

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

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 dis-

turbing 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	<i>Thamnophis sitalis</i>	Widespread and abundant.
Northwestern garter snake	<i>Thamnophis ordinoides</i>	Widespread and abundant.
Rubber boa	<i>Charina bottae</i>	Common
Western fence lizard	<i>Sceloporus occidentalis</i>	Common in dry forests and meadows
Northern alligator lizard	<i>Elgaria coerulea</i>	Less prevalent.
Amphibians		
Common Name	Scientific Name	Comments
Northwestern salamander	<i>Ambystoma gracile</i>	Common and widespread
Long-toed salamander	<i>Ambystoma macrodactylum</i>	Common and widespread.
Rough-skinned newt	<i>Taricha granulosa</i>	Common and widespread.
Ensatina	<i>Ensatina eschscholtzii</i>	Common
Western red-backed salamander	<i>Plethodon vehiculum</i>	Widespread and abundant
Pacific tree frog	<i>Pseudacris regilla</i>	Widespread and abundant.
Bullfrog	<i>Rana catesbeiana</i>	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	<i>Podilymbus podiceps</i>	Winter and migrant visitor.
Great blue heron	<i>Ardea herodias</i>	Nests near Henry Hagg Lake.
Mallard	<i>Anas platyrhynchos</i>	Winters in large numbers on reservoir.
Green-winged teal	<i>Anas crecca</i>	Winters in large numbers on reservoir.
American wigeon	<i>Anas americana</i>	Winters in large numbers on reservoir.
Northern pintail	<i>Anas acuta</i>	Winters in large numbers on reservoir.
Ring-necked duck	<i>Aythya collaris</i>	Winters in large numbers on reservoir.
American coot	<i>Fulica Americana</i>	Nests on Henry Hagg Lake.
Mourning dove	<i>Zenaida macroura</i>	Year-round resident.
Red-tailed hawk	<i>Buteo jamaicensis</i>	Year-round resident.
Great horned owl	<i>Bubo virginianus</i>	Year-round resident.
Rufous hummingbird	<i>Selasphorus rufus</i>	Breeding resident.
Northern flicker	<i>Colaptes auratus</i>	Year-round resident.
Hairy woodpecker	<i>Picoides villosus</i>	Year-round resident.
Steller's jay	<i>Cyanocitta stelleri</i>	Year-round resident.
American crow	<i>Corvus brachyrhynchos</i>	Year-round resident.
Tree swallow	<i>Tachycineta bicolor</i>	Breeding resident.
Cliff swallow	<i>Petrochelidon pyrrhonota</i>	Breeding resident.
Black-capped chickadee	<i>Poecile atricapillus</i>	Year-round resident.
Bushtit	<i>Psaltriparus minimus</i>	Year-round resident.
Red-breasted nuthatch	<i>Sitta Canadensis</i>	Year-round resident.
Winter wren	<i>Troglodytes troglodytes</i>	Year-round resident.
Golden-crowned kinglet	<i>Regulus satrapa</i>	Year-round resident
Swainson's thrush	<i>Catharus ustulatus</i>	Breeding resident.
American robin	<i>Turdus migratorius</i>	Year-round resident.
European starling	<i>Sturnus vulgaris</i>	Introduced non-native pest species.
Golden-crowned kinglet	<i>Regulus satrapa</i>	Year-round resident.
Orange-crowned warbler	<i>Vermivora celata</i>	Breeding resident.
Yellow-rumped warbler	<i>Dendroica coronata</i>	Breeding resident.
Western tanager	<i>Piranga ludoviciana</i>	Breeding resident.
Spotted towhee	<i>Pipilo maculatus</i>	Year-round resident.
Song sparrow	<i>Melospiza melodia</i>	Year-round resident.
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	Year-round resident.
Dark-eyed junco	<i>Junco hyemalis</i>	Year-round resident.
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>	Breeding resident.
Red-winged blackbird	<i>Agelaius phoeniceus</i>	Breeds in wetlands and shoreline habitat.
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	Year-round resident.
House finch	<i>Carpodacus mexicanus</i>	Year-round resident.
American goldfinch	<i>Carduelis tristis</i>	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	<i>Didelphis virginiana</i>	Introduced species native to eastern U.S.
Townsend's mole	<i>Scapanus townsendii</i>	Common and widespread.
Little brown myotis bat	<i>Myotis lucifugus</i>	Breeding status only.
Common raccoon	<i>Procyon lotor</i>	Abundant and widespread.
Striped skunk	<i>Mephitis mephitis</i>	Widespread.
Coyote	<i>Canis latrans</i>	Widespread and abundant.
Red fox	<i>Vulpes vulpes</i>	Introduced species.
Townsend's chipmunk	<i>Tamias townsendii</i>	Associated with coniferous forest.
Common porcupine	<i>Erethizon dorsatum</i>	Widespread.
Roosevelt elk	<i>Cervus elaphus roosevelti</i>	Managed game species.
Black-tailed deer	<i>Odocoileus hemionus</i>	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 low-land streams, rivers, lakes, estuaries, and near-shore 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)	NMFS¹	ODFW²	ONHP³
Coastal cutthroat trout, Upper Willamette ESU (<i>Oncorhynchus clarki clarki</i>)	SoC	--	4
Birds (5)	USFWS⁴	ODFW²	ONHP³
Band-tailed pigeon (<i>Columba fasciata</i>)	SoC	--	4
Olive-sided flycatcher (<i>Contopus cooperi</i>)	SoC	--	4
Yellow-breasted chat (<i>Icteria virens</i>)	SoC	SC	4
Acorn woodpecker (<i>Melanerpes formicivorus</i>)	SoC	--	4
Mountain quail (<i>Oreotyx pictus</i>)	SoC	SU	4
Amphibians and Reptiles (0)	USFWS⁴	ODFW²	ONHP³
Mammals (7)	USFWS⁴	ODFW²	ONHP³
White-footed vole (<i>Arborimus albipes</i>)	SoC	SU	4
Red tree vole (<i>Arborimus longicaudus</i>)	SoC	--	3
Silver-haired bat (<i>Lasionycteris noctivagans</i>)	SoC	SU	4
Long-eared myotis (<i>Myotis evotis</i>)	SoC	SU	4
Long-legged myotis (<i>Myotis volans</i>)	SoC	SU	4
Yuma myotis (<i>Myotis yumanensis</i>)	SoC	--	4
Camas pocket gopher (<i>Thomomys bulbivorus</i>)	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 formicivorus*) 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 (*Lasiorycteris 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 pavona-ceum*) 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)	USFWS¹	ODA²	ONHP³
White-topped aster (<i>Aster curtus</i>)	SoC	LT	1
White rock larkspur (<i>Delphinium leucophaeum</i>)	SoC	LE	1
Peacock larkspur (<i>Delphinium pavonaceum</i>)	SoC	LE	1
Willamette daisy (<i>Erigeron decumbens</i>)	LE	LE	1
Shaggy horkelia (<i>Horkelia congesta</i>)	SoC	C	1
Thin-leaved peavine (<i>Lathyrus holochlorus</i>)	SoC	--	1
Kincaid's lupine (<i>Lupinus sulphureur kincaidii</i>)	LT	LT	1
Nelson's checker-mallow (<i>Sidalcea nelsoniana</i>)	LT	LT	1
Fish (2)	NMFS⁴	ODFW⁵	ONHP³
Pacific lamprey (<i>Lampetra tridentata</i>)	SoC	SV	2
Steelhead, Upper Willamette River ESU, winter run (<i>Oncorhynchus mykiss</i>)	LT	SC	1
Birds (5)	USFWS¹	ODFW⁵	ONHP³
Streaked horned lark (<i>Eremophila alpestris strigata</i>)	C	SC	2
American peregrine falcon (<i>Falco peregrinus</i>)	--	LE	2
Bald eagle (<i>Haliaeetus leucocephalus</i>)	LT	LT	2
Oregon vesper sparrow (<i>Pooecetes gramineus affinis</i>)	SoC	SC	2
Purple martin (<i>Progne subis</i>)	SoC	SC	2
Amphibians and Reptiles (3)	USFWS¹	ODFW⁵	ONHP³
Northwestern pond turtle (<i>Clemmys marmorata marmorata</i>)	SoC	SC	1
Northern red-legged frog (<i>Rana aurora aurora</i>)	SoC	SV	2
Oregon spotted frog (<i>Rana pretiosa</i>)	C	SC	1
Mammals (2)	USFWS¹	ODFW⁵	ONHP³
Pacific western big-eared bat (<i>Corynorhinus townsendii townsendii</i>)	SoC	SC	2
Fringed myotis (<i>Myotis thysanodes</i>)	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 sulphureus 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 tridentata*) 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 suckorial 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 overwinter 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 Develop-*

ment 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, water-skiing, 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	Period	Summer Peak		
		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).

