DENMAN WILDLIFE AREA MANAGEMENT PLAN

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Table of Contents

List of Figures

List of Tables

Executive Summary

The Denman Wildlife Area (DWA) located approximately seven miles north of Medford, in southwest Oregon, was established on April 5, 1954 when 1,760 acres of the former Camp White Military Reservation were conveyed to the Oregon Game Commission. The area is now 1,858 acres in size. Situated on the Rogue Valley floor, the DWA is bordered by the Rogue River and Table Rocks on the north, agricultural and urban development on three sides and is split by a large industrial park. The DWA is situated in the Klamath Mountains ecoregion, as designated in the Oregon Conservation Strategy, and was selected for inclusion in the north Medford Conservation Opportunity Area (COA 097) because of its oak woodlands, grasslands, ceanothus shrublands, riparian habitat, and intact vernal pools, which are all considered to be at-risk habitat in southwest Oregon. The DWA is within Jackson County which as of 2016 has a population of 213,000.

In 1993 the first management plan for the wildlife area was created.

The 2017 Denman Wildlife Area Management Plan offers a comprehensive vision and action plan for the next 10 years.

This plan describes issues and provides actions for addressing them. These actions will be implemented during the life of this plan, but are subject to funding and personnel availability. The management plan will be reviewed in 2022 to gauge the implementation progress and make necessary revisions and revised in its entirety in 2027.

Introduction

Purpose of the Plan

This document is a long range plan designed to guide the management of the DWA for the next 10 years. The Oregon Department of Fish and Wildlife's (Department) management planning process for Wildlife Areas (WAs) involves the development of broad goals for the areas, and formulation of specific objectives and management strategies to achieve those goals. The purposes of this plan are:

- To provide clear direction for the management of DWA over the next 10 years;
- To provide long-term continuity in wildlife area management;
- To communicate the Department's management priorities for DWA to its neighbors, visitors, and to the public;
- To ensure that management programs on the DWA are consistent with the original mandate and purpose of the area when it was first established;
- To ensure that management of DWA is consistent with Federal, State, and local plans, and;
- To provide a basis for budget requests to support the DWA needs for staffing, operations, maintenance, and capital improvements.

Oregon Department of Fish and Wildlife Mission and Authority

The mission of the Oregon Department of Fish and Wildlife is to protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations. The Department is the only state agency charged exclusively with protecting Oregon's fish and wildlife resources. The state Wildlife Policy (ORS 496.012) and Food Fish Management Policy (ORS 506.109) are the primary statutes that govern the management of fish and wildlife resources.

Oregon Conservation Strategy

The Oregon Conservation Strategy (also referred to as the OCS or Strategy) (2016) is an overarching state strategy for conserving fish and wildlife. Many of the habitats that the strategy has prioritized at a statewide level occur on DWA including, oak woodlands, riparian habitats, grasslands, and vernal pools. Due to its unique location on the landscape, at the base of Upper Table Rock and the confluence of the Rogue River and Little Butte Creek, and these Strategy Habitats, DWA has been included in the Strategy's North Medford Conservation Opportunity Area (COA 097), which is an area where focused restoration is predicted to benefit multiple species and habitats.

Purpose and Need of Denman Wildlife Area

The DWA was established in 1954 when 1,760 acres was conveyed to the Oregon Game Commission from the United States General Services Administration via a restrictive deed specifying that the land be used for the purpose of wildlife conservation. Other land acquisitions since that time have increased the size of the area to 1,858 acres.

The wildlife area is currently managed to protect, enhance and restore all fish and wildlife species and their habitats located on the wildlife area, and to provide a wide variety of wildlife-oriented recreational and educational opportunities to the public.

The wildlife area contains many different types of habitats supporting a great diversity of plant and animal species. Important habitats include vernal pools, prairie grasslands, oak woodlands, riparian habitat and wetlands.

A major function of the wildlife area's management is to provide waterfowl, upland bird and deer hunting opportunities. Fishing, hiking, birding and dog training are some of the other recreational activities offered to the public. The area is also an important resource for outdoor education.

While approximately half of Jackson County is in federal ownership, most of this public land occurs at higher elevations. The DWA is relatively unique in having a large block of habitat conserved on the valley floor at the confluence of a major river and creek. As neighboring land continues to be developed, the open space and wildlife habitat provided on the DWA will be an increasingly valuable public resource.

Denman Wildlife Area Vision Statement

The vision statement for the Denman Wildlife Area is as follows:

Fish and wildlife habitats including grasslands, vernal pools, oak woodlands and riparian areas historically found in the Rogue Valley are clearly visible, biologically healthy and available for the enjoyment of present and future generations.

Wildlife Area Goals and Objectives

Wildlife area goals are broad statements of desired future conditions that convey a purpose but do not define measurable units. In contrast, objectives are concise statements of what the Department wants to achieve, how much the Department wants to achieve, when and where to achieve it, and who will be responsible for the work. Objectives derive from goals and provide the basis for determining strategies, monitoring wildlife area accomplishments, and evaluating the success of strategies. The goals and objectives for the DWA are:

Goal 1: To protect, enhance and restore habitats to benefit fish and wildlife species.

Objective 1.1: To protect, enhance and restore 286 acres of upland habitats annually to benefit native and desirable non-native wildlife.

Objective 1.2: To protect, enhance and restore 730 acres of wetland, riparian, and freshwater aquatic habitats annually for the benefit of native and desirable non-native fish and wildlife.

Objective 1.3: To protect, enhance and restore 720 acres of vernal pool habitat annually to benefit the native species associated with this unique habitat.

Objective 1.4: Maintain 122 acres of agricultural habitats to provide forage for native and desirable non-native wildlife.

Objective 1.5: To maintain and enhance wildlife area facilities, structures, and equipment to conduct habitat management and public use projects on the wildlife area.

Goal 2: To provide a variety of quality wildlife oriented recreational and educational opportunities to the public which are compatible with Goal 1.

Objective 2.1: To provide a minimum of 15,000 hunting, trapping, and angling use days annually.

Objective 2.2: To provide a minimum of 30,000 non-consumptive recreational and education/interpretation use days annually.

Wildlife Area Establishment

The DWA was established in 1954 when 1,760 acres of the former Camp White Military Reservation was conveyed to the Oregon Game Commission via a restrictive deed specifying that the land be used "as a reserve for the conservation of wildlife, other than migratory birds". This language does not prevent the state from managing habitat to benefit migratory birds, but rather asserts that the federal government has ultimate management authority over migratory bird populations. The United States General Services Administration (GSA) still retains the right of repossession of this tract for national defense purposes. The GSA also conducts an inspection every 5 years to see if the land is being used for its intended purpose.

The 160 acre Hall Ranch was purchased by the Department in 1956 to expand the wildlife area and to serve as a headquarters site for Department staff. The Hall Ranch, and other land acquired since that time, is not under GSA control.

In 1995 a tract of 60 acres, the Bear Creek Tract, located about 3.5 miles west of the Hall Tract near the mouth of Bear Creek, was acquired through a donation from the U.S. Department of Agriculture's Rural Economic and Community Development Program.

Other parcels of land have been added and subtracted over time bringing the total size of the wildlife area to 1,858 acres. The DWA is now managed to protect and enhance all fish and wildlife habitats, and to provide a variety of wildlife-oriented recreational opportunities to the public.

Description and Environment

Physical Resources

Location

The DWA is located in the Rogue Valley of southwest Oregon, approximately seven miles north of Medford. The area consists of three tracts; the Hall Tract to the south, the Military Slough Tract to the north, and the Bear Creek Tract to the west. The wildlife area headquarters, the Department's Rogue Watershed District Office, and the Southwest Region Fish Screen Shop are all housed on the Hall Tract, at 1495 East Gregory Road in Central Point. **Figure 1.1** shows the location and key features of the Military Slough and Hall Tracts. The Bear Creek Tract is shown separately in **Figure 1.2**.

Climate

The area is characterized by hot, dry summers, moderate winters and an average growing season of about 160 days. Temperatures range from a maximum high of 110ºF to a low of -10ºF. Average annual precipitation is 18.4 inches, falling mostly between November and May (Bowman, 1979). Elevation is between 1200 and 1400 feet.

Topography and Soils

Much of the DWA is a grass covered plain known locally as the Agate Desert. The desert landform is described as mounded prairie, forming a pattern of low mounds and depressions. The desert is underlain by a layer of cemented gravel, or hardpan, which causes shallow pools, called vernal pools, to form in the depressions during the rainy season. Numerous small stream channels cut wide, shallow valleys through the desert on their way to the Rogue River. Broad flood plains border Whetstone Creek, Little Butte Creek, and the Rogue River. There are 76 developed water features on the area. These features include the18-acre Whetstone Pond, numerous potholes of approximately 1/10 acre in size, and 10 diked fields that are planted with grain and flooded seasonally specifically for waterfowl forage areas.

Soils of the DWA are alluvial, originating from material deposited by the many streams and rivers that pass through the area. Soils range from shallow gravelly clay loam on the desert top to very deep clay loam on the stream terraces. All the soils within the wildlife area have high clay content. The soils most suitable for agriculture are on the low stream terraces. These soils and local climate conditions require irrigation for most crops. Soils are somewhat difficult to cultivate due to high clay content, but lend themselves well to winter flooding for waterfowl. Approximately 195 acres of the wildlife area's soils are classified as prime farmland by the U. S. Department of Agriculture (Johnson, 1994).

Ecoregion

The DWA is located in the Klamath Mountains Ecoregion. The region is particularly rich in plant species, including many pockets of endemic communities and some of the most diverse plant communities in the world. The ecoregion is noted as an Area of Global Botanical Significance (one of only seven in North America) and World Center of Plant Diversity by the World Conservation Union. The tremendous plant diversity contained in the ecoregion as a whole is also present on the DWA (see Vernal Pool description below).

Habitat Types

There are nine habitat types found within the borders of the DWA. These habitat types are shown in **Figure 2**. In terms of acreage, the largest habitat

Figure 1.1- Denman Wildlife Area Features and Ownership

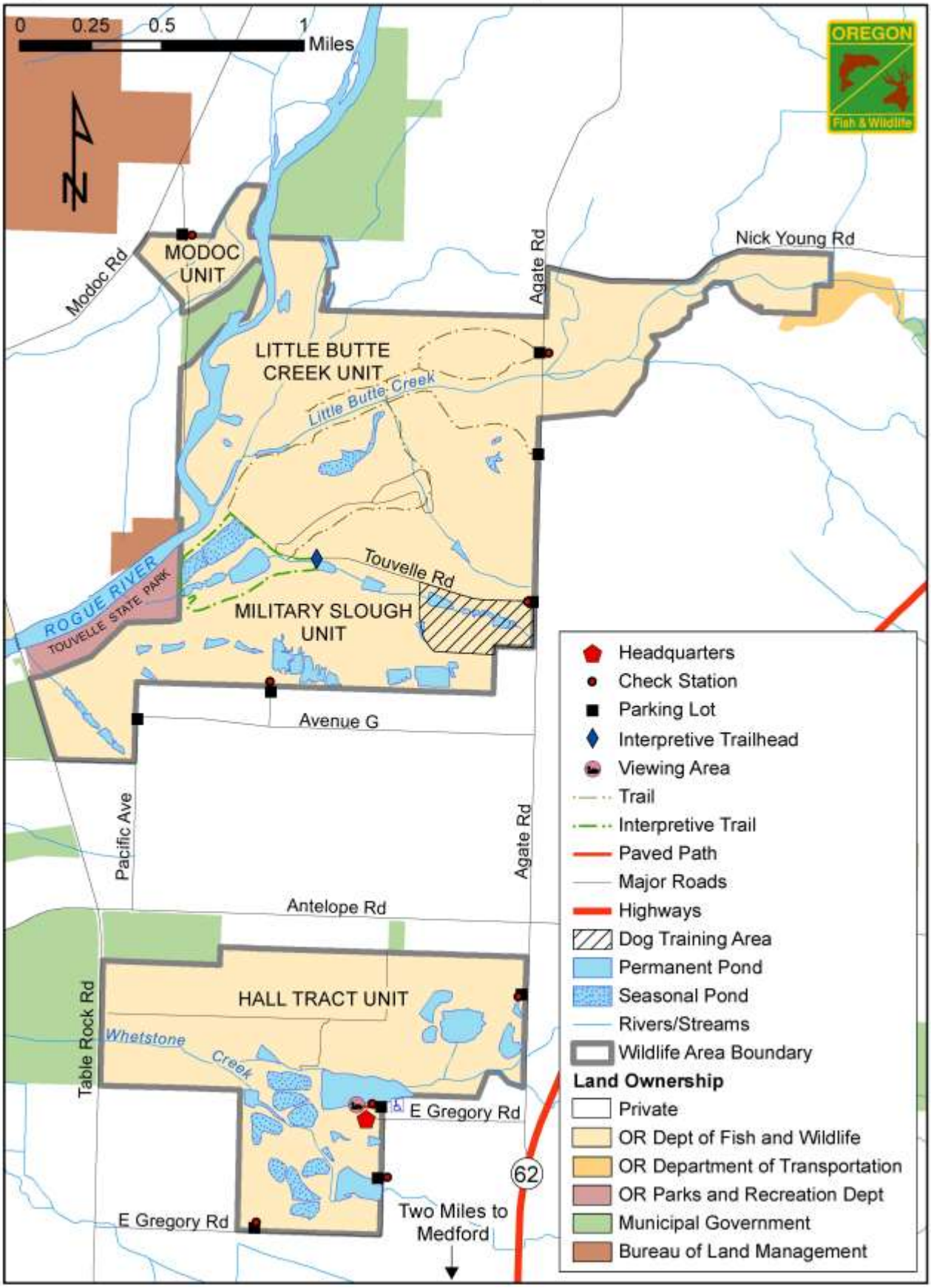
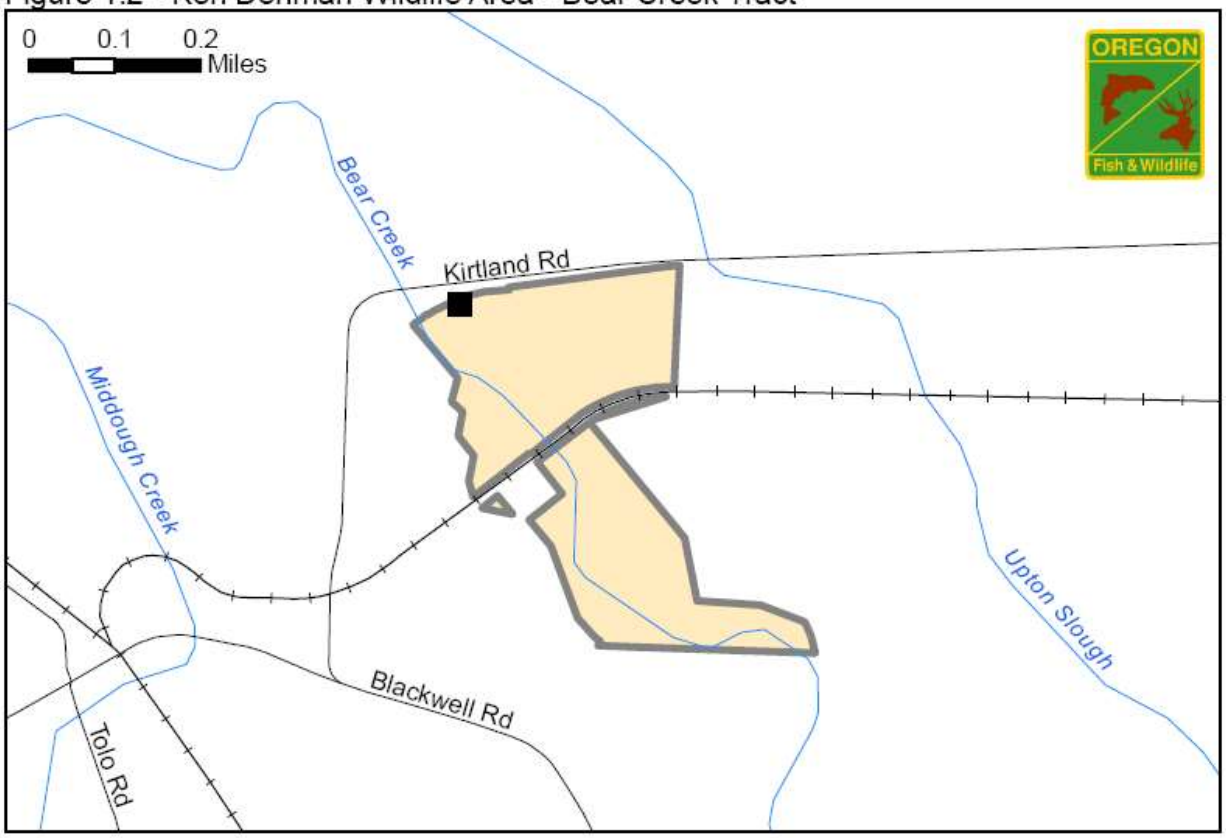
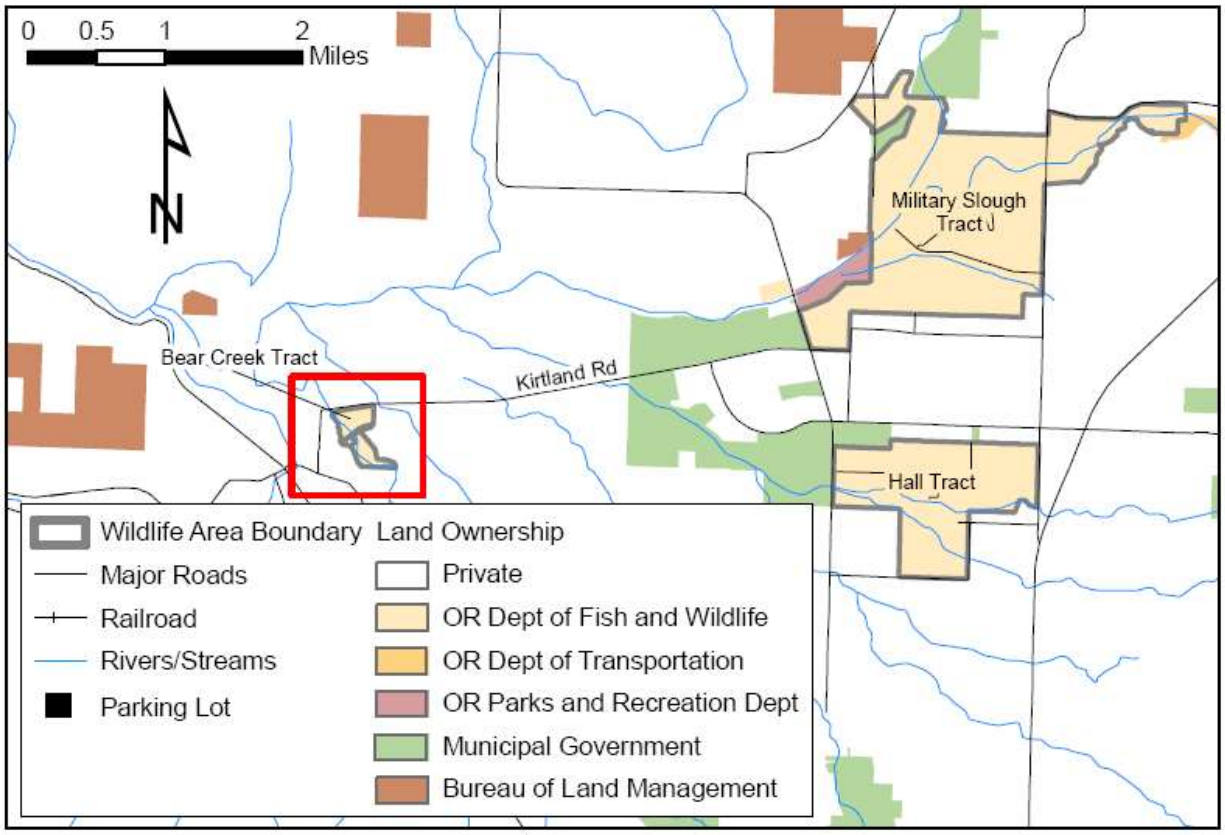


Figure 1.2 - Ken Denman Wildlife Area - Bear Creek Tract





types include vernal pool complex and riparian while the smallest are oak woodland and freshwater aquatic/large pool. These habitat types are described in further detail below.

Nearly all of the natural plant communities have been altered from their original condition by various types of human disturbance and introduction of non-native plants. The composition of the pre-settlement plant communities is speculative; however estimates can be made by studying relict sites (Borgias, 2004). The potential natural plant communities for DWA habitats are listed in the Soil Survey of Jackson County (Johnson, 1994).

Table 1 shows the current habitat types and amount of acres of each type present on the wildlife area. Perennial grasses have been especially affected by past livestock overgrazing and competition from introduced annuals. Native species still exist, but not in their historic range and abundance. Tree and shrub species are nearly all native and have not suffered as much as the native grasses. Fire suppression has had the effect of allowing more mid- to late-seral stage vegetation and a denser understory to occur than would be present under natural conditions.

Table 1. Habitat Types and Approximate Acreages on the Denman Wildlife Area.

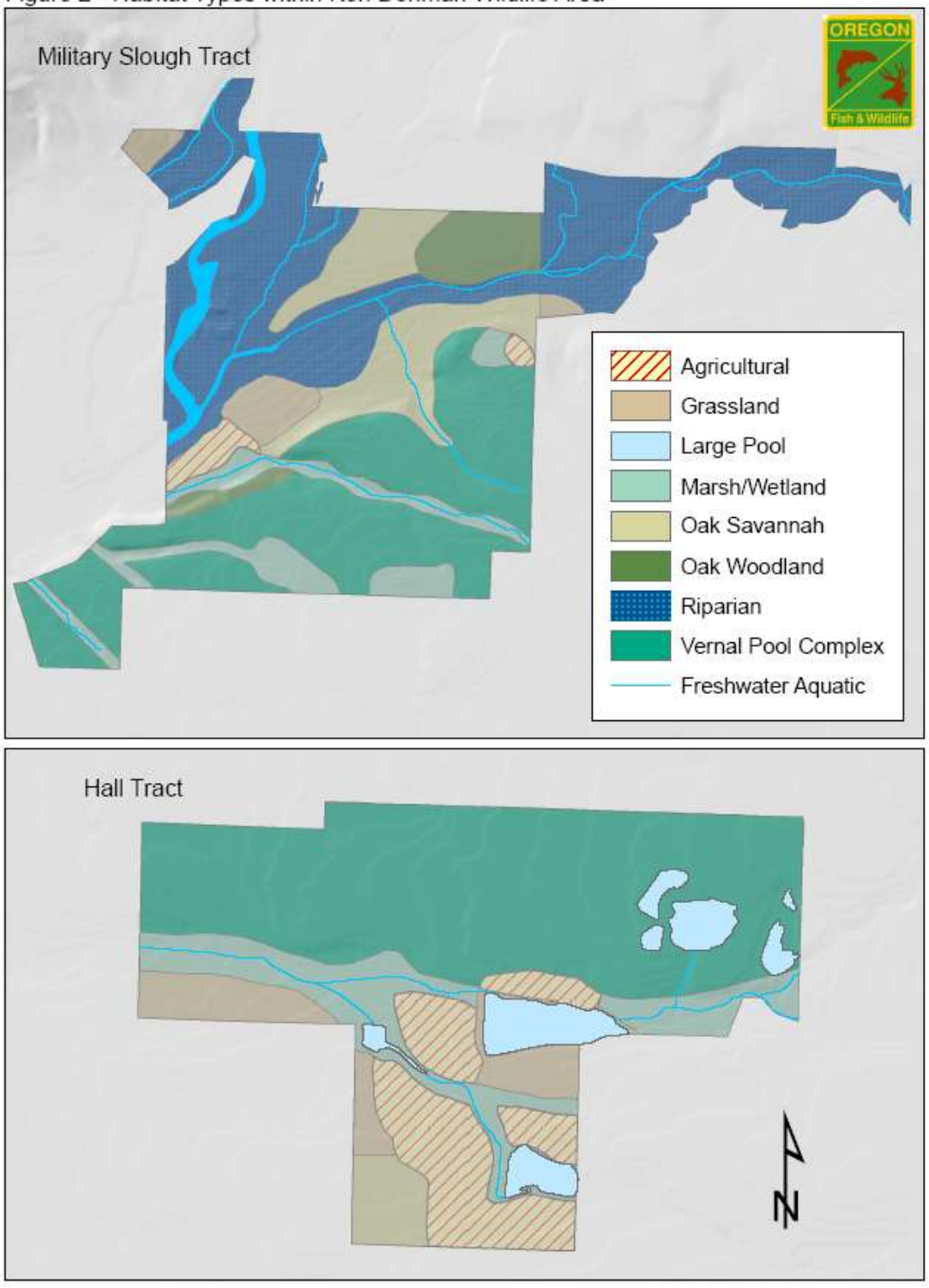
Habitat Type	Acres
Vernal Pool Complex	720
Riparian	500
Marsh/Wetland	200
Oak Savannah	150
Agricultural	122
Oak Woodland	70
Grassland	66
Freshwater Aquatic/Large Pool	30
Total	**1,858**

Vernal Pool Complex

The vernal pool complex in the Agate Desert is the largest vegetative type on the DWA and contains three habitats identified by the Conservation Strategy as at-risk: vernal pools, ceanothus shrublands, and grasslands. Vernal pools hold water during the winter and spring but typically dry up during the summer months. They host a variety of plant and animal species with unique adaptations. These habitats can be very important for native invertebrate species (e.g., vernal pool fairy shrimp), plants (e.g., big-flowered woolly meadowfoam, Cook's desert parsley), and amphibians. For example, native amphibians may be able to reproduce in the short timeframes when water is present in seasonal ponds, while invasive non-native bullfrogs (*Lithobates catesbeianus*) cannot. This reproductive advantage can help native amphibians that are sensitive to competition and predation from bullfrogs. Ceanothus shrublands provide important winter forage for black-tailed deer (*Odocoileus hemionus columbianus*), nesting and foraging habitat for songbirds, and important habitat for kingsnakes. In the Klamath Mountains ecoregion, it is often removed as a fire hazard. Grasslands are one of the

most imperiled habitats in the western United States and are disappearing rapidly around the globe. In Oregon, the estimated loss of grasslands ranges from 50 percent to more than 90 percent, depending on the ecoregion.

Figure 2 - Habitat Types within Ken Denman Wildlife Area



The potential natural vegetation consists of perennial bunchgrasses, including bluebunch wheatgrass, Idaho fescue, Lemmon's needlegrass, pine bluegrass, and forbs including lomatium, limnanthes, woolly eriophyllum, bicolor lupine, western buttercup, western yarrow, woodlandstar, and purplehead brodioea. Two state and federally endangered plants are associated with the vernal pool habitat: Cook's desert parsley (*Lomatium Cookii)* and Big-flowered woolly meadowfoam (*Limnanthes floccosa* ssp. *grandiflora).* Native species still exist in varying range and quantity; however introduced grasses now dominate the area. Many of the native bunchgrasses have been replaced with non-native annuals such as medusa-head rye, soft brome, bulbous bluegrass, ripgut brome, and fescue. Yellow star thistle, a non-native, is also found in much of the grassland. The desert habitat was severely degraded from livestock overgrazing before the Department acquired the property in 1954. Subsequently, many attempts were made to replace the weedy grasses and star thistle with plants that would be more beneficial to wildlife. Rose clover and subterranean clover were somewhat successful, but most other grass and forb plantings failed. In the 1970s Largo tall wheat grass, a European native, was grown successfully in the desert soils. Largo is a perennial and grows to a height of 3 or 4 feet, providing good bird nesting and refuge habitat. Until the late 1980s Largo was planted over most of the prairie grassland and it is now one of the most widespread grasses on the DWA.

Riparian Habitat

Riparian habitats often have high species diversity and are critical for wildlife and are considered a Strategy Habitat by the OCS. These habitats are important to species that prefer moist shrubby or forested habitats. Riparian areas provide essential wintering habitat and travel corridors for birds, amphibians, reptiles, mammals, and other wildlife. Healthy riparian vegetation protects banks from erosion, influences in-channel aquatic habitats, maintains favorable water temperature for fish through shading, filters runoff, and provides nutrients to support terrestrial and aquatic life. Riparian vegetation creates meanders in streams and rivers and increases habitat complexity in valley bottoms. Unfortunately, Riparian habitats have declined from historical levels and are now greatly reduced in area and connectivity, especially those in low-elevation areas and valley bottoms. Removal or reduction of riparian habitat allows runoff containing fertilizers and other contaminants to more easily reach flowing water and further impact aquatic habitat

Riparian areas border the water features on the DWA. The potential riparian plant community consists of many species including white alder (*Alnus rhombifolia),* black cottonwood (*Populus trichocarpa),* bigleaf maple (*Acer macrophyllum),* and willow (*Salix* spp*.)*, with an understory of wild grape, oceanspray, and mockorange. Reed canary grass *(Phalaris arundinacea)*, Himalayan blackberry *(Rubus armenjacus)* and poison hemlock (Conium maculatum), introduced invasive species from Europe, are also found in the riparian understory.

Marsh/Wetlands

Wetland habitats remain at-risk throughout the state and have been identified as a Strategy Habitat. Wetlands are located primarily along Whetstone Creek and Military

Slough. Historically these streams went dry in the summer but are now fed by irrigation water, keeping the marshes wet year round. Marsh lands are typically dominated by cattails, rushes, sedges and grasses, with some scattered willow and Oregon ash (*Fraxinus latifolia)*. Non-native reed canary grass, however, has invaded much of the marsh, displacing the rushes and sedges. Other non-natives such as common teasel (*Dipsacus fullonum*)*,* Himalayan blackberry, and poison hemlock, are also present. Ponds and wetlands are used by a wide variety of wildlife species, including waterfowl, herons, shorebirds, perching birds, amphibians, reptiles and furbearers. Wetlands also contribute to improved downstream water quality. The wetlands on the wildlife area are important recreational and educational attractions to the public.

Oak Savannah and Oak Woodland

Oak woodlands and savannahs have been impacted by conversion to other land uses, invasive species, and vegetation changes due to fire suppression and are designated as a Strategy Habitat by the OCS.

Oak savannah is found on drier sites on the area, between the desert plateau and low stream terraces. The potential natural vegetation of oak savannah consists of Oregon white oak (*Quercus garryana)* and grasses which include Idaho fescue, bluebunch wheatgrass, blue wildrye, and junegrass. Non-native grasses such as Largo, bulbous bluegrass, and annual fescue now grow along with the natives. Historically, frequent low-intensity fires probably maintained the vigor and nutrition of native grasses and created wider spacing between oaks than is found today. Himalayan blackberry has also invaded portions of the oak savannah.

Oak woodlands occupy moist sites on the terraces along the Rogue River and Little Butte Creek. Tree species are predominantly California black oak (*Quercus kellogii)* and Oregon ash*,* with an understory of poison-oak *(Rhus diversiloba)*, mockorange *(Philadelphus lewisii)*, wild rose *(Rosa* ssp*.*), snowberry *(Symphoricarpos albus)* and willow (*Salix* spp*.).* A few conifers, Douglas-fir *(Pseudotsuga menziesii)* and ponderosa pine *(Pinus ponderosa),* are intermixed. Small open grasslands are interspersed throughout the woodland habitat, with significant portions infested with Himalayan blackberry.

Agricultural

Approximately 122 acres of converted grasslands is classified as agricultural land, but the majority of this acreage has not been farmed since 1990 when DWA staff was reduced. Much of this acreage has reverted back to non-native grassland. About 40 acres is now planted annually in grain crops for wildlife use and another 10 acres, consisting mostly of timothy, is in irrigated grassland. Ten fields, totaling 30 acres, are planted with grain for waterfowl use and 6 fields totaling 10 acres are planted for upland bird use. Because barley can be planted without irrigation, it is the primary crop grown for waterfowl. Some irrigated crops such as Sudan grass, sorghum and millet are also grown. Crops planted for upland bird forage include corn, millet, sunflowers, wheat, peas, and clover.

Grassland

Grasslands are one of the most imperiled habitats in the western United States and considered a Strategy Habitat in Oregon. Grasslands on the DWA are found on deeper soils along the stream terraces. Native vegetation probably consisted of Lemmon's needlegrass, California fescue, bluebunch wheatgrass, and junegrass. This habitat is now dominated by non-natives such as timothy, largo tall wheatgrass, tall fescue, soft brome, bulbous bluegrass, and rye grass.

Freshwater Aquatic/Large Pool

This habitat type includes rivers and streams such as the Rogue River and Little Butte Creek and open water such as Whetstone Pond and other large bodies of water.

Description of Tracts

The DWA consists of three tracts; the Hall Tract and the Military Slough Tract, acquired in the 1950s, and the Bear Creek Tract, acquired in 1995. The Hall Tract to the south comprises 600 acres, the Military Slough Tract to the north is 1,198 acres, and the Bear Creek Tract to the west is 60 acres. The Military Slough Tract is further divided into three units roughly equal in size; the Military Slough Unit, the Little Butte Creek Unit, and the Modoc Unit.

Hall Tract

The Hall Tract (Figure 2) is 600 acres in size, and is roughly divided by Whetstone Creek with the Agate Desert to the north and agricultural fields, oak woodland and grassland to the south. Elevation ranges from 1,200 to 1,400 feet. Most of the irrigated farm land found on the DWA is located on this tract. The land is flood irrigated through a system of reservoirs and ditches. Eight diked fields totaling 24 acres are planted in grain crops annually and flooded for waterfowl. An additional 10 acres are planted in grain for upland birds, and 10 acres is in irrigated grass. The Hall Tract has numerous artificially created reservoirs and ponds, consisting of: 4 irrigation reservoirs with headgates, 4 small permanent ponds, and 44 small (1/10-1/2-acre) seasonal ponds, many with nest islands for waterfowl.

The main soil types are Cove clay and Padigan clay, both very deep poorly drained soils. High clay content makes these soils difficult to cultivate but reasonably productive. The Agate Desert section of the Hall Tract is a broad elevated terrace sloping gently down to Whetstone Creek. The soil type is Agate-Winlow complex in the form of mounded prairie, composed of Agate soil on the mounds and Winlow soil in the depressions, and soils are shallow over a layer of hardpan. Land management decisions are limited by this soil composition because of characteristics such as wetness in winter and spring, shallow depth to hardpan, high compaction, and the very gravelly surface layer of Winlow soil. Controlled burning and seeding with native plants is now the recommended method of improving the condition of this habitat (Johnson, 1994). Past management practices by DWA staff involved attempts to improve this soil for agriculture by sub-surface ripping of the hardpan and filling the vernal pools with bark mulch from local lumber mills. This practice was stopped in the late 1980s when the value of the natural vernal pool habitat and its flora and fauna was realized.

Military Slough Tract

The Military Slough Tract (Figure 2) consists of 1,198 acres and is located about 1 mile north of the Hall Tract. Elevation ranges from 1,200 to 1,400 feet. The Rogue River, Little Butte Creek and Military Slough, pass through this tract. Two unnamed tributaries originate in the Southwestern boundary of this Tract and empty into the Rogue River within Touvelle State Park. The confluence of Little Butte Creek and the Rogue River is near the west center of the tract. This tract also has numerous artificial ponds and wetlands, including 3 permanent ponds with headgates, 10 small permanent ponds, and 14 seasonal ponds. Two 3-acre diked fields are planted with grain and flooded in winter months for waterfowl use. These two fields are then drawn down in the spring months. During the 1964 flood, the Rogue River changed course, moving about 1000 feet west, then rejoined the old channel just downstream of the mouth of Little Butte Creek. The old channel still carries some water but is more of a slough. The area between the old and new channels is referred to as the "island". The Agate Desert is the major landform in the south half of the tract, gently sloping on top, then dropping sharply down to the Rogue River floodplain. Thirteen ammunition bunkers remaining from Camp White are dug into the bottom of this slope. Soils on the desert top are shallow and underlain with hardpan, while soils on the floodplain are deep clay loam. The north half of the tract is floodplain, covered with oak woodland and riparian vegetation. Some of the most fertile soils on the DWA, Medford Clay Loam and Medford Silty Clay Loam, are located under the oak woodland (Johnson, 1994).

Bear Creek Tract

The Bear Creek Tract is 60 acres in size and is located 3.5 miles west of the Military Slough. This tract is bisected by Bear Creek and is a nearly level stream terrace. The vegetation consists of riparian habitat along the stream channel shifting to open farmland. The tract is bordered by private farmland and by Kirtland Road. Soils are deep silty clay loam. Thirteen acres within this tract are classified as prime farmland (Johnson, 1994). Before the property was acquired by the Department it was farmed with winter wheat. This tract is currently farmed by the adjacent property owner with wheat and alfalfa, with the agreement that a 15 foot edge is left un-harvested around the perimeter. It is not actively managed by DWA staff.

Biological Resources

The DWA provides valuable habitat for a diversity of wildlife species, in part because of its proximity to the Rogue River and in part because of the loss of natural habitats in the surrounding area. Currently 238 species of wildlife have been identified on the DWA, including 176 species of birds, 41 species of mammals, and 21 species of amphibians and reptiles (Collins, 1992). See **Appendix C** for a list of species.

Birds

The DWA has a wide variety of bird species using the many habitats available throughout the Area. Tree cavities, shrub thickets, grasslands and riparian areas are used for nesting. Abundant grain, weed seeds, berries, acorns, insects, water and cover provide favorable conditions for resident, migrating and wintering birds.

Mallards (*Anas platyrhynchos*), wood ducks (*Aix sponsa*), cinnamon teal (*Anas cyanoptera*), and Canada geese (*Branta canadensis*) are the most common nesting waterfowl. Resident waterfowl populations are augmented by northern migrants, most notably wigeon (*Anas americana*), mallard, northern shoveler (*Anas clypeata*), and green-winged teal (*Anas carolinensis*). Diving ducks are less common on the DWA as most of the wetlands are too shallow (less than 3 feet). Wintering duck populations in the Rogue Valley are limited by availability of food and wetland habitat. Deep waters suitable for roosting are abundant along the Rogue River, and in gravel ponds and irrigation reservoirs. However, few cereal grain crops are grown in the Rogue Valley and few natural foraging areas exist.

Mourning doves (*Zenaida macroura*) breed and nest frequently on the DWA and migrant populations frequent also, but these numbers have declined from historic levels. This reduction is attributed to many factors including development of adjacent open land, reduced grain production, competition from introduced species, and widespread use of pesticides. California quail (*Callipepla californica*) are found in good numbers along the river bottoms.

There is a small breeding population of ring-necked pheasants (*Phasianus colchicus*), but loss of habitat on surrounding property and pressure from predators such as house cats limit the population. Pheasant populations on the DWA are also limited by lack of adequate winter forage and cover. Pen-raised rooster pheasants are released by the Department each fall for the Youth Pheasant Hunt and the Fee Pheasant Hunt.

Mammals

Black-tailed deer inhabit the bottomland along the Rogue River and Little Butte Creek. Deer habitat productivity is low due to fire suppression and lack of early seral vegetation. Many of the small meadows typically used by deer as forage areas have become shaded out by encroaching trees and shrubs. Non-native grasses have displaced the more nutritious native species, and Himalayan blackberry has made some of this habitat impenetrable for deer. Black bears (*Ursus americanus*) and cougars (*Puma concolor*) are frequent visitors to the Wildlife Area.

Beavers (*Castor canadensis*) and muskrats (*Ondatra zibethicus*) are associated with wetlands on all the tracts. Beavers in particular create ponds that are beneficial to waterfowl and shorebirds. Muskrats clear openings in the shoreline by chewing down rank vegetation. Both animals can cause damage to dikes and ditches. Trapping of furbearers is allowed on a limited basis to control damage to water structures. Black-tailed jack rabbits (*Lepus californicus*), skunks (*Mephitis mephitis*), raccoons (*Procyon lotor*), gray foxes (Urocyon cinereoargenteus), and a large variety of small rodents are abundant on all tracts.

Bats are well represented on the area with ten species present. In general, high insect populations around wetlands and abundant roost sites provide a good environment for bats. Preference for roost sites varies between species, and ranges from tree cavities,

crevices under loose bark and loose roof shingles to bridges, barns and buildings. Riparian areas with large hardwood trees are preferred habitat for many species. Mexican free-tailed bats (*Tadarida brasiliensis*) that roost in large colonies in buildings near the DWA are likely drawn to the area by abundant insect prey. Bats forage over large territories and use many different "roosts of opportunity." Artificial roost boxes mounted around the area are well used by many species. No monitoring or management specifically for bats is done at this time by DWA staff.

Amphibians and Reptiles

Native species of snakes, lizards and frogs are plentiful on the area, as are introduced bullfrogs (*Rana catesbiana)*. Western pond turtles (*Actinemys marmorata*) are present, but their range and abundance is not well known. Bullfrogs are known to prey on juvenile pond turtles and may be a limiting factor in turtle populations on the DWA.

Beginning in 2015, ODFW has started an amphibian and reptile monitoring program on DWA using coverboards. Coverboards are 2'X4' sheets of plywood laid on the ground as an analog for down woody debris that are periodically flipped over and checked for use by reptiles and amphibians. ODFW staff deployed 90 coverboards, along 9 routes with 10 boards per route in different habitat types on DWA. The purpose of the survey is to develop a rough inventory of terrestrial amphibians and reptiles using the different habitat types found on DWA.

Fish and Aquatic Invertebrates

Most fish species native to the Rogue River is found on or adjacent to the wildlife area. Spring and fall Chinook salmon (*Oncorhynchus tshawytscha*), Coho salmon (*Oncorhynchus kisutch*), summer and winter Steelhead (*Oncorhynchus mykiss*), and resident Rainbow and Cutthroat trout (*Oncorhynchus clarkii*) are native to the area, along with Pacific Lamprey. In addition, Speckled Dace (*Rhinichthys osculus*), Klamath Small-Scale Sucker (*Catastomus rimiculus*) and some native cottids. The native signal Crayfish persists despite the presence of non-native Ringed Crayfish (*Orconectes neglectus*) and Red Swamp Crayfish (*Procambarus clarkii*).

Spring and fall Chinook spawn in the mainstem Rogue River which bisects the Military Slough Tract. The lower reaches of Bear Creek and Little Butte Creek provide spawning habitat for a variety of native fish species but typically there is more suitable habitat upstream. Whetstone Creek has a spawning run of summer Steelhead; however it's unknown how Speckled Dace, Klamath Small-Scale Sucker, or Pacific Lamprey use this habitat. The DWA provides rearing habitat for fish that spawn in various streams on the wildlife area, but also provide winter habitat for juvenile salmonids produced elsewhere in the watershed. Juvenile Coho salmon, Steelhead, and even some Chinook will swim up into smaller streams fall through the spring to take advantage of new feeding areas and escape high flows in mainstem areas. Whetstone Creek is described as essential salmonid habitat up to approximately river mile 2.6. Fish presence surveys conducted by the Department show Steelhead and Coho present in Whetstone Creek 0.6 miles downstream of the DWA (ODFW, unpublished data).

Anecdotally, anadromous fish were seen historically on the portion of Whetstone Creek within the DWA boundaries.

Two unnamed streams within Military Slough that run through Touvelle Park provide winter refuge for juvenile salmonids in its lower reaches. In Military Slough, juvenile Steelhead have been observed as high as river mile 0.6 below a beaver dam off of Touvelle Road. It is thought to be used by juvenile Coho salmon and Steelhead in winter months, as well as newly emerging juvenile Chinook fry.

The salmonid populations that eventually use the DWA are affected by access to habitat due to artificial barriers, water quality, amount and condition of riparian vegetation, instream habitat complexity, and pollution from agricultural and industrial sources. Warm water fish populations are also affected by the same environmental factors as salmonids but to a lesser extent. The DWA strives to be an example of premier fish habitat by continuing to restore riparian habitat and to ensure safe upstream and downstream passage for native fish.

Introduced Aquatic Species

Redside Shiner (*Richardsonius baltaetus*) and Umpqua Pikeminnow (*Ptychocheilus umpquae*) are two introduced Cyprinids that are found in the creeks and Rogue River within the DWA boundaries. Warm water fish are found in the numerous small ponds and reservoirs on the area. Warm water species include Large-Mouth Bass (*Micropterus salmoides*), Black Crappie (*Pomoxis nigromaculatus*), Brown Bullhead (*Ameiurus nebulosus*), Pumpkinseed (*Lepomis gibbosus*), Bluegill (*Lepomis macrochirus*), Green Sunfish (*Lepomis cyanellus*), and Common Carp (*Cyprinus carpio*). Yellow Perch (*Perca flavescens*) are believed to be a recent introduction to the wildlife area, and were first documented in 2008. Ringed Crayfish are present and have become well established in the Rogue, Little Butte Creek, Bear Creek, and Military Slough since their introduction to the Rogue in the 1970's. It is believed that these species displace the native Signal Crayfish (Pacifasticus leniusculus) wherever their distribution overlaps. The Ringled Crayfish has been in the Rogue Basin since the 1970's. Red swamp crayfish were found on a pond on DWA in 2005 and are now thought to be well established. Nearly all of the area's waters have been stocked in the past with western mosquito fish (*Gambusia affinis*) by Jackson County Vector Control District, to control mosquito larva and pupae.

Species of Conservation Concern

Several species of concern are present on the DWA. **Table 2** lists the federal and state listed species potentially present on the area. The best known and most studied species are exclusively associated with vernal pool habitats. These include two plants: Cook's desert parsley (*Lomatium Cookii)* and Big-flowered woolly meadowfoam (*Limnanthes floccosa ssp. grandiflora)*, and one invertebrate, vernal pool fairy shrimp (*Branchinecta lynchi)*. In 2003 the U.S. Fish and Wildlife Service (USFWS) designated 7,547 acres in Jackson County as critical habitat for vernal pool fairy shrimp, 720 acres of which are within the Hall and Military Slough Tracts of the DWA. Several other

species of concern are found in varying abundance on the area; however specific surveys have not been conducted outside of the vernal pool habitat.

Table 2. Federal- or State-listed Endangered, Threatened, Candidate and Species of Concern animals and plants potentially present on the Denman Wildlife Area.

(Federal Status: C–Candidate; SC–Species of Concern; T–Threatened; E–Endangered
State Status: S – Sensitive; SCr- Sensitive Critical; E – Endangered)

Common Name	Scientific Name	Federal Status	State Status
Fish			
Coho salmon	*Oncorhynchus kisutch*	T	S
Pacific lamprey	*Lampetra tridentate*	SC	S
Summer steelhead	*Oncorhynchus mykiss*		S
Spring Chinook	Oncorhynchus tshawytscha		S
Reptiles			
Western pond turtle	*Clemmys marmorata*	SC	SCr
California mountain kingsnake	*Lampropeltis zonata*	SC	S
Amphibians			
Western toad	*Bufo boreas*		S
Birds			
Lewis's woodpecker	*Melanerpes lewis*	SC	SCr
Yellow-breasted Chat	*Icteria virens auricollis*	SC	SCr
Purple Martin	Progne subis arboricola	SC	SCr
Oregon Vesper Sparrow	*Pooecetes gramineus affinis*	SC	SCr
Common Nighthawk	*Chordeiles minor*		S
Acorn Woodpecker	*Melanerpes formicivorus*	SC	S
Grasshopper Sparrow	*Ammodramus savannarum perpadillidus*		S
Mammals			
Long-legged myotis	*Myotis volans*	SC	S
California myotis	*Myotis californicus*		S
Townsend's Big-eared Bat	*Corynorhinus townsendii*	SC	S
Pallid Bat	*Antrozous pallidus*	SC	S
Hoary Bat	*Lasiurus cinereus*	SC	S
Silver-Haired Bat	*Lasionycteris noctivagans*	SC	S
Fringed myotis	*Myotis thysanodes*	SC	S
Ringtail	*Bassariscus astutus*		S
Plants			
Cook's desert parsley	*Lomatium cookii*	E	E
Big-flowered woolly meadowfoam	*Limnanthes floccose grandiflora*	E	E
Invertebrates			
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	

Vernal pool fairy shrimp is listed as threatened by the USFWS, and Cook's desert parsley and Big-flowered woolly meadowfoam are listed as endangered by the USFWS and endangered by the Oregon Department of Agriculture. Since 1995, The Nature Conservancy (TNC) and USFWS have conducted surveys of these three species on the

DWA and mapped their distribution. The most recent surveys show no population decline, good recruitment and good physical condition for all three species. The presence of critical vernal pool habitat does not restrict public use of the DWA. Management practices consist of controlled burning and seeding of native species.

The USFWS is in the process of developing an Ecosystem Recovery Plan for vernal pool habitat. This recovery plan will provide management guidelines to Department staff to achieve the DWA's objective (1.3) of protecting and restoring vernal pool habitat. The Department has signed a Memorandum of Understanding (MOU) with the Oregon Division of State Lands (DSL) agreeing to help with the development of a Wetland Conservation Plan (WCP) as well as a Habitat Conservation Plan (HCP), with the USFWS, for the Agate Desert. The purpose of these documents will be to help meet land use planning objectives of Jackson County and to promote the conservation of wetland resources. The Department's responsibilities under this MOU are to provide information on potential effects to fish or wildlife of proposed projects within the study area, to provide information on opportunities for restoration activities on land owned by the Department, and to participate in technical advisory group meetings. Wildlife area and the Department's Rogue Watershed District staff will continue to cooperate with the USFWS, DSL, and Jackson County regarding vernal pool habitat planning issues.

State conservation plans guide management for both Spring Chinook and Fall Chinook on the Rogue. The Coho Salmon is federally Threatened, and the NMFS has published a recovery plan, although ODFW has a limiting factors assessment available to the public that provides detailed information on actions to recover the species. Spring Chinook salmon, Coho Salmon, Summer Steelhead and Pacific Lamprey are listed as sensitive species by the Department and strategy spp. in the Oregon Conservation Strategy.

The Department is currently reviewing the status of most salmon and trout populations as it implements its Native Fish Conservation Policy. Coho salmon is a federally listed Threatened species, and is listed as a State-sensitive species by the Department. Coastal fall Chinook salmon, Pacific Lamprey, coastal Cutthroat and summer Steelhead are currently listed as State-sensitive species by the Department.

Birds listed as 'species of concern' vary in abundance from common, such as the western bluebird and Lewis' woodpecker, to "flyover" species like the bald eagle and peregrine falcon. The streaked horned lark and purple martin are listed as present, but are rare in Jackson County (Stewart et al. 2002). Bird populations can be negatively affected by loss of nesting habitat and food sources, pressure from introduced birds competing for nest sites, from pollution, improper use of pesticides and land development.

Non-Native Species

Non-native wildlife on the DWA includes species such as the European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), Virginia opossum (*Didelphus virginiana*), feral cat (*Felis catus*), bullfrog, and ring-necked pheasant. Starlings and house

sparrows are cavity nesters and can displace native birds while opossum, feral cats and bullfrogs prey on native species. The ring-necked pheasant has been a valued game bird since its introduction to Oregon in 1881. Male pheasants are released in the fall on the DWA to provide hunting opportunities. **Table 3** lists non-native wildlife species which may be found on the DWA.

Table 3. Non-native wildlife species that may be found on the Denman Wildlife Area.

Common Name	Scientific Name	Occurrence
Bullfrog	*Rana catesbiana*	Common
Ring-necked pheasant	*Phasianis colchicus*	Common
European starling	*Sturnus vulgaris*	Abundant
House sparrow	*Passer domesticus*	Abundant
Eurasian Collared Dove	Steptopelia decaocto	Common
Virginia opossum	*Didelphus virginiana*	Common
House mouse	*Mus musculus*	Common
Feral cat	*Felis catus*	Common
Norway rat	*Ratus norvegicus*	Uncommon

All of the warm-water fish species have been introduced and have affected native species or their habitats in various ways. Carp are known to degrade water quality by increasing turbidity. Carp are found in nearly every waterway in the Rogue Valley and are difficult to control. Large-mouth bass may prey on native aquatic species, but no specific research has been done on the DWA to determine bass numbers or their impacts. **Table 4** lists non-native fish and invertebrate species which may be found on the wildlife area.

Table 4. Non-native fish and invertebrate species that may be found on the Denman Wildlife Area.

Common Name	Scientific Name	Occurrence
Largemouth bass	*Micropterus salmoides*	Abundant
Black crappie	*Pomoxis nigromaculatus*	Common
Bluegill sunfish	*Lepomis macrochirus*	Abundant
Pumpkinseed sunfish	*Lepomis gibbosus*	Present
Green Sunfish	*Lepomis cyanellus*	Present
Common carp	*Cyprinus carpio*	Common
Yellow Perch	*Perca flavescens*	Present
Brown bullhead	*Ameiurus nebulosus*	Common
Western mosquitofish	*Gambusia affinis*	Abundant
Redside shiner	*Richardsonius baltaetus*	Common
Umpqua Pikeminnow	*Ptychocheilus umpquae*	Common
Ringed Crayfish	*Orconectes neglectus*	Common
Red Swamp Crayfish	*Procambarus clarkia*	Present

At this time there is no management activity on the area specifically to control non-native fish or wildlife.

Non-native plants are widespread and persistent. A list of weeds which may be present on the wildlife area is shown in **Table 5**. Annual grasses are especially competitive due to rapid early growth, high capture of resources, and early maturation. Native grasses usually have symbiotic relationships with soil organisms, that when lost, are very hard to reestablish. Non-native species often colonize areas where the native species have been removed or weakened by disturbance. Other factors that favor non-native plants include fire suppression, thatch accumulation, and lack of biological control organisms. Active weed management on the DWA includes the control puncturevine *(Tribulus terrestris L.)* where mature plants are hand-pulled and the use of common pesticides in order to control other unwanted plants such as Himalayan Blackberry. This weed is not yet well established on the DWA, but is common in other parts of the Rogue Valley. Jackson County Roads and Parks Department treats the road shoulders around the perimeter of the wildlife area with herbicide to control puncturevine.

Table 5. Noxious weeds listed by the Oregon Department of Agriculture that may be found on the Denman Wildlife Area.

Common Name	Scientific Name	Occurrence
Cutleaf teasel	*Dipsacus laciniatus*	Abundant
Dodder	*Cuscuta spp.*	Uncommon
Field bindweed	*Convovululus arvensis*	Common
Himalayan blackberry	*Rubus discolor*	Abundant
Medusahead rye	*Taeniatherum caput-medusae*	Abundant
Poison hemlock	*Conium maculatum*	Common
Puncturevine	*Tribulus terrestris*	Common
Purple loosestrife	*Lythrum salicaria*	Rare
South American waterweed	*Egeria (Elodea) densa*	Common
Yellow starthistle	*Centaurea solstitialis*	Common

Monitoring

Monitoring of all management activities will be completed by DWA staff and Southwest Region Wildlife District biologists. Informal monitoring is also conducted by members of the public during their visits to the wildlife area and is submitted via feedback and suggestions to DWA staff.

Game Birds

Game bird abundance is monitored through hunt permit data.

Big Game

Black-tailed deer numbers are monitored by hunting success as reported on area hunt permits.

Other Wildlife

Formal surveys of vernal pool species are conducted by TNC and USFWS. Informal surveys or observations will be conducted through university or high school projects, or

by members of the public. Hunter harvest information will be used to assess game bird numbers. Furbearer populations will be monitored using harvest data submitted by trappers on the wildlife area.

Fish

Spawning Spring Chinook will continue to be monitored by district Department staff as part of the Spring Chinook Conservation Plan. Winter Fish usage of Military Slough, Whetstone Creek, and the middle unnamed tributary in the Southern Portion of the Military Slough Tract should be monitored to see whether or not juvenile salmonids use these tributaries in any significant enough numbers in order to justify providing for future fish passage. Periodic sampling of all impounded ponds with gill nets, hoop traps, minnow traps, or electroshocking should be done for presence of additional introduced species. Volunteer angler creel boxes can be deployed at the ponds surrounding the DWA headquarters and Military Slough Reservoirs. All of these programs can be implemented with volunteers or interns, being administered by existing District staff (STEP).

Wildlife Diseases

DWA staff will cooperate with Department wildlife veterinarians, the Jackson County Health Department and the U.S. Fish and Wildlife Service in the monitoring of wildlife diseases. No specific surveys are conducted for sick wildlife at this time. Rather, animals showing signs of disease are tested as they are reported by the public or Department staff. Diseases of black-tailed deer that are known to occur in southwest Oregon such as adenovirus hemorrhagic disease and hair loss syndrome are not transmissible to humans and have no known cure. Chronic Wasting Disease (CWD) has not been detected in Oregon, but deer exhibiting any signs of illness will be tested. There are many types of disease that could potentially affect birds on the DWA, but occurrence of disease is low. All diseased birds reported by hunters or DWA personnel will be tested.

Vector Control

The Department will cooperate with and assist the Jackson County Vector Control District (JCVCD) in their efforts to manage mosquito populations on the DWA. Presently, JCVCD's activities on the area consist of monitoring five adult mosquito traps, and sampling wetlands for abundance and species of mosquito larvae. Western mosquito fish (*Gambusia affinis)* are no longer stocked by JCVC but are still present in most waters on the area. Adult mosquitoes are tested for presence of West Nile Virus (WNV), Western Equine Encephalitis (WEE), and St. Louis Encephalitis (SLE). West Nile Virus is currently detected on DWA on nearly an annual basis on DWA. Staff will continue to assist JCVCD in accessing the DWA to conduct sampling and apply pesticides. JCVCD currently uses chemical control in the form of the larvicide *Bacillus thuringiensis israelensis* on an annual basis, and adultacide fogger on occasion when it is determined that mosquito numbers pose a significant threat to public health as outlined by the Jackson County Vector Control District Pesticide Use Plan.

Water Use
Irrigation water use by the DWA will be reported annually to the Oregon Department of Water Resources and the Rogue River Valley Irrigation District.

Public Use
Hunter use can be determined using check station data, and individual check in and check out is required during the Youth Pheasant Hunt. Use of the Touvelle and Modoc Road gates is recorded by the number of keys issued to the public (presently over 12,000 keys). Participation is recorded during special events such as Youth Angling Enhancement Day, during guided school field trips and scouting events. Automatic car counters are currently employed to help estimate public use. In 2008, Dean Runyan and Associates conducted a survey examining the impact of fish and wildlife related recreation on local and statewide economies. According to this estimate fish and wildlife related recreation contributed $40,723,000 to the Jackson County economy annually. Throughout 2017 a randomized user survey will be conducted to obtain a profile of the user base on DWA and to estimate the economic impact of wildlife area use.

Cultural Resources

Before European settlement the land which is now the DWA was part of the territory of the Upland Takelma tribe of Native Americans (Hopkins, 1978). These people subsisted on fish, acorns, camas root, grass seed and other native foods from the rivers, hills and meadows of the Rogue Valley. Many of the events recounted during the Rogue River Wars of the 1850s occurred in and around the DWA. The Rogue Valley was sparsely settled by Europeans until the discovery of gold near Jacksonville in 1852. This brought a great influx of miners and settlers to the area, and resulted in increased conflicts with the Native Americans. The Army was called in to keep order and Fort Lane was built on the banks of the Rogue River a few miles downstream from the present site of the DWA. The Army attempted to confine the Native Americans to a reservation between the Table Rocks and Evans Creek, but problems could not be resolved peacefully, and in the spring of 1856 all Native Americans in the upper Rogue Valley were moved to the combined tribal reservation at Siletz, on the Oregon Coast (Beckham, 2002).

By 1883, Central Point had been settled by Europeans (Tucker, 1931). Farming of grain crops and hay, livestock ranching and fruit orchards, particularly pears, were the first commercial activities. Wood products later gained in importance and remain so today. Much of the land to the north and east of Central Point was a dry grass-covered plain that was used for grazing livestock. V.D. Brophy, local rancher, owned a major portion of the Agate Desert grazing land, prior to federal government acquisition of the land in 1942. By Brophy's account, the spring of 1920 was favorable for plant growth and grass stood "stirrup high" on the desert. However, he stated that he hadn't seen the desert in that condition since that time and that the majority of the desert had been overgrazed and become infested with foxtail and other undesirable annuals (Oregon Game Commission, 1949).

With the United States' entry into World War II in 1941, the Army chose the lightly populated and relatively flat Agate Desert to build a training facility. Camp White was constructed in just over six months in 1942, and at its height encompassed 77 square miles, contained 1,300 buildings, and had a population of 40,000 military and civilian support personnel (Kramer, 1992).

When the war ended in 1945, Camp White was decommissioned and the land and structures were gradually transferred to other ownership. Buildings were moved to other locations in the Rogue Valley and were converted to schools, industrial buildings and residences, many of which are still in use today. The land was returned to private hands or transferred to the State of Oregon. The land that is now the DWA was transferred to the Oregon Game Commission on April 5, 1954. The only structures remaining from Camp White on the wildlife area are thirteen underground ammunition bunkers that are currently used for equipment storage.

The Department is responsible for coordinating with the State Historic Preservation Office (SHPO) on an annual basis to ensure that proposed area management activities comply with State and Federal cultural resource laws. No comprehensive cultural resource surveys have been conducted on the area, and at this time aside from the underground bunkers, no other significant cultural resources are known to exist on the wildlife area.

Social Environment

Demographics

The DWA is located near the city of Medford in Jackson County, one of the most rapidly growing areas in Oregon. Census figures indicate approximately 68% of the county's 213,000 residents live within 20 miles of Medford. The DWA contains some of the last natural habitats remaining on the floor of the Rogue Valley such as rare and unique vernal pool habitat, oak woodlands and prairie grassland. As natural habitats and open space become less available due to urban growth, the DWA will become an increasingly valuable public resource.

Vandalism and illegal dumping of trash are an ongoing problem on the area. Public road access, increased dumping fees at local landfills and the proximity to a large urban center perpetuate this misuse. This problem requires constant attention by DWA staff. Illegal camping by homeless people also contributes the problem and requires enforcement and clean-up by staff. Staff coordinates with Oregon State Police in enforcement of illegal camping.

Land Use

The DWA is surrounded by numerous land uses, ranging from agriculture and residential to industrial. **Figure 3** shows the land uses which border the DWA. The wildlife area is essentially split in two by industrially zoned lands. The southern Hall tract is bordered by agricultural, industrial and residential land uses.

Infrastructure

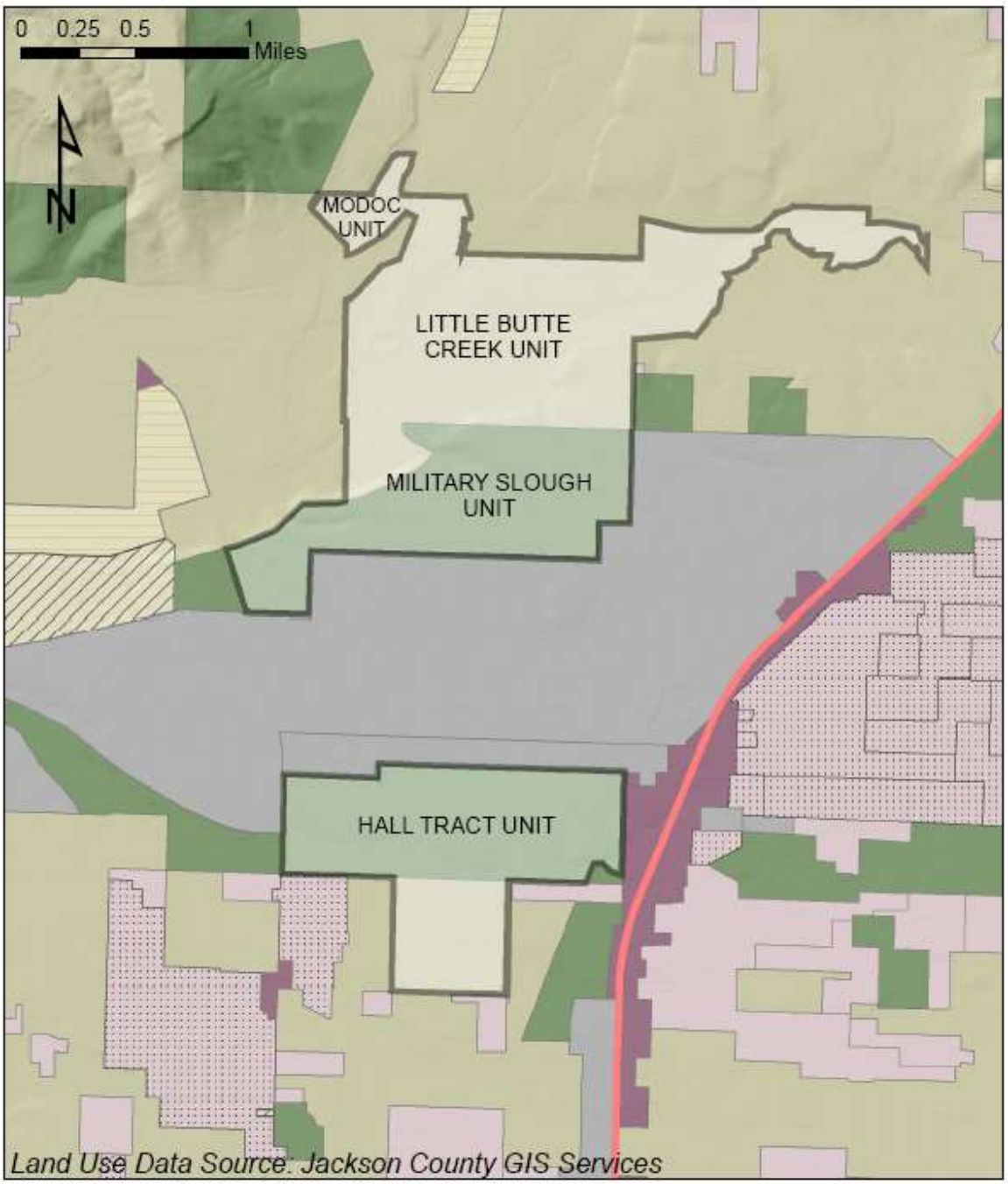
Developments/Facilities

The DWA headquarters is located within the Department's Rogue Watershed District Office, at 1495 East Gregory Road, in Central Point. This office building contains a conference room, reception area, wildlife maintenance shop, and office space for sixteen Department staff.

In addition to the Rogue Watershed District Office itself, other structures on the area include:

- a 3000 square foot barn and equipment storage building,
- a 750 square foot wood shop,
- a 1,750 square foot metal equipment shed,
- a 1,680 square foot metal equipment shed,
- a second 600 square foot storage building,
- a 1,000 square foot shop (attached to the main office),
- a 38,400 square foot pheasant pen,
- a 180 square foot, covered viewing platform, located on the south shore of Whetstone Pond
- eight hunter check stations,
- eleven parking lots at established access points, and;
- a RV Camp Host site, with utilities.

Figure 3 - Land Use Surrounding Ken Denman Wildlife Area



There are 14 miles of fences and 22 miles of trails that need to be continually maintained. The hunter check stations also require maintenance and, during hunting season, frequent stocking of permits and informational material.

Water Rights

Two types of water rights exist on the DWA; those rights that are owned by the Department, and those that are owned and administered by Rogue River Valley Irrigation District (RRVID). There are ten state water rights that are owned by the Department and 106 acres of assessed certified water rights for which a yearly fee is paid to RRVID. **Appendix D** shows State and irrigation district water rights which are currently held on the DWA.

Easements/Access Agreements

The majority of the easements and access agreements on the DWA are for maintenance of power lines crossing the area. Others are for shared road access and access to irrigation pumps and pipelines. The sewage lagoon owned by White City Sanitary District no longer exists. There is one easement for monitoring a water well for groundwater contaminants (conducted by Cascade Wood Products), and one for monitoring of a habitat mitigation project by the consultants, David Evans & Associates. **Appendix E** lists the easements and access agreements occurring on the DWA.

A cooperative agreement between the Department and the Bureau of Land Management (BLM) began in 1987 for the management of 23.4 acres of BLM property adjacent to the Modoc Tract. This BLM property provides important public access to the Rogue River.

Land Acquisition and Adjustment

It is the policy of the Department to only acquire land or interests in lands, including easements and leases, from willing sellers, consistent with statutory authority and the Department's mission. Acquisitions and adjustments must be for the conservation of fish and wildlife and their habitats and to provide fish- and wildlife-oriented public use for educational and recreational purposes. Land adjustments would allow for the sale, trade or exchange of land with willing landowners to enable the Department to consolidate wildlife area boundaries.

There are three categories of lands that may be considered for acquisition. These include: 1) Significant or unique habitats, especially those beneficial to threatened or endangered sensitive species; 2) Sites, or access to sites that provide wildlife-related recreational opportunities; and, 3) Properties to facilitate the performance of the Department's mandated duties (e.g., storage and warehouse, feeding barns, etc.).

No land acquisitions to the DWA are planned at this time, but suitable parcels will be considered should opportunities arise.

Public Use

Public Access

The DWA is open to the public every day. Motorized vehicles are not allowed except on the Touvelle Road access to the Rogue River. Keys to the two Touvelle Road entrance gates are issued at no charge to the public on completion of a brief application and proof of a valid Annual Parking Permit. Currently over 12,000 keys have been issued. Dogs are not allowed to run on the area during bird nesting season, from April 1 through July 31, except in the designated year-round dog training area. The area is open to hunting during designated game bird and game mammal seasons. All tracts are open every day during authorized hunting seasons except for the Hall Tract which, starting November 1 through the end of waterfowl season is open Wednesdays, Saturdays, Sundays, Thanksgiving and Christmas Days only.

The wildlife area provides multiple benefits for wildlife and people through a variety of developed resources and naturally-occurring habitat conditions. Many recreational and educational opportunities are available for people living in or visiting the Rogue Valley.

Hunting, Trapping, and Angling

Hunting and angling are very popular recreational activities enjoyed on the DWA (see **Table 6**). Hunting opportunities include waterfowl, mourning dove, California quail, pheasant, and black-tailed deer. Hunters are required to check in and out at six self-service check stations. A special two day Youth Pheasant Hunt is held in September before the start of the general pheasant season. This hunt was attended by approximately 135 youth hunters in 2016. This event also has high volunteer participation from local hunting, dog training and hunter education organizations. A special Fee Pheasant Hunt is held in October, with approximately 800-900 participants annually. Pen-raised roosters, purchased by the Department as well as various conservation and sportsman organizations, are released for both of these hunts. In 2015 the Department's Hunter Education program conducted a youth turkey clinic at DWA that has since become an annual event, with 20 youth participants annually and as many adults attending. Waterfowl hunting takes place throughout the area, but is most productive in ten 3-acre flooded grain fields. There is heavy competition among hunters for these ten fields. There are no established permanent blinds. Hunter participation is also restricted in some areas of the Rogue River bottomlands due to poor access through thick vegetation.

Angling for spring and fall Chinook salmon, Coho salmon, summer and winter Steelhead, and Cutthroat and Rainbow Trout are popular on the Rogue River. Warm water angling for Large-Mouth Bass, Bluegill, Pumpkinseed, Black Crappie, Brown Bullhead and Common Carp is offered in the numerous local ponds and reservoirs. In 2016 youth anglers at a Young Oregon Hunters Day caught stocked Bluegill and Black Crappie in Whetstone Pond. This event is sponsored by Oregon Hunters Association and attended by 100 youth annually along with an equal number of parents.

Trapping of furbearers is allowed on the DWA, by permit, during general seasons.

Trapping is used primarily to control animals such as beaver and muskrat which may damage water control structures, and to control other species such as foxes and raccoons that may create damage problems on neighboring properties.

Table 6. Estimated annual hunting, trapping, and angling use days on the Denman Wildlife Area.

Activity	Estimated Annual Use Days
Angling	15,000
Hunting	
Deer	50
Waterfowl	1,100
Upland Birds	1,150
Trapping	130
Total	**17,430**

The number of consumptive user days was revised to reflect information collected using car counter data, trapping permits, and self-hunting check-in stations in 2016.

Non-consumptive

The DWA is open to the public year around. Dog training, wildlife viewing, hiking, horseback riding, river boarding and wildlife photography are popular on the area. **Table 7** describes activities and estimated annual use on the DWA. Dog training is one of the oldest and most popular activities on the DWA. The terrain on the Military Slough is considered to be some of the best on the west coast for retrieving dog field trials. Pointing dog and tracking events are also held. Several events with up to 200 entrants are held annually. Approximately 40 acres, near the intersection of Touvelle and Agate Roads, is designated as a year-round dog training area.

A self-guided interpretive trail is located on the Military Slough Tract to the west of Touvelle Road, along Little Butte Creek. A trail guide is available at the area headquarters on East Gregory Road. A paved disability-accessible path leading to a covered viewing platform and two jetties overlooking Whetstone Pond is located near the wildlife area headquarters. The platform was donated by the Rogue Valley Chapter Oregon Hunters Association. Public access is limited to established trails on much of the area due to thick vegetation. At present, approximately 150 acres of the Modoc and Little Butte Units cannot be accessed because of the lack of trails.

Educational/Interpretive

The DWA is used by a variety of educational groups including local school districts, Southern Oregon University, Rogue Valley Audubon Society educational program, Southern Oregon Headstart, various Scouting groups, the Job Council, and Oregon Stewardship. Educational groups can use the area on their own or arrange for guided tours by Department staff. Numerous student volunteer projects are completed yearly, including placing and maintaining wood duck boxes and bird houses, constructing nest

platforms, picking up trash, building benches, maintaining trails, monitoring fish and bird species, and many other activities.

Table 7. Estimated annual non-consumptive use days on the Denman Wildlife Area.

Activity	Estimated Annual Use Days
Hiking	8,000
Wildlife Viewing	7,900
Dog Related Activities	7,300
Horseback Riding	2,400
Education	2,400
Other Miscellaneous	2,400
Photography	1,600
Total	**32,000**

The estimated number of user days and other primary use data was revised to reflect information collected using car counter data in 2016

Objectives and Strategies

Objectives and Strategies

As stated previously, objectives are concise statements of what the Department wants to achieve, how much the Department wants to achieve, when and where to achieve it and who will be responsible for the work. Objectives derive from goals and provide the basis for determining strategies. Strategies describe the specific actions, tools, techniques or a combination of these elements used to meet an objective.

The following objectives and strategies identify the management activities and priorities of the Denman Wildlife Area Management Plan.

(Goal 1: To protect, enhance and restore habitats to benefit fish and wildlife species.)

Objective 1.1 To protect, enhance and restore 286 acres of upland habitats annually to benefit native and desirable non-native wildlife.

Rationale

Upland habitat supports a wide variety of game and non-game wildlife and well as several sensitive species. This habitat includes native vegetative communities such as oak savannah, grassland and hardwood forest. Mature trees provide many important wildlife habitat components, including nest civilities, crevices under loose bark, insect habitat, and seeds and acorns for forage. Management activities such as conducting controlled burns, noxious weed removal, and placing of artificial nest structures are important tools among many that DWA staff use. The DWA has remnants of the original ecosystem of the Rogue Valley and DWA staff strives to maintain and restore these remnants, where possible. Strategies employed by the DWA will support many upland habitat conservation actions described in the Oregon Conservation Strategy.

Strategy 1. Identify habitat improvement projects which may include placement of various types of bird and bat nest/roost boxes, controlled burning, seeding of native grasses, and development of forage areas.

Strategy 2. Conduct an area wide survey to determine the presence and extent of invasive and noxious weeds and develop control measures as necessary.

Strategy 3. Seek partnerships to survey and identify age class, stand type, and condition of oak woodlands to determine silvicultural practices necessary to improve and increase wildlife habitat, restore natural range of vegetative seral stages, maintain a balanced age structure, and improve tree health.

Strategy 4. Seek partnerships with Partners in Flight International Bird Conservation Program, Klamath Bird Observatory, and the Audubon Society to identify habitat improvement projects for birds.

Strategy 5. Develop an integrated pest management plan, including the use of herbicides in a safe and efficient manner in order to reduce the amount of invasive and non-desirable vegetation that causes a negative impact on our native wildlife populations.

Objective 1.2 To protect, enhance and restore 730 acres of wetland, riparian and freshwater aquatic habitats annually for the benefit of native and desirable non-native fish and wildlife species.

Rationale
Natural and artificially created wetlands provide habitat for many species of wildlife and other aquatic species. Wetlands offer food and cover to birds, small mammals and bats and provide materials for nesting for migrant and resident waterfowl, shorebirds and passerines. Riparian habitats provide large trees with nest cavities and other habitat components. Natural habitats can be enhanced by placing artificial nest structures. Streams and ponds on the area support a wide variety of anadromous and warm-water fish, reptiles, amphibians, mammals, and insects. Aquatic habitats on the DWA are important recreational and educational attractions to the public.

Strategy 1. Manage water levels on 3 reservoirs for flood control and to promote the growth of native vegetation.

Strategy 2. Maintain 50 wood duck nest structures, 70 songbird and 20 bat nest/roost boxes and install additional structures where needed.

Strategy 3. Mechanically cut 10 acres of Himalayan blackberry annually and then treat with the appropriate herbicide to slow its regrowth.

Strategy 4. Work with district staff to identify fish habitat improvement projects that may include 1) riparian vegetation planting 2) removal of fish passage barriers 3) water

management and 4) placement of large woody debris while seeking partnerships with other agencies, sport groups or volunteers for implementation of such projects.

Strategy 5. Convert a minimum of three permanent ponds to seasonal ponds, by introducing control structures that will allow the ponds to drain in late summer/early fall. These ponds are located in the Military Slough Tract off of Ave G. Annually drawing down the ponds will help control invasive warm water fish and bullfrogs, which can negatively affect native wildlife. Native amphibians reproduce in the short timeframes when water is present in seasonal ponds, while invasive non-native bullfrogs cannot. This reproductive advantage can help native amphibians that are sensitive to competition and predation from bullfrogs.

Objective 1.3 To protect and restore 720 acres of vernal pool habitat annually to benefit the native species associated with this unique habitat.

Rationale

The USFWS has designated 720 acres of critical vernal pool habitat on the DWA. Three federal and state designated threatened and endangered species are exclusively associated with this habitat. These include the vernal pool fairy shrimp, Cook's desert parsley, and Big-flowered woolly meadowfoam. Vernal pools have value for native flora, fauna, and for wildlife viewing, photography and education. Vernal pools have been damaged by past human activities, such as filling vernal pools, leveling, ripping of hardpan, and introduction of non-native weeds. The Oregon Conservation Strategy describes vernal pools as a 'local and specialized habitat' and many of the DWA strategies listed below support the conservation actions described in this document.

Strategy 1. Continue to partner with TNC and USFWS with monitoring of threatened and endangered vernal pool species.

Strategy 2. Coordinate with TNC and USFWS to implement potential habitat improvement projects such as controlled burning, seeding, and noxious weed control activities.

Strategy 3. Seek partnerships and cooperative funding from other agencies that have threatened and endangered species responsibilities.

Strategy 4. Participate with Oregon Division of State Lands (DSL), USFWS, TNC and Jackson County in land use planning that affects DWA management and operations.

Objective 1.4 Maintain 122 acres of agricultural habitats to provide forage for native and desirable non-native wildlife.

Rationale

Agricultural crops provide important forage as well as nesting, rearing, refuge and thermal cover for many species of wildlife. Grains such as sunflowers, millet, corn, sudan grass, barley and wheat are important food sources for migrating song birds and waterfowl. Irrigated grass and clover provides nesting and escape cover, and increases insect populations which are an important food source for young birds. Agricultural crops also provide food and cover for many small mammals. Grain fields are also desirable hunting areas for upland bird and waterfowl hunters.

Strategy 1. Maintain grain plantings on 30 acres for waterfowl forage.

Strategy 2. Provide up to 10 acres of forage crops to benefit upland game birds and non-game birds.

Strategy 3. Irrigate up to 10 acres of grassland annually to provide forage and nesting habitat for waterfowl and upland birds on the Hall Tract.

Strategy 4. Rotate various crops and crop locations on an annual basis to maximize benefits to wildlife habitats.

Objective 1.5 To maintain and enhance wildlife area facilities, structures, and equipment to conduct habitat management and public use projects on the wildlife area.

Rationale
Many structures on the wildlife area are now 50 or more years old and are suffering from metal fatigue and deterioration. Some structures need to be repaired while others need simple aesthetic improvements. Properly functioning water control structures, culverts, headgates, and dams are needed to maintain wetland habitats and to protect neighboring lands. Maintenance of bridges, trails, fences, gates, roads check stations, and viewing areas are necessary to ensure the safety of public users while they enjoy the wildlife area's resources. Wetlands on the area produce mosquitoes that are vectors of diseases that can affect humans and livestock. DWA staff must cooperate with the local vector control district to assure that mosquitoes do not pose a threat to public health.

Strategy 1. Maintain 11 parking areas, 10 gates, 8 hunter check stations, 1 viewing platform, 3 miles of roads and 22 miles of trails.

Strategy 2. Prioritize repairs of structures including water control structures, fences, culverts, ditches, dikes and buildings based on the results of the maintenance master plan developed fall 2005.

Strategy 3. Install a spillway on the lower pond that boarders the Agate desert on the Hall Tract to help control water flows.

Strategy 4. Continue to cooperate with Jackson County Vector Control District to control mosquito populations.

(**Goal 2: To provide a variety of quality wildlife oriented recreational and educational opportunities to the public which are compatible with Goal 1.)**

Objective 2.1. To provide approximately 15,000 hunting, trapping, and angling use days annually.

Rationale
The DWA is funded almost entirely by hunter dollars through the Federal Aid to Wildlife Restoration Act (Pittman Robertson) (75%) and hunting license receipts (25%). Because the area is located near a large population center, it is a convenient destination for hunters and anglers alike. Special events for women, youth, and novice hunters are provided to the public. A wide variety of fishing opportunities are available year-round. Trapping of furbearers is a traditional activity, and is used to reduce damage to water control structures on the DWA and on surrounding properties.

Strategy 1. Continue to conduct the Youth Pheasant Hunt for up to 180 youth hunters annually.

Strategy 2. Continue to conduct the Fee Pheasant Hunt for 850-900 hunter days annually.

Strategy 3. Annually monitor hunting use of the area to review and possibly revise wildlife area hunting regulations to enhance the quality and safety of the area's hunting program.

Strategy 4. Continue to host the annual Young Oregon Hunters (YOH) day with partnerships from various hunting and conservation organizations.

Strategy 5. Continue to host the annual Youth Turkey clinic during the first part of April in order to prepare new hunters for the youth turkey hunt weekend.

Strategy 6. Allow limited trapping of furbearers, by permit, according to state regulations.

Strategy 7. Provide opportunities for volunteers to maintain 8 peninsulas for angler access in ponds.

Strategy 8. Explore additional special hunt or angling events as public interest and staffing resources allow.

Objective 2.2. To provide approximately 30,000 non-consumptive recreational and education/interpretation use days annually.

Rationale
Non-consumptive recreation and education constitute the largest public use of the area. Because the wildlife area is situated near a large population center demand for multiple use of the DWA is high. DWA staff strives to provide public access to its natural resources. This access however must be safe and enjoyable and meet the needs of able bodied and physically impaired. Access issues, whether through vandalism or natural events such as flooding or vegetation encroachment (e.g. blackberry), require constant action on the part of DWA staff. Currently, the wildlife area is maintained primarily by funds generated from hunters, through Federal Aid and hunting license revenue. In 2013 ODFW implemented a fee parking permit system at state wildlife areas in an attempt to obtain revenue from non-consumptive users who historically have not contributed. This additional revenue constitutes less than 2% of the operating funds at DWA.

The wildlife area will seek to expand opportunities for interpretation and environmental education that will foster visitors' appreciation, understanding, and stewardship of the wildlife area's fish and wildlife species and their associated habitats.

Strategy 1. Continue to provide 40 acres on the Military Slough Tract for year-round individual dog-training area and field trial events.

Strategy 2. Maintain the 500 foot trail accessible to persons with disabilities from the area headquarters to the viewing platform.

Strategy 3. Pay Oregon stewardship a nominal fee for trail maintenance.

Strategy 4. Organize volunteer trash pickups across the wildlife area by various clubs and organizations.

Strategy 5. Explore the possibilities of developing volunteer programs with schools to survey, monitor, and identify habitat improvements for threatened, endangered and sensitive wildlife species.

Strategy 6. Maintain current equestrian trail system to keep horses from impacting the steep interpretive trail.

Strategy 7. Continue to foster relationships with educational groups such as Oregon Stewardship, the Audubon Society, Boy Scouts, and others.

Strategy 8. Hold a BioBlitz on the DWA. A BioBlitz is a citizen-science event that focuses on finding and identifying as many species as possible in a specific area over a short period of time. At a BioBlitz, scientists, families, students, teachers, and other

community members work together to get an overall count of the plants, animals, fungi, and other organisms that live in a place.

Strategy 9. Promote the use of citizen-science websites and apps, including eBird and iNaturalist, to aggregate the observations of visitors into useful data.

Strategy 10. Work with the Audubon Society to develop a citizen science monitoring plan for the bird community on the DWA.

Plan Implementation

Funding

Since its inception in 1954, funding for the operation and maintenance of the DWA has been accomplished through an annual federal grant under the Federal Aid to Wildlife Restoration (WR) Program. This program was created with the passage of the Pittman-Robertson (PR) Act in 1937. The PR Act authorizes the USFWS to cooperate with the States, through their respective State fish and wildlife departments, to fund wildlife restoration projects. Eligible types of projects include restoration, conservation, management, and enhancement of wild birds, wild mammals and their habitats, and providing for public use and benefit from these resources.

Funding for WR is derived from a federal excise tax on the sale of firearms, ammunition, and archery equipment. Funding is then apportioned to states based on a mathematical formula of area of the state in square miles (50%) and total number of hunting licenses sold annually (50%). Under the program no state may receive more than 5%, nor less than 0.5% of the total money available.

To be eligible, States must have assented to the provisions of the PR Act and passed laws for the conservation of wildlife that include a prohibition against the diversion of license fees paid by hunters for any other purpose than the administration of the State fish and wildlife department. Another major requirement is that states have to contribute up to 25% of the total grant cost since federal participation is limited to 75% of eligible costs incurred under a grant. The Department provides its 25% cost share from annual license and tag revenues. In 2013 the Department implemented a fee parking permit system at state wildlife areas in an attempt to fill existing revenue gaps. This additional revenue constitutes less than 2% of the operating funds at DWA.

Over the past 5 years, funding for the operation and maintenance of the DWA has averaged $254,296 annually. To implement many of the proposed actions and achieve the objectives and goals of this plan, the Department may require additional funding and staff to undertake several types of projects including: upgrades of existing facilities, construction of new facilities or amenities (orientation kiosks and interpretive signs), and species and habitat monitoring. The recently implemented parking fee revenue should fill in some of these funding gaps.

Accomplishments

In the past decade since the 2006 Denman Wildlife Area Management Plan review there has been some major accomplishments that have been summarized in this section.

Little Butte Creek Project- The purpose of the project was to improve fish habitat in Little Butte Creek on the DWA. The project's overarching goal was to return Little Butte Creek to a 0.7 mile-long historic meander channel in a reach that was straightened and constrained in the 1950's by human made berms to control flooding and to facilitate aggregate mining on the creek's floodplain. These actions ultimately led to degradation of aquatic habitat in little Butte Creek.

The project aimed to: 1) increase stream length by 0.25 miles; 2) increase connectivity between the creek and its floodplain; 3) increase and enhance fish habitat features including over 100 pieces of large wood, riparian associated wetlands and alcoves; and 4) allow for natural channel development over time.

The completed project met or exceeded these expectations. The stream was lengthened by approximately 0.25 miles and was reconnected to its floodplain. Observations have been made periodically since project completion. The creek now frequently accesses its floodplain where fine sediments are deposited and point bars have formed. Riparian wetlands and alcoves are frequently inundated and provide excellent refuge habitat for juvenile salmonids. Over 100 pieces of large wood were added to the stream channel. No longer constrained, the stream channel is finding its own path. Some minor erosion occurred, creating a side channel from an alcove, and similar channel adjustments are likely to occur over time.

Meadow Restoration- In the fall of 2016 DWA staff coordinated with the Oregon Department of Forestry (ODF) in order to conduct a 25 acre burn north of Little Butte creek. This was a location of an old meadow that had become overgrown with large amounts of Himalayan Blackberry and Teasel. The success of this project has prompted the planning of more burning at different locations on the wildlife area with the help of ODF. An annual burning schedule is planned on roughly a five year rotation.

Whetstone Pond Fishing Access- In the September of 2015 fishing access on Whetstone Pond was improved by the addition of two 150 foot fishing dikes. These replaced two old fishing platforms that were considerably smaller. From the old platforms we repurposed two metal rails that we modified and placed at the ends of the new dikes. These dikes along with the new asphalt pathway that connects them to the parking lot are all ADA approved. This new fishing access gets daily use by the public during summer months.

New Equipment Shed- A new 1,680 square foot metal equipment shed was built to accommodate our growing number of farming implements.

Whetstone Creek Riparian Project- The DWA staff along with the district fish staff are working on improving the Whetstone riparian zone within the boundary of the DWA. This includes removal of Himalayan Blackberry and planting of desirable native vegetation in its place. Planting has been conducted by ODFW staff with volunteers as well as contracting with Plant Oregon.

Herp Coverboard Survey- In 2015, the Department began an amphibian and reptile monitoring program on DWA using coverboards. Coverboards are 2'X4' sheets of plywood laid on the ground as an analog for down woody debris that are periodically flipped over and checked for use by reptiles and amphibians. Department staff deployed 90 coverboards, along 9 routes with 10 boards per route in different habitat types on DWA. The purpose of the survey is to develop a rough inventory of terrestrial amphibians and reptiles using the different habitat types found on DWA. It took a year for coverboards to become establish, but now staff are finding reptiles and amphibians regularly and have identified 6 species using the area and expect this number to expand considerably.

These accomplishments specifically met certain goals that were laid out in the 2006 management plan. These large projects directly help improve fish and wildlife habitat as well as access for DWA users. They are in addition to the many other objectives that were presented in 2006 that require both annual and daily work to accomplish.

Staffing / Organization

The Department manages seventeen wildlife areas throughout the state. The wildlife areas encompass approximately 200,000 acres and are found in all four Department administrative regions. The DWA is located in the Southwest Region. One full-time Manager and one full-time Fish and Wildlife Senior Technician currently staff the area.

Compliance Requirements

The DWA Management Plan was developed to comply with all Federal and State laws, Oregon Revised Statutes (ORSs), Oregon Administrative Rules (OARs), and Department policies. Full implementation of all components of this plan will require compliance with the laws, regulations, rules, and policies listed in **Appendix F**.

Partnerships

A number of other state, federal, and local agencies and interest groups assist with management activities on the DWA. These partners play an important role in helping the Department achieve its mission and reach the DWA goals. The Department will continue to rely on these and other partners in the future to help implement this plan and provide input for future updates. This plan identifies projects that provide new opportunities for existing or new partners. There is a great potential for more public participation and assistance in the management of the wildlife area, given its proximity to population centers such as Central Point, Medford, Grants Pass, and Ashland. The Department welcomes and encourages more public participation in the administration of the wildlife area.

Adaptive Management

This plan provides for adaptive management of the wildlife area. Adaptive management is a flexible approach to long-term management of resources that is directed by the results of ongoing monitoring activities and latest data. Management techniques and strategies are regularly evaluated in light of monitoring results, new scientific understanding, and other new information. These periodic evaluations are used over time to adapt both management techniques and strategies to better achieve the area goals.

Monitoring is an essential component of adaptive management in general, and of this plan in particular; specific monitoring strategies have been integrated into the goals and objectives described in this plan whenever possible. Where possible, habitat management activities will be monitored to assess whether the desired effects on wildlife and habitat components have been achieved.

Plan Amendment and Revision

Wildlife area management plans are meant to evolve with each individual wildlife area, and as such each plan will be formally revisited after 5 years and updated every 10 years. In the meantime, however, the Department will be reviewing and updating this plan periodically (at least as often as every 5 years) based on the results of the adaptive management program. This plan will also be informally reviewed by area staff while preparing annual work plans. It may also be reviewed during routine inspections or programmatic evaluations. Results of any or all of these reviews may indicate a need to modify the plan. The goals and objectives described in this plan will not change until they are re-evaluated as part of the formal plan revision process. However, the strategies may be revised to better address changing circumstances or due to increased knowledge of the resources on the area. If changes are required, the level of public involvement and associated compliance requirements will be determined by the Department.

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Appendices

Appendix A. Land Acquisitions and Adjustments involving the Denman Wildlife Area

Date	Acres	Action	Cooperator
4-05-54	1760.64	Acquired from	U.S. General Services
8-03-56	160.00	Acquired from	Gordon F. Hall
10-28-60	5.00	Acquired from	Jackson County
7-24-67	28.00	Acquired from	State Highway Division
3-01-68	172.3	Transferred to	White City Corp
4-05-68	276.67	Acquired from	White City Corp (Hoover Ponds)
3-28-69	27.00	Transferred to	State Highway Division
4-17-69	0.07	Acquired from	State Highway Division.
8-20-76	248.93	Transferred to	Jackson County (Hoover Ponds)
6-01-82	0.19	Acquired from	Ousterhout
3-26-86	15.61	Acquired from	Jackson County
11-16-95	61.14	Acquired from	U.S. Rural Economic and Community Development (Bear Creek Tract)
9-13-02	1.28	Transferred to	Jackson County (Bear Creek Tract)
Total	**1857.81**		

Appendix B. Plant Species Known to Occur on the Denman Wildlife Area

Conifer trees
Douglas-fir *(Pseudotsuga menziesii)*
Ponderosa pine (*Pinus ponderosa)*

Hardwood trees
White alder *(Alnus rhombifolia)*
Black cottonwood *(Populus trichocarpa)*
California black oak *(Quercus kelloggii)*
Oregon white oak *(Quercus garryana)*
Oregon ash *(Fraxinus latifolia)*
Common chokecherry *(Prunus virginiana)*
Narrow leafed willow *(Salix exigua)*
Pacific black willow *(Salix lucida, ssp. lasiandra)*
Pacific madrone *(Arbutus menziesii)*
Bigleaf maple *(Acer macrophyllum)*

Shrubs
Mockorange *(Philadelphus lewisii)*
Wedgeleaf buckbrush *(Ceanothus cuneatus)*
Poison oak *(Rhus diversiloba)*
Snowberry *(Symphoricarpos albus)*
Creeping snowberry *(Symphoricarpos mollis)*
Tall Oregon-grape *(Berberis aquifolium)*
Ocean spray *(Holodiscus discolor)*
Klamath plum *(Prunus subcordata)*
Western dogwood *(Cornus stolonifera)*
Nootka rose *(Rosa nutkana)*
Scotch broom *(Cytisus scoparius)*

Grasses
Pacific meadow foxtail *(Alopecurus pratensis)*
Chess *(Bromus secalinus)*
Ripgut brome *(Bromus rigidus)*
Cheatgrass *(Bromus tectorum)*
Tufted hairgrass *(Deschampsia cespitosa)*
Idaho fescue *(Festuca idahoensis)*
Mediterranean barley *(Hordeum marinum)*
Medusahead rye *(Taeniatherum caput-medusae)*
Bluebunch wheatgrass *(Agropyron spicatum)*
California oatgrass *(Danthonia californica)*
Lemmon's needlegrass *(Acnatherum lemmonii)*
Pine bluegrass *(Poa nevadensis)*
Largo tall wheatgrass *(Agropyron elongatum)*
Tall fescue *(Festuca spp)*
Timothy *(Phleum pretense)*
Bulbous bluegrass *(Poa bulbosa)*
Sandburg bluegrass *Poa secunda)*
Reed canarygrass *(Phalaris arundinacea)*
Barnyardgrass *(Echinochloa crus-galli)*
Bermudagrass *(Cynodon dactylon)*
Common rye *(Secale cereale)*
Rabbitfoot polypogon *(Ploypogon monspeliensis)*

Legumes
Elegant lupine *(Lupinus lepidus)*
Bicolor lupine *(Lupinus bicolor)*
Tomcat clover *(Trifolium willdensoii)*
Yellow sweet clover *(Melilotus officianalis)*
Subterranean clover *(Trifolium subterranean)*
Rose clover *(Trifolium hirtum)*
Red clover *(Trifolium pretense)*
Alfalfa *(Medicago sativa)*
Hairy vetch *(Vicia villosa)*

Forbs
Redstem filaree *(Erodium cicutarium)*
Self-heal *(Prunella vulgaris)*
Western flax *(Linum lewisii)*
Winecup clarkia *(Clarkia purpurea)*
Fireweed *(Epilobium anguatifolium)*
Needle navarretia *(Nararretia intertexa)*
Trailing phlox *(Phlox adsurgens)*
Duckweed *(Lemna minor)*
Water-meal *(Wolfia borealis)*
Camas *(Camassi quamash)*
White hyacinth *(Triteleia hyacinthine)*
Death camas *(Zigadenus venenosus)*
Mule ears *(Wyethia angutifolia)*
Lambsquarters *(Chenopodium berlandieri)*
Coast fiddleneck *(Amsinckia intermedia)*
Common cocklebur *(Xanthium strumarium)*
Western salsify *(Tragopogon dubius)*
Dandelion *(Taraxacum officinale)*
Pineappleweed *(Matricaria matricarioides)*
Coast tarweed *(Madia sativa)*
Purple aster *(Machaeranthera canescens)*
Prickly lettuce *(Lactuca serriola)*
Chicory *(Cichorium intybus)*

Milkweed *(Asclepias spp.)*
Yellow starthistle *(Centaurea solstitialis)*
Black mustard *(Brassica nigra)*
Plantain *(Plantago spp.)*
Beggarticks *(Bidens frondosa)*
Wild carrot *(Daucus carota)*
Poison hemlock *(Conium maculatum)*
Bur chervil *(Anthriscus caucalis)*
Puncturevine *(Tribulus terrestris)*
Common purslane *(Portulaca oleracea)*
Miner's lettuce *(Montia perfoliata)*
Curly dock *(Rumex crispus)*
Smartweed *(Polygonum spp.)*
Venice mallow *(Hibiscus trionum)*
Common mallow *(Malva neglecta)*
Velvetleaf mallow *(Abutilon theophrasti)*
Wild onion *(Allium acuminatum)*

Appendix C. Wildlife Species Known to Occur on the Denman Wildlife Area

Occurrence: Abundant = A, Common = C, Uncommon = U, Rare = R

Birds

Species	Occurrence	Species	Occurrence
Common Loon *(Gavia immer)*	R	California Gull *(Larus californicus)*	C
Horned Grebe *(Podiceps auritus)*	R	Herring Gull *(Larus argentatus)*	R
Eared Grebe *(Podiceps nigricollis)*	R	Band-tailed Pigeon *(Columba fasciata)*	U
Western Grebe (Aechmophorus occidentalis)	U	Rock Pigeon *(Columba livia)*	A
Pied-billed Grebe *(Podilymbus podiceps)*	A	Mourning Dove *(Zenaida macroura)*	A
Double-crested Cormorant *(Phalacrocorax auritus)*	C	Barn Owl *(Tyto alba)*	C
Great Blue Heron *(Ardea herodias)*	A	Western Screech Owl *(Otus kennicottii)*	C
Green Heron (*Butorides virescens)*	U	Great Horned Owl *(Bubo virginianus)*	C
Great Egret (*Casmerodius albus)*	U	Pygmy Owl *(Glaucidium gnoma)*	C
Black-crowned Night Heron (*Nycticorax nyctricorax)*	C	Burrowing Owl *(Athene cunicularia)*	R
American Bittern (*Botaurus lentiginosus)*	U	Short-eared Owl *(Asio flammeus)*	R
Tundra Swan *(Cygnus columbianus)*	U	Turkey Vulture (Cathartes aura)	C
Canada Goose (*Branta canadensis)*	A	Sharp-shinned Hawk (Accipiter striatus)	C
Mallard (*Anas platyrhynchos)*	A	Coopers Hawk *(Accipiter cooperii)*	C
Gadwall *(Anas strepera)*	C	Red-tailed Hawk *(Buteo jamaicensis)*	A
Northern Pintail (Anas acuta)	C	Rough-legged Hawk *(Buteo lagopus)*	U
Green-winged Teal *(Anas crecca)*	C	Golden Eagle *(Aquila chrysaetos)*	U
Blue-winged Teal (Anas discors)	U	Bald Eagle *(Haliaeetus leucocephalus)*	U
Cinnamon Teal *(Anas cyanoptera)*	U	Northern Harrier *(Circus cyaneus)*	C
American Wigeon *(Anas americana)*	A	Osprey *(Pandion haliaetus)*	C
Northern Shoveler *(Anas clypeata)*	C	Prairie Falcon (*Falco mexicanus*)	U
Wood Duck *(Aix sponsa)*	A	Peregrine Falcon *(Falco peregrinus)*	U
Redhead *(Aythya americana)*	U	Merlin *(Falco columbarius)*	C
Ring-necked Duck *(Aythya collaris)*	C	American Kestrel *(Falco sparverius)*	A
Canvasback *(Aythya valiseneria)*	U	California Quail *(Callipepla californica)*	C
Greater Scaup *(Aythya marila)*	U	Western Kingbird *(Tyrannus verticalis)*	C
Lesser Scaup *(Aythya affinis)*	C	Ash-throated Flycatcher *(Myiarchus cinerascens)*	U
Common Goldeneye *(Bucephala clangula)*	C	Common Night Hawk *(Chordeiles minor)*	U
Bufflehead (Bucephala albeola)	C	Vaux's Swift *(Chaetura vauxi)*	U
Ruddy Duck *(Oxyura jamaicensis)*	C	Rufous Hummingbird *(Selasphorus rufus)*	A
Ring-necked Pheasant *(Phasianus colchicus)*	C	Calliope Hummingbird *(Stellula calliope)*	U

Wild Turkey *(Meleagris gallopavo)*	R	Virginia Rail *(Rallus limicola)*	C
Hooded Merganser *(Lophodytes cucullatus)*	C	Sora *(Porzana carolina)*	U
Common Merganser *(Mergus merganser)*	A	Semipalmated Plover *(Charadrius semipalmatus)*	R
American Coot *(Fulica americana)*	A	Killdeer *(Charadrius vociferus)*	A
Forster's Tern *(Sterna forsteri)*	R	Common Snipe *(Gallinago gallinago)*	C
Caspian Tern *(Sterna caspia)*	U	Spotted Sandpiper *(Actitis macularia)*	R
Black Tern *(Chlidonias niger)*	R	Greater Yellowlegs *(Tringa melanoleuca)*	U
Western Gull *(Larus occidentalis)*	C	Lesser Yellowlegs *(Tringa flavipes)*	U
Western Sandpiper *(Calidris mauri)*	C	Long-billed Dowitcher (*Limnodromus scolopaceus*)	U
Wilson's Phalarope *(Phalaropus tricolor)*	R	House Wren *(Troglodytes aedon)*	C
Red-necked Phalarope *(Pholoropus lobatus)*	R	Winter Wren *(Troglodytes troglodytes)*	C
Belted Kingfisher *(Ceryle alcyon)*	A	Bewick's Wren *(Thryomanes bewickii)*	C
Northern Flicker *(Colaptes auratus)*	A	Marsh Wren *(Cistothorus palustris)*	A
Pileated Woodpecker *(Dryocopus pileatus)*	C	American Robin *(Turdus migratorius)*	A
Acorn Woodpecker *(Melanerpes formicivorus)*	A	Varied Thrush *(Ixoreus naevius)*	C
Lewis's Woodpecker *(Melanerpes lewis)*	A	Hermit Thrush *(Catharus guttatus)*	A
Yellow-bellied Sapsucker *(Sphyrapicus varius)*	C	Swainson's Thrush *(Catharus ustulatus)*	C
Hairy Woodpecker *(Picoides villosus)*	C	Western Bluebird *(Sialia mexicana)*	A
Downy Woodpecker *(Picoides pubescens)*	C	Mountain Bluebird *(Sialia currusoides)*	U
Western Kingbird *(Tyrannus verticalis)*	A	Townsend's Solitaire *(Myadestes townsendi)*	C
Ash-throated Flycatcher *(Myiarchus cinerascens)*	A	Western Tanager *(Piranga ludoviciana)*	C
Say's Phoebe *(Sayornis saya)*	U	Black-headed Grosbeak *(Pheucticus melanocephalus)*	C
Willow Flycatcher *(Empidonax traillii)*	U	Lazuli Bunting *(Passerina amoena)*	C
Western Wood-Pewee *(Contopus sordidulus)*	C	Evening Grosbeak *(Coccothraustes vespertinus)*	U
Olive-sided Flycatcher *(Contopus borealis)*	C	Purple Finch *(Carpodacus purpureus)*	C
Violet-green Swallow *(Tachycineta thalassina)*	A	Cassin's Finch *(Carpodacus cassinii)*	C
Tree Swallow *(Tachycineta bicolor)*	A	House Finch *(Carpodacus mexicanus)*	A
Rough-winged Swallow *(Stelgidopteryx serripennis)*	C	Pine Siskin *(Carduelis pinus)*	C
Barn Swallow *(Hirundo rustica)*	A	American Goldfinch *(Carduelis tristis)*	A
Cliff Swallow *(Hirundo pyrrhonota)*	A	Lesser Goldfinch *(Carduelis psaltria)*	A
Purple Martin *(Progne subis)*	R	Spotted Towhee *(Pipilo erythrophthalmus)*	C
Steller's Jay *(Cyanocitta stelleri)*	A	Brown Towhee *(Pipilo fuscusz)*	C
Scrub Jay *(Aphelocoma coerulescens)*	A	Savannah Sparrow *(Passerculus sandwichensis)*	A
Common Raven *(Corvus corax)*	A	Vesper Sparrow *(Pooecetes gramineus)*	C
American Crow *(Corvus brachyrhynchos)*	A	Lark Sparrow *(Chondestes grammacus)*	C
Black-capped Chickadee *(Parus atricapillus)*	A	Dark-eyed Junco *(Junco hemalis)*	A
Mountain Chickadee *(Parus gambeli)*	C	Chipping Sparrow *(Spizella passerina)*	A
Chestnut-backed Chickadee *(Parus rufescens)*	C	White-crowned Sparrow *(Zonotrichia leucophrys)*	U
Common Bushtit *(Psaltriparus minimus)*	C	Golden-crowned Sparrow *(Zonotrichia atricapilla)*	A
White-breasted Nuthatch *(Sitta*	A	Brown Creeper *(Certhia americana)*	C

carolinensis)			
Red-breasted Nuthatch *(Sitta canadensis)*	A	Fox Sparrow *(Passerella iliaca)*	A
White-throated Sparrow *(Zonotrichia albicollis)*	U	Lincoln's Sparrow *(Melospiza lincolnii)*	C
Common Grackle *(Quiscalus quiscula)*	R	Song Sparrow *(Melospiza melodia)*	A
House Sparrow *(Passer domesticus)*	A	Red-winged Blackbird *(Agelaius phoeniceus)*	A
Orange-crowned Warbler *(Vermivora celata)*	C	Tri-colored Blackbird *(Agelaius tricolor)*	C
Nashville Warbler *(Vermivora ruficapilla)*	C	Northern Oriole *(Icterus galbula)*	R
Yellow Warbler *(Dendroica petechia)*	C	Brewer's Blackbird (*Euphagus cyanocephalus*)	A
Yellow-rumped Warbler *(Dendroica coronata)*	C	Brown-headed Cowbird *(Molothrus ater)*	A
Black-throated Gray Warbler *(Dendroica nigrescens)*	C	Golden-crowned Kinglet *(Regulus satrapa)*	C
Hermit Warbler *(Dendroica townsendi)*	C	Ruby-crowned Kinglet *(Regulus calendula)*	C
MacGillivray's Warbler *(Oporornis tolmiei)*	C	Water Pipit *(Anthus rubescens)*	U
Common Yellowthroat *(Geothlypis trichas)*	C	Cedar Waxwing *(Bombycilla cedrorum)*	A
Yellow-breasted Chat *(Icteria virens)*	C	Northern Shrike *(Lanius excubitor)*	U
Wilson Warbler *(Wilsonia pusilla)*	C	Loggerhead Shrike *(Lanius ludovicianus)*	R
Western Meadowlark *(Sturnella neglecta)*	A	European Starling *(Sturnus vulgaris)*	A
Yellow-headed Blackbird *(Xanthocephalus xanthocephalus)*	U	Hutton's Vireo *(Vireo huttoni)*	C
Warbling Vireo *(Vireo gilvus)*	C	Solitary Vireo *(Vireo solitarius)*	C

Amphibians and Reptiles

Species	Occurrence	Species	Occurrence
Western Pond Turtle *(Clemmys marmorata)*	C	Common Garter Snake *(Thamnophis sirtalis)*	A
Western Fence Lizard *(Sceloporus occidentalis)*	A	Western Terrestrial Garter Snake (*Thamnophis elegans*)	A
Western Skink *(Eumeces skiltonianus)*	A	Northwestern Garter Snake *(Thamnophis ordinoides)*	A
Southern Alligator Lizard *(Elgaria multicarinata)*	A	Western Rattle Snake *(Crotalus viridis)*	C
Rubber Boa *(Charina bottae)*	C	Long-toed Salamander *(Ambystoma macrodactylum)*	U
Ringneck Snake *(Diadophis punctatus)*	R	Pacific Giant Salamander *(Dicamptodon tenebrosus)*	C
Sharp-tailed Snake *(Contia Tenuis)*	R	Rough-skinned Newt *(Taricha granulosa)*	R
Racer *(Coluber constictor)*	A	Western Toad *(Bufo boreas)*	R
Gopher Snake *(Pituophis melanoleucus)*	A	Pacific Treefrog *(Pseudacris regilla)*	A
Common King Snake *(Lampropeltis getula)*	R	Bull Frog *(Rana catesbeiana)*	A
California Mountain King Snake *(Lampropeltis zonata)*	R		

Mammals

Species	Occurrence	Species	Occurrence
Black-tailed Deer (Odocoileus hemionus columbianus)	A	Muskrat *(Ondatra zibethicus)*	A
Northern River Otter *(Lontra canadensis)*	A	Pinon Deermouse *(Peromyscus truei)*	A
Gray Fox *(Urocyon cinereoargenteus)*	A	North American Deer Mouse *(Peromyscus maniculatus)*	A
Coyote *(Canis latrans)*	A	Western Harvest Mouse *(Reithrodontomys megalotis)*	A
Bobcat *(Lynx rufus)*	U	Vagrant Shrew (*Sorex vagrans)*	A
Badger *(Taxidea taxus)*	R	Raccoon *(Procyon lotor)*	A
House Mouse *(Mus musculus)*	A	Striped Skunk *(Mephitis mephitis)*	A
Creeping Vole *(Microtus oregoni)*	A	Long-tailed Weasel *(Mustela frenata)*	C
Heerman Kangaroo Rat *(Dipodomys heermanni)*	C	Mink *(Mustela vison)*	C
Dusky-footed Woodrat *(Neotoma fuscipes)*	A	Western Spotted Skunk *(Spilogale gracilis)*	C
Northern Pocket Gopher *(Thomomys talpoides)*	C	Pallid Bat (*Antrozous pallidus*)	U
California Ground Squirrel *(Spermophilus beecheyi)*	A	Big Brown Bat (*Eptesicus fuscus)*	C
Western Gray Squirrel *(Sciurus griseus)*	C	Long-eared Myotis (*Myotis evotis)*	C
Northern Flying Squirrel *(Glaucomys sabrinus)*	U	Mexican Free-tailed Bat *(Tadarida brasiliensis)*	A
Porcupine *(Erithizon dorsatum)*	U	Yuma Myotis (*Myotis yumanensis)*	C
Black-tailed Jackrabbit *(Lepus californicus)*	A	California Myotis (*Myotis californicus)*	A
Brush rabbit *(Sylvilagus bachmani)*	A	Fringed Myotis *(Myotis thysanodes)*	C
Beaver *(Castor canadensis)*	A	Long-legged Myotis (*Myotis volans)*	C
Trowbridge's Shrew (*Sorex trowbridgii)*	C	Hoary Bat (*Lasiurus cinereus)*	R
American Shrew-mole (*Neurotrichus gibbsii)*	A	Silver-haired Bat (*Lasionycteris noctivagans)*	R
Broad-footed Mole (*Scapanus latimanus)*	C		

Appendix D. State and Rogue River Valley Irrigation District Water Rights on the Denman Wildlife Area

State Water Rights

Tract	Priority Date	Rate
Military Slough	1962	51.5 Acre Ft.
Hall	1961	0.35 cfs
Military Slough	1966	1.0 Acre Ft.
Military Slough	1966	0.02 cfs
Military Slough	1966	0.23 cfs
Military Slough	1962	39.6 Acre Ft.
Hall	1962	0.5 cfs
Hall	1959	1.0 cfs
Hall	1959	35.0 Acre Ft.
Hall	1961	14.0 Acre Ft.

Rogue River Valley Irrigation District Water Rights

Tract	Acres
Military Slough	18.5
Hall	1.5
Hall	76.6
Hall	6.3
Hall	0.2
Bear Creek	3.0

Appendix E. Easements and Access Agreements on the Denman Wildlife Area

Easements

Principles	Purpose	Date	Acres
Cal-Ore Power Co.	Powerline	3/25/1955	<1
Veterans Administration		4/4/1955	1.57
Hutchings & Hodgson		11/24/1959	1.14
Frin Monia, Eldred E.		3/4/1960	2.5
Wattenberg, Adolph T.		6/12/1961	1.52
White City Sanitary Dist.	Sewage Lagoon	8/20/1963	<1
Pac Power and Light Co.	Powerline	8/9/1965	<1
Pac Power and Light Co.	Powerline	2/25/1966	<1
Monia & H		1/8/1968	2.5
Wells, Donald V. & Z		1/9/1968	0.9
Walch, Kenneth N.		1/9/1968	4.89
White City Corp		5/2/1968	0.19
Monia, Eldred E.		7/30/1969	0.9
Pac Power and Light Co.	Powerline	5/4/1972	<1
OR Dept. of Transportation	Pipeline	4/21/1976	<1
Burrill Lumber Co.		6/1/1979	<1
Burrill Lumber Co.	Roadway	6/18/1979	<1
City of Medford	Pipeline	3/20/1981	<1
Pac Power and Light Co.	Powerpole	6/13/1985	<1
Pac Power and Light Co.	Powerline	1/19/1988	<1
Pacificorp	Powerline	10/6/1995	<1
Pacificorp	Powerline	12/29/1997	<1
Cascade Wood Products	Well	5/3/2002	<1
David Evans & Assoc.	Habitat Monitoring	7/31/2003	<1

Access Agreements

Principles	Purpose	Date
Vanwey, Wayne	Road	4/1/1984
OR Dept. of Environmental Quality	Permit	9/16/1985

Appendix F. Legal Obligations Influencing Management of the Denman Wildlife Area

Federal Laws

Federal Aid in Wildlife Restoration Act
Pittman- Robertson Act of 1937
The Endangered Species Act of 1973, as amended
National Historic Preservation Act
National Environmental Policy Act
Americans with Disabilities Act

Oregon Revised Statutes

ORS 496.012 Oregon's Wildlife Policy
ORS 496.138 General Duties and Powers; Rulemaking Authority
ORS 496.146 Additional Powers of the Commission
ORS 496.162 Establishing seasons, amounts and manner of taking wildlife; rules
ORS 496.992 Penalties

Oregon Administrative Rules

Division 008 - Department of Fish and Wildlife Lands
- 635-008-0015 Agreements to Restrict Motor-propelled Vehicles
- 635-008-0040 Forage Removal from State Lands
- 635-008-0050 Fish and Wildlife Commission to Post and Enforce Rules
- 635-008-0080 Ken Denman Wildlife Area

Division 011 - Statewide Angling Regulations
- 635-011-0050 Procedure of Promulgation of Angling Regulations
- 635-011-0100 General Rule

Division 051 - General Game Bird Regulations
- 635-051-0000 Purpose and General Information
- 635-051-0065 State Wildlife Area Regulations

Division 065 - Game Mammal General Seasons and Regulations
- 635-065-0001 Purpose and General Information
- 635-065-0625 Regulations on State Wildlife Areas, Refuges and Special Areas

Jackson County Ordinances

Jackson County Land Use Codes, Ordinances, Plans, and Agreements
- Chapter 8.6 Stream Corridors and Riparian Habitat
- Chapter 8.7 Wildfire Safety