permanent vault restroom facility • Six picnic tables • One sheltered group picnic site Pave parking lot.	Add to existing facilities: • Permanent vault restroom facility • Boardwalk and interpretive signs	Same as Alternative A, plus: • *Play structure • *Boardwalk and interpretive signs
Boat Ramp/Recreation Area "C"	Add to existing facilities: • One sheltered group picnic area. • 245 car parking • One restroom. • One play structure • One permanent concession facility (approximately 400 sq.ft.)	Same as Alternative A, plus: • Self-adjusting pier (replacement of existing boat floats) • Fish-cleaning station But without: • Play structure • Permanent concession	Same as Alternative A, plus: • *Self-adjusting pier (replacement of existing boat floats) • *Fish-cleaning station

Henry Hagg Lake Resource Management Plan – Draft EA Alternatives			
Area and Topic	**Alternative A-No Action[1]: Continuation of Existing Management Practices**	**Alternative B: Minimal Recreation Development with Resource Enhancement**	**Alternative C: Moderate Recreation Development with Resource Enhancement [Preferred Alternative]**
TOPICS APPLICABLE TO SPECIFIC SHORESIDE AREAS (cont.)			
Recreation Area "C" Extension (Cove Area)	Add to existing facilities: • Extend potable water from Area "C" • One restroom building • 20 picnic tables • One sheltered group picnic area • Parking area adjacent to road (129 parking spaces)	No development proposed.	Allow for the development of facilities according to the following two-phased approach: <u>Phase 1</u> • Recondition existing parking area and turn around • Install accessible pathway to waters edge • Install non-motorized (kayak, canoe, etc.) boat launch *<u>Phase 2</u> • Expand parking area to double current vehicle count • Add roadway from Cove entrance to connect with parking/roadway system at C Ramp • Add 8 accessible parking slots in proximity to accessible fishing pier • Add accessible restroom between new accessible parking area and accessible fishing pier
Sain Creek Picnic Area	Add to existing facilities: • One play structure.	No change from existing facilities.	Same as Alternative A.
Elks Picnic Area	Enhance existing facilities by paving the parking area.	No change from existing facilities.	Same as Alternative A.

<u>Notes:</u>

[1]Alternative A is the No Action Alternative as required under NEPA. In this case, if implemented, it would mean continuing to manage the RMP study area under the 1994 Recreation Management Plan and follow current Federal regulations. It is important to note that Alternative A is not necessarily a "status quo" situation. Rather, Alternative A would be a continuation of the existing 1994 Plan whereby actions called for in that plan would could continue to be implemented, dependent on funding, coordination, and willing partners.

* Status, timing, and location of implementation dependent on dam raise. See Section 1.1 for a detailed discussion.

Table 1, cont'd.

Wildlife species using the reservoir area include, but are not limited to, elk, deer, beaver, coyote, bobcat, ducks, geese, hawks, owls, and a wide variety of songbirds. Several species of reptiles and amphibians can also be found within the park boundaries, including (breeding) northwestern pond turtles, common and northwestern garter snakes, northern alligator lizards, long-toed and northwestern salamanders, newts, Pacific chorus frogs, and northern red-legged frogs. These species are found in the coves and backwater areas of the lake (Sue Beilke, Biologist, Oregon Department of Fish and Wildlife, Sauvie Island, Oregon, pers. comm., 2002). Osprey are known to nest in the area and bald eagles use the area in the winter. Waterfowl are generally found in the coves and creeks that empty into Hagg Lake, along the shoreline, and on the lake itself. Waterfowl nest in the backwater areas of the lake along Tanner, Sain, and Scoggins Creeks. Recently, about 3,000 Canada geese were sighted on the lake, loafing and feeding in the mudflats at dusk (Don VandeBergh, Biologist, Oregon Department of Fish and Wildlife, Sauvie Island, Oregon, pers. observation, 2002).

About 50 to 80 elk use the lake/park area on a year-round basis. A total population of about 200 animals inhabits the area within and just outside the park boundaries (Don VandeBergh, Biologist, Oregon Department of Fish and Wildlife, Sauvie Island, Oregon, pers. comm., 2002) During the winter, the elk move down to the meadows in the park to graze. These meadow/pasture areas (Figure 2) were established as mitigation for the loss of 1,100 acres of wildlife habitat caused by reservoir inundation and development of the park. Elk are also frequent users of the pasture areas just downstream of Scoggins Dam and of those irrigated fields surrounding the Stimson Mill. The latter pasture areas, however, are not part of the original mitigation for loss of elk habitat.

Wetlands are present within the project area. They are primarily associated with the streams that empty into the lake (i.e., Sain, and Scoggins Creeks). The reservoir itself is classified as lacustrine, limnetic, with an unconsolidated bottom, and permanently flooded. The wetland sites associated with the lake and the creeks leading into the lake are designated on the attached map (Figures 3 and 3A). Since most of the mapped wetlands appear to be either outside the boundaries of the park, or in areas not effected by the proposed developments, it does not appear that wetlands, outside the lake itself, would be impacted by the project. However, the backwater or inlet areas of the lake, particularly around Tanner Creek and Nelson Cove, an inlet northwest of Boat Ramp "A" (Figure 1), could be subject to impacts depending on what development occurs in these areas.

Threatened and Endangered Species

Bald eagles winter in the area in and around the park. There do not appear to be any roosting or nesting sites within the park boundaries, but perch trees within the perimeter of the park are important for bald eagles during their winter migration period. An active bald eagle nest is present in the upper Sain Creek drainage outside the park boundaries.

Under the Endangered Species Act of 1973, 16 U.S.C. 1531, et seq. (ESA), the Bureau is required to assure that its actions have taken into consideration the impacts this project would

have on Federally listed threatened and endangered species. We have determined that bald eagles, listed as threatened in Oregon, occur in or adjacent to the park during the winter. As required by the ESA, it is the responsibility of your agency or your designee to prepare a biological assessment for the bald eagle. Should the biological assessment determine that the bald eagle is likely to be affected (adversely or beneficially) by the project, a formal Section 7 consultation should be requested through this office. Please contact:

Kemper M. McMaster
U.S. Fish and Wildlife Service
2600 S.E. 98th Ave., Suite 100
Portland, Oregon 97266

Fish and Wildlife Impacts

Overall impacts to fish and wildlife resources of the Henry Hagg Lake area would depend on the amount of habitat disturbance that would occur with the planned developments of the lake's perimeter (Figure 4). The increase in the numbers of people using the lake and park and the concomitant losses of habitat beyond those losses associated with present-day development would probably have the greatest detrimental impact on fish and wildlife. The proposed development of elk meadow sites within the park (planned education/research/community center at Nelson Cove meadow (northwest of Boat Ramp "A"), frisbee golf at Sain Creek meadow) is of particular concern to the Service since these areas were set aside for mitigation of the original project impacts. In addition, all of the meadows have become decadent and are now in need of complete revitalization and restoration work if they are to continue to function appropriately as mitigation sites. Development of the Nelson Cove and Sain Creek meadows (Alternative C) would probably result in the loss of these areas as elk habitat, although the Sain Creek site could continue to function as elk meadow habitat if carefully managed.

Specific impacts of each of the project alternatives affecting fish and/or wildlife resources are discussed below:

Alternative A. No Action: Continuation of existing management practices

It should be noted that many of the recreational developments listed under the "No Action" alternative include activities which were proposed for completion under Phase II or III of the 1994 Recreation Management Plan but have not yet been started or completed due to lack of funding. The impacts of these "old" proposals were addressed in our 1992 planning aid memorandum but are presented again in the present analysis for a better understanding of what the impacts are of those "B" and "C" alternatives that incorporate the "No Action" alternative (with its ongoing development) into their development proposals.

Fishing activities and other water-oriented recreation under the "No Action" alternative would probably increase somewhat over the years with limited impacts on fish and/or wildlife populations in the area. There would probably be a decline in the value of the surrounding

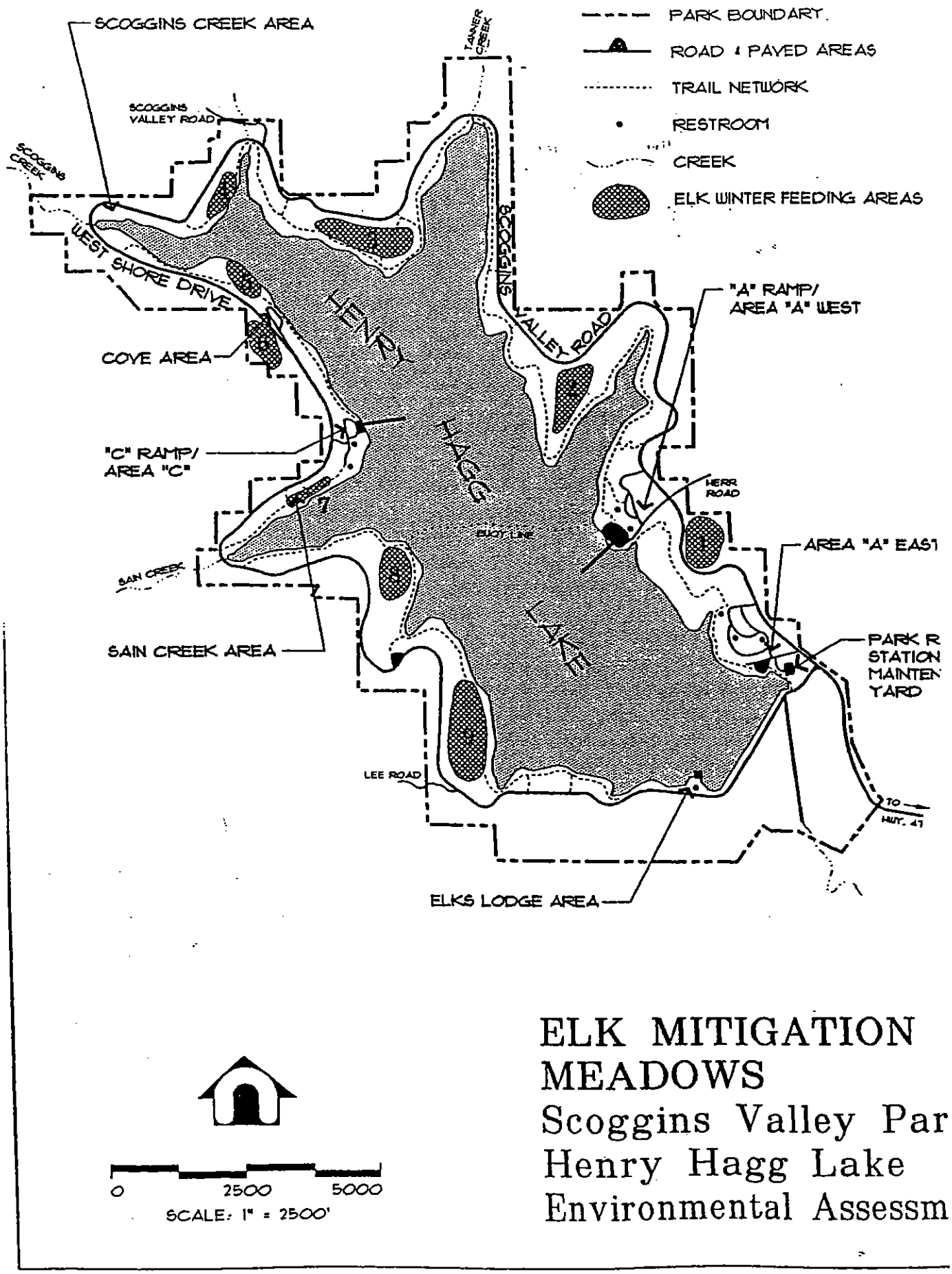

Figure 2. Elk mitigation meadows (from 1994 Recreation Management Plan)

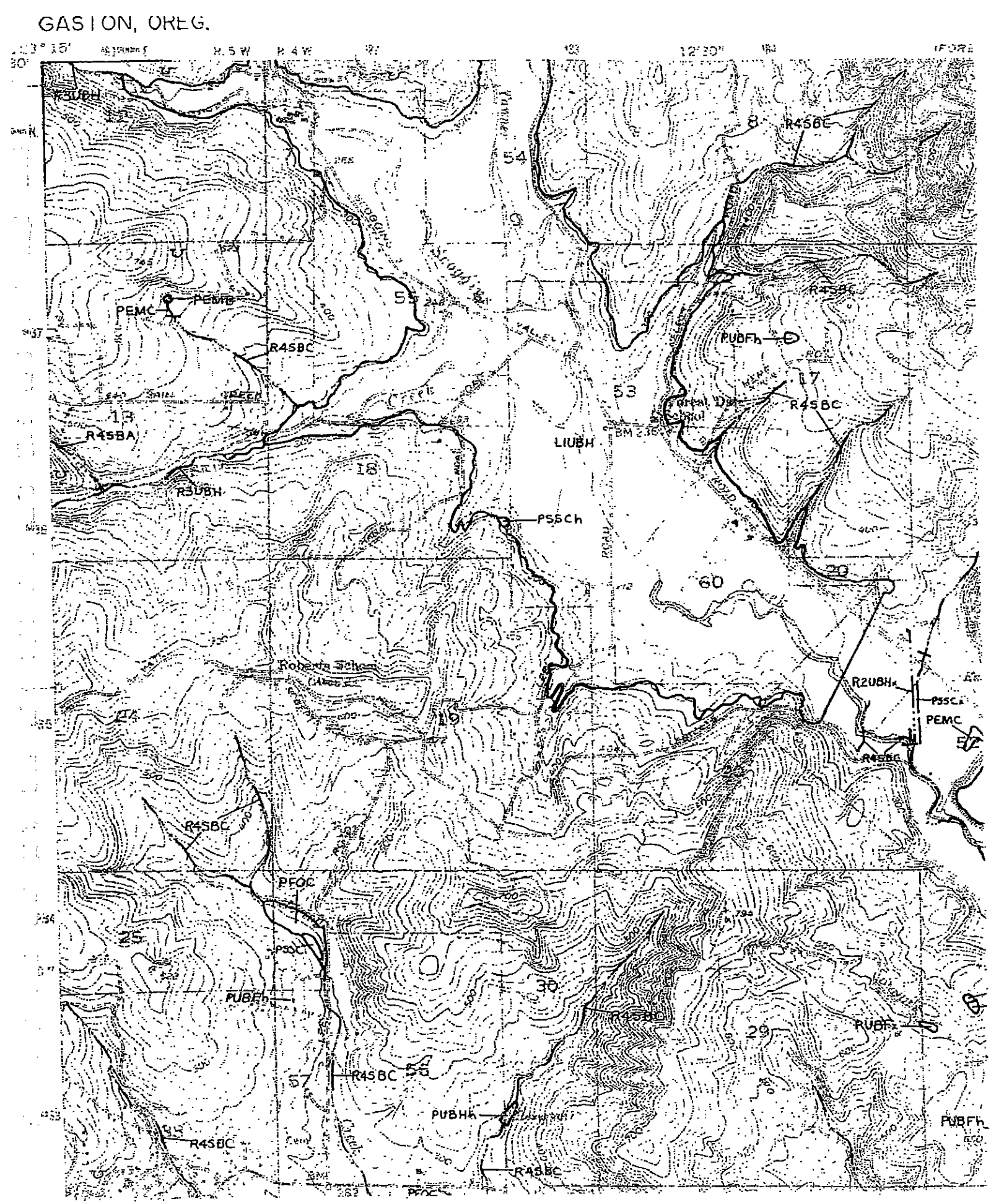

Figure 3. Wetlands associated with Henry Hagg Lake

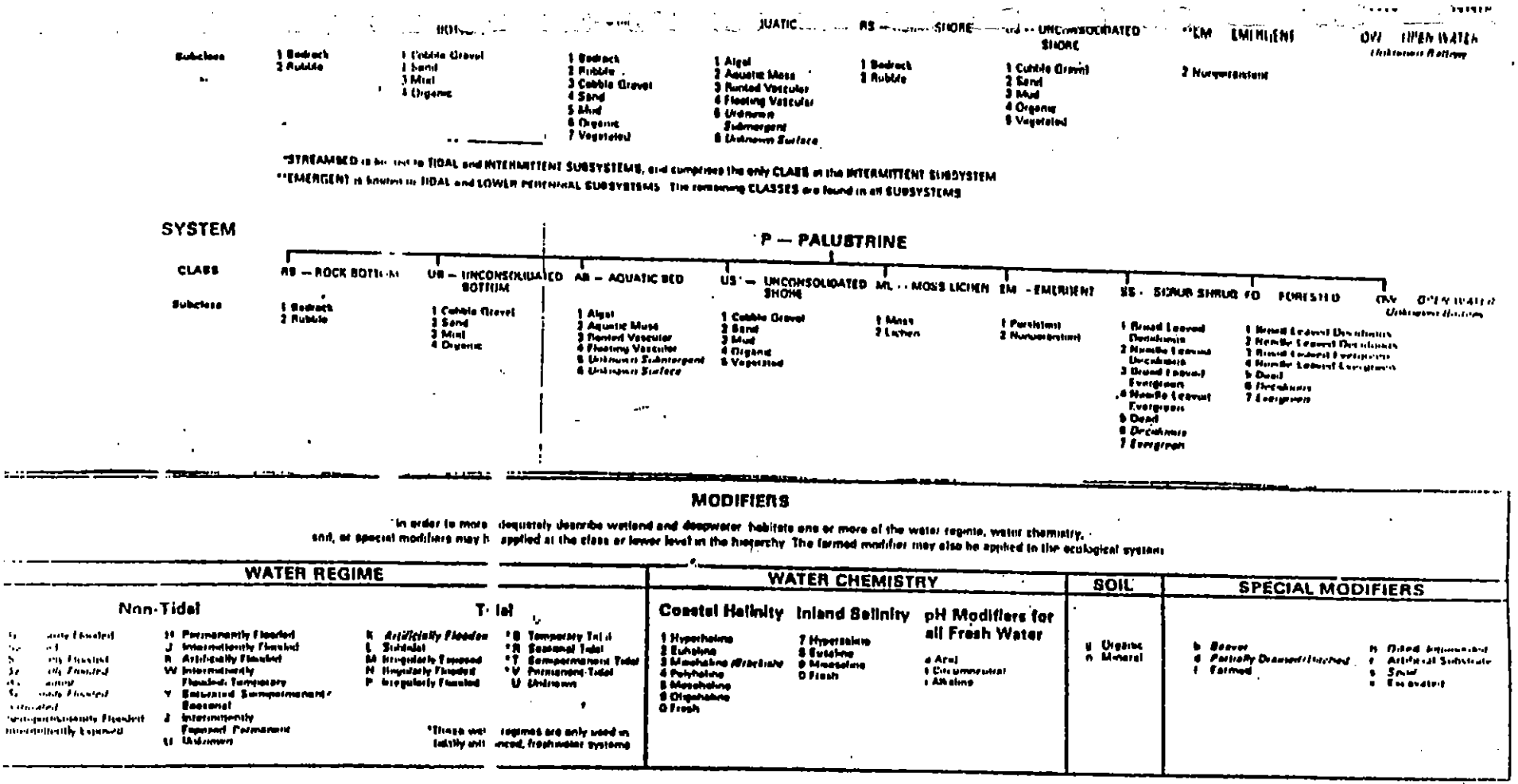

Figure 3A. Wetland legend for Figure 3

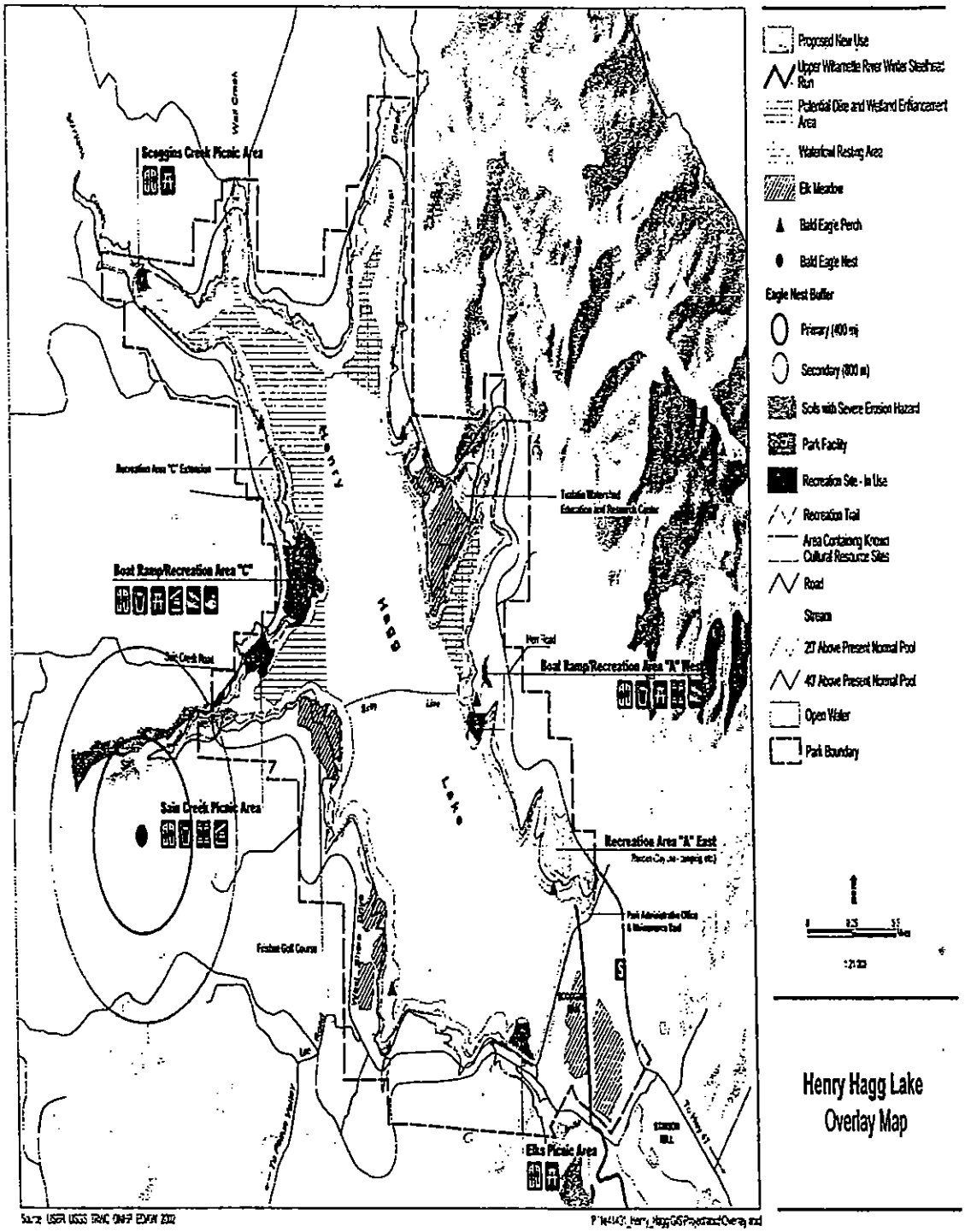

Figure 4. Proposed Resource Management Plan developments at Henry Hagg Lake, Washington County, Oregon

wildlife habitat, however, as human use of the park continued to increase, even under managed conditions. This is true for the proposed development of overnight camping facilities and a 40-slip boat dock at Recreation Area "A" East, as well as for development of recreational facilities at Scoggins Creek, Recreation Area "C", and the Recreation Area "C" Extension site. In most cases, losses to fish and wildlife are not expected to be significant; however, the proposed developments at Recreation Area "A" East would be less detrimental if overnight camping were phased in over a period of years. Appropriate monitoring would be needed to assure the success of this proposed camping opportunity not only in terms of recreation and security but also in terms of assuring the least impact to wildlife habitat and wildlife use of the area.

Alternative B. Minimal recreation development with resource enhancement

Unless carefully restored and managed, development of frisbee golf at Sain Creek meadow would probably result in the eventual loss of this site as elk meadow forage habitat. A restoration plan should be developed for this site and should include closure to recreational activities during critical periods of elk use.

Although not as detrimental as the development of overnight facilities, there would still be impacts to fish and wildlife resources associated with the "re-opening" of day use facilities at Area "A" East. Increased use of Area "A" East could result in deterioration of wildlife habitat, declines in angling success due to erosion associated with shoreline development (boat dock), and increased incidences of unwelcome wildlife-human contact. Some of the proposed developments, such as expansion of the hiking and biking trails and recreational developments at Scoggins Creek and Recreation Area "C", would encroach on the more "natural" areas of the park. Overall, however, these developments, if they include a carefully managed Sain Creek frisbee golf development, are not expected to cause significant changes or disturbance to fish and wildlife habitat.

Alternative C. Moderate recreation development with resource enhancement (Preferred Alternative)

As with the above scenario, the increases in the numbers of people using the park because of the planned day use and overnight use improvements would bring decreases in habitat availability. Development of the meadow area northwest of Boat Ramp "A" (Nelson Cove meadow) for use as an outdoor education/field research/community center would likely degrade the site to the point where elk and other wildlife use would be significantly reduced, if not eliminated altogether, thus negating mitigation for elk habitat lost during inundation. This meadow is particularly important to elk because it has a south-facing aspect and, if restored and managed properly, would provide valuable forage for elk in the late winter and early spring. This area is also one of the least developed sites in the park and provides habitat not only for elk but for deer, osprey, small mammals, and songbirds. Development of the Sain Creek meadow would also likely result in the loss of elk meadow forage habitat unless this site were carefully restored and managed (see comments under Alternative B). The loss of Nelson Cove and Sain Creek meadows would, in turn, force elk into the few remaining meadows within the park making them

even less suitable for foraging and further compromising the value of the park mitigation sites. The poor forage opportunities afforded by the remaining park meadow sites could also lead to increased depredation problems by elk in areas outside the park boundaries.

The increases in use of the lake from construction of boat docks, piers, and boat launch facilities could result in increased pollution of the lake and reduced fishing success. Day use development, however, would not be as detrimental to the environment as the construction of overnight camping sites. The development of overnight camping generally involves a more extensive and permanent loss of habitat than does the construction of picnic shelters or restrooms in already developed sites. Poaching and wildlife harassment are two possible detrimental impacts that could also occur with the development of overnight camping in the park. Development of overnight camping would involve the thinning of 20 acres of timber which would result in an immediate, though short-term, detrimental impact to wildlife using the site. However, bald eagles are not expected to be impacted by this 20-acre thinning. The greater negative impact to wildlife would come from greater human disturbance over a long period of time. Development of overnight facilities must be properly controlled to assure the least impact to wildlife habitat and wildlife resources in the area.

Development of additional recreational facilities at Recreation Area "A" West and Boat Ramp/Recreation Area "C" could have adverse impacts on fish and wildlife resources resulting from loss of habitat, possible increases in turbidity, and reductions in water quality but they would not be considered significant, primarily because these sites are already developed. However, the addition of recreational facilities in the more primitive picnic sites such as Scoggins Creek and the Recreational Area "C" Extension site would have greater adverse impacts on the amount of habitat available for fish and wildlife. Development or expansion of biking, hiking, or equestrian trails would encroach on the more "natural" areas of the park as well. None of these impacts, however, is expected to have long-term adverse effects on the park environment.

Construction of dams across the mouths of Nelson Cove and Tanner Creek Cove to create wetlands and enhance wildlife habitat in these coves could make these areas more attractive to waterfowl, northwestern pond turtles, and northern red-legged frogs (if water levels were managed properly) but would have a negative impact on fish passage, fishing, and boat access. The development of the outdoor school and research facilities at Nelson Cove could result in indirect losses of wetlands because of improper construction techniques, overdevelopment of the shoreline, and conflicting or poor management of water levels in the cove.

Mitigation

Alternative B: Minimal recreation development with resource enhancement

Improvement of existing day use facilities is appropriate but, to minimize impacts on wildlife resources, there should be only limited development of new day use facilities and they should be limited to already developed sites (i.e., proposed facilities at Boat Ramp/Recreation Area "C",

Boat Ramp/Recreation Area "A" West). Any improvements to existing day use facilities or development of new sites should consider maintaining the "natural" (rather than park) look of the surrounding wildlife habitat. The ODFW has a program called "Naturescaping, A Landscape Partnership with Nature" which may be suitable for use in the park. A management plan for the Sain Creek meadow should be developed which includes restoration and maintenance of the site for elk forage and limitation of recreational activity during critical elk use periods.

Alternative C: Moderate recreation development with resource enhancement (Preferred Alternative)

The meadow area to the northwest of Boat Ramp "A" (Nelson Cove meadow) should be maintained and managed for elk use. This meadow, while it has deteriorated significantly due to lack of management, has the potential to be highly valuable elk winter range, and any development of this site would negate its value for elk. As one of the least developed sites in the park, it should be kept in its "natural" state for wildlife use. Consideration of the development of this site for an education/ research/community center might be permissible in the future only if improvement and management of the other designated elk pasture sites in the park were brought up to ODFW standards; additional sites were designated and maintained for elk use (with resource agency approval); and it was determined that the elk population could be successfully maintained using these sites.

Development of the Sain Creek meadow has the potential to further degrade this site as elk habitat. A management plan for the Sain Creek meadow should be developed which includes restoration and maintenance of the site for elk forage and limitation of recreational activity at the site during critical elk use periods.

We support the phased development of Area "A" East for overnight camping but it should be limited in scope, conducted on a trial basis, and then evaluated for its impacts on wildlife and on the park itself. This evaluation would require increased patrols of the camping sites to assure minimal detrimental impacts to wildlife and wildlife habitat in the area.

Development plans should also include planting and/or maintaining (preferably native) vegetative barriers between the meadows set aside for wildlife and the park users. Any development of a day use area should consider landscaping with native vegetation that is of value to wildlife. An ODFW program called "Naturescaping" may provide useful information in this regard.

The meadow/pasture sites within the park should be revitalized to bring them up to the standards needed to provide suitable wildlife habitat. Discing, planting, fertilizing, and/or burning the vegetation to encourage new plant growth should be considered. The Bureau should provide funding on a cost-share basis to the Washington County Parks Department for this rehabilitation.

The possibility of creating wetlands and enhancing wildlife habitat for northwestern pond turtles and northern red-legged frogs in Tanner Creek and Nelson Coves by placing dams across the

cove mouths should be further investigated. Devising a method for controlling water levels in the coves (dam notching, use of stop logs, seasonal dam placement, etc.) to allow for maximum production of pond turtles and red-legged frogs while still maintaining fish passage and fishing access to the coves should be the focal point of this effort. Any development of education/research/community facilities at Nelson Cove must also avoid adverse impacts on wetlands in this area.

To protect fish and wildlife, the Fish and Wildlife Service recommends that:

1. There be no development in the meadow/pasture area northwest of Boat Ramp "A" (Nelson Cove) unless restoration and management of the previously designated elk meadow sites are brought up to ODFW standards; other sites are designated and managed for elk use (with resource agency approval); and it is determined, through monitoring, that elk populations can be successfully maintained using these sites.

2. A management plan for the Sain Creek meadow be developed which includes restoration and maintenance of the site for elk forage and limitation of recreational activity during critical elk use periods.

3. Development of overnight camping at Area "A" East be limited in scope, conducted on a trial basis, and monitored to evaluate impacts to wildlife and wildlife habitat.

4. A vegetative barrier be planted or maintained between the more undeveloped and heavily used areas of the park to help keep disturbance of wildlife to a minimum. Development or improvement of day use facilities should focus on maintenance of a "natural" look using native plants as landscaping materials. Use of the ODFW "Naturescaping" program should also be considered for its wildlife and interpretive values.

5. The Bureau provide funding to the Washington County Parks Department to rehabilitate the meadow areas set aside for wildlife mitigation when the park was developed.

6. The issue of dam construction at Tanner Creek and Nelson Coves be thoroughly evaluated for its effects on waterfowl, northwestern pond turtles, northern red-legged frogs, and on fish passage and fishing access into these areas. However, any plan to create wetland habitat and enhance wildlife use of these coves via water level management (dam notching, use of stop logs, seasonal dam placement, etc.) must assure the maintenance of fish passage and fishing access to these coves. Any development of education/research/ community facilities at Nelson Cove must also avoid adverse impacts on wetlands.

We appreciate the opportunity to provide input on the development of the Hagg Lake Resource Management Plan. If you have any questions, please contact Kathi Larson at 503-231-6179.

KL/kl: hagglk2
cc:
ODFW, Don VandeBergh, Sauvie Island, Oregon
ODFW, Sue Beilke, Sauvie Island, Oregon

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2004/00153

April 8, 2004

Ms. Karen Blakney
ESA Program Manager
Bureau of Reclamation
Pacific Northwest Region - Lower Columbia
825 NE Multnomah Steet, Suite 1110
Portland, Oregon 97232-2135

Re: Endangered Species Act Section 7 Informal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Henry Hagg Lake Resource Management Plan Project in the Scoggins Creek Watershed, near Forest Grove, Washington County, Oregon

Dear Ms. Blakney:

This correspondence is in response to your request for consultation under the Endangered Species Act (ESA) on implemention of a Regional Management Plan (RMP) affecting activities in and around Hagg Lake in the Scoggins Creek watershed, near Forest Grove, Washington County, Oregon. The purpose of the proposed action is to manage resources, facilities and access of land and water associated with Henry Hagg Lake under the Bureau of Reclamation's (BOR) authority. The RMP would be used as the basis for directing activities on BOR lands and Hagg Lake reservoir. These activities include the following:

- Installing bird and bat boxes.
- Planting trees and shrubs in riparian areas.
- Evaluate wetland habitat projects.
- Enhance open meadow habitat for elk use.
- Manage fisheries in Hagg Lake.
- Identify and survey for cultural resources.
- Protect historic and cultural resource areas.
- Manage landscape for public safety at day use and overnight facilities.
- Expand and enhance overnight camping areas and public education opportunities.
- Expand and enhance boat ramp and picnic facilities.
- Expand and lengthen trail systems for people and horses.

The RMP does not address the development or implementation of integrate pest management plan and use of pesticides. The RMP does not address the maintenance or operation of the Scoggins Creek Dam or management and distribution of the stored water in Hagg Lake. Activities associated with these actions are considered independent of the proposed action and

would be considered under separate consolation. Additionally, this letter serves to meet the requirements for consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

ENDANGERED SPECIES ACT

On February 13, 2004, the National Marine Fisheries Service (NOAA Fisheries) received information from the BOR describing a proposed action and assessing its effects and a written request for concurrence with a determination that the proposed action is "not likely to adversely affect" (NLAA) the Upper Willamette River (UWR) steelhead (*Oncorhynchus mykiss*). This consultation is undertaken pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 CFR Part 402.

Based on information provided by the BOR and developed during informal consultation, NOAA Fisheries concurs with the BOR's determination that the proposed project is NLAA the listed species for the following reasons: (1) Hagg Lake is located above an impassable barrier and listed UWR steelhead are not present; and (2) activities that will occur under the plan that may affect listed UWR steelhead and EFH for coho salmon will be conducted in such a way as to minimize potential adverse effects, including:

- Pollution and erosion control measures will be implemented during construction to contain and limit the potential spill of pollutants and discharge of fine sediment to adjacent streams and wetlands.
- All heavy equipment used will be cleaned and checked for fluid leaks with staging areas setback from stream and riparian area.
- Work activity and use of machines and heavy equipment will be isolated from the actively flowing stream.
- Monitoring will be implemented and reported to ensure the project was completed as designed and long-term adverse effects have been minimized;
- riparian setbacks and vegetative buffers will be established to further reduce potential adverse effect to stream.
- All disturbed streambed, streambank, and riparian areas will be revegetated and restored to preconstruction state with no significant changes to stream and riparian character.
- All storm water resulting from the proposed action will be treated and managed to limit further degradation of water quality and water quantity discharged in adjacent streams.
- All temporary access roads will be limited and located on shallow sloped ground with all temporary crossings avoiding spawning beds and provide for fish passage.
- In-water work will be conducted during those periods of the year when listed fish are less likely to be present or are less sensitive to the proposed activity.

Therefore, the proposed project is not reasonably certain to cause adverse effects or incidental take of UWR steelhead.

The BOR must reinitiate this consultation if: (1) New information reveals that effects of the action may affect listed species in a way not previously considered; (2) the action is modified in

a way that causes an effect on listed species that was not previously considered; or 3) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Federal agencies are required under §305(b)(2) of the MSA and its implementing regulations (50 CFR 600 Subpart K), to consult with NOAA Fisheries regarding actions that are authorized, funded, or undertaken by an agency that may adversely affect essential fish habitat (EFH). The MSA (§3) defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." If an action would adversely affect EFH, NOAA Fisheries is required to provide the Federal action agency with EFH conservation recommendations (MSA §305(b)(4)(A)). This consultation is based, in part, on information provided by the Federal action agency and descriptions of EFH for Pacific salmon contained in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (August 1999) developed by the Pacific Fishery Management Council and approved by the Secretary of Commerce (September 27, 2000).

The proposed action and action area are described above in this concurrence letter. The project area includes habitat which has been designated as EFH for various life stages of coho salmon.

Because the habitat requirements (*i.e.*, EFH) for the MSA-managed species in the project area are similar to that of the ESA-listed species, and because the conservation measures that the BOR included as part of the proposed action to address ESA concerns are also adequate to avoid, minimize, or otherwise offset potential adverse effects to designated EFH, conservation recommendations pursuant to MSA (§305(b)(4)(A)) are not necessary. Since NOAA Fisheries is not providing conservation recommendations at this time, no 30-day response from the BOR is required (MSA §305(b)(B)).

This concludes consultation under the MSA. If the proposed action is modified in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations, the BOR will need to reinitiate EFH consultation with NOAA Fisheries in accordance with our implementing regulations for EFH at 50 CFR 600.920(k).

Please direct questions regarding this letter to Jim Turner of my staff in the Oregon State Habitat Office at 503.231.6894.

Sincerely,

for D. Robert Lohn
Regional Administrator

cc: Joe Zisa, USFWS

Appendix A-2

Tribal Consultation

United States Department of the Interior

BUREAU OF RECLAMATION
Pacific Northwest Region
Lower Columbia Area Office
825 NE Multnomah Street, Suite 1110
Portland, Oregon 97232-2135

IN REPLY
REFER TO:

PN-3902
LND-8.00

JAN 15 2002

Ms. Delores Pigsley
Chairperson
Siletz Tribal Council
P.O. Box 549
Siletz, OR 97380-0549

Subject: Henry Hagg Lake Resource Management Plan

Dear Ms. Pigsley:

The Bureau of Reclamation (Reclamation) is preparing a Resource Management Plan (RMP) for Henry Hagg Lake. Hagg Lake and Scoggins Dam are located on Scoggins Creek, a tributary of the Tualatin River in northwest Oregon about 30 miles southwest of Portland and 6 miles southwest of Forest Grove. The RMP will be prepared as a 10-year management plan for the Reclamation-administered lands at Henry Hagg Lake. The RMP process began in December 2001, and we hope to have a completed plan by December of 2003. The RMP will include gathering resource data and exploring alternatives to assist Reclamation in planning for the next 10 years of managing the resources under Reclamation's control. Reclamation's goal in the RMP is to manage, protect, and enhance fish and wildlife habitat, natural, cultural, and recreational resources; to preserve the aesthetic quality and natural environment; and to promote the safe and healthful use of the reservoir area lands and water.

An integral part of the RMP process is working with Indian tribes that have treaty or other interests in the study area, coordinating with other agencies, and involving the public. With this letter we are seeking information about known cultural resources and asking you to identify resource management issues you wish to have considered in the RMP planning process. We are also requesting information about known Indian sacred sites, Indian trust assets, and traditional cultural properties within the Henry Hagg Lake RMP study area. Our goal is to identify sensitive resources or locations so that we can avoid damaging effects to them.

We are forming an Ad Hoc Work Group to help with the planning process. You are invited to designate someone to represent tribal interests on this group that will include agency representatives and other parties with particular interests in the Hagg Lake area. We anticipate a

total of four Ad Hoc Work Group meetings in the Forest Grove, Oregon area over the 2-year planning process. The first meeting will be held February 12, 2001, from 6-9 p.m. For the exact location, please call the number provided below.

If you, other tribal staff or leaders, or knowledgeable traditional religious practitioners would like to meet to discuss cultural resources, sacred sites, traditional cultural resources, or Indian trust assets issues associated with the Henry Hagg Lake RMP, we would be pleased to travel to Grand Ronde or some other location to meet with you.

We appreciate your assistance in this process. If you have any questions or would like to provide the requested information, arrange a meeting or participate in the Ad Hoc Work Group, please contact Carolyn Burpee Stone, Reclamation's RMP Team Leader at (208) 378-5395.

Sincerely,

for Rick A. Parker
Acting Area Manager

Enclosure - 1
Map with highlighted boundary

United States Department of the Interior

BUREAU OF RECLAMATION
Pacific Northwest Region
Lower Columbia Area Office
825 NE Multnomah Street, Suite 1110
Portland, Oregon 97232-2135

IN REPLY
REFER TO:

PN-3902
LND-8.00

JAN 15 2002

Ms. Kathryn Harrison, Chairperson
Confederated Tribes of the Grand Ronde
Community of Oregon
9615 Grand Ronde Road
Grand Ronde, OR 97347-0038

Subject: Henry Hagg Lake Resource Management Plan

Dear Ms. Harrison:

The Bureau of Reclamation (Reclamation) is preparing a Resource Management Plan (RMP) for Henry Hagg Lake. Hagg Lake and Scoggins Dam are located on Scoggins Creek, a tributary of the Tualatin River in northwest Oregon about 30 miles southwest of Portland and 6 miles southwest of Forest Grove. The RMP will be prepared as a 10-year management plan for the Reclamation-administered lands at Henry Hagg Lake. The RMP process began in December 2001, and we hope to have a completed plan by December of 2003. The RMP will include gathering resource data and exploring alternatives to assist Reclamation in planning for the next 10 years of managing the resources under Reclamation's control. Reclamation's goal in the RMP is to manage, protect, and enhance fish and wildlife habitat, natural, cultural, and recreational resources; to preserve the aesthetic quality and natural environment; and to promote the safe and healthful use of the reservoir area lands and water.

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We appreciate your assistance in this process. If you have any questions or would like to provide the requested information, arrange a meeting or participate in the Ad Hoc Work Group, please contact Carolyn Burpee Stone, Reclamation's RMP Team Leader at (208) 378-5395.

Sincerely,

for Rick A. Parker
Acting Area Manager

Enclosure - 1
Map with highlighted boundary

Appendix B

Legal Mandates

Henry Hagg Lake
Resource Management Plan
Legal Mandates

Reclamation is required to comply with a number of legal mandates in the preparation and implementation of RMPs. The following is a list of the environmental laws, executive orders, and policies that may have an affect on the Henry Hagg Lake RMP or Reclamation and WACO actions in the implementation of the plan:

Law, Executive Order, or Policy	Description
American Indian Religious Freedom Act of 1978	Provides for freedom of Native Americans to believe, express, and exercise their traditional religion, including access to important sites.
Archaeological Resources Protection Act (ARPA) of 1979, as amended	Ensures the protection and preservation of archeological sites on Federal land. ARPA requires that Federal permits be obtained before cultural resource investigations begin on Federal land. It also requires that investigators consult with the appropriate Native American groups before conducting archeological studies on Native American origin sites.
Archeological and Historic Preservation Act of 1974	Provides for the preservation of historical buildings, sites, and objects of national significance.
Clean Water Act (CWA) of 1974, as amended*	Provides for protection of water quality.
Clean Air Act (CAA) of 1970	Provides for protection of air quality.
Endangered Species Act (ESA) of 1973, as amended	Provides for protection of plants, fish, and wildlife that have a designation as threatened or endangered.
Executive Order 12898, February 11, 1994, Environmental Justice, as amended by Executive Order 12948, January 30, 1995.	Requires Federal agencies to consider the effects of its programs and policies on minority and lower income populations.
Executive Order 11990, Protection of Wetlands	Directs all Federal agencies to avoid, if possible, adverse impacts to wetlands and to preserve and enhance the natural and beneficial values of wetlands.
Executive Order 13007, Indian Sacred Sites, May 24, 1996	Provides for access to, and ceremonial use of, Indian sacred sites on Federal lands used by Indian religious practitioners.

Law, Executive Order, or Policy	Description
Executive Order 13175, Consultation and Coordination with Indian Tribal Government, November 6, 2000 (revokes EO 13084)	The EO builds on previous administrative actions and is intended to: • Establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications. • Strengthen government- to-government relations with Indian tribes; and • Reduce the imposition of unfunded mandates upon Indian tribes.
Fish and Wildlife Coordination Act (FWCA) of 1958	Requires consultation and coordination with the U.S. Fish and Wildlife Service
Indian Trust Assets Policy (July 1993)	Reclamation will carry out its activities in a manner which protects Indian Trust Assets and avoids adverse impacts when possible.
Migratory Bird Treaty Act of 1918, as amended	Provides protection for bird species that migrate across state lines.
Executive Order 13186, January 10, 2001. Responsibilities of Federal Agencies to Protect Migratory Birds	Requires Federal Agencies that may have a negative effect on migratory birds to develop and implement a Memorandum of Understanding with the U.S. Fish and Wildlife Service to promote the conservation of migratory birds.
National Environmental Policy Act (NEPA) of 1969	Council on Environmental Quality regulations implementing NEPA specify that as part of the NEPA scoping process, the lead agency "... shall invite the participation of affected Federal, State, and local agencies, any affected Indian tribe, ... (1501.7[a]1."
National Historic Preservation Act (NHPA) of 1966, as amended	Section 106 of the NHPA requires Federal agencies to consider the effects of any actions or programs on historic properties. It also requires agencies to consult with Native American Tribes if a proposed Federal action may affect properties to which they attach religious and cultural significance. Section 110 requires agencies to identify and appropriately manage historic properties on lands under their jurisdiction.
Native American Graves Protection and Repatriation Act (NAGPRA) of 1990	Regulations for Tribal consultation in the event of discovery of Native American graves. Requires consultation with Tribes during Federal project planning if graves might be discovered.

Law, Executive Order, or Policy	Description
Presidential Memorandum: Government-to-Government Relations with Native American Tribal Governments, April 29, 1994	Specifies a commitment to developing more effective day-to-day working relationships with sovereign Tribal governments. Each executive department and agency shall consult to the greatest extent practicable and to the extent permitted by law, with Tribal governments prior to taking actions affecting Federally recognized Tribal governments.
Accessibility for Persons with Disabilities – Reclamation Policy (November 18, 1998)	Established a Pacific Northwest regional policy to assure that all administrative offices, facilities, services, and programs open to the public, utilized by Federal employees, and managed by Reclamation, a managing partner, or a concessionaire, are fully accessible for both employees and the public.
Reclamation Policy for Land Management & Concessions	Provides policy, directives, and standards Reclamation follows in managing Federal Project lands, facilities, and concessions.
Rehabilitation Act of 1973, Title V, Section 504	Provides for access to Federal or Federally assisted facilities for the disabled. The Uniform Federal Accessibility Standards (UFAS) or the Americans with Disabilities Act Accessibility Guidelines (ADAAG), whichever is the more stringent, are followed as compliance with Section 504.
Public Law 102-575, Title 28, as amended	Provides Reclamation with the authority to cost-share on recreation projects and fish and wildlife enhancement facilities with public non-Federal managing partners on Reclamation lands and authorization for preparing RMPs.
Interior Department Manual Port 512, Chapter 2	Articulates the policies, responsibilities and procedures for consulting with tribes to identify and assess impacts to Indian trust resources.
Law Enforcement Authority at Bureau of Reclamation Facilities, November 12, 2001.	Amends the Reclamation Recreation Management Act of 1992 in order to provide for the security of dams, facilities, and resources under Reclamation jurisdiction.

*A permit may need to be required for construction related activities.

Appendix C

Problem Statement for the RMP

FINAL PROBLEM STATEMENT
Henry Hagg Lake
Resource Management Plan (RMP)

Introduction

This Problem Statement is intended to portray all points of view regarding the issues, opportunities, and options identified by the public and involved agencies as relevant to the Henry Hagg Lake Resource Management Plan (RMP) process.

The issues, opportunities, and options discussed are presented in the same order and use the same titles and numbers shown on the Summary of Issues, Opportunities, and Options, which was provided to and discussed with the Ad Hoc Work Group (AHWG) at its first meeting on February 12, 2002. The sources for that Summary were the public input received: (1) at, or as a result of, the first RMP public meeting; and (2) in response to the first RMP Newsbrief.

For each issue/opportunity/option discussed, the information provided reflects the AHWG/Planning Team discussions that occurred during the February 12 and May 23, 2002 meetings. In a limited number of cases, "Planning Team Notes" are also included to: (1) provide additional perspectives on issues based on Planning Team experience, (2) clarify discussions, or (3) indicate where Reclamation or other agency regulations or limitations will affect the range of possible responses. It should also be noted that, although it is Reclamation's practice to report all input received on issues and opportunities pertinent to its Resource Management Plan efforts, this reporting does not necessarily infer endorsement of all comments received and outlined in this document.

Issue/opportunity/option discussions are organized according to the following major and subtopics:

Overall Concerns (numbered O-1 through O-7)
- Balanced Use
- Conflicting Uses
- Crowding
- Season of Use

Natural and Cultural Resources (numbered N-1 through N-27)
- Wildlife/Habitat (including wetland and riparian habitat)
- Fishery
- Non-Native Species and Pest Control
- Water Quality
- Erosion and Sedimentation
- Aesthetic Resources
- Interpretive Programs and Signage

Recreation and Other Uses (numbered R-1 through R-39)

- General Character, Use, and Facilities
- Day Use Facilities (general)
- Area A-East
- Overnight Use
- Trails and Trail Use
- Concessions
- Boating
- Fishing
- Other Uses

Access, Parking, and Surrounding Uses (numbered A-1 through A-13)

- Roads
- Parking
- Shoreline/Bank Access
- Accessibility
- Surrounding Uses

Management and Implementation (numbered M-1 through M-28)

- Reservoir Operations
- Study Area Data
- Health, Safety, and Security
- Public Information
- Fees/fee Structure
- Funding and Implementation

Overall Concerns

Balanced Use

- **O-1** Recreation & natural resources; **O-2** Balance has swung too far toward recreation; and **O-3** Sustainability of uses & resources: There is a general sense that establishing a proper and sustainable balance between recreation access/use and protection of natural resource values at Hagg Lake is a central challenge of this RMP effort. Aspects of and perspectives regarding this challenge are found throughout this Problem Statement.

  For example, much of the public input received in the planning process to date, reinforced by AHWG discussion, stresses that Hagg Lake/Scoggins Valley Park should retain a rural, open, natural character, rather than evolve into a more active, urban-type park. This sentiment argues against developed features such as ball parks and suggests that further conversion of park lands from open space/habitat to recreation sites should be minimized. On the other hand, demand for recreational access to and use of the park is high and is increasing. This is true in terms of both: [1] the number of users, especially during peak times; and [2] the trend toward a longer season of use.

  As the RMP process begins, it is debatable whether comment O-2 is true. AHWG members who discussed this issue do not necessarily agree with the perspective expressed, saying in essence that "balance is in the eye of the beholder." Some perceive that more recreation accommodation is needed, rather than less. The RMP will need to take a look at the carrying capacity and sustainability of resources at the lake before conclusions can be drawn about how much recreation is enough or too much.

  In any case, the RMP will need to study the relationship between use levels and locations on one hand, and the sustainability of resource values such as water quality and wildlife habitat on the other. Exploration of alternatives for the future of the lake/park will need to array the types of resource tradeoffs that may be necessary if additional recreation capacity is to be accommodated. Conversely, the alternatives should help frame the types of limitations that may need to be placed on recreation if wildlife habitat, water quality, visual quality, etc. are to be protected.

(Planning Team Note: The RMP process and its associated Environmental Assessment (EA) will rely on existing information and the input of knowledgeable County and other agency personnel to assess the recreation carrying capacity of the lake. One existing source of information that will be used is the 1999 Study of Recreation Users at Henry Hagg Lake.)

Conflicting Uses

- **O-4** Need better management of uses, better conflict management: Aside from the broad issue of crowding and shortage of facility capacity (See O-6, below), the park seems to be well managed, with user conflicts kept to a minimum. This is particularly evident given the high level of use that occurs at peak times. The only areas of user conflict (existing or potential) that have been highlighted to date are related to: [1] special events—see R-3; [2] management of pets—see R-9; [3] multiple uses of the County road—see R-20; and [4] potential for conflict among trail users if equestrian uses are added—see R-21. The potential for overnight use at Area A-East also represents a potential for conflict between park uses and surrounding residents/landowners—see R-11 through R-17.

This issue may require further discussion and specification. If significant conflicts do exist at land-based sites, the RMP should look at the potential for distributing uses in other areas of the park and taking pressure off such high-use areas as A and C Ramps; or, if such re-distribution of use is not feasible, use conflicts may be a signal that the carrying capacity of these areas has been reached, pointing to a potential need to limit use.

Related to water-based uses, activity levels are rising, with personal watercraft (PWC) leading the way. For both boats and personal watercraft, enforcement of no-wake zones and setbacks and other speed limits is a priority both to minimize conflicts and promote public safety.

- **O-5** Reduce conflicts between special events & other uses: See R-3.

Crowding

- **O-6** Address land and water crowding: There is no current definition or specification of park capacity. Crowding does occur at peak times, especially at the main land-based recreation sites. July is the peak month at the park, with opening day of the fishing season in April and Father's Day in June as examples of peak days.

  Concerns over park capacity and crowding apply to facilities/destinations within the park, the water surface, and traffic and parking throughout the park. Perspectives on recreation capacity, crowding, and expansion needs/opportunities are discussed under the Recreation heading herein; for discussion of traffic and parking concerns, see A-1 through A-6. Overall, when considering capacity and crowding questions, it should also be kept in mind that limits on use will also place limits on County revenue to operate and maintain the park.

Season of Use

- **O-7** General desire to increase season of use: The primary impetus for increasing the season of use at the Park has been to permit a longer fishing season. However, any extension of the season to accommodate fishing would also mean the park is open to other users. This issue, including its implications on resources, is discussed under R-33 and M-23 through 25, below.

Natural and Cultural Resources

Wildlife/Habitat

- **N-1** Maintain, manage, protect: Maintaining, properly managing, and protecting the natural resources of the lake/park environment, including the vegetation and wildlife habitat, is a strong direction and motivation for the RMP effort. More detailed perspectives in this regard are provided in the discussions below.

- **N-2** Wildlife/human interaction and **N-3** Increase conservation & preservation; maintain feel of natural area; overuse/abuse of pristine area (related topics, discussed together herein): Striking the right balance between: [1] the desire to maintain, protect, and perhaps restore (see N-4 through N-7) wildlife habitat; and [2] providing recreational access is one of the challenges of the RMP effort. AHWG discussion of this challenge raised the following points:

- The focus of concern is the area between the road and the lake shore.
- The RMP should investigate opportunities for setting aside areas exclusively for wildlife (e.g., no recreation sites, trails, or boating, with potential opportunities being in the arms, such as Scoggins and Tanner creeks). It is uncertain whether such action is feasible or practical; nevertheless, the idea of emphasizing "refuge for wildlife" in some areas is worth pursuing.
- Even if completely "human free" areas are not practical, retaining areas with minimal/controlled access will still be important.
- From a resource protection and conservation standpoint, new recreation development should be restricted to expansion of existing sites, rather than opening new areas for development. For example, if the suggestion to provide a boat ramp for use by non-motorized boats is pursued, such a feature should not be sited in a currently undeveloped area, further fragmenting the habitat and open space resources of the park.
- Heavy use, such as special events, should be managed to avoid periods of high resource sensitivity or potential for resource damage. For example, race events during wet periods of time can result in considerable damage to trail corridors in the park.
- Recreation in general should be oriented more to enjoyment of natural resources and environmental values, rather than toward more urban park features such as ball fields.
- The widespread presence of pets can be detrimental to natural habitat values. County regulations allow pets within the park; but require that they be on-leash. These regulations should be strictly enforced. People should also be encouraged/required to clean up after their pets.
- The public should be discouraged from feeding park wildlife and from bringing in and "dropping off" non-native wildlife such as ducks.
- For any actions aimed at restricting/limiting recreational access as a means of protecting wildlife habitat, adequate enforcement will be needed.

- **N-4** Restore, enhance natural habitat (e.g., waterfowl habitat): Opportunities to restore or enhance habitat can be organized into three focal areas, each of which should be explored in the RMP process: [1] upland habitat, [2] wetland and riparian habitat/shoreline vegetation, and [3] fish habitat. These are discussed separately below.

  - **Upland Habitat**: The two primary opportunities for restoring or enhancing upland habitat are the existing elk meadows and Area A-East.

  The elk meadows are artificially maintained in grassland. Restoration of these areas to a more native habitat matrix presents a potential opportunity. However, as discussed under N-8 through N-10, below, it is uncertain whether such an action is either desirable (given local elk management concerns) or feasible (given that these meadows are part of the original impact mitigation program associated with development of the dam and reservoir).

  Restoration of habitat should at least be considered as one alternative future for Area A-East. Beyond the elk meadows, this is the only other large area where significant flexibility exists for upland habitat restoration and enhancement.

  - **Wetland and Riparian Habitat/Shoreline Vegetation**: Efforts to restore or enhance wetland and riparian habitat or shoreline vegetation in general can focus on: [1] the existing lake shore and tributary stream corridors, with the limitations imposed by the fluctuating water level of the lake; and/or [2] development of sub-impoundments or cofferdams at

appropriate locations to provide more stable aquatic conditions conducive to habitat restoration.

Any feasible opportunity to restore wetlands, riparian, or other vegetation to the shoreline should be pursued (the shore is essentially devoid of vegetation). However, the wide fluctuations in water level due to reservoir operations severely restricts the potential for such restoration. Such efforts would have the best potential for success in the tributary stream corridors entering the lake, where water conditions are more natural and stable. Along the main lake shore, a concept which should at least be explored is the use of downed trees, branches, and other organic debris to provide habitat and support re-vegetation. Many truckloads of these materials are removed from the dam area each year; much of it could be beneficially "re-used" by anchoring it to the shore at various elevations both to promote restoration of shoreline vegetation and to provide additional fish habitat during periods of the year. This could be accomplished through volunteer efforts, and the cost of hauling away this biomass could be reduced or eliminated. One concern related to this concept is the potential for impact on boater safety in the form of floating and/or subsurface hazards; this concern would need to be adequately addressed if the concept is pursued.

Sub-impoundments or cofferdams have been suggested in the tributary arms of the lake, such as Tanner and Sain creeks. Such features would mitigate the water fluctuations and increase the potential for wetland and riparian habitat creation/restoration; they would also provide additional habitat for waterfowl and other wildlife species and would help protect water quality in the lake. However, members of the AHWG suggest caution in considering such structural approaches, citing concerns regarding both the real potential for long-term success (at least, without significant maintenance efforts/costs) and the adverse impacts such developments can have on fish migration and other resource parameters.

Another concept is the creation of a sub-impoundment in the inlet/bay east of the proposed Education/Research Center site. Creating a sub-impoundment in this location, with relocation of the trail across the cofferdam and away from the existing shore, would support both: [1] reservation/creation of habitat area, and [2] research into various aspects of habitat restoration and development.

(Planning Team Note: Any proposals for sub-impoundments will require further study to determine the impacts to water operations, water quality, and fish migration as a result of these changes to the lake. Also, in order for Reclamation to cost share for this type of improvement there would need to be a non-Federal public entity as a managing partner.)

- **Fish Habitat**: Regardless of perspectives on fish stocking, warm vs. cold water fishery, fishing season, etc. (see N-14 through N-17), it would be beneficial to increase fish habitat in general. This means increasing shore-zone and sub-surface structure at all levels. The above discussion of wetland, riparian, and shoreline vegetation, including the potential for re-use of downed logs, branches, and other organic debris, is relevant in this regard. Even if restoration of shoreline vegetation is not generally feasible, anchoring logs and branches, even Christmas trees and other organic debris, at various levels along the fluctuating shore zone can provide fish habitat. Using old tires and other types of debris can also help but is less desirable. As noted above, the potential for these actions to create boating hazards, especially as the reservoir is drawn down, would need to be addressed.

- **N-5** Develop/protect wetlands & riparian areas: Protection of existing wetland and riparian areas will be emphasized in the RMP, as required by Federal regulations and Executive Orders.

Perspectives on the potential to enhance or restore these resources are discussed under N-4, above.

- **N-6** Provide wildlife refuge areas; consider the study of Wapato Lake refuge: The desirability of providing areas around the lake where wildlife and native vegetation are emphasized (and recreation de-emphasized) is discussed above. However, the Wapato Lake refuge example is not applicable to Hagg Lake.

- **N-7** Threatened and endangered species: The RMP will respond to identified needs for protecting habitat for protected species and species of concern at both the Federal and State levels. These include bald eagles, State-listed frogs, turtles, plant species, and others. Important directions will most likely include:

  - Protecting and restoring riparian and wetland habitat where feasible; the main focus for sensitive species is in the upper arms/tributaries of the lake.
  - Restricting or discouraging recreational or other access to sensitive species habitat.
  - Protecting bald eagle perch trees and snags around the lake and an eagle nest buffer zone in the Southeast (eagles do not nest in the study area, but the upper reach of the Sain Creek arm is within a recommended secondary buffer zone around a nest outside the study area; also, eagles do feed at the lake, and 5 or 6 perch trees were identified in the Education/Research Center study).
  - Avoiding cofferdams or sub-impoundments that would obstruct fish migration.

- **N-8** Elk (and eagles) importance (discussion of eagles moved to N-7); **N-9** Elk management--leave them alone, avoid adverse impact to them; and, **N-10** Elk management--prepare an Elk Management Plan…provide habitat, reduce conflicts with roads/other uses, control illegal hunting (discussed as a group): As part of the wildlife impact mitigation program associated with construction of the dam and reservoir, areas around the lake and a large area immediately downstream of the dam were set aside as elk habitat. These "elk meadows" are mowed annually and maintained in grassland for use by elk. Elk herds resident to the upper Tualatin watershed migrate to these open grass areas to feed, especially the area below the dam.

  Public concern about the local elk population has several facets. On one hand, the visiting public values the presence of the elk and wants to see them protected. On the other hand, the elk pose a problem for farmers and other landowners surrounding the lake by causing damage to land and crops when they travel back and forth between the grasslands around the lake and the forested uplands. The migrating elk can also cause traffic safety problems as they cross the highway getting to and from the lake.

  The RMP needs to explore appropriate and feasible responses to these varying concerns, including options for the maintained elk meadows around the lake. Additional study of the local elk herd (their needs and habits) may be necessary to enable a more comprehensive elk management strategy. For example:

  - It is unclear whether: [1] maintaining the elk meadows around the lake causes migration across private land that would not otherwise occur; or [2] maintaining these meadows serves to limit elk damage to surrounding lands (i.e., by providing forage that the elk would otherwise seek more directly on surrounding lands instead of just migrating through them).
  - It is unclear how much the elk meadows are currently used and or which areas are being used by the elk since monitoring is not occurring.

- More fundamentally, it is unclear whether Reclamation has any flexibility in modifying or eliminating the elk meadows. Further research and discussion with ODFW is needed to determine Reclamation's responsibilities.
- Poaching of elk is a problem that must be addressed through better enforcement.

(Planning Team Note: Questions surrounding elk use of the study area and Reclamation's responsibilities related to the elk meadows need to be resolved before these meadows can be considered for other uses, such as recreation or the Education/Research Center).

- **N-11** Consider cofferdam/sub-impoundment in Tanner Creek arm for habitat development: Discussed above under N-4 and N-7.

- **N-12** Provide raptor nesting platforms: Protection of existing perch/nest trees, snags around the reservoir, and other natural raptor habitat features is desirable. However, little, if any, emphasis should be placed on providing artificial nesting platforms or other such features. These can cause conflicts with other uses that would not otherwise occur. Perhaps such features may be appropriate in areas set aside for wildlife habitat (i.e., at the exclusion of recreation uses) or as part of the proposed Education/Research Center.

- **N-13** Noxious weed control: See N-18 and N-19.

Fishery

(Planning Team Note: Discussion of fish habitat in general is included under N-4, above; discussions below address more specific questions such as type of fishery, stocking programs, and fishing season.)

- **N-14** Restrict recreation access/use if necessary, especially if we have year-round fishing: Increases in recreational use at the Lake, including fishing, correspondingly increase stress on the fishery. However, the fishery at Hagg Lake is a "put and take" fishery, wherein ODFW provides fish stocking at levels aimed at meeting demand. At this point in time, no problem with imbalance between "supply" and "demand" is anticipated. It will be ODFW's continuing management responsibility to monitor fishery conditions and make adjustments to either stocking or fishing season/pressure is an imbalance occurs.

(Planning Team Note: A year-round fishing season is no longer being discussed by the managing agencies at Hagg Lake. The fishing season has been extended from 6 to 9 months starting in 2002—see R-33.)

- **N-15** Address implications from eliminating fish stocking (i.e no more BOR funding for this program): The fish stocking program (i.e. trout) at Hagg Lake is not being eliminated; it is continuing under ODFW management and funding. In fact, ODFW will be increasing its stocking program to accommodate the newly extended fishing season noted above.

  The change which has occurred is that Reclamation is no longer providing supplemental funding for the stocking program. Reclamation's funding for stocking was part of the original fish mitigation tied to authorization of the Project and was on an interim basis. That mitigation program has now been completed. Future Reclamation funding for the fishery at Hagg Lake is being dedicated to habitat enhancement, through the Watershed Council, rather than to ODFW stocking. The RMP effort cannot control this change.

- **N-16** Put excess ODFW steelhead in lake, if feasible & if no detrimental effects: While this may be a "nice idea," it is not feasible and need not be pursued as part of the RMP (see N-15, above).

- **N-17** Impact of non-native fish species/stocking programs--decline of resident fish such as trout: With the stocking program, Hagg Lake has both a cold water (predominantly trout) and warm water fishery, with small populations of native trout in the tributaries to the lake (e.g. Scoggins Creek). This is technically a "non-native" condition, but is common in reservoir situations. Given these conditions, it is true that undesirable non-native fish species have been introduced over time. These introductions have been done illegally by the public (most likely unwittingly—not aware of the damage they can cause to populations of desirable species). These illegal introductions may continue without adequate public education and enforcement.

Non-Native Species & Pest Control

- **N-18** Control noxious weeds, and **N-19** Non-native species control (plants & animals--e.g. domestic ducks, milfoil, zebra mussels, hydryla): Control of noxious weeds and other non-native plant species, both terrestrial and aquatic, is an important concern, as are introductions of non-native terrestrial or aquatic animal species. WACO is responsible for weed control in the park and TVID is responsible for weed control in the Reclamation zone around the dam.

  An inventory should be done to identify and confirm noxious weed problem locations and species. A program for defining the spread of other non-native plant and animal species should also be pursued. Control programs should be integrated with overall habitat protection and restoration efforts. In all cases, control methods should emphasize biological and physical techniques and minimize use of chemicals.

  An important aspect of dealing with both noxious weeds and other introduced species is public education/information, particularly signage. For example, problems with introduced species can be caused by out-of-region or out-of-state visitors unwittingly bringing undesirable species (such as zebra mussels—not sighted yet, but a threat) on their boats. Adequate cleaning of boats prior to launching can help avoid these problems.

  Another aspect of pest management, not directly referenced in comments N-18 or N-19, is control of yellow jackets and bees, and to a lesser extent, mosquitos. Each year, the fire department received numerous calls due to yellow jacket or bee stings. AHWG discussion suggests that control of these insects may be warranted in developed recreation sites; however, attempts to control populations throughout the park is most likely not feasible or desirable. WACO currently conducts pest control around developed recreation sites, as necessary.

(Planning Team Note: Reclamation will be preparing an Integrated Pest Management Plan as a parallel effort in conjunction with the RMP. This Plan will be coordinated closely with WACO's ongoing efforts and will address the issues described above).

Water Quality

- **N-20** Protect water quality; **N-21** Address pollution concerns--land garbage, water pollution (e.g., boat oil & gas), toilet facilities; **N-22** Recreation impacts/capacity vs. water quality (e.g., silt/turbidity from boat waves); and **N-23** Water-related issues (discussed as a group): Perspectives on water quality include:

- **Erosion and sedimentation**, and resultant **turbidity** in the lake water, is a concern from both the watershed surrounding and from within the RMP study area. The Watershed Council and others take the lead in plans and programs to limit these factors in the surrounding watershed. The RMP should address erosion control locally, including proper design, maintenance, and repair of trails and roads, revegetation of denuded areas, protection and restoration of wetlands, and treatment of major and minor tributaries as "bioswales."
- **Fuel and oil** from boats is often a concern at lakes and reservoirs; however, currently this does not appear to be a problem at Hagg Lake. Further, the transition from 2-stroke to 4-stroke marine engines which will result from EPA regulations should ease future concern for this source of pollution. Nevertheless, the RMP should promote proper management of marine fuels and lubricants at the lake and vigilance in monitoring for potential pollution problems from these sources.
- Pollution from **litter** along the shoreline is cited as a problem by many. Provision of adequate trash receptacles, public education/signage, and enforcement are necessary to address this problem.
- The potential for pollution from **restroom facilities** was noted. However, this does not seem to be a problem at present. The RMP should nevertheless incorporate an objective to make sure that this source of wastewater is properly and effectively managed into the future.

Erosion & Sedimentation

- **N-24** Control/reduce/minimize: See N-20 through N-23.

Aesthetic Resources

- **N-25** Consider visual impacts of actions, including timber harvest and **N-26** Consider sound & light impacts of actions (e.g., night views): These issue statements are relatively self-explanatory. Overall, the design of facilities and RMP actions/programs in general should not be intrusive; they should blend with the natural environment as much as possible and minimize visual impact both within the RMP study area and as related to surrounding properties.

(Planning Team Note: Visual impacts of timber harvest in the area are caused predominantly by activities outside the RMP study area. The RMP could include an objective to work with/encourage the County and surrounding landowners to minimize/mitigate adverse visual quality impacts on the park environment caused by surrounding land use activities.)

Interpretive Programs & Signage

- **N-**27 Increase emphasis on natural resource interpretation: The RMP should provide increased opportunities for nature interpretation and education (e.g., nature trails, interpretive signage, etc.). The same is true for the culture and history of the area. These are the positive aspects of public information, education, and enjoyment; and they go hand-in-hand with cautionary and regulatory programs aimed at protecting resources (e.g., education/regulations regarding introduced species, control of pets, access limitations, etc.).

Recreation and Other Land Uses

General Character, Use, and Facilities

- **R-1** Maintain rural feel vs. urban park character; no commercial development: AHWG members generally agree that a rural feel/atmosphere should be maintained in the RMP study area; actions or plans that would promote a more developed, urban character should be avoided. This overall sense is supported by other comments that stress better/more attention to protecting and restoring wildlife habitat, avoidance of "urban park" features such as ball fields, etc.

  Specific to the issue of commercial development (meaning primarily concessions), the following points were made:

  - Currently, small boat rental and food concessions operate at the park. These are not in permanent facilities and are able to move to different locations in the park. A desire has been expressed to provide more permanent facilities for these services.
  - Many members of the public feel that some minimum level of commercial service is desirable (a viewpoint supported by public input received by the County during its last planning effort). Perhaps the viewpoint for consideration now is better phrased: "no additional commercial development," rather than no commercial services at all.
  - Recognizing that the status quo (i.e., no additional commercial development) is an option, the RMP should nevertheless explore alternatives for providing desirable commercial services, at a minimal level, in more permanent, aesthetically appropriate facilities. It may be possible to provide services such as boat and mountain bike rentals, prepared foods, and basic picnic supplies while still maintaining the rural atmosphere. The question then becomes: how far do we carry this? (e.g., do we add personal watercraft rentals? What kinds of boats? What level of retail service for foods, picnic, fishing supplies?)
  - Another consideration related to commercial/concession activity is that it provides a revenue stream to the County. Since the County must provide all funds for operating and maintaining the park, this existing and potential source of revenue is critical.

- **R-2** Better facility planning: Without specifics, the reason for this comment is not clear. It is generally agreed that effective planning is important; in fact, that is why the RMP is being prepared. However, it is also generally felt that the County has done a good job in planning for the park. The RMP should build on what the County has done to date.

- **R-3** Continued use for special events: Special events that currently take place in the park, such as biathlons, fishing derbies, and bike races, serve an important function, are generally well run, and should be a continuing aspect of park operation. The most important considerations in managing these events are to [1] avoid/minimize potential conflicts with general public use of the park and with normal traffic on the roadways, and [2] minimize scheduling these events when resource sensitivities or vulnerabilities are high in order to minimize physical impacts. In the first regard, examples include: [a] special events should generally avoid weekends and other peak use times, especially if the event needs exclusive use of certain areas; [b] events such as races should be scheduled in the morning before peak use period during the day; and [c] special events should be focused at locations away from high use sites such as the A and C Ramps to the extent possible. In the second regard, a primary example is avoiding race events during wet periods, when substantial damage to trail corridors can occur.

The County's current review and approval process for special events is attuned to minimizing conflicts and considers these factors as much as possible. County personnel note, however, that venues which can accommodate these events are scarce and the demand for them is growing. This may thus be another example where carrying capacity of the resource must be considered in the face of increasing demand. The process and criteria used to schedule and approve special events should be incorporated into the RMP, including any appropriate refinements aimed at balancing capacity with demand.

- **R-4** Rename facilities (away from A, B, C designations; enlist school children?): It is agreed that the current system (i.e., A ramp, C ramp) is confusing. Renaming the facilities is a good idea and offers an opportunity for public involvement, fostering a sense of stewardship.

Day Use Facilities (General)

- **R-5** Increase capacity/availability: During peak times, such as mid summer, the park is very crowded and it is especially difficult to find a picnic site. This applies to all areas of the park. As use levels increase, this condition will only get worse unless additional capacity is provided. Important considerations in attempting to meet changing and increasing demand include:

    - The land base in the park is limited, and there are few opportunities for new recreation site development. Adding facility capacity, to the extent possible and desirable, should focus mostly on expansion or reconfiguration of existing sites. The Cove area, adjacent to C Ramp, and Area A-East are the primary opportunities for expansion/new development.

(Planning Team Note: During initial field reconnaissance for the RMP, it was noted that, dependent on other values and needs, some of the existing elk pastures might also support recreation facilities; however, resource protection and enhancement concerns may outweigh consideration of such use—see N-4 and N-8 through 10)

    - The existing density of facilities (e.g., of picnic tables) at the recreation sites is generally good. Increasing density is not a significant opportunity for adding capacity. Additional land area is needed for this purpose.
    - Population dynamics and socioeconomic conditions are changing use characteristics at the park. For example, demand for group facilities is increasing.

- **R-6** Facilities for better beaches--sand needs to be brought in; muddy shoreline and **R-7** Improve access for swimming; provide dedicated areas due to safety concerns; consider floating platforms as an option: Due to reservoir fluctuations, establishing and maintaining sand beaches artificially is not feasible. Given this, any provision for swimming would need to orient more to platforms or similar solutions. In any case, the County will not formally designate or provide swimming areas due to liability concerns.

- **R-8** No baseball fields: There is general agreement on this point. See R-1, above.

- **R-9** Need leash-free zone(s): This comment could have come from either: [1] people who have dogs and are promoting areas where the dogs can be off-leash; or [2] non-dog owners who want better control of pets in the form of specific leash-free area(s), with leash laws enforced everywhere else. In any case, County ordinance requires dogs to be on-leash in all public areas (i.e. everywhere except on private property). At Hagg Lake, this leash law needs to be more strictly enforced; dogs are found off leash throughout the park.

- **R-**10 Develop the Cove area: See R-5. The Cove area is a primary candidate site for facility expansion. Potential facilities include picnic areas (both individual and group), non-motorized boat launch, parking, trails, and restroom.

Area A-East

- **R-11** Reopen and **R-12** Reopen for day use: Area A-East was an early development at the park. When it was open, it got the least use due to its isolation from the lake shore. It was closed a number of years ago due to enforcement problems associated with illegal activities occurring there; the enforcement problems were due in part to the site's relative isolation from the main activity areas in the park.

  For the current RMP effort, the options for re-opening and re-using Area A-East should be reviewed. This is especially true given the increasing visitation to the park and the consequent need for additional facility capacity. The basic options for the area are: [1] overnight camping, [2] some form of day use, and [3] a combination of camping and day use. These are discussed below. In considering potentials for re-opening/re-using Area A-East the RMP process should note that this area is proposed as a borrow site for the alternatives in the Water Supply Feasibility Study which involve raising Scoggins dam.

  - **Potential for Overnight Use:** Overnight camping in Area A-East has been discussed a number of times over the past several years. Adjacent residents and landowners have vocally opposed this use due to safety and security concerns; they are apprehensive that the same types of problems that caused the area to be closed in the first place will simply recur. They are also concerned about increased fire danger.

    The issues and opportunities surrounding camping use at Area A-East received considerable discussion by participating AHWG members.

    Those expressing opposition to or significant concerns about this use reiterated the same issues cited in prior discussions (i.e., safety and security of/for adjacent residents, illegal activities, and fire hazard). The potential for security conflicts between the proposed Education/Research Center and camping activity at Area A-East and the potential for adverse impact to wildlife were also noted.

    If camping is again considered for the area, the use must be accompanied by an effective increase in enforcement and public safety presence and/or a significant reduction in response time by law enforcement and public safety personnel to alleviate these concerns. If this increased service cannot be provided, residents and landowners will continue to strongly oppose the use.

    Perspectives that favor overnight camping at Area A-East and/or believe that the resident/landowner concerns can be effectively addressed cite the following points:

    – Camping would represent a significant revenue stream for the County, both from direct fees paid by visitors and from the County becoming eligible for State RV funds (the latter estimated at $80,000 per year). As other funding sources become increasingly limited, this revenue could be very important for future development, operation, and maintenance of the park, including subsidizing day use.

- The increased revenue achieved through overnight camping should easily cover an appropriate increase in law enforcement and public safety presence to address resident/landowner concerns.
- If overnight camping is introduced, it could be designed to inherently address safety and security concerns. For example, a camp host or other staff, and the proximity to park headquarters, could provide constant monitoring of activities and compliance with regulations, such as any fire restrictions. Site design can also address issues of access control and fire management.
- Having a constant presence at the lake during the recreation season can also help to more effectively spot, report, and respond to fire or other hazards in the surrounding area.
- Area A-East represents a prime opportunity for overnight camping without the need for significant capital expenditures. It already has power, water, and access.
- Wildlife disturbance would probably be minimal because the use would be concentrated in a limited area.

- **Potential for Day Use**: If Area A-East is not used for overnight camping, it does offer opportunities for day use facilities or in support of day use activities in other locations. Since the area is already developed, it offers potential for day use capacity expansion without impacting another open space/habitat area. Potential uses could focus on picnicking, both individual and group, and on special events; however, the desirability of the site is reduced because it does not have good, direct access to the water. Another option for the area is to use it for overflow parking and event staging, with shuttles carrying visitors to the other recreation sites.

- **A Combination of Overnight Camping and Day Use**: Area A-East is certainly large enough that both overnight camping and day use, as discussed above, could be accommodated in different parts of the area. Certainly, concerns surrounding overnight camping would still need to be addressed, and compatibility among candidate uses would need to be assured.

Overnight Use

- **R-13** Do not provide (except proposed Education/Research Center)--due to safety & security concerns; **R-14** Security related to camping; **R-15** Campground is incompatible with the proposed Education/Research Center; **R-16** Keep park day use only to protect wildlife; and **R-17** Provide for overnight use: The primary candidate for overnight camping is Area A-East. Therefore, the perspectives expressed in this set of comments are incorporated in discussion under R-11, above. The only other potential for overnight use is the proposed Education/Research Center, which would include overnight accommodations. However, these would be subject to controlled access and close supervision and do not present the safety, security, and environmental concerns expressed in comments R-13, 14, and16.

(Planning Team Note: Reclamation's policy is to provide public use as a priority over exclusive/semi-private use where public need is demonstrated. This policy may have relevance in discussions of overnight uses in the RMP area).

Trails & Trail Use

- **R-18** Show on maps: Trails are currently and will continue to be shown on park maps. However, there is a desire for more detailed trail mapping and information, perhaps a specific

trail-related brochure. Trail maps should include mileage information, exact location of features/points of interest, and specific routes that focus on wildlife viewing, bicycling, hiking, etc. (i.e., to the extent that each these uses are accommodated/provided).

- **R-19** Include in planning process: It was noted that trails were not specifically mentioned as target recreation facilities in the first Newsbrief. The RMP definitely needs to address trails, as highlighted under the issue statements below. Trail uses that need to be considered and accommodated as much as possible include hiking, jogging, bicycling, and equestrian. Trails will be shown on RMP maps.

- **R-20** New dirt road/lane for recreation users, parallel to road, **R-22** Increase trail development; and **R-23** Complete trail loop (a safety, as well as recreation, issue): AHWG discussion focused on the provision of a loop trail around the lake. In this regard, the ideal would be to have a continuous, multi-use loop trail, with complete separation from the County road. Where complete separation is not possible, a wide (i.e., 7+ feet), dedicated trail lane parallel to (and on the lake side of) the road should be provided. Overall, this loop trail should be wide enough and aligned to accommodate multiple user groups (e.g., hiking, jogging, bicycling--for perspectives on equestrian use of the trail, see R-21).

  The County has worked to provide such a continuous loop trail but has routed portions of this loop along the County road due to cost, environmental, and physical constraints (e.g., slopes, creeks, ravines). Where the path parallels the road, the County has also been making improvements to the "bike lane" designation, including shoulder improvements.

  User groups noted that the situation still needs improvement. Conflicts with motorists still occur where the trail lane parallels the road, especially along segments where motorists park in the lane during peak times (e.g., Area A-East). Overall, the RMP should explore ways of better achieving the ideal described above, building on what the County has already done. The solution may be a combination of additional facility development/improvement and better enforcement of traffic and parking regulations.

(Planning Team Note: As noted above, AHWG discussion focused on a main loop trail facility at Hagg Lake. It is assumed that the Group did not intend to preclude other, more area- or use-specific trail segments, such as nature trails or other such "sub-loops." Other comments and discussions herein, including the general sentiment expressed by R-22 and comments that encourage nature interpretation, suggest that trail opportunities are not limited to or exclusively focused on the main loop trail.)

- **R-21** Provide equestrian trail(s): Considerable public input has been received supporting equestrian trail uses in the RMP study area. Equestrian use is currently not allowed in the park. Certainly, this could be a valid use at the park, assuming that it can be provided in a manner that does not induce unacceptable conflicts or physical impacts, affect water quality, or involve prohibitive costs (whether capital or resource). AHWG members note that there are several problems that would need to be resolved if equestrian uses are to be accommodated. These include:

  - Adding equestrian use to a mix of bicyclists, joggers, and hikers tends to cause compatibility conflicts, especially between bicyclists and equestrians.
  - The land base at the park may not be sufficient (i.e., simply not enough room) to allow development of a separate equestrian trail system; in addition, it is questionable whether there

is sufficient room in many areas to widen the existing trail sufficiently to mitigate user conflicts.

- Cost is a significant constraint whether the equestrian uses are accommodated on the main, multi-use trail or are provided via a separate trail. There are 28 trail bridges across ravines and creeks at the park, none of which are currently designed to support the weight of horses. Existing trail segments would need to be upgraded to handle horses (ie better base and surface materials). Also, increased cost for maintenance and repair would accompany this use; certainly, it would need to be restricted to dry times of year (i.e., July through September) to minimize trail damage.
- Providing parking and staging for equestrian users would also be a cost and land availability challenge.
- The presence of horses in the park could impact water quality.

Despite these challenges, the RMP should explore the potential for accommodating equestrian uses. Equestrian groups have expressed the willingness and desire to participate in meeting the challenges listed above.

- **R-24** Improve trail maintenance & clean-up: Increased regularity and continuity of trail clean-up is needed. From the County's standpoint, funding for staff time is an issue. Volunteers, community groups, and user groups are a potential source of assistance; for example, PUMP (Portland United Mountain Pedalers) currently does trail maintenance. However, volunteer/user group efforts have not been very reliable or sufficiently regular in the past. The RMP should nevertheless investigate the potential to more actively and reliably involve clubs, community groups, and user groups (such as anglers, as well as hikers, bicyclists, etc.) in meeting this need. It would certainly be appropriate to have the people who contribute to the need for clean-up actually do the clean-up.

Concessions

- **R-25** Need more information on type, demand, characteristics… etc; and **R-26** Concern for impact of permanent concessions--i.e., over-development & commercialization: Discussed under R-1, above.

Boating

- **R-27** Establish non-motorized zone on the lake: Establishing a non-motorized zone would be desirable for some user groups, including those using canoes and kayaks. Due to the small size of the lake, annual drawdown conditions, and the level of demand for motorized boating, further partitioning of the water surface into different use zones may not be practical. If a non-motorized zone were considered, it would most logically be centered on one of the arms (e.g., the Northwest/Scoggins Creek arm). However, reservoir drawdown each year reduces the extent of the water surface in the arms, with some, such as Scoggins Creek, reduced to stream channels by July. Also, the arms are the most popular fishing locations, with motorized boats being the primary mode of gaining fishing access. These factors argue against establishing a non-motorized zone.

  Under any circumstances, changes in boating regulations or zoning on the Lake would require approval of the Marine Board.

- **R-28** Inadequate enforcement of no-wake zone: Enforcement of use/speed restrictions is a challenge on every lake in the state. The RMP should directly address boating enforcement needs, including personnel and funding requirements; the marine board, Sheriff, and Coast Guard should provide leadership in identifying need and solutions. See also M-7 and M-8.

- **R-**29 Provide specific kayak/canoe access: Provision of a launch ramp exclusively for use by non-motorized boaters has been suggested and should be considered. The C-Ramp/Cove area has been suggested as a candidate location for this ramp. See R-27 for discussion of the potential for a non-motorized boating zone on the lake.

- **R-30** Boat ramp for non-motorized craft (perhaps near C-Ramp): See R-27 and R-29.

- **R-**31 Exclude small, motorized craft in arms of the lake: See R-27.

- **R-**32 More buoys along buoy line: This sounds like a good, inexpensive action to assist with better enforcement of boating restrictions on the lake. Additional buoys would be coordinated through the Marine Board and Sheriff's Department.

Fishing

- **R-**33 Pursue year-round opportunity: A year-round fishing season is no longer being considered by the managing agencies at the park. This is due to issues of operations and maintenance cost to the County for keeping the park open all year, public safety, and stress to the resources of the park. However, in response to public demand for longer access to the park for fishing, the season will be expanded in 2002 from 6 months to 9 months. The season will now be March through November.
  (Extended season is also discussed under M-23 through 25)

- **R-**34 Facilities for boat and bank fishing: It is assumed that the comment refers to providing additional docks and platforms for use by anglers. Given that fishing is, by far, the most popular use at Hagg Lake, accommodations/facilities to support this use should definitely by considered. As options are reviewed for providing additional opportunities, accessibility to those with disabilities must be a consideration (see A-10).

- **R-**35 Need fish cleaning stations: There are currently no fish cleaning stations at the park. Providing stations at key locations would be beneficial from a convenience standpoint as well as helping to promote waste management and protect water quality. Any fish cleaning stations provided would need to be easy to operate and not include fish grinders as these tend to be a maintenance problem.

Other Uses

- **R-36** Pursue the Tualatin Watershed Education & Research Center: There is general agreement that the proposed Education/Research Center should be supported, especially given R-38.

- **R-**37 Pursue other education opportunities: Yes, including interpretive signage and pamphlets, etc.

- **R-**38 Provide community center use within the proposed Education/Research Center: Community center uses are provided in the proposed design of the Education/Research Center.

- **R-**39 Provide alcohol-free area at the lake: County ordinance currently allows alcoholic beverages in County parks. Changes to this ordinance would be required (assuming there is sufficient public support for these changes). However, such an initiative is not within the scope of Reclamation's RMP. If a "dry" area is considered, the proposed Education/Research Center may be the best candidate.

Access, Parking, and Surrounding Uses

Roads

- **A-1** Maintain County roads; concern for landslides, etc: Maintenance of the County road system in the study area is a long-standing challenge, one that will continue into the future. Road maintenance priorities are set by the County, and it is believed that the status of the roads in the study area within the County's matrix of priorities is appropriate.

- **A-2** Too much traffic**; A-3** Balance of commercial vs. recreational use of roads; **A-4** Conflicts between local use of roads and special events; **A-5** No parking in bike lane (related topics, discussed together herein): Relatively unrestricted access to and multiple use of the road system through the park is a reality. Traffic congestion and spill-over parking along the County road (e.g. parking in the bike lane) do occur during peak use times at the park. The A-ramp area is an example where traffic congestion and over-capacity conditions occur most often. These and other traffic-related conflicts cause both enforcement and user safety concerns.

  To manage the situation, more needs to be known about the volumes and timing of various types of traffic. For example, the current volume of commercial traffic is not known. A review of traffic volumes, types, timing, capacity, and safety needs should be conducted for the whole park, including how best to continue accommodating the multiple uses of the road. The review should include uses such as local vehicular traffic, general park users, special events at the park, logging trucks and other commercial traffic, bicyclists and runners, etc.

  Certainly, issues such as parking in the bike lane or other such conflicts can be addressed through better enforcement of existing regulations. However, we must recognize that the park will have limits on how much activity and visitation it can accommodate. Placing limits on use may need to be considered, along with active and effective management and enforcement efforts.

  One solution that may warrant consideration is installation of a controlled-access gate system for the park as a whole. Currently, local residents, motorists "just passing through", and park users attempting to avoid paying the user fees, are able to bypass the park entry booths. Establishing a controlled access system, wherein local residents would use key cards to enter the area and all others would need to pass through the WACO entry booths, would provide several advantages, including allowing WACO to:

  - Better manage traffic and parking problems and avoid over-use of facilities during hours the park is open by closing off public access when park facilities reach capacity (i.e. "Park Full" notification at the entry booths);
  - Eliminate the need to devote enforcement resources to pursuing park users who bypass the entry booths in an attempt to avoid paying the user fees; and,

- Address enforcement concerns during hours of the day or times of the year when the park is closed by simply closing access to all but residents with card keys. Benefits in this regard would apply to managing both unauthorized uses within the park and problems such as poaching on adjacent private lands.

  If this option is considered for the RMP, its acceptability to local residents and justification from the standpoint of general public use of County roads must be carefully reviewed.

- **A-6** New dirt "lane" for runners & bikes…keep off the road: Certainly, such a facility would be desirable. However, developing a separate recreation "lane," continuous around the lake, would be costly (e.g., in land requirement, bridges/stream crossings, etc.). The feasibility of such a facility is questionable.

Parking

- **A-7** Increase capacity/areas as use increases; and **A-8** Better parking both along the highway and at boat ramps: Clearly, provision of adequate parking must be a goal of the RMP effort. Parking must be provided to safely, efficiently, and conveniently (to the extent possible) accommodate peak use periods. As discussions proceed related to the carrying capacity of the park, parking may be a factor, along with traffic volumes on the roads, balancing natural resource protection needs, etc.

  Ideas for better accommodating parking needs include:

  - Providing off-site or peripheral parking/staging areas, with shuttles taking people to recreation sites. This may be applicable particularly to special events. Perhaps a grant could be obtained to fund a "ride connection" (volunteer shuttle) program.
  - Re-opening and re-configuring Area A-East to provide more parking.

Shoreline/Bank Access

- **A-9** Improve shoreline access; but control damage: Public access to the shoreline should be improved as much as possible to reduce hazards and improve safety. However, this must be done within the constraints of: [1] water surface fluctuations due to reservoir operations, and [2] resource protection needs. Provision of shoreline access must also recognize liability concerns. Appropriate signage guiding visitors to designated access locations and warning of safety concerns could be part of the solution. It was also noted that alcohol-related accidents do occur, associated with getting into and out of the water; appropriate public education/information and enforcement are part of the approach to this issue.

Accessibility

- **A-10** Adequacy of accessibility of facilities for persons with disabilities, including fishing uses: Reclamation and WACO have a responsibility under Federal regulations to provide accommodation for disabled persons in all development, as much as feasible; WACO has done an excellent job doing this to date, in part through cost share agreements with Reclamation.

Surrounding Uses

- **A-11** No hunting or firearms in adjacent areas; and, **A-12** Trespassing: Local residents indicate that illegal hunting and shooting on private property surrounding the park is a serious concern. This is a County law enforcement issue since access to private property is obtained from the County road, and, perhaps through park property. Increased management of access to the park environs may also be part of the solution (see A-2 through A-5, above).

- **A-13** Forestry practices; impacts (erosion/sedimentation, visual) of logging: Forest harvest activity is an important use in the watershed surrounding the park (the only forest harvest which occurs in the RMP area itself is thinning). A cooperative effort is needed on a continuing basis to manage forestry, farming, and other land-disturbing activities in the surrounding watershed. All such activities have potential implications for the water quality of the lake and the visual quality of park area. Currently, the Tualatin River Watershed Council and WACO provide the leadership in such efforts.

Management and Implementation

Reservoir Operations

- **M-1** Avoid RMP impact on operations, especially within the TVID/Reclamation zone (as mapped): It has been clearly noted, as an RMP "sideboard," that reservoir operations are not a part of the RMP effort, and care will be taken to ensure that RMP proposals/programs/actions do not have an adverse effect on operations. Specific to operations facilities, the Reclamation zone, including the area surrounding and downstream of the dam, should be shown on RMP maps; the history and functions of this zone can be a subject of public information materials.

- **M-2** Consider safety & security issues at/below dam: This concern was not discussed at length by the AHWG. It is self-explanatory; the RMP will address safety and security at and surrounding the dam and associated facilities.

Study Area Data

- **M-3** Gather data from other sources/studies for use in RMP; **M-4** Establish inventory/database, specifically for Hagg Lake (e.g., natural resources); **M-5** Work with educational partners; and **M-6** Do not trust County's 1999 study--flawed; biased toward picnicking; not inclusive of current users: These ideas and concerns are considered self-explanatory, not requiring substantial discussion. The RMP effort will use existing data sources and studies to the maximum credible extent and will compile resource inventory, user data, and other information relevant to both the present planning effort and to continuing management of the study area. Educational partners in these efforts are represented on the AHWG, and no one source of information (such as the 1999 Recreation Users Study) will be allowed to unduly influence decision-making.

Health, Safety, & Security

- **M-7** Increase law enforcement presence: Increased law enforcement presence in the west part of the County, including the study area, has been a concern; recently, the number of officers on patrol has been increased from one to two, with more officers available and provided during

weekends and other busy periods. The adequacy of this staffing level into the future should be considered related to the needs of the study area and its surroundings. As noted above, for example, if overnight camping is considered for the park, it is strongly felt that increased attention to law enforcement presence will be warranted.

Specific to the water surface of the lake, increased law enforcement presence is needed due to the intensity and density of use. This concern will increase over time as/if visitation to the park grows. Perhaps a return to the prior staffing level (one marine deputy and one Explorer) would be a step in the right direction.

(Planning Team Note: We should add clarification of the term "Explorer" as used by the WACO Sheriff.)

- **M-8** Stronger Coast Guard Auxiliary presence: Coast Guard Auxiliary presence at the lake is voluntary. The number of hours currently volunteered should be verified, and the potential for increasing this very positive presence should be explored as part of any solution to safety, enforcement, and patrol concerns.

- **M-9** Concerns include fire, police, hunting, firearms, and vandalism: The issue of overall law enforcement presence is discussed above. Specific to the concerns expressed in this comment, the following points are relevant:

    - Hunting and loaded firearms are currently prohibited in the study area (i.e., thus, an enforcement concern).
    - Vandalism has occurred and will continue to require patrol and enforcement attention.
    - The RMP effort should reflect the status of emergency actions plans for fire management and protection around the lake. Currently, only barbeque grills are allowed in the park; open fires are prohibited. Also, the public should be aware that firefighters may need access to the lake as a water source in fighting fires on either park lands or adjacent private property.

- **M-10** Inadequate enforcement of rules pertaining to hunting & ORV use: Self-explanatory--see M-7 and M-9, above.

- **M-11** Response to 911 calls (there are many); and associated costs (need for funding): The County currently has an agreement with the Gaston Fire Department for response to 911 calls. This arrangement is working well, and the service provided by the Fire Department is considered very good. The only concern for the RMP is the likelihood that any significant increase in visitation to the park will result in a corresponding increase in 911 calls, and thus an increase in costs that must be covered.

- **M-12** Wireless phone coverage needed: It is generally agreed that better wireless phone coverage is desirable in the study area and its surroundings. Such coverage would be of benefit for 911 calls, as well as valley residents, businesses, and agencies in general.

(Planning Team Note: Efforts to enhance wireless phone coverage in the study area have previously included discussion of possibly placing a relay tower/antenna on Reclamation land in the Southwest part of the RMP area. No request was made officially for a site on Reclamation land; and the project proponents began seeking a site on private land outside of the RMP area. The RMP process should investigate and report on the status of these efforts. Beyond whatever potential might exist for pursuing discussion of locating the needed tower on Reclamation land, it is not likely that the RMP

process can directly seek to provide or improve wireless phone service in the study area. However, the RMP can include an objective to work with the County and other interested parties, within the bounds of Reclamation's mission and authority, to obtain this service. A permit for this purpose would require the vendor to lease the land at fair market value.)

- **M-13** General concern regarding trash/garbage, especially along the shoreline: Trash along the road, within the park, and along the shoreline is an ongoing issue. Currently, the Sheriff conducts clean-ups along the road as part of the community corrections program; perhaps the RMP, through the County, can investigate the feasibility of an "adopt-a-highway" program for the study area to supplement these efforts. In all cases, enforcement, public information/signage, and provision of adequate trash receptacles are all part of the solution.

- **M-14** Better/more restrooms & trash receptacles; and **M-15** Provide adequate sanitation/waste facilities commensurate with increased recreation development: Self-explanatory. Beyond the points made under M-13, above, no specific focal locations for these concerns were identified during AHWG discussion; these issues will be addressed as an integral part of the RMP process.

Public Information

- **M-16** Need more complete website for park--rules, reservations, wildlife viewing, trails, other links, etc: The amount and type of information on the County's park website should be improved, including information on scheduled events, links to Reclamation information on water elevation/reservoir operations, trails information, use regulations, natural resource interpretation, and others. The RMP should encourage improvement of the County's website as much as feasible in this regard. Also, the desirability of maintaining (i.e., after RMP completion) the current link between Reclamation's RMP website and WACO should be explored.

- **M-17** Need specific trails-related brochure: Discussed under R-18, above.

- **M-18** Better signage & education for users regarding clean-up responsibilities--especially bank fishers & boaters: As discussed under M-13, above, signage/public education is definitely a component of any program to improve trash/waste management conditions.

- **M-19** Interpretive signage program, including the dam: The desirability of providing interpretative signage on a number of topics has been noted in several places herein, including natural resources, cultural resources, and dam and reservoir history, facilities, and operations.

- **M-20** Signage master plan to improve signage overall--new designs, better legibility, accessibility; use public involvement & volunteer resources: Given the number and variety of references made in other discussions to the role of signage, is seems clear that the need and potential for a coordinated signage plan should be considered as part of the RMP process.

Fees/Fee Structure

- **M-21** Appropriate for (increased) use levels: One half of the park's budget comes from the fees paid by users; and the County is responsible for setting fee levels. Clearly, this source of revenue will continue to be important, especially since Reclamation does not cost-share operations and maintenance of these facilities.

Funding & Implementation

(Planning Team Note: Item numbering under this heading has changed. The first issue/concern was inadvertently not given a number in the original matrix. Thus, previously numbered items M-22 through M-26 are now numbered M-23-through M-27; also, item M-28 has been added by Reclamation to clarify funding and implementation questions related to the proposed Education/Research Center).

- **M-22** Funding of RMP programs/facilities: In has been noted in RMP presentations and publications to date that Reclamation is required by regulation to have cost-sharing non-Federal public managing partners to provide funding for facilities. This requirement is for a 50/50 cost share partner in developing any new recreation facilities, and a 75-Federal/25-non-Federal partner for fish and wildlife enhancements.

  Up to this point in time, the County has relied on timber revenues to fund its 50% share of recreation development at the park. The County no longer has this source of revenue available for park development and does not envision such funds being available for at least the next 7 years. As a result, funding will be an important issue for any RMP development proposals.

  Potential new sources the County should investigate include the Community Development Block Grant program, and, if overnight camping is made available, State RV grant funds. It is estimated these funds could provide as much as $80,000 per year. Also, use of volunteers should be explored wherever feasible; volunteer labor and/or materials could be enlisted for trail development/maintenance and other purposes.

- **M-23** Look at implications of increased season of use; **M-24** Impacts to resources (e.g., elk) of extended season or year-round fishing; and **M-25** Funding for operations, enforcement, & management during extended season: As noted above, 2002 will be the first year of an extended season for the park, extending the period the park is open from 6 to 9 months. During the additional months the park will be open, it will be open to all uses; this will require an increase in seasonal staff, additional fee collectors, and other associated costs to the County. It is uncertain whether use levels, and thus user fee revenues, will be sufficient to offset the additional costs of maintaining the extended season over the long term. For example, while fishing and bike trail usage may take advantage of the extended season, other uses, such as boating and picnicking, may be minimal because of weather, bridge closures, etc. The County will be monitoring this situation to determine if the extended season is feasible.

(Planning Team Note: The potential for impact of the extended season on the natural resources of the study area was not discussed in depth by the AHWG. However, the RMP process will review and consider the potential for such impacts, as well as consider this perspective in formulating recommendations regarding season of use during the 10-year horizon of the Plan. This will also include reviewing the concerns of time of day and season of use patterns for special events and how these affect natural resources.)

- **M**-26 RMP and water study; and **M-27** Consider impacts of dam-raising possibility--loss of land, do not waste taxpayers money:

(Planning Team Note: The relationship between the RMP and the water supply feasibility study was not discussed by the AHWG. This is because the relationship between the two studies was clarified by earlier Planning Team presentations (i.e., at both the public meeting and earlier during the AHWG

meeting). In brief, it is recognized that the water supply feasibility study could recommend raising Scoggins Dam as part of its preferred alternative. Obviously, such an action would impact the entire park, including current recreation sites. However, if raising the dam is actually pursued, the process leading to physical construction will most likely take 10 or more years to complete. During that time, management of the park and its resources cannot stand still. Facility renovations and improvements and actions to address use/management issues need to continue. The RMP process will clearly keep in mind the potential effects of raising the dam and will consider this potential in all decisions related to facility development, especially those requiring any significant capital improvements. In general, any new facilities proposed in the RMP will be either: [1] low cost, temporary, or easily moveable; or [2] above the potential future waterline of the modified reservoir.)

- **M-28** Reclamation's relationship with and requirements for the proposed Education/Research Center:

(Planning Team Note: If the Education/Research Center proposal goes forward, Reclamation would not cost-share construction, operations, and maintenance; however, a land use agreement would be required with the project proponents, specifying terms and conditions governing this use.)

Appendix D

Elk Mitigation Meadows Maintenance and Monitoring Plan

Elk Mitigation Meadows Maintenance and Monitoring Plan
Henry Hagg Lake, Tualatin Project, Oregon

1.0 Introduction

After Scoggins Dam was constructed, the flooding of the valley (in 1978[1]) that created Henry Hagg Lake, inundated habitat used by elk (*Cervus elaphus roosevelti*) for foraging primarily in the winter. Managed elk pastures are a required component of the Tualatin Project to mitigate for the loss of valley floor meadow habitat. The Bureau of Reclamation (Reclamation) has been working cooperatively with both Oregon Department of Fish and Wildlife (ODFW) and the U.S. Fish and Wildlife Service (USFWS) on the most reasonable and appropriate measures to be implemented at Hagg Lake to ensure the continuation of healthy elk herds in the Scoggins Creek subbasin. The goals of this management plan are to 1) provide approximately 140 acres of high quality forage for wintering elk around Henry Hagg Lake, 2) provide a method of accurately and effectively monitoring elk use of these pastures, and 3) to provide a framework for reporting results of the monitoring effort and coordinating with ODFW and USFWS.

Reclamation researched the history of elk winter range mitigation at Hagg Lake through archived documents. The oldest record that discusses mitigation for the loss of elk winter habitat is the "Supplement to the Final Environmental Statement on Tualatin Project, Oregon" (Supplement) dated December 6, 1973. In this document, Reclamation recognizes that elk winter range would be eliminated in areas inundated by Scoggins Dam. The affected elk population was estimated to be approximately 100 individuals. The Supplement also calls attention to a compensation plan being developed by the Oregon Game Commission (renamed ODFW) in consultation with USFWS and Reclamation. Subsequently a letter was sent from the Director of the Oregon Game Commission to Reclamation's Regional Director transmitting the "Wildlife Compensation Plan for the Scoggins Reservoir Project" on April 24, 1974. This Plan included nine units around the reservoir that were potential sites to improve elk habitat including a map of their locations and site descriptions. This Plan noted that flexibility in site locations was prudent for both biological and recreational concerns. Reclamation located five other documents in its records search from 1977 through 1992 in which discussion of elk habitat mitigation would be relevant but the subject was given little attention. The issue was brought back to the forefront in 1994 in the "Scoggins Valley/Henry Hagg Lake Recreation Development Finding of No Significant Impact (FONSI) and Environmental Assessment (EA)." The 1994 EA referenced the 1974 Wildlife Compensation Plan and included a map of elk meadow locations based on the 1974 Plan.

Historically elk were abundant throughout Oregon before non-native settlers arrived, according to early accounts by pioneers. Elk were nearly extirpated from Oregon by the late 1890's due to unfettered hunting by settlers who hunted elk as a primary source of meat. Remnant elk populations became clustered into the Coast Range, the Cascades, and the Wallowa Mountains. Elk hunting was abolished in Oregon from 1900 – 1904 and from 1909 – 1932. Throughout the 20th century numerous different strategies for

[1] Errata: Flooding of the valley actually occurred in approximately 1975, rather than 1978.

regulating the increasing elk population were initiated by ODFW including manipulations to the length and timing of hunting seasons, restricting the bag limit, age, and/or sex of animals harvested (ODFW 2002).

ODFW manages elk herds in Oregon to maximize public recreational opportunities within the constraints of habitat capacity and primary land uses. It is also ODFW's responsibility to respond to damage complaints and to minimize elk damage through its policies and regulations.

Elk migrate annually from summer habitat at higher elevations in October through November to lower elevations in the winter. Elk migrate back to higher elevations in March through April. Seasonal movements are in response to vegetation availability and snow cover. In the mild climate of the Coast Range, elk migrate shorter distances between summer and winter ranges (Verts and Caraway 1998). On the west slope of the Cascade Range, for example, migration is less than 64 km and winter ranges are less than 1,100 hectares (Verts and Caraway 1998). Elk in the Coast Range would likely have smaller winter ranges and migrate shorter distances.

To achieve and maintain peak health conditions elk need access to food resources in sufficient abundance to support their needs for winter survival, reproduction, calf survival, and male antler growth (ODFW 2002). Before the construction of Scoggins Dam, landscape level disturbances such as fires and floods set back the process of natural succession in meadow habitat. Human intervention has nearly eliminated these processes and the encroachment of surrounding vegetation, especially unpalatable species, has reduced the value of winter pasture habitat for elk over time (Scotter 1980). All of the elk winter pasture areas at Henry Hagg Lake will require preparation and maintenance to provide high quality winter forage.

2.0 Elk Meadow Rehabilitation and Maintenance Plan

The following narrative provides a description of the components of elk meadow maintenance including meadow rehabilitation, a rehabilitation and maintenance schedule, and buffer establishment. Currently there are approximately 110 acres designated as elk meadow at Henry Hagg Lake. Under this plan elk meadows 6a and 6b would be new meadows that have had no previous meadow rehabilitation. These sites currently are thickly vegetated with non-native, unpalatable species. Meadows 3 and 4 have had ongoing meadow management, however they were not previously defined as elk mitigation meadows in the 1974 Wildlife Compensation Plan or the 1994 EA. Table 2-1 below lists the size of each meadow in acres. Figure 2-1 shows the location of existing and planned elk meadows at Henry Hagg Reservoir.

Table 2-1. Acres of elk pasture at Hagg Lake

Elk Meadow	1	2a	2b	2c	3	4	5a	5b	6a	6b	Total
Acres	19.8	6.0	3.5	6.4	15.2	23.4	6.4	29.5	27.5	1.7	139.4

2.1 Meadow Rehabilitation

For meadows 6a and 6b the first step in rehabilitation would be the removal of Scot's broom (*Cytisus scoparius*), Himalayan blackberry (*Rubrus discolor*), and other woody species that occupy the site. Following this initial step of removing woody vegetation, treatment would be the same among the meadows. The standard practice for pasture development is to spray the existing vegetation with some type of herbicide, plow the field, disc the field, pack ground with rollers, drill seed, and pack ground with rollers again.

The choice of a seed mix should maximize good forage plant species for elk in a grass/clover ratio that has proved attractive to elk at other locations. ODFW's Jewell Meadows Wildlife Area has extensive experience with elk pasture preparation and maintenance and is similar enough to Scoggins Valley in climate conditions that the same seed mix would likely be the best choice at Hagg Lake. ODFW uses a custom seed mix that is 65% grass and 35% clover, meets or exceeds the standards for Oregon certified seed, contains no noxious weeds, is legume inoculated, and is at least 98% pure seed. An example of a seed mix that works well for ODFW is 26% annual rye grass (tetraploid variety), 25% orchard grass, 17% New Zealand white clover, 15% perennial rye grass, 7% birdsfoot trefoil, 6% red clover, and 4% alsike clover (Bryan Swearingen, ODFW Jewell Refuge, January 9, 2003 pers. comm.). An alternative to the above seed mixture would be a beef cattle pasture seed mix that is 65% grass and 35% clover with the same or better seed standards. These are not native grasses and legumes, but they are used ubiquitously in Oregon for livestock pasture and are not invasive or noxious. In addition to the seeding of grasses and legumes for forage, buffer vegetation will be planted during meadow preparation.

ODFW recommends seeding at a rate of 10 lbs/acre with three passes over the pasture with seeding equipment in different directions (30 lbs/acre total). This produces a well seeded meadow and does not result in all the plants growing in clearly defined, side-by-side rows (Bryan Swearingen, ODFW, 2003, pers. comm.)

Each elk meadow would be mowed or hayed every year in the late spring or summer. Vegetation should be removed if it is not being collected for hay or mowed with a rotary brush mower. A rotary mower should be used only two years in succession, then materials should be removed at least every year. Repeat operations. The build-up of vegetation can cause a significant decline in new plant growth if it is left to create a mat over grass. WACO Parks Department or a contractor hired by WACO would conduct this maintenance work. In the past local farmers have been contracted to hay some of the meadow areas. Contracts with local farmers are encouraged because of the benefits to the local community. Contracts should make sure that contractor would remove the cut vegetation completely and commit to do the work even if plants are wet and not good for hay baling. All work conducted within the Reclamation Zone must be coordinated with Tualatin Valley Irrigation District (TVID).

Elk meadows need to be assessed for weed treatment annually and treatment may be required every year. Typical weed species may include: tansy ragwort (*Senecio jacobea*), thistle (*Cirsium* spp.), Himalaya blackberry (*Rhubrus discolor*), knapweeds (*Centaurea* spp.), and Scot's broom. Noxious weeds should be spot sprayed as needed in the late

spring/early summer. Weed control during the first year after seeding is critical. By treating weeds early before they become established maintenance in later years will be reduced.

Each meadow would require fertilization at least every 2 years and annual fertilization would be preferable for getting the most successful and healthy plant growth in the meadows. Meadows would get the most elk use as winter pasture, therefore any fertilizer should be applied in early fall, just prior to or shortly after fall rains have occurred. (Fertilization rates should be at 200 lbs per acre.) Elk meadows would have a buffer of vegetation to protect water quality from fertilizer runoff (see discussion of vegetative buffers below). Local farm supply stores can make fertilizer recommendations (type and application rates) based on the soil composition, PH, and the plant species being seeded. In general, a 16-16-16 fertilizer is a good overall product that develops both root systems and vegetation.

Following the schedule provided in Table 2-2, one meadow (or meadow complex) would be prepared and seeded (spraying, plowed/disced, seeded, and fertilized) each year. Meadows should be reestablished (spraying, plowed/disced, seeded and fertilized) at least once every 10 years. Elk meadows may need reestablishment more frequently depending on regrowth of non-palatable species. The ground should be packed down (during the seeding operation to seal the ground and retain moisture for seed germination) afterwards so elk will not sink down into the soft ground or be able to pull up young plants completely.

Table 2-2. Elk Meadow Rehabilitation and Maintenance Schedule

Meadow	Summer2004	Fall 2004	Summer 2005	Fall 2005	Summer 2006	Fall 2006	Summer 2007
1	D F	F W	M W		M W	F	M W
2	M		D F	F W	M W		M W
3	M		M		D F	F W	M W
4	M		M		M		D F
5	M		M		M		M
6							

Meadow	Fall 2007	Summer 2008	Fall 2008	Summer 2009	Fall 2009	Summer 2010	Fall 2010
1		M W	F	M W		MW	F
2	F	M W		M W	F	M W	
3		M W	F	M W		M W	F
4	F W	M W		M W	F	MW	
5		D F	F W	M W		M W	F
6				D F	F W	M W	

Meadow	Summer 2011	Fall 2011	Summer 2012	Fall 2012	Summer 2013	Fall 2013	Summer 2014
1	M W		M W	F	MW		D F
2	M W	F	M W		M W	F	M W
3	M W		M W	F	M W		M W
4	M W	F	M W		M W	F	MW
5	M W		M W	F	M W		MW
6	M W	F	M W		M W	F	M W

D = disc/plow, seed. F = fertilize. W = weed treatment. M = mow/hay.

The work shown on Table 2-2 may not be accomplished during the year shown due to funding limitations, but the schedule will be followed for the subsequent 10-year period once the initial work for each meadow had commenced. It is anticipated the work in all meadows will have been started by 2006.

2.2 Buffer Plantings

Two types of buffers zones are included in elk meadow rehabilitation: 1) herbaceous buffers along the reservoir edge, and 2) a woody vegetation buffer along portions of the elk meadows below the dam.

Vegetative buffers planted for water quality purposes will be located on the reservoir (downslope) edge of each meadow. These buffers would be mowed as part of meadow maintenance but would not be disced or fertilized to reduce the amount of contaminated runoff that could reach the reservoir. These buffers will be 100 feet wide and composed of native species of herbaceous vegetation. Spot spraying of weeds in the buffer zone would be conducted as part of general meadow maintenance.

ODFW requested that a woody vegetation buffer be established along the eastern and northern edge of meadow 4 near the boundary with Stimson Lumber Company and along the lake access road. The intent would be to provide a visual and sound screen between elk using the meadow and the vehicle traffic in and out of the lumber mill entrance road and the lake. This buffer would be 25-feet-wide and composed of native trees and shrubs. The overstory tree species should be conifers that are best suited to the site conditions. A conceptual planting plan will be prepared at a later date for ODFW review.

2.3 Estimated Rehabilitation and Maintenance Costs

The following are cost estimates provided to Reclamation by ODFW based on costs for similar wildlife habitat management programs. This list may not be comprehensive of all costs associated with maintaining elk pastures.

Table 2-3. Meadow Rehabilitation and Maintenance Costs

	Estimated cost per acre (w/labor, equip., and fuel)	Total estimated cost for 140 acres
Fertilizer	$40.00	$5,600
Seeds	$25.00	$3,500
Mowing	$14.00	$1,960
Discing/plowing	$45.00 (fuel and labor only)	$6,300
Weed control	$25.00 (excluding labor)	$3,500

The mitigation efforts are Reclamation's legal responsibility. Reclamation will enter into an agreement with WACO to address specific actions and funding. Funds will come from 1) Reclamation's appropriated budgets, 2) WACO's operating budget when the work coincides with park operational requirements, and 3) from revenues generated at the park which may be used as a cost share for work in those meadows tied to recreation facilities. Volunteer labor will also be used whenever possible.

3.0 MONITORING PLAN

Because the intent of this management plan is to provide quality elk forage, it is necessary to evaluate the success of the program by monitoring elk use. Monitoring the use of elk meadows is an important part of an adaptive management approach. The 10-year RMP cycle will provide an opportunity to review the effectiveness of the elk meadow maintenance and management actions implemented in this RMP and provide a process to make maintenance changes for the next 10-year cycle. In the interim between RMPs, data of sufficient quality and quantity must be collected to make informed decisions in the future. Anecdotal reports of elk in the park by park staff, park visitors, TVID employees, and others, while important, are not rigorous enough to constitute monitoring. A consistent and repeatable protocol for monitoring must be established for the data to be useful in the future. The results of the monitoring need to be detectable, quantifiable, and show trends in elk use in the meadows. Carefully examining elk meadow use patterns at Hagg Lake can guide future changes in meadow maintenance as required.

Monitoring the use of the elk meadows and determining if management is having the desired effect is possible even with spotty baseline information. The rotating schedule of maintenance provides the opportunity to compare elk meadows that have been plowed/disced and reseeded with other meadows yet to undergo this level of restoration to determine if goals are being met. Reclamation, WACO, and ODFW have agreed to meet every two years to discuss the progress of the elk meadow maintenance and monitoring and discuss the plan for the next two year period between meetings. Adjustments to the maintenance and/or monitoring plan can be made if all agencies are in agreement. Additional information may be available from the ODFW from their aerial surveys, hunting records, and other activities. However, the elk population does not reside within the park all year. The resident populations of elk will/could be affected by other factors not under the jurisdiction of Reclamation or WACO.

Because it is difficult and time consuming to make systematic direct observations of elk use patterns, fecal pellet counts will be used as an index of elk use. Monitoring and data collection on ungulates through the use of fecal pellet counts began as early as 1940 (Bennet et al. 1940). This method has many advantages and will meet the goal of this plan by providing a quantifiable approach to documenting elk presence and use trends in the elk meadows. The monitoring plan would follow methods described in "Ground-based inventory methods for selected ungulates: moose, elk and deer" (Resources Inventory Committee 1998).

Transect lines will be placed 75 feet apart across the short axis of each elk meadow. On each transect circular plots (100 sq. ft., radius of 5.6 ft.) will be spaced at 50 ft intervals The center point of each circular plot will be marked with PVC pipe sunk into the ground, and referenced with coordinates from a GPS unit. The GPS data will be entered into the existing GIS data layer of the elk meadows. Approximately 4-10 transects with 4-8 circular plots per transect would be placed in each meadow, depending on its size and shape. The ends of the transects and the center of the plots should be permanently marked with PVC pipe set low enough that mowing equipment can safely mow over them. Reclamation, with input from ODFW, would assist WACO in the establishment

of the transects and plots. The circular plots would be counted once every 2 weeks from October through February. After each visit the plots would be cleared of pellets.

Photos will be taken every year to monitor the condition of the meadows for successful vegetative growth of meadow and buffer vegetation. A protocol will be established prior to implementation to establish and identify photo points for consistent approach to photo documentation. Sample data sheets are included in Appendix A. The data sheet includes lines for recording the necessary data and a map that could be used to note other field observations such as elk trails, indications of bedding, or other use indicators. Collected field data will be supplemented by elk use patterns observed by WACO and ODFW staff.

A field crew of at least 2 people is needed to place transects, count and clear plots, and record data. Once the transects and plots have been established it should require one staff person one day to visit all plots and record the required data. A detailed description of the monitoring procedure will be provided to WACO and Reclamation will work with park staff to train WACO personnel on the monitoring procedure.

The following equipment will be required to establish and monitor pellet group counts:

- GPS unit
- Survey stakes (PVC to mark plot centers)
- Waterproof field notebooks
- Datasheets printed on waterproof paper
- Field measuring tape
- Metal cattle ear tags or rebar to mark ends of transects
- Flagging and permanent markers
- Camera and film (or digital camera)

4.0 Data Analysis and Reporting

The data forms used in the field and any additional field notes from monitoring crews will be submitted to Reclamation for analysis after each monitoring effort. Field data will be converted to an electronic format by Reclamation's Lower Columbia Area Office staff in Portland and can be provided in either MS Excel or as hard copies of the field data sheets and printouts of the Excel database.

The collected elk usage data will be analyzed statistically using Analysis of Variance (ANOVA) or a similar appropriate test. Biennial reports showing analyses and data trends will be prepared by Reclamation to be presented at biennial meetings with ODFW and WACO. A report will be prepared that summarizes the findings of the monitoring effort to date in narrative, graphic, and tabular formats as appropriate. Biennial meetings will give WACO, ODFW, and Reclamation a forum to discuss the progress of the elk meadow mitigation program and what, if any, changes might be needed. The cumulative results of the monitoring efforts will reported in the next Hagg Lake RMP.

Literature Cited

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Signatures

Ronald J. Eggers, Bureau of Reclamation, Area Manager
Lower Columbia Area Office — May 1, 2003 Date

Larry Eisenberg, Washington County Parks, Facilities Manager — May 5, 2003 Date

Jeff Boechler, ODFW, Manager North Willamette Watershed District — 5-2-03 Date

Example of Data Form

Henry Hagg Lake Elk Meadow Monitoring

Investigator's Names: _____

Elk Meadow Number: _____ Date: _____ Time: _____

Weather conditions (air temp., precip., cloud cover, etc.): _____

_____

Transect 1

Lat/long or UTM coordinates. Start point: _____ End point: _____

Transect Length: _____ Number of plots on transect: _____ Plot area: _____

Record pellet groups counted below for each plot in transect 1.

P1: _____ P2: _____ P4: _____ P5: _____

Notes _____

_____

_____

Transect 2

Lat/long or UTM coordinates. Start point: _____ End point: _____

Transect Length: _____ Number of plots on transect: _____ Plot area: _____

Record pellet groups counted in each plot in transect 2 below .

P1: _____ P2: _____ P4: _____ P5: _____

Notes _____

_____

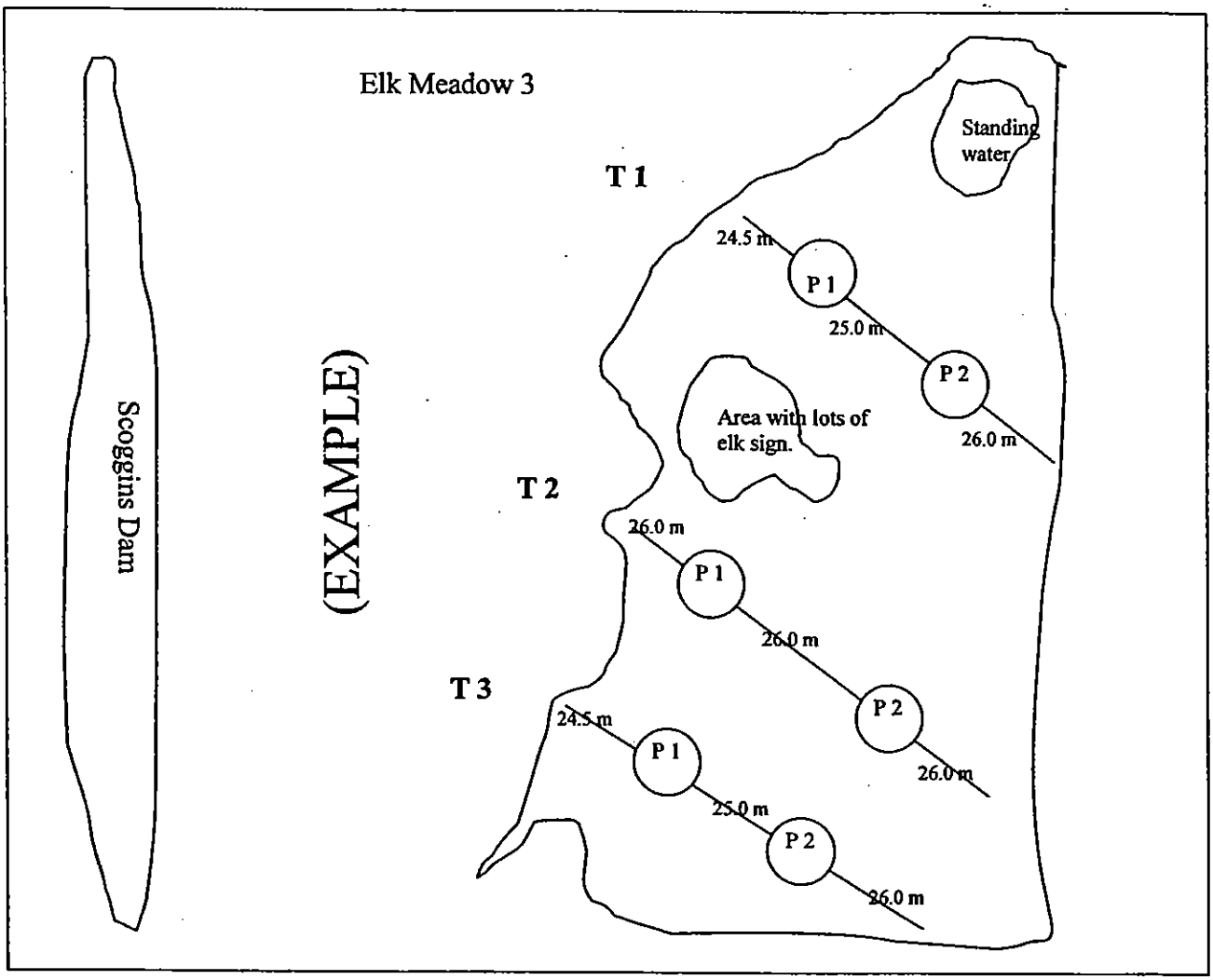
_____

Describe photographs taken in this meadow _____

_____

Back of data form

Sketch or photocopy the elk meadow in the space below from an aerial photograph and draw the approximate locations of transects, plots, and other geographical reference points.



Additional notes. Best access points, for example.