

E.E. WILSON WILDLIFE AREA MANAGEMENT PLAN

**October 2008
(Updated January 2019)**

**Oregon Department of Fish and Wildlife
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Table of Contents

Executive Summary	1
Introduction	6
Purpose of the Plan	6
Oregon Department of Fish and Wildlife Mission and Authority	6
Purpose and Need of E.E. Wilson Wildlife Area	6
Wildlife Area Goals and Objectives	7
Wildlife Area Establishment	8
Description and Environment	9
Physical Resources	9
Location	9
Climate	9
Topography and Soils	12
Habitat Types	12
Description of Tracts	15
Biological Resources	16
Birds	16
Mammals	17
Amphibians and Reptiles	17
Fish	17
Species of Conservation Concern	18
Non-Native Species	19
Monitoring	20
Cultural Resources	21
Social Environment	23
Demographics	23
Land Use	23
Infrastructure	23
Developments/Facilities	24
Water Rights	24
Easements/Access Agreements	24
Land Acquisition and Adjustment	26
Public Use	26
Public Access	26
Hunting and Angling	26
Wildlife Viewing	27
Educational/Interpretive	28
Objectives and Strategies	28
Plan Implementation	36
Funding	36
Staffing / Organization	36
Compliance Requirements	36
Partnerships	36
Adaptive Management	37
Plan Amendment and Revision	37
References	40

Appendices..... - 1 -

Appendix A. Land Acquisitions and Adjustments Involving the E.E. Wilson Wildlife Area.

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

Appendix C. Wildlife Species Known to Occur on the E.E. Wilson Wildlife Area.

Appendix D. State Water Rights on the E.E. Wilson Wildlife Area.

Appendix E. Legal Obligations Influencing Management of the E.E. Wilson Wildlife Area.

List of Figures

Figure 1. E.E. Wilson Wildlife Area Features and Ownership.

Figure 1.2 E.E. Wilson Wildlife Area Baker Tract.

Figure 2. Habitat Types within E.E. Wilson Wildlife Area.

Figure 3. Land Uses Surrounding E.E. Wilson Wildlife Area.

List of Tables

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

Table 2. Federal and State Listed Endangered, Threatened, Candidate and Species of Concern animals and plants potentially present on the E.E. Wilson Wildlife Area.

Table 3. Non-native Wildlife Species that may be found on the E.E. Wilson Wildlife Area.

Table 4. Non-native Fish Species that may be found on the E.E. Wilson Wildlife Area.

Table 5. Noxious Weeds Listed by the Oregon Department of Agriculture that may be found on the E.E. Wilson Wildlife Area.

Table 6. Estimated Annual Hunting and Angling Use Days on the E.E. Wilson Wildlife Area.

Table 7. Estimated Average Annual Use Days on the E.E. Wilson Wildlife Area by Type of Public Use.

Executive Summary

Purpose of the Plan

This plan will guide management of E.E. Wilson Wildlife Area (EEWWA) over the next ten year period with the intent of:

- Providing direction and long-term continuity for managing the wildlife area (WA);
- Ensuring management policies that are consistent with the terms of the original transfer agreement between the U.S. government and the Oregon Department of Fish and Wildlife, and with Federal, State and local regulations;
- Ensuring management activities include 2016 Oregon Conservation Strategy priorities and recommendations;
- Communicating EEWWA management priorities to the public and neighbors, and;
- Providing a basis for budget requests that support EEWWA staffing needs, operations, maintenance, and capital improvements.

Historical Background

The E.E. Wilson Wildlife Area came into existence in 1950 when the U.S. Government gave quitclaim title to the property to the Oregon Department of Fish and Wildlife. The wildlife area covers approximately 1,788 acres, is located on Highway 99W about 10 miles north of Corvallis and is situated on the Willamette Valley floor. Bordered to the north by private farm lands, the urban community of Adair Village to the south, Highway 99W to the west and the undeveloped City of Adair and United States Forest Service (USFS) properties to the east, EEWWA also includes the isolated 55 acre Baker Tract and the 50 acre Coffin Butte Tract. The WA lies in both Benton and Polk counties which have populations of 91,000 and 84,000 respectively.

The wildlife area is named after a Corvallis attorney, Eddy Elbridge Wilson, born in Corvallis, Oregon in 1869. E.E. Wilson was a member of the Oregon Game Commission and Commission chairman for ten years. In recognition of his service, the Department named the WA in his honor. He lived to the age of 92.

The WA is located in a portion of the Willamette Valley once occupied by the Kalapuya Indians. The Luckiamute Band of the Kalapuyas once lived on what now is EEWWA land. Much of the open areas in the southern Willamette Valley are a result of management activities (fires) set by the tribe to reduce brush, improve seed production and allow harvest of game animals. Estimated to have a population of 10,000 to 20,000 in the early 1800s, by 1840 the tribe had declined to roughly 600, by "fever and ague" which may have actually been Influenza, typhus, cholera, measles, and scarlatina (Boyd, 1998). In 1851 the estimates are at 560 Kalapuya; by 1857, 345 Kalapuya were in Grand Ronde, and the last census, in 1900, listed 72 individuals who were primarily Kalapuya by descent. Although unratified treaties were negotiated in April of 1851 with Anson Dart, during the first week of January, 1855, the U.S. government ratified a

signed treaty with the Kalapuyas and moved them to the Grand Ronde Reservation (Beckham, 1998).

Early pioneers homesteaded the WA locale in the late 1840s. Typical of the early Willamette Valley habitats, the farms on the WA were too wet to farm so the area was grazed. In 1850, the community of Wells was built on the site. The town consisted of a community center, store, post office, school, church, blacksmith shop railroad depot, warehouse and several homes. By 1870, local farmers produced primarily wheat on their agricultural lands. With the advent of World War II, the U.S. Army needed a military training facility and displaced the town and its farmers in order to build the Camp Adair Army Training Center (CAATC).

In April of 1942, CAATC totaled 52,000 acres in Benton and Polk counties. Four infantry divisions were trained there during WW II. Referred to as “Swamp Adair” by the Army Corps of Engineers, the Corps constructed a new sewer/storm drainage system and channelized three intermittent streams in order to drain excess water from the training center. The main camp consisted of headquarters, maintenance and troop buildings and was bisected by a grid work of roads that covered approximately 1,500 acres. The Army training center was de-activated in 1948. Most buildings were removed but a maze of concrete foundations, gravel areas and paved roads remained. In 1950, EEWWA was formally established when the U.S. Government conveyed the CAATC to the Oregon Game Commission, precursor to the Oregon Department of Fish and Wildlife, under a quitclaim deed. Under the transfer agreement, the Department was required to use the WA for the conservation of wildlife, other than migratory birds, and if not used for such purpose would revert back to the government of the United States.

Planning Approach

This plan revises the EEWWA plan adopted by the Oregon Fish and Wildlife Commission in 2008. That plan focused on goals developed to specifically meet wildlife abundance objectives that were at times not attainable because of hunter preference and habitat and species composition changes.

The goals, objectives and strategies (implementation actions) described in this 2018 version were derived using an ecosystem-based management philosophy and are guided by the 2016 Oregon Conservation Strategy (OCS). It is important to note that the management actions implemented on the WA are for the benefit of wildlife and the user public and must be sustainable and compatible with the wildlife resources.

Current and future wildlife needs and public interests are considered in the plan and appropriate management actions to achieve them are addressed. Subject to staffing and funding availability, the goals and objectives will be implemented throughout the ten year life of the plan. A mid-term progress review will occur in 2023 when revisions can be made prior to a complete plan review in 2028.

E.E. Wilson Wildlife Area Vision

The E.E. Wilson Wildlife Area management vision is:

Populations of fish and wildlife historically found in the woodlands, grasslands and wetlands of EEWWA are preserved, enhanced or restored by applying sound stewardship principals and management techniques that promote habitat community diversity and create recreational opportunities and enjoyment for all Oregonians.

Wildlife Area Goals

The goals for E.E. Wilson Wildlife Area are:

Goal 1: Oak woodland, upland shrub and grassland habitats will be managed consistent with conservation and enhancement priorities for native wildlife.

Goal 2: Riparian, wetland and wet prairie habitats will be managed consistent with conservation and enhancement priorities for native wildlife and production of game species.

Goal 3: To provide a variety of wildlife related recreation and education opportunities to the public using management strategies compatible with Goals 1 and 2.

Specific objectives and strategies to implement each goal, as well as detailed rationale are provided on pages 29 to 37.

Implementation Approach

The habitats found on EEWWA are typical of the Willamette Valley where the climate is temperate. Generally winters are mild and wet while summers are warm and dry. The WA is comprised of seasonal wetlands that fill from winter rains, riparian woodlands and small intermingled grassland sites. Three historical intermittent streams trisect the property, but because of extensive drainage work done by pioneer settlers and the U.S. Army during the WW II, these are now ditches. The historic natural habitats once found on the site no longer exist in any abundance due to past agricultural practices and Camp Adair construction. The property is now laced with the remnant remains of old building foundations, a grid work of roads and a complicated and severely deteriorated drainage system. Additionally, the WA was once used as a statewide upland game bird rearing facility until the late 1990s. Remains of this infrastructure still exist and are spread throughout the property. Annexes to the main WA parcel include three off-site tracts, Coffin Butte (unaltered remnant woodlands), Baker (altered agricultural grassland) and Adair (South Willamette Watershed District administrative complex that includes a small natural area with fishing pond).

The WA is dotted with numerous small, shallow rain-dependent impoundments along drainage ditches and natural depressions. They are passively managed to maintain the wetlands primarily for waterfowl and shorebird use. Extensive cattail marshes surround the ponds providing upland habitat for game birds, other non-hunted avian species, small mammals, reptiles and amphibians. The woodlands exist because of domestic orchard and/or ornamental plantings prior to the establishment of the WA, as a result of natural recruitment, and through selective preservation during the construction of CAATC. They provide food, cover and breeding sites for deer, turkey, predators and many small mammals. Few open grasslands are present because of the extensive invasive vegetation problem (e.g. Himalayan blackberry). These shrub/brush areas are difficult to manage but do provide habitat for rabbits, quail, pheasants and other small animals. Where there are open areas, rare plants unique to the Willamette Valley are found (e.g. Nelson's checkermallow and Kincaid's lupine). These sites provide habitat for meadowland birds such as streaked horned larks, meadowlarks and doves.

Wetland management emphasizes the quantity and quality of the habitat by controlling invasive vegetation and creating diversity in the aquatic plant communities. Water impoundments are passively managed using moist soil management activities such as mechanical disking, plowing, mowing and/or chemical applications. This activity normally occurs as the seasonal ponds abate and the soil dries. Supplemental seeding/planting is done when necessary, adding to the diversity to the wetland plant communities and palatability/nutrition for the wildlife using the habitat.

Moist prairies are the transition zones between upland prairie and wetlands. Managed similarly to wetlands, they are generally drier but have overlapping plant communities. Manipulation techniques are the same but seeding/planting regimes vary according to soil type and moisture levels.

Riparian/upland woodland sites are managed to emphasize historical or sensitive habitat designations, requiring either protection or restoration. Controlling non-native invasive plants by mechanical or chemical removal is the general technique used to thin or remove the invasive plant understory. Restoration may require re-planting of desirable native species if not present in the seed bank or local area.

Upland habitats (grasslands) are limited in quantity and managed for protection or enhancement. Depending on the site, focus is to maintain or increase the size and quantity of the habitat type. Management techniques include mowing, plowing, disking, prescribed burns, seeding and chemical spraying. These locales also provide the opportunity to produce limited amounts of wildlife food plots designed specifically for upland birds and small mammals. Normal farming techniques (mechanical and chemical) are used to prepare and plant the sites.

As previously mentioned, the majority of the WA's aquatic habitats are seasonal ponds used by a variety of amphibians, reptiles, waterfowl, shorebirds and other associated terrestrial species. The ponds' seasonal nature limits fish use and with two exceptions (Adair Pond and EEWWA Ponds), they are managed per the previous wetland

discussion. The EEWWA Pond is managed as a cool water system and stocked regularly with trout in the spring when water temperatures are cool. The Adair pond receives intermittent planting of warm water species (as available). District fishery biologists assist with the stocking and weed control activities.

The plan's recommended management actions are based on historical habitat, species inventories and monitoring data as well as public use information, current WA management assessments and research, and future wildlife site potential. Extensive soil, hydrology, wildlife species/habitat inventories have been conducted on the WA. Understanding the dynamics of the natural actions that have sustained or changed the ecology of the wildlife area is essential when deciding what management techniques (controlled burning, farming, mechanical or chemical control, etc.) are used to maintain, create or sustain healthy wildlife populations. Also important is the measuring of the impacts of public use on the WA's resources. Development of a "wise use" plan that educates the public and permits maximization of recreational uses without unnecessary control or restrictions is absolutely necessary for the long-term viability of EEWWA.

Introduction

Purpose of the Plan

This document is a long range plan designed to guide the management of the E.E. Wilson Wildlife Area (EEWWA) over the next ten 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:

- Providing direction and long-term continuity for managing the wildlife area;
- Ensuring management policies that are consistent with the terms of the original transfer agreement between the U.S. Government and the Oregon Department of Fish and Wildlife, and with Federal, State and local regulations;
- Ensuring management activities include 2016 Oregon Conservation Strategy priorities and recommendations;
- Communicating EEWWA management priorities to the public and neighbors, and;
- Providing a basis for budget requests that support EEWWA staffing needs, 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 Oregon Department of Fish and Wildlife 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.

Purpose and Need of E.E. Wilson Wildlife Area

Directed by the U.S. Government transfer agreement, the Department is required to manage the WA for the conservation and use of wildlife. The WA serves as a major recreation area for the southern Willamette Valley counties of Benton, Polk and Marion. The populace of cities such as Corvallis, Albany and Salem, plus many other smaller surrounding rural towns, routinely visits the WA throughout the year to hunt, fish, watch wildlife, bike, hike or become educated in the ways of the wildlife. The WA emphasizes management that promotes protection, enhancement and/or restoration of fish and wildlife resources and their habitats while providing a variety of wildlife-oriented recreational and educational opportunities for the public. As development of the southern Willamette Valley continues to accelerate, the need for open space, wildlife habitat and recreation provided by EEWWA will be immeasurable.

In 2016, the Oregon Conservation Strategy (OCS) was adopted and formed the State's overarching strategy for conserving fish and wildlife to ensure that Oregon's natural treasures are passed on to future generations. The EEWWA is specifically described in the OCS as an Ecoregion Conservation Opportunity Area (WV-19 Corvallis Area).

The WA is home to many of the key habitats mentioned in the OCS such as riparian, wetlands, grasslands and oak woodlands. Notable also are the sensitive species found on the area that are targeted in the plan for protection and enhancement. EEWWA role in assuring the success of the OCS is very important, particularly in the recovery of sensitive and rare Willamette Valley habitats and species.

E.E. Wilson Wildlife Area Vision Statement

The vision statement for the E.E. Wilson Wildlife Area is as follows:

Populations of fish and wildlife historically found in the woodlands, grasslands and wetlands of EEWWA are preserved, enhanced or restored by applying sound stewardship principals and management techniques that promote habitat community diversity and create recreational opportunities and enjoyment for all Oregonians.

Wildlife Area Goals and Objectives

Wildlife area goals are broad, open-ended statements of desired future conditions that convey a purpose but do not define measurable units. In contrast, objectives are more 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.

The goals and objectives for the E.E. Wilson Wildlife Area are:

Goal 1: Oak woodland, upland shrub and grassland habitats will be managed consistent with conservation and enhancement priorities for native wildlife and production of game species.

Objective 1.1: Protect and enhance 50-100 acres of native Oregon white oak woodland habitats to provide food, cover and breeding areas for wildlife species associated with this unique habitat type.

Objective 1.2: Protect and enhance 300-400 acres of grassland habitat for appropriate pattern, scale and structure to benefit native wildlife and game species.

Objective 1.3: Restore and maintain 800-900 acres of upland shrub area to enhance the forage, cover and breeding habitats for native wildlife and game species and control non-native invasive vegetation.

Goal 2: Riparian, wetland and wet prairie habitats will be managed consistent with conservation and enhancement priorities for native wildlife and production of game species.

Objective 2.1: Protect and enhance 100-200 acres of riparian, wetland and wet prairie habitats to promote species diversity and carrying capacity for native wildlife and game species.

Objective 2.2: Protect and enhance 20-40 acres of permanent freshwater ponds to provide habitat for native wildlife and game species.

Goal 3: To provide a variety of wildlife related recreation and education opportunities to the public using management strategies compatible with Goals 1 and 2.

Objective 3.1: Provide a variety of hunting, trapping, and angling opportunities (12,000-15,000 annual public use days) compatible with habitat management objectives.

Objective 3.2: Provide a variety of wildlife viewing and educational opportunities (40,000-45,000 annual public use days) that promote public understanding and support for natural resources and increase youth interest and participation in wildlife related recreational activities compatible with Objective 3.1.

Objective 3.3: Maintain wildlife area facilities, structures and equipment to support habitat management activities and public use programs.

Specific objectives and strategies to implement each goal, as well as detailed rationale, are provided on pages 29 to 37.

Wildlife Area Establishment

The E.E. Wilson Wildlife Area was established in 1950 when 2,032 acres of the former Camp Adair Army Training Center was conveyed to the Oregon Game Commission via a quitclaim 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. In the 1950s the GSA reclaimed 266 acres to implement the Bomarc missile project. The GSA also conducts an inspection every five years to see if the land is being used for its intended purpose.

The area once served as a center for the artificial propagation of game birds and as a major distribution center for the release of pheasants and other game birds throughout the state. More recently the use of EEWWA has been focused on restoration and conservation of lands within the area.

The 50 acre Coffin Butte Tract was purchased in 2000 by the Department and a number of contributors to expand the WA and preserve existing oak woodland habitats. The Coffin Butte Tract and other land acquired since that time, is not under GSA control.

In 2002, the Baker Tract was acquired through a land exchange between the Santiam Christian School district and the Department. This 55 acre parcel is a prior converted wetland with upland, wet prairie, and emergent marsh characteristics.

The addition of the two tracts brings the total size of the WA to 1,788 acres (see **Appendix A**).

Description and Environment

Physical Resources

Location

The E.E. Wilson Wildlife Area is located in the Willamette Valley of northwest Oregon, approximately 10 miles north of Corvallis. The area consists of the main WA, the Coffin Butte Tract bordering the WA to the west, the Baker Tract two miles to the northeast and the Adair Tract one mile south. The WA headquarters is located at 29555 Camp Adair Road. **Figure 1.1** shows the location and key features of the EEWWA and Coffin Butte Tract. The Baker Tract is shown separately in **Figure 1.2**.

Climate

The Willamette Valley is in a temperate zone in which summers are warm and dry, while winters are mild and wet. Temperatures range from an average summer high in the 80s (F) to average winter lows in the 30s. Average annual precipitation is approximately 42 inches (*www.co.benton.or.us 2008*), with the majority falling between October and February. Snow and freezing temperatures are present for short durations in the winter. Conversely, hot days during summer months are moderated by cooler evening temperatures. Elevation is approximately 200 ft. and 670ft. above sea level.

Figure 1.1 - E.E. Wilson Wildlife Area Features and Ownership

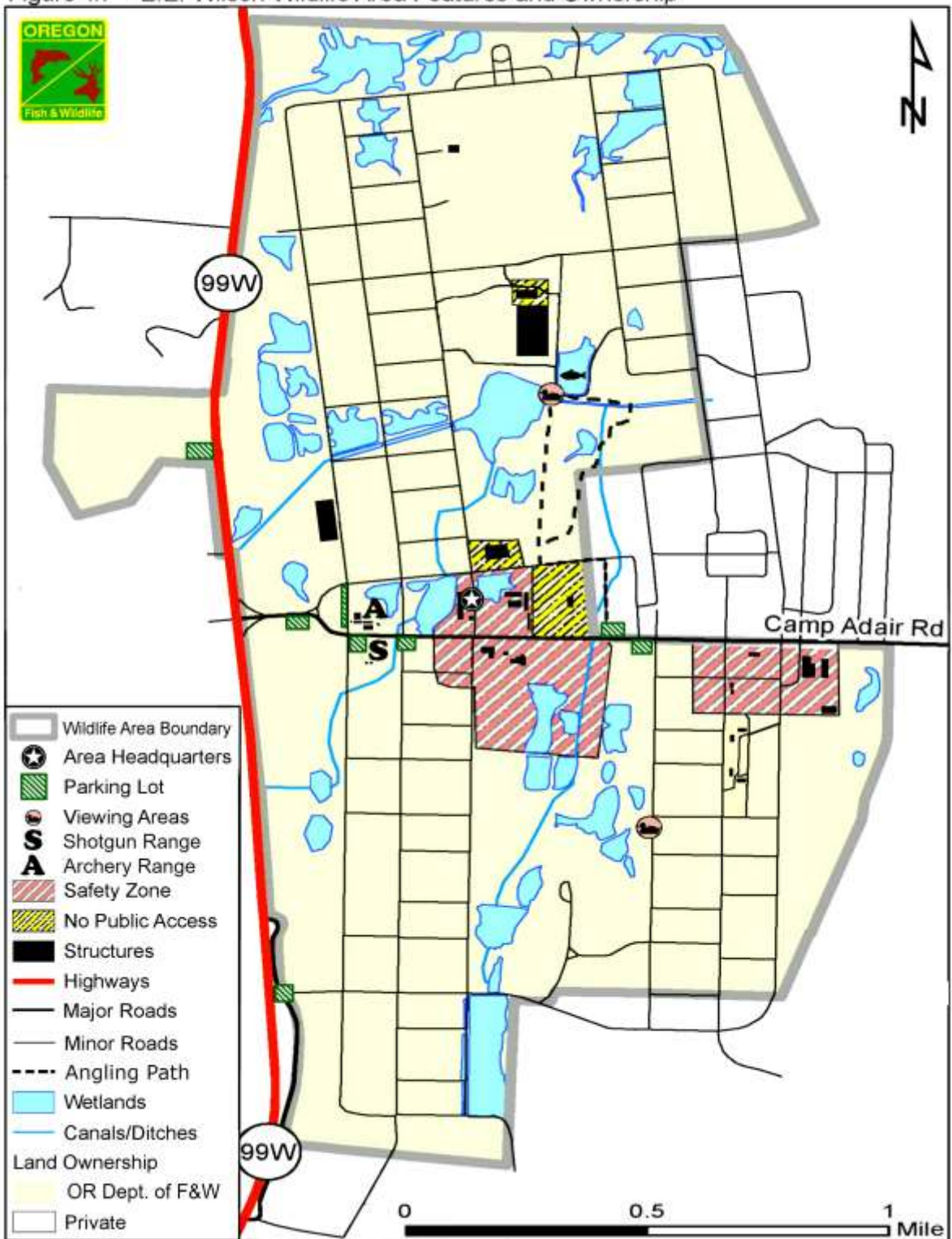
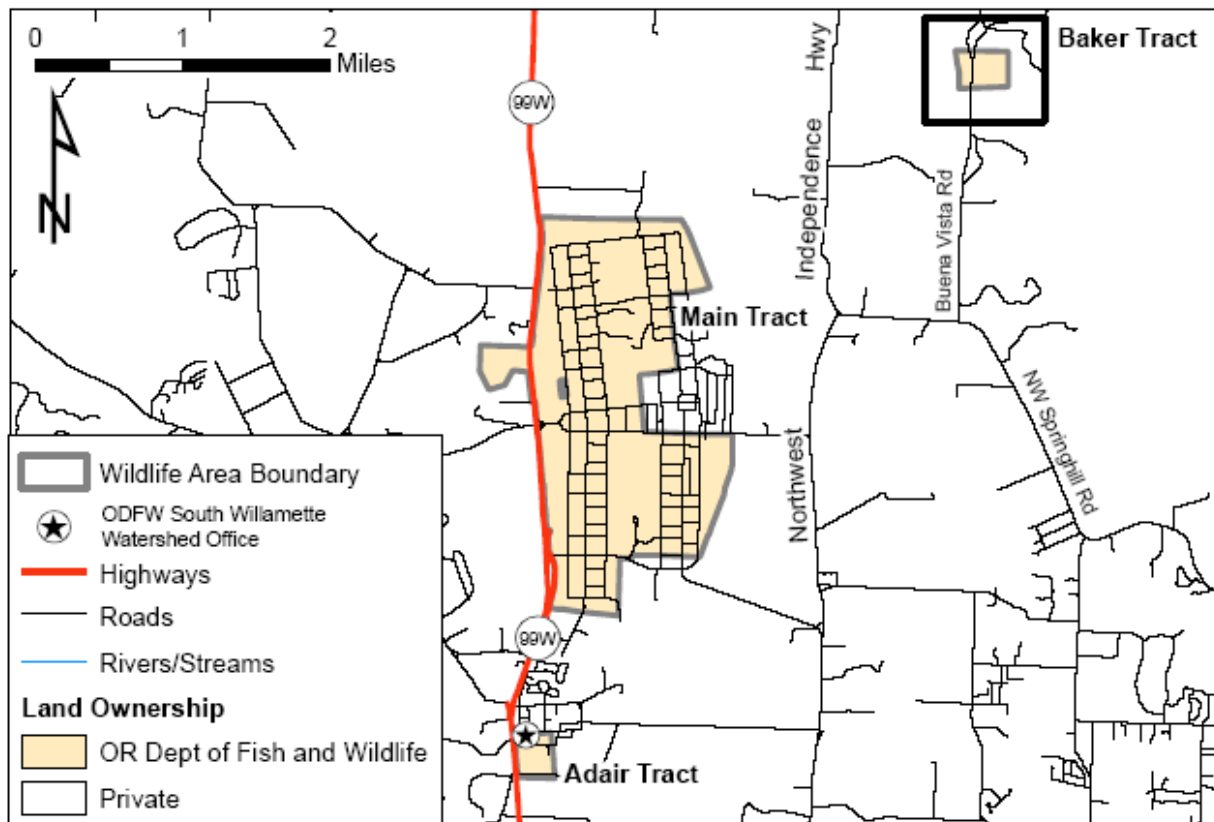
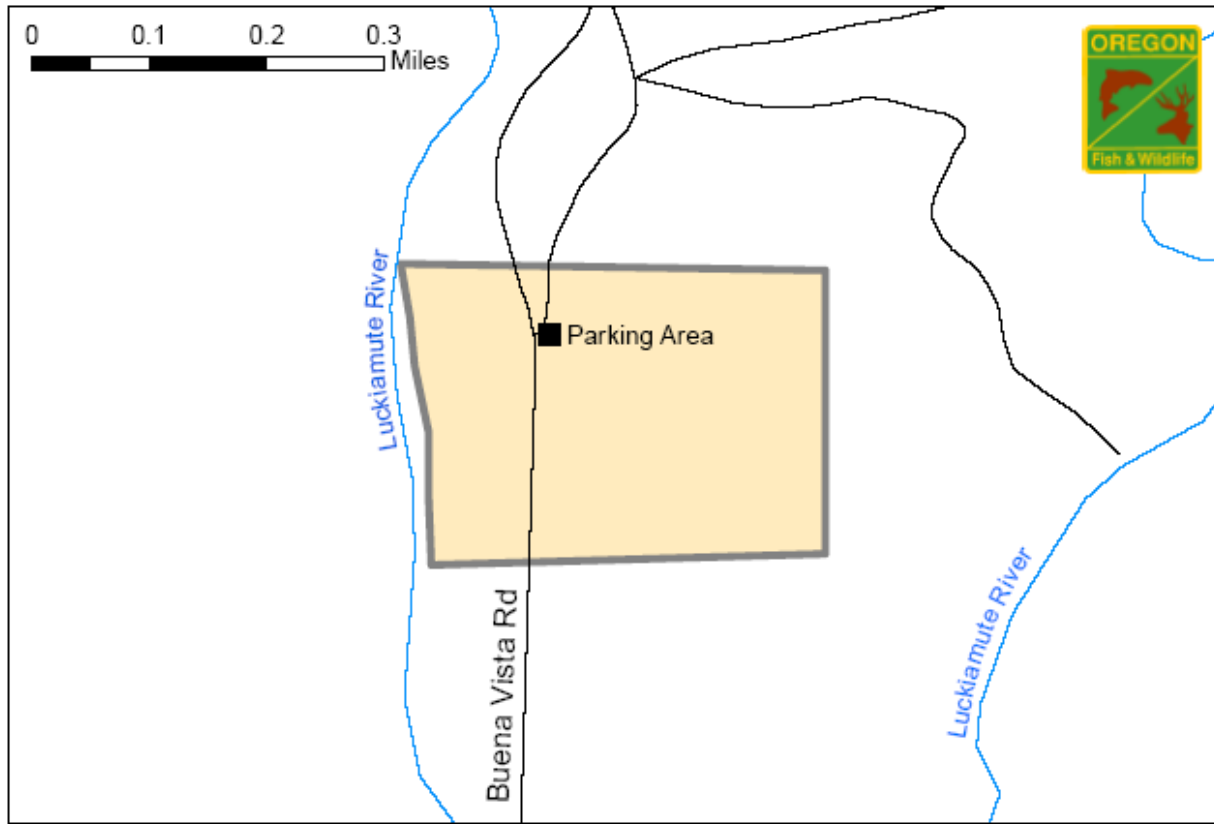


Figure 1.2 - E.E. Wilson Wildlife Area - Baker Tract



Topography and Soils

The EEWWA presently consists of fallow agricultural fields, woodlands, a network of streets and cement building foundations (remnants from the former CAATC). Habitat has changed greatly since the Department's initial acquisition. In 1948, the area was primarily open grassland with only about 75 acres in brush and woodland habitat. Much of the area has since reverted to brush and trees, with little successional grasslands remaining. Tilled farmlands were initially designed to grow and provide grain to feed artificially propagated birds as well as to provide food for native wildlife populations.

The EEWWA still has a network of gravel and asphalt roads which provided access to the Camp Adair Army Military Base structures built during World War II (Figure 1.1). Most of the structures have been removed, but the foundations remain. Thus, the EEWWA is unique from other state wildlife area, in the number of roads and foundations. Although these roads and foundations provide challenges for habitat manipulation within the area, there is increased access to user groups especially wheelchair access.

Soils found on the EEWWA are comprised primarily of alluvial deposits originating from the many streams and rivers that historically existed on the landscape. Soils are characterized as deep, poorly drained soils such as Amity or Concord silty loam, to deep, well drained soils such as Willamette silty loam (*Soil Survey of Benton County 1975*).

These soil types support agricultural crops in select areas.

Habitat Types

There are seven habitat types found within the borders of the E.E. Wilson Wildlife Area. These habitat types are shown in **Figure 2**. In terms of acreage, the largest habitat type includes upland shrub/grassland while the smallest is freshwater aquatic. The predominant 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 relic sites. The potential natural plant communities for EEWWA habitats are described in more detail in "*Restoring Rare Native Habitats in the Willamette Valley*", Campbell, B.H. 2004.

Table 1 shows the current habitat types and amount of acres of each type present on the wildlife area. Native grasslands have been especially impacted by competition from introduced grasses. Native species still exist, but not in their historic range and abundance. Tree and shrub species have suffered a similar fate with non-native encroachment. 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 fire regimes.

Figure 2 - Habitat Types within E.E. Wilson Wildlife Area

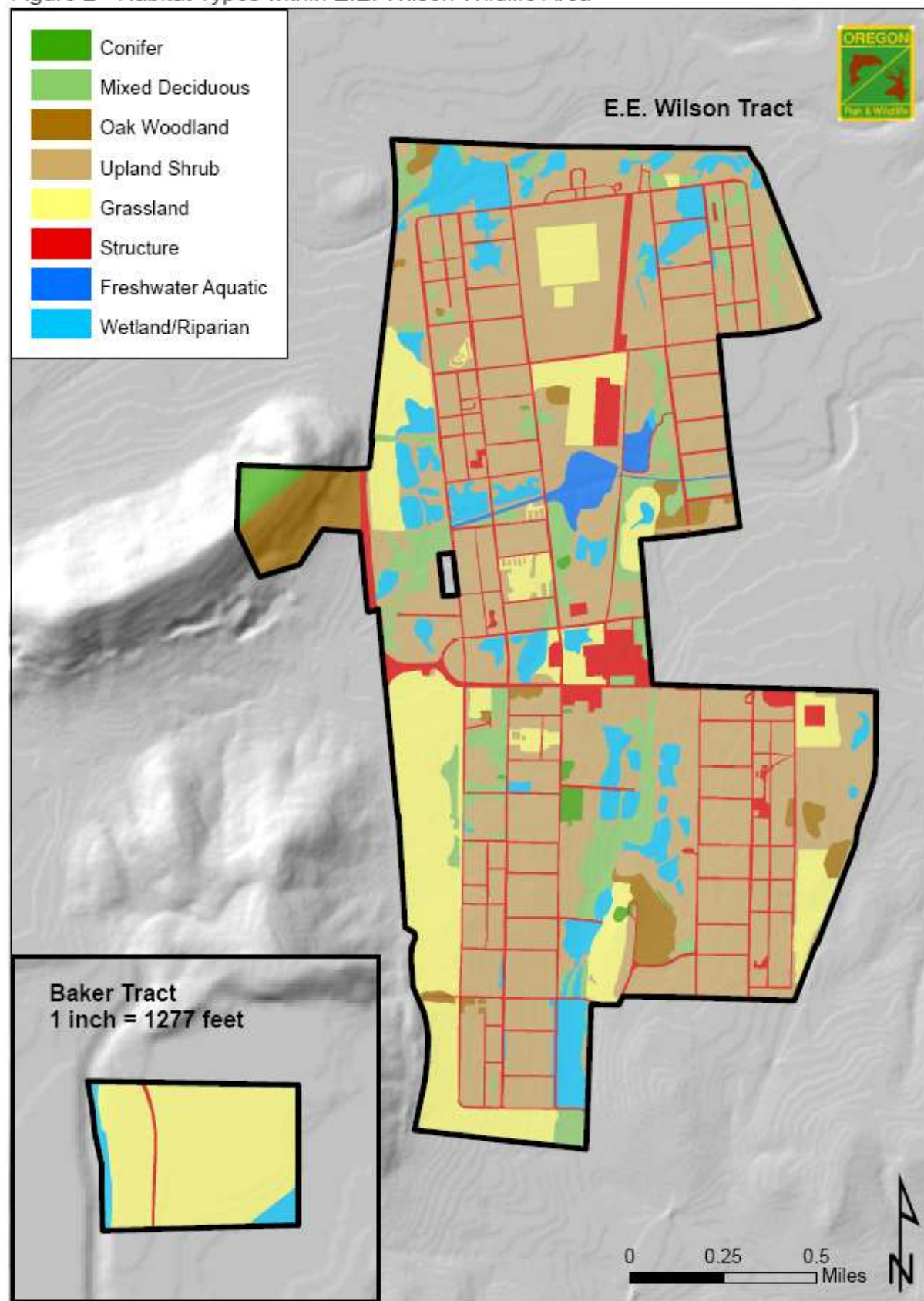


Table 1. Habitat Types and Approximate Acreages on the E.E. Wilson Wildlife Area.

Habitat Type	Acres
Upland shrub/perennial grasses	862
Grassland	317
Oak Woodland	62
Seasonal wetland/riparian	142
Freshwater Aquatic	21
Mixed Deciduous	183
Structure/roads	169
Conifer	32
Total	1,788

Seasonal Wetland/Riparian

The EEWWA has approximately 44 restored or enhanced seasonal/semi-permanent wetlands throughout the WA. These wetlands range in size from roughly ¼ to 25 acres. The potential natural vegetation consists of perennial bunchgrasses, including tufted hairgrass (*Deschampsia caespitosa*), American sloughgrass (*Beckmannia syzigachne*), waterfoxtail (*Alopecurus geniculatus*), spike bentgrass (*Agrostis exarata*) and forbs including common camas (*Camassia quamash*), water plantain (*Alisma plantago-aquatica*), cattails (*Typha* spp.), and slough sedge (*Carex obnupta*). Native species still exist in varying range and quantity; however introduced perennials such as reed canary grass (*Phalaris arundinacea*), cocklebur (*Xanthium strumarium*) and pennyroyal (*Mentha pulegium*) continue to encroach. Staff uses moist soil management techniques to control the impoundments, employing a combination of water level control, periodic soil disturbance, and timed drawdown and inundation to foster growth of native wetland species. Periodic input of native seed is introduced to augment natural production.

Grassland

Approximately 317 acres of converted grasslands is classified as agricultural land, but the majority of this acreage has not been farmed since 1993. Much of this acreage has reverted back to non-native fallow grassland consisting of colonial bentgrass (*Agrostis tenuis*), velvetgrass (*Holcus lanatus*), and tall fescue (*Festuca arundinacea*). Native prairie/grassland restoration efforts have commenced and currently about 190 acres are in various stages of development. Native grasses composition includes blue wildrye (*Elymus glaucus*), California oatgrass (*Danthonia californica*), Roemer's fescue (*Festuca roemerii*), California brome (*Bromus carinatus*), spike bentgrass, and tufted hairgrass. Some of the native forbs to be established include Oregon iris (*Iris tenax*), sickle-keeled lupine (*Lupinus albicaulis*), yarrow (*Achillea millefolium*), checker mallow (*Sidalcea virgata*), and western buttercup (*Ranunculus repens*). An oak savannah is characterized as grasslands with 10-30% canopy cover of Oregon white oak (*Quercus garryana*) and native grasses such as blue wildrye, prairie junegrass (*Koeleria macrantha*), and meadow barley (*Hordeum brachyantherum*). Historically, frequent low-intensity fires probably maintained the vigor and nutrition of native grasses and created wider spacing between oaks than is found today. Restoration efforts are taking place to restore this unique habitat type on the EEWWA.

Oak Woodland

Oak woodlands differ from oak savanna by the increased amount of canopy. Oak woodlands typically cover 30-100% of the canopy. There are several small oak woodland tracts representing approximately 62 acres within the EEWWA. Tree species are predominantly Oregon white oak and big-leafed maple (*Acer macrophyllum*), with an understory of poison-oak (*Rhus diversiloba*), wild rose (*Rosa* ssp.), snowberry (*Symphoricarpos albus*) and Himalayan blackberry (*Rubus discolor*). Several Oregon Conservation Strategy species exist in this type of habitat including the Western gray squirrel (*Sciurus griseus*), California myotis (*Myotis californicus*), and acorn woodpecker (*Melanerpes formicivorus*).

Upland Shrub/Perennial Grasses

This habitat type constitutes the largest amount of acreage within the WA and represents approximately 862 acres of EEWWA. It is characterized by woody shrubs and perennial grasses. Typical vegetation can be very diverse but commonly includes Himalayan blackberry, Hawthorn (*Crataegus* spp.), wild rose, common teasel (*Dipsacus fullonum*), tall fescue, and velvet grass. Later plant succession in this habitat type includes Oregon ash and black cottonwood (*Populus trichocarpa*) stands. Habitat improvement projects in this type are difficult to maintain and are limited due to extensive amount of abandoned military foundations scattered throughout the property. Fifteen to thirty acres of upland food plots containing sunflowers (*Helianthus annuus*), millet (*Panicum miliaceum*), buckwheat (*Eriogonum* sp.), sudangrass (*Sorghum bicolor*), triticale (*Triticosecale rimpau*) and kale are planted, providing important food sources for migrating song birds, upland game, and waterfowl.

Freshwater Aquatic

This habitat type includes streams and larger bodies of water which remain inundated year round. The angling and canal pond fall into this category. Water control structures are utilized to change water levels when a drawdown is necessary.

Description of Tracts

The EEWWA consists of two additional tracts: the Coffin Butte and Baker tracts acquired in 2000 and 2002, respectively.

Baker Tract

The Baker Tract (Figure 1.2) is roughly 55 acres in size, and is approximately two miles northeast of the contiguous WA. Bordered by the Luckiamute River to the west, private ownership to the north and Oregon Department of Parks and Recreation (ODPR) land to the south and east, the site is a prior converted wetland with an extensive farming history. Restoration efforts included restoring the tract to a native upland prairie community with a wetland component consisting of an ephemeral pond and seasonally inundated channels.

Coffin Butte Tract

The Coffin Butte Tract (Figure 1) consists of 50 acres branching to the west of the wildlife area. Elevation ranges from approximately 200 to 670 feet. Coffin Butte is

predominantly a mixed oak/hardwood habitat type on the south facing slope and a Douglas fir (conifer) dominated on the north facing slope. Oregon white oak, Pacific madrone (*Arbutus menzesii*), and big-leaf maple dominate the canopy, while poison oak and Himalayan blackberry fill in the understory.

Adair Tract

The Adair Tract is the administrative site for the Department's Southwest Willamette Watershed District office. The site is managed as a full service public office and includes the Adair public fishing pond and a small natural area.

Biological Resources

With the loss of natural habitats throughout the Willamette valley, the EEWWA provides valuable habitat for a diversity of wildlife species. 263 species of wildlife have been identified on the EEWWA, including 206 species of birds, 40 species of mammals, and 17 species of amphibians and reptiles. See **Appendix C** for a detailed list of species.

Birds

A wide variety of bird species use the many habitats available throughout the EEWWA. Tree cavities, shrub thickets, grasslands and riparian areas are used for nesting. Abundant food plots, plant seeds, berries, acorns, insects, water and cover provide favorable conditions for resident, migrating and wintering birds.

Mallards (*Anas platyrhynchos*), wood ducks (*Aix sponsa*), and Western Canada geese (*Branta canadensis*) are the most common nesting waterfowl. Resident waterfowl populations are augmented by northern migrants, most notably American wigeon (*Anas americana*), mallard, northern shoveler (*Anas clypeata*), green-winged teal (*Anas crecca*), and ring-necked duck (*Aythya collaris*). Wintering duck populations in the Willamette Valley are limited by availability of food and wetland habitat. Deep waters suitable for roosting are abundant along the Willamette River, in gravel ponds and irrigation reservoirs. However, few cereal grain crops are grown in the Willamette Valley and few natural foraging areas exist.

Mourning doves (*Zenaida macroura*) have shown good breeding and migrant populations 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 pesticides. California quail (*Callipepla californicus*) are found in good numbers throughout the WA.

There is no known breeding population of ring-necked pheasants (*Phasianus colchicus*). Approximately 1,700 Pen-raised rooster pheasants are released by the Department each fall for the Youth Upland Bird Hunt, hunting education workshops and the Western Oregon Fee Pheasant Hunt. By mid-November nearly all of the released pheasants have been harvested by hunters or killed by predators.

Mammals

A variety of mammals inhabit the woodlands, grasslands, and marsh habitats of the WA including black-tailed deer (*Odocoileus hemionus columbianus*), rabbits, squirrels, coyote (*Canis latrans*), fox, porcupine (*Erithizon dorsatum*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), woodrats (*Neotoma fuscipes*), weasel (*Mustela frenata*), shrews (*Sorex* spp.), voles (*Microtus* spp.), beaver (*Castor canadensis*), nutria (*Myocastor coypus*), otter (*Lontra canadensis*), and bobcat (*Lynx rufus*). Black-tailed deer are the principal resident big game species, with occasional sightings of Roosevelt elk (*Cervus elaphus roosevelti*) and cougar (*Puma concolor*).

Beaver and nutria are found in the wetlands throughout the WA. The beaver in particular creates ponds that are beneficial to waterfowl and shorebirds. Nutria, an invasive and non-native species, cause considerable damage to dikes and levees by their burrowing activities.

Bats (*Myotis* spp.) are well represented throughout the area as well. 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. Bats forage over large territories and use many different “roosts of opportunity.” Artificial roost boxes have been mounted around the area and are well used by many species. No monitoring or management specifically for bats is conducted at this time by EEWWA staff.

Amphibians and Reptiles

Native species of snakes, lizards and frogs are plentiful on the area, as are non-native bullfrogs (*Rana pretiosa*). Northwestern pond turtles (*Clemmys marmorata 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 for turtle populations on the EEWWA. The northern red-legged frog (*Rana aurora*) inhabits select ponds throughout the wildlife area; an annual egg mass survey is conducted in cooperation with the United States Geological Survey (USGS) to determine relative abundance. The sharp-tailed snake (*Contia tenuis*) is another OCS strategy species present on the area.

Fish

Warm water fish are found in select small ponds and ditches on the area. Warm water species include largemouth bass (*Micropterus salmoides*), yellow bullhead (*Ameiurus natalis*), redear sunfish (*Lepomis microlophus*) and pumpkinseed (*Lepomis gibbosus*), and bluegill (*Lepomis macrochirus*). The redbreast shiner (*Richardsonius balteatus*) is native to Oregon and has also been detected on the WA.

Trout stocked in permanent ponds on EEWWA are affected by water quality, water temperature, dissolved oxygen, and amount/condition of riparian vegetation. The Department typically stocks trout in select ponds from February through June.

Species of Conservation Concern

Several species of concern are present on the EEWWA. **Table 2** lists the federal and state listed species present on the area. These include two plants: Nelson's checkermallow (*Sidalcea nelsoniana*) and Kincaid's lupine (*Lupinus sulphureus kincaidii*)

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

(Federal Status: C–Candidate; E–Endangered; SC–Species of Concern; T–Threatened
State Status: C – Critical; E – Endangered; T – Threatened; S – Sensitive V – Vulnerable,
Oregon Conservation Strategy species for Willamette Valley ecoregion – X)

Common Name	Scientific Name	Federal	State	OCS
<u>Reptiles</u>				
Northwestern pond turtle	<i>Clemmys marmorata</i>	SC	C	X
Sharp-tailed snake	<i>Contia tenuis</i>		S	
<u>Amphibians</u>				
Northern red-legged frog	<i>Rana aurora aurora</i>	-	V	X
<u>Birds</u>				
Pileated woodpecker	<i>Dryocopus pileatus</i>	-	V	
Western bluebird	<i>Sialia mexicana</i>	-	V	X
Oregon vesper sparrow	<i>Poocetes gyramineus</i>	SC	C	X
Purple martin	<i>Progne subis</i>	SC	C	X
Streaked horned lark	<i>Eremophila alpestris strigata</i>	C	C	X
Bald Eagle	<i>Haliaeetus leucocephalus</i>			
Yellow-breasted chat	<i>Icteria virens</i>	SC	C	X
Acorn woodpecker	<i>Melanerpes formicivorus</i>	SC	-	X
Lewis' woodpecker	<i>Melanepres lewis</i>	SC	C	X
<u>Mammals</u>				
Long-eared myotis	<i>Myotis evotis</i>	SC	-	
Fringed myotis	<i>Myotis thysanodes</i>	SC	V	
Long-legged myotis	<i>Myotis volans</i>	SC	V	
<u>Plants</u>				
Nelson's checkermallow	<i>Sidalcea nelsoniana</i>	T	T	X
Kincaid's lupine	<i>Lupinus sulphureus kincaidii</i>	T	T	X

Kincaid's lupine and Nelson's checkermallow are both listed as threatened by the USFWS and critical by the Oregon Department of Agriculture (ODA). The Institute for Applied Ecology (IAE) and USFWS have conducted surveys of both species on the EEWWA and mapped their distribution. The most recent surveys, completed summer of 2017, show no population decline and good physical condition, but little recruitment for both species. The presence of critical habitat does not restrict public use of the WA.

Birds listed as 'species of concern' vary in abundance from common, such as the western bluebird, to "flyover" species like the bald eagle. The streaked horned lark and purple martin are listed as present, but are rare on the wildlife area. Bird populations can be negatively affected by loss of nesting habitat and food sources, pressure from introduced birds competing for nest sites, from pollution, pesticides and land development.

Non-Native Species

Non-native wildlife on the EEWWA includes species such as the European starling, house sparrow (*Passer domesticus*), Virginia opossum (*Didelphus virginiana*), bullfrog, introduced Eastern cottontail rabbit (*Sylvilagus floridanus*) and ring-necked pheasant (*Phasianis colchicus*). Starlings and house sparrows are cavity nesters and can displace native birds while the opossum and bullfrogs prey on native species. The ring-necked pheasant, though an introduced species, is highly valued as an upland game bird since it came to Oregon in 1882. Commercially raised male pheasants are released in the fall on the EEWWA to provide public hunting opportunity. California quail are common throughout the WA and an occasional wild turkey (*Meleagris gallopova*) is also sighted but their presence is considered rare. **Table 3** lists non-native wildlife species which may be found on the EEWWA.

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

Common Name	Scientific Name	Occurrence
Bullfrog	<i>Rana catesbiana</i>	Abundant
Ring-necked pheasant	<i>Phasianis colchicus</i>	Common
Eurasian collared dove	<i>Streptopelia decaocto</i>	Common
European starling	<i>Sturnus vulgaris</i>	Abundant
House sparrow	<i>Passer domesticus</i>	Abundant
Eastern cottontail	<i>Sylvilagus floridanus</i>	Abundant
Virginia opossum	<i>Didelphus virginiana</i>	Common
House mouse	<i>Mus musculus</i>	Abundant
Norway rat	<i>Rattus norvegicus</i>	Common
Nutria	<i>Myocastor coypus</i>	Common
Wild turkey	<i>Meleagris gallopova</i>	Uncommon
California quail	<i>Callipepla californica</i>	Common

All of the warm-water fish species have been introduced and have affected native species or their habitats in various ways. Large-mouth bass may prey on native aquatic species, but no specific research has been done on the EEWWA to determine bass numbers or their impacts.

Table 4. Non-native fish species that may be found on the E.E. Wilson Wildlife Area.

Common Name	Scientific Name	Occurrence
Largemouth bass	<i>Micropterus salmoides</i>	Abundant
Bluegill sunfish	<i>Lepomis macrochirus</i>	Common
Red-eared sunfish	<i>Lepomis gibbosus</i>	Common
Pumpkinseed sunfish	<i>Lepomis gibbosus</i>	Common
Yellow bullhead	<i>Ameiurus natalis</i>	Common
Brown bullhead	<i>Ameiurus nebulosus</i>	Common
Western mosquitofish	<i>Gambusia affinis</i>	Abundant
Common carp	<i>Cyprinus carpio</i>	Present
Green sunfish	<i>Lepomis cyanellus</i>	Present

Non-native plants are widespread and persistent. A list of some of the weeds present on the WA as categorized by the ODA 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 re-establish. 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 EEWWA is extensive encompassing several species. Chronic problem weeds include Scotch (Scots') broom (*Cytisus scoparius*), reed canary grass, (*Phalaris arundinacea*) meadow knapweed (*Centaurea pratensis*) and Himalayan blackberry. Newly invaded weeds include purple loosestrife (*Lythrum salicaria*) and cocklebur (*Xanthium strumarium*). Control methods incorporate an integrated pest management (IPM) approach including chemical, mechanical, and biological activities.

Table 5. Noxious weeds listed by the Oregon Department of Agriculture presently found on the E.E. Wilson Wildlife Area. (Species in **bold** are subject to active control efforts on EEWWA, *Invasive plants identified in 2016 Oregon Conservation Strategy)

Common Name	Scientific Name	Occurrence
Common teasel	<i>Dipsacus foliolus</i>	Abundant
Field bindweed	<i>Convolvulus arvensis</i>	Common
Himalayan blackberry*	<i>Rubus discolor</i>	Abundant
Poison hemlock	<i>Conium maculatum</i>	Common
Purple loosestrife*	<i>Lythrum salicaria</i>	Uncommon
Scotch broom*	<i>Cytisus scoparius</i>	Abundant
Reed canarygrass*	<i>Phalaris arundinacea</i>	Common
Meadow knapweed*	<i>Centaurea pratensis</i>	Common
Cocklebur	<i>Xanthium strumarium</i>	Uncommon
English ivy*	<i>Hedera helix</i>	Uncommon
Sulphur cinquefoil	<i>Potentilla recta</i>	Uncommon
St. Johns-wort	<i>Hypericum perforatum</i>	Abundant
Thistle spp.	<i>Cirsium spp.</i>	Common
Tansy Ragwort	<i>Senecio jacobaea</i>	Common

Monitoring

Monitoring of all management activities will be completed by EEWWA staff. Informal monitoring is also conducted by members of the public during their visits to the WA and is submitted via feedback and suggestions to EEWWA staff.

Game Birds

Weekly waterfowl surveys are conducted November through May by EEWWA personnel. Waterfowl and doves are captured and banded August – September. Game bird and rabbit population estimates are made using hunter harvest data collected from hunter visitation permit reports.

Big Game

Black-tailed deer numbers are monitored using hunter success reports. Hunter written comments about incidental sightings assist monitoring efforts. Elk and cougar have been periodically observed by staff and the public.

Other Wildlife

Formal surveys of northern red-legged frog egg masses are conducted by USGS. University research projects involving aquatic insects, bullfrogs, snakes, beetles, and bees are also monitoring tools utilized by EEWWA staff.

Fish

Fish harvest will be monitored by the Oregon State Police (OSP) and EEWWA personnel through field angler checks.

Wildlife Diseases

There are many types of disease that may affect wildlife on the EEWWA, but disease outbreaks have typically been low. Avian Influenza and West Nile Virus monitoring is done on EEWWA in cooperation with the Benton County Health Department (BCHD) and the USFWS. Black-tailed deer diseases found in northwest Oregon, such as adenovirus hemorrhagic disease and hair loss syndrome are regularly monitored; and any cervid showing signs of Chronic Wasting Disease (CWD), which has not yet been reported in the state, will also be tested.

Other animals showing signs of disease are tested as they are reported by the public or Department staff. Although no wildlife disease outbreaks have recently occurred on the WA, protocol is in place to coordinate with the Department's wildlife veterinarian for status determination and subsequent disease testing of sick or deceased wildlife as necessary.

Water Use

Water use for moist soil management, flooding, and irrigation by the EEWWA will be reported annually to the Oregon Department of Water Resources and the Department's Engineering Section.

Public Use

Hunter use and harvest can be monitored using WA hunt permit data. Individual check in and check out is required during the Youth Upland Game Bird and Rabbit hunts. Participation is also recorded during special events such as Youth Outdoor Day, guided school field trips, scouting events, and rabbit dog trials.

Wildlife viewing-oriented use (hiking, biking, wildlife watching, photography, etc.) is rapidly growing on the WA and the impacts on and costs to the facility, habitat, and wildlife are currently only estimated.

Cultural Resources

The EEWWA was established in 1950. The area encompasses 1,788 acres in Benton County about 10 miles north of Corvallis, Oregon.

The WA is named after Corvallis attorney, Eddy Elbridge Wilson. E. E. Wilson, as he was generally known, was born in Corvallis on October 26, 1869 and lived his entire life as a resident of the Corvallis area. E. E. Wilson served on the Oregon Game Commission for many years and was its chairman for ten years. In recognition of his years of outstanding service, the wildlife area was named for him in 1954. He was considered a pioneer in game preservation and throughout his life he devoted much time to fish and game work. His contributions to the Corvallis community, Oregon State University, and the state were numerous and notable. E. E. Wilson died on April 3, 1961.

A rich local history, including use by Native Americans, homestead sites, the town of Wells, and the Camp Adair Army Training Center adds significance to E. E. Wilson.

The EEWWA lies in a portion of the Willamette Valley that was once occupied by the Kalapuya tribe. The Kalapuya tribe was divided into several groups. The group that was in the location of E. E. Wilson was known as the Luckiamutes. The presence of large areas of open country in the Willamette Valley was the result of extensive land fires set by the Kalapuya in order to drive game, improve seed production, and reduce the amount of brush. The Kalapuya tribal population in the early 1800s is estimated at approximately 10,000 to 20,000 for all the Kalapuya. By 1840 the population had dropped catastrophically to 600, by "fever and ague" which may have actually been influenza, typhus, cholera, measles, and scarlatina (Boyd, 1998). By the late 1850s the population had declined to around 345. Treaties encompassing all of the Kalapuya were finally ratified in 1855, and the remaining Kalapuya were moved to the Grand Ronde Reservation.

In the late 1840s, early pioneers established homesteads on land that is now part of the wildlife area. Most of the area was typical Willamette Valley agricultural area with inclusions of areas too wet to farm. Three intermittent streams traversed the area. These early settlers' agricultural pursuits began with grazing due to the lack of available farming equipment and supplies. By 1870 wheat was the principle crop grown. By the 1850s, the small community of Wells, Oregon was established near the center of the WA. A community center, store, post office, school, church, blacksmith shop, railroad depot, warehouse, and several homes were located in Wells. However, because of WW II, the farmers and residents of Wells, and the school were moved out in 1942 to accommodate the construction of the Camp Adair Army Military Base.

Camp Adair was officially dedicated in April, 1942. It encompassed a total of 52,000 acres, 13,000 acres in Benton County and 39,000 acres in Polk County. Four Army infantry divisions received training at the camp. Topographic maps published by the Army Corps of Engineers refer to much of the wildlife area as 'Swamp Adair'. During

construction, a sewer and storm drainage system was developed to drain water from the area, and streams were straightened and channelized. The Army base was de-activated in 1948. When the base was abandoned, most of the buildings were torn down and removed. However, approximately 20 percent of the area currently remains a maze of concrete foundations, graveled areas, and paved roads.

The United States transferred ownership of what now comprises EEWWA through a quitclaim deed. Provisions of the deed state “premises herein conveyed are to be continuously used for the conservation of wildlife, other than migratory birds, and are conveyed upon the condition that in the event of they are no longer used for such purpose, the title thereto shall revert to the United States, and upon which reversion the title of the State of Oregon shall cease and determine and the United States shall have the immediate right of possession thereof.”

Social Environment

Demographics

The EEWWA is located ten miles north of the city of Corvallis in Benton County and borders the urban growth boundary (UGB) of Adair Village, a population of around 900. Benton County has a population of approximately 91,000 people where 58,000 live within the UGB of Corvallis. The EEWWA contains some of the last critical habitats remaining on the floor of the Willamette Valley such as seasonal wetland, oak woodland and prairie grassland. As natural habitats and open space become less available, the EEWWA 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 the adjacent landfill and the proximity to large urban centers perpetuate this misuse. This problem requires constant attention by EEWWA staff, directing volunteers who spend significant time each month cleaning up litter and vandalism.

Land Use

The EEWWA is surrounded by numerous land uses, ranging from agriculture to rural industrial. **Figure 3** shows the land uses which border the area. The north, east, and south border is zoned agricultural, while the west is zoned rural residential, industrial, forestry, and public facility (landfill).

Infrastructure

Developments/Facilities

The EEWWA headquarters is located at 29555 Camp Adair Road within the WA boundary. The headquarters building also contains a small lab and a maintenance shop. Other Department-owned structures include:

- seven equipment storage buildings
- a small office building
- a north brooder house
- a south brooder house
- an incubator building
- a metal storage building (housing the Department's I&E materials)
- a screen shop facility
- a show bird viewing pen
- Nine wildlife guzzlers
- an archery park with 3 covered structures and a vault toilet
- quonset hut with attached pheasant pens
- fee pheasant hunt holding pens
- two covered shotgun shooting stations
- seven hunter check stations
- seven parking lots at established access points
- two staff residences, and
- three RV Camp Host sites, with utilities

There are several miles of woven fences around the perimeter and safety zones of the EEWWA, several miles of roads, and two 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.

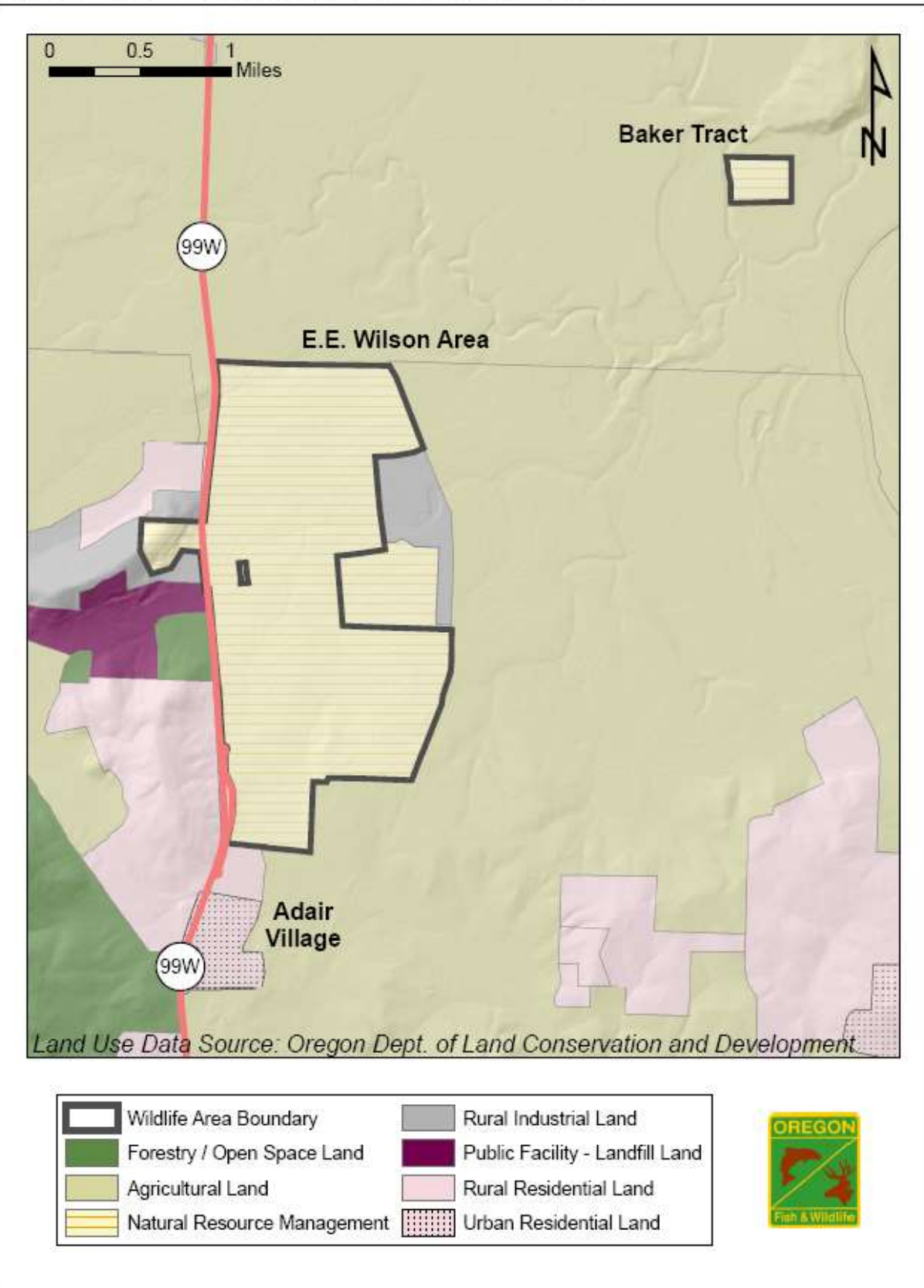
Water Rights

Water rights on the EEWWA are owned by the Department and administered through the Oregon State Water Resources Department. There are seven state water rights that reside within the EEWWA boundary. **Appendix D** shows State water rights which are currently held on the EEWWA.

Easements/Access Agreements

The majority of the easements and access agreements on the EEWWA are for maintenance of the power lines crossing the area and for the Consumers Power Inc. (CPI) and Bonneville Power Administration (BPA) substations residing within the EEWWA boundary. Others are for shared road access to agricultural lands.

Figure 3 - Land Use Surrounding E.E. Wilson Wildlife Area



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.).

Under Goal 2, options are being explored to acquire new parcels of land located near the WA through the Willamette Wildlife Mitigation Program.

Public Use

Public Access

The EEWWA is open to the public every day. Motorized vehicles are not allowed except on Camp Adair Road which traverses east-west through the WA. Dogs are required to be on leash all year long except while accompanied by a licensed hunter when being used to hunt game birds or rabbits. The area is open to hunting during designated game bird and game mammal seasons with the use of a WA hunt permit. All tracts are open every day during authorized hunting seasons. The area provides increased opportunity for bike/wheelchair access with the matrix of abandoned military roads.

The WA 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 mid-Willamette Valley.

Hunting and Angling

Hunting and angling are very popular recreational activities enjoyed on the EEWWA (**Table 6**). Hunting opportunities include waterfowl, mourning dove, California and mountain quail, pheasant, black-tailed deer, rabbit and crow. Hunters are required to check in and out at seven self-service check stations. A Youth Upland Game Bird Hunt is held on the last weekend in September. This hunt was attended by 70 youth hunters in 20018. 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 3000 participants annually. Commercially raised pheasant roosters, purchased by the Department, are released for both of these hunts. Events planned through the Department's Information & Education program include shotgun skills clinics, archery events, big game hunting workshops and family pheasant hunts. A youth rabbit hunt hosted by the Mary's Peak Hound Club occurs in February as well as

a rabbit hunt for physically challenged persons. Waterfowl hunting takes place throughout the area on the many seasonal ponds. There is one established permanent blind for disabled hunters and no hunting reservations.

Angling for stocked brook and rainbow trout are popular on the EEWWA angling pond. Warm water angling for bluegill, bass, bullhead and red-eared sunfish is also available in limited ponds and at Adair pond.

Trapping of furbearers by permit is periodically allowed on the EEWWA during general seasons. It is a management tool used primarily to control animals such as beaver and nutria which damage water control structures and levees.

Table 6. Estimated annual hunting and angling use days on the E.E. Wilson Wildlife Area.

Activity	Estimated Annual Use Days
Hunting	
Big Game	100
Waterfowl	300
Upland Birds/Rabbits	4000
Angling	7,000
Total	11,400

Wildlife Viewing

The EEWWA is open to the public year around. Wildlife viewing, hiking, horseback riding, bike riding, dog trials and wildlife photography are popular on the area.

From spring of 2005 to spring of 2006, a survey was conducted by OSU students estimating recreation on the area to be 55,606 recreational visitor days. Non-hunting and non-angling visitor numbers for the area were estimated using a four-week voluntary visitor survey study during the spring of 2006. **Table 7** displays recreational visitor days.

An ADA accessible path leading to a covered viewing platform overlooking the Wheatfield pond complex is located on the south side of the WA. Two No Public Access areas and two Safety Zones are designated on the area to protect infrastructure and provide wildlife refuge.

Table 7. Estimated Average Annual Use Days on the E.E. Wilson Wildlife Area by Type of Public Use.

Activity	Estimated Annual Use Days
Hunting	5,500
Angling	7,100
Public Display Area	18,300
Hiking	8,100
Dog walking	4,100
Bike Riding	1,700
Bird/Wildlife Viewing	4,800
Tours	500
Photography	1,200
Picnicking	2,400
Exercise (Jogging/Running)	1,200
Dog Training/Trials	500
Other Recreational Users	500
Total	55,900

Educational/Interpretive

The EEWWA is used by a variety of educational groups including local school districts, Oregon State University (OSU), Chemeketa Community College (CCC), Western Oregon University (WOU), the Audubon Society, and various Scouting groups. 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 plant and bird species, and many other activities.

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 are derived 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 E.E. Wilson Wildlife Area Management Plan.

Goal 1: Oak woodland, upland shrub and grassland habitats will be managed consistent with conservation and enhancement priorities for native wildlife and production of game species.

Objective 1.1: Protect and enhance approximately 50-100 acres of native Oregon white oak woodland habitats to provide food, cover and breeding areas for wildlife species associated with this unique habitat type.

Rationale

Wildlife habitat in the Willamette valley has been significantly impacted since the advent of modern agriculture. A few intact remnant stands of native white oak habitat remain in the valley and some of this irreplaceable habitat can still be found on the WA. The OCS notes the value and importance of preserving and enhancing oak woodlands and considers conservation of this habitat a high priority. Since the WA is centrally located between the USFWS refuges of Finley, Baskett Slough and Ankeny, also with remnant white oak woodlands, it is imperative that white oak sites be protected and restored to maintain a habitat linkage in the southern valley. These habitats support a wide variety of game and non-game wildlife and well as sensitive species. Included are native vegetative communities such as woody shrubs, perennial grasses and hardwood forests. Mature trees provide important life sustaining functions for wildlife such as nesting cavities and forage (seeds, mast and insects found in crevices under loose bark). The EEWWA staff routinely sprays noxious weeds using herbicides and places artificial nest structures in this habitat type to improve its carrying capacity and viability. Original Willamette Valley ecosystem remnants can be found on the WA and, when and where possible, the staff strives to maintain or restore these areas consistent with the guidelines established under the Oregon Conservation Strategy. Food plots are commonly placed adjacent to woodlands on uplands sites since they augment important wildlife needs (forage, nesting and rearing areas) for forest using species. Food plots are generally comprised of sunflowers, millet, buckwheat, sudangrass, triticale, kale, rye, wheat, soybeans, and turnips.

Strategy 1. Survey woodlands 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 2. Combat invasive and noxious weeds through the use of chemical, mechanical and biological control measures.

Strategy 3. Manage oak woodlands to promote natural oak succession using methods such as conifer removal, thinning and plantings.

Strategy 4. Re-establish linkages between critical woodland habitat blocks in riparian zones by planting native shrubs and trees to improve wildlife screening areas and movement corridors and reduce habitat fragmentation.

Strategy 5. Develop partnerships with state and federal agencies, NGOs, special interest groups and other community volunteers to identify habitat improvement projects that benefit wildlife.

Strategy 6. Attract and enhance wildlife populations through projects which may include placement of bird and bat nest/roost boxes.

Strategy 7. Using ocular surveys, hunter harvest information and mark/recapture estimates, determine the composition, distribution and density of wildlife populations in rehabilitated project areas.

Strategy 8. When opportunities arise, work cooperatively with adjacent landowners to maintain open space and wildlife habitats that are compatible with wildlife area management goals, with specific emphasis on working with USFS to manage the Bomarc property consistent with wildlife area goals.

Objective 1.2: Protect and enhance approximately 300-400 acres of grassland habitat for appropriate pattern, scale and structure to benefit native wildlife and game species.

Rationale

Willamette Valley grasslands are classified in the OCS as an eco-region type. Though variable across Oregon depending on elevation and the moisture regime, here in the valley perennial bunchgrasses, forbs, wildflowers and remnant white oak savannas (also considered a grassland type) make up this habitat type. Oak savannas are grasslands scattered with oak trees, usually 1-2 per acre. Native grasslands were historically maintained by intermittent fire, frost heave, soil upheaval and grazing by native ungulates. Grasslands are one of the most imperiled habitats in the Willamette Valley because of agricultural conversion and residential development.

Western bluebird, western meadowlark, streaked horned lark, Nelson's checkermallow and Kincaid's lupine are all sensitive species associated with this habitat. Many waterfowl species also rely on the slightly higher elevation of moist prairies and grasslands for essential life functions including nesting, brood rearing, and escape cover. Maintenance of these communities during spring nesting season is important because of predation potential and nest disturbance, so the management of density and structure is important to wild bird populations. Recognizing the value of this upland habitat for a variety of wildlife species helps to ensure that proper grassland plant composition is maintained or enhanced.

Strategy 1. Conduct assessments of grassland habitat condition with respect to plant species, structure, and scale, and implement improvement projects or maintenance activities that meet the habitat requirements of grassland dependent wildlife species.

Strategy 2. Utilize various control measures including prescribed burning, chemical, mechanical, and biological measures to combat noxious and invasive weeds.

Strategy 3. Identify habitat improvement projects which may include placing nesting structures and seeding with native grasses, forbs and wildflowers.

Strategy 4. Seek conservation grant opportunities and partnerships with environmental groups to facilitate native grassland restoration projects.

Strategy 5. Explore opportunities to use OCS grant funds to implement restoration projects on the WA to benefit Kincaid's lupine and Nelson's checkermallow.

Strategy 6. Maintain refuge areas to benefit wildlife during authorized hunting seasons.

Objective 1.3: Restore and maintain approximately 800-900 acres of upland shrub habitats to enhance forage, cover and reproduction of native wildlife and game species and control non-native invasive vegetation.

Rationale

The original WA habitats were greatly altered or have become nonexistent following the development of the area through farming and military activities. Native plant communities were removed and wetlands drained for agriculture and urban development. What remains is a mass of old infrastructure (drainage ditches, concrete foundations, old buildings and roads) scattered across the landscape where invasive vegetation has gained a significant foothold. The majority of the shrub community that now exists on the WA is comprised of Himalayan blackberry and other non-native invasive plants.

Management efforts will focus on renovating the upland shrub sites by removal of invasive plants and replacement with suitable native shrub species that will benefit native wildlife while continuing to provide small game and upland bird habitats and associated hunting opportunities found on the WA. An interesting management dilemma exists in that eastern cottontail rabbit (a non-native species) flourishes in this habitat type and provides a significant portion of the public's hunting opportunity. Considering this fact, it is very important that the shrub community renovation be done without negatively affecting the quality and quantity of the habitat or hunter harvest opportunity.

Strategy 1. Conduct assessments of upland shrub habitat conditions and identify restoration and enhancement projects that optimize conditions for wildlife.

Strategy 2. Maintain upland food plot plantings on 15-35 acres annually for wildlife use.

Strategy 3. Maintain 5-10 acres of green forage crops to benefit upland game birds and other terrestrial species.

Strategy 4. Seek state, federal and/or NGO grants to restore and/or enhance the condition native upland shrub plant communities.

Strategy 5. Control invasive plant species using management techniques including disking, planting, mowing, burning, grazing, and herbicide spraying.

Strategy 6. Enhance shrub habitats using controlled burning, replanting/seeding of native vegetation.

Strategy 7. Establish partnerships with other resource protection entities, volunteer hosts, and community volunteers to ensure long term stewardship of the sensitive species associated with this unique habitat type.

Goal 2: Riparian, wetland and wet prairie habitats will be managed consistent with conservation and enhancement priorities for native fish and wildlife, and production of game species.

Objective 2.1: Protect and enhance 100-200 acres of riparian, wetland and wet prairie habitat types to promote species diversity and carrying capacity for native wildlife and game species.

Rationale

Natural and artificially created wetlands provide benefit to more wildlife species than any other habitat type. 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. Streams and wetlands on the area support a wide variety of freshwater fish, reptiles, amphibians, mammals, and insects. Aquatic habitats on the EEWWA are also important recreational and educational attractions to the public.

Strategy 1. Maintain levees and water control structures to manage water levels on seasonal and semi-permanent wetlands for moist soil management and to promote the growth of native vegetation.

Strategy 2. Maintain 20-25 wood duck nesting structures, 50-55 songbird and 5-10 owl nest boxes and install additional structures where and when needed.

Strategy 3. Control noxious and invasive weeds through chemical and mechanical operations.

Strategy 4. Work with District staff to identify fish and wildlife habitat improvement projects that may include placing large woody debris, planting riparian vegetation, and seek partnerships with other agencies, special interest groups, or community volunteers for implementation of such projects.

Strategy 5. Continue to partner with USFWS and other public/private entities for monitoring of threatened and endangered species associated with this habitat type.

Strategy 6. Preserve and maintain all guzzler structures on the wildlife area.

Objective 2.2: Protect and enhance 20-40 acres of permanent freshwater ponds to provide habitat for native fish and wildlife, and game species.

Rationale

Freshwater aquatic habitats are an important habitat type described the OCS. Though seasonal, these wetlands are especially important because they provide breeding, resting and forage (mussels, small fish and invertebrates) for a broad range of amphibians, reptiles, waterfowl, shorebirds as well as many other game and non-game wildlife. In addition, two permanent ponds on the WA provide approximately 7,000 angling use days annually (warmwater and put-in-take trout fishing).

Strategy 1. Maintain water control structures and levees to manage water levels in freshwater ponds.

Strategy 2. Control noxious weeds using chemical and mechanical control measures.

Strategy 3. Coordinate fisheries management with the South Willamette Watershed to assure program consistency and longevity.

Strategy 4. Seek partnerships with other federal and state agencies, sport groups, educational groups and community volunteers to facilitate improvement projects.

Goal 3: To provide a variety of wildlife related recreation and education opportunities to the public using management strategies compatible with Goals 1 and 2.

Objective 3.1: Provide a variety of hunting, trapping, and angling opportunities (12,000-15,000 annual public use days) compatible with habitat management objectives.

The EEWWA is funded by hunting and fishing license sales which support approximately 12,500 annual hunter and angler use days. Hunting on the WA includes the Western Oregon Fee Pheasant Hunt, the Youth Upland Bird Hunt, and general season upland game, rabbit, and waterfowl hunts. Special events designed to promote hunter recruitment and retention of youth, women and the physically impaired are also conducted annually.

A “put and take” public fishery is maintained on the EEWWA Pond by the spring stocking of trout and at the Adair Pond by stocking warmwater fish species. The location of the wildlife area near several large population centers makes it a convenient destination for hunters and anglers to actively pursue their sporting interests and to provide outdoor learning opportunities for those persons interested hunting and fishing.

Strategy 1. Annually conduct the Youth Upland Game Bird Hunt for approximately 70-100 youth hunters, emphasizing recruitment by providing positive and successful field experiences.

Strategy 2. Conduct the Western Oregon Fee Pheasant Hunt for approximately 3500 hunters annually.

Strategy 3. Conduct Annual Youth and Disabled Hunter's rabbit hunts and the department's Information & Education hunting clinics.

Strategy 4. Monitor WA hunting use and review and revise wildlife area use regulations to maintain the quality and safety of the area's hunting program.

Strategy 5. Maintain trap shooting area and conduct shotgun skill clinics during special youth and hunter education events.

Strategy 6. Maintain archery range and conduct archery skill clinics during special youth and hunter education events.

Strategy 7. Maintain spring trout stocking and summer warmwater fishery opportunities in EEWWA and Adair ponds.

Strategy 8. Develop plans to construct an ADA accessible waterfowl hunting blind at the shop pond located adjacent to the wildlife area office.

Strategy 9. Foster partnerships with wildlife sporting interest groups to promote special hunting and angling events.

Strategy 10. Develop and maintain relationships with organizations such as Santiam Steelheaders, Audubon Society, Scouts, Oregon Hunter's Association, Mary's Peak Hound Club and others to improve the quality of public recreation on the area.

Objective 3.2: Provide a variety of wildlife viewing and educational opportunities (40,000-45,000 annual public use days) that promote public understanding and support for natural resources and increase youth interest and participation in wildlife related recreational activities compatible with Objective 3.1.

Rationale

Wildlife observation, educational activities and angling constitute the largest public uses on the area. The WA is situated near a large population center and its unusual grid work of old roads and unique wildlife habitats makes it an ideal site for a variety of outdoor recreational and learning experiences for all users, including the physically impaired.

However, providing a rewarding recreational experience without creating user conflict is challenging. Meeting the demands of the public by providing a safe and enjoyable experience is of paramount importance to the wildlife area staff. The Department's goal is to expand recreational and educational opportunities that will promote visitor appreciation, understanding and environmental stewardship.

Strategy 1. Maintain 20 miles of road to facilitate ADA public access.

Strategy 2. Make improvements on trails, signs, and infrastructure as necessary to meet access ADA standards including 20 miles of existing area roads.

Strategy 3. Monitor wildlife viewing related public use to gauge impact on the habitats, wildlife and facilities and develop user regulations that manage and control activities inconsistent with the wildlife area's management goals and objectives.

Strategy 4. Maintain and/or increase informational kiosk and interpretive displays to highlight wildlife management principles and unique features of the wildlife area.

Strategy 5. Continue relationships with educational institutions such as OSU, WOU, CCC and local school districts to provide a venue for outdoor science classroom educational events.

Strategy 6. Expand fish and wildlife related programs with educational institutions to provide students with internships or job-shadow opportunities.

Strategy 7. Maintain the show bird pens, Camp Adair Military Training Center Memorial site, photography blind, interpretive trail and viewing areas for public benefit.

Strategy 8. Maintain Archery range and shotgun shooting stations.

Strategy 9. Permit continued access for wildlife viewing, hiking, bird watching, bike riding, horse riding, and other outdoor pursuits that are not in conflict with the biological needs of wildlife and the area's hunting programs.

Objective 3.3: Maintain the WA facilities, structures and equipment to support habitat management activities and public use programs.

Rationale

Many structures on the WA are now 60 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, and dikes 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 WA's resources.

Strategy 1. Maintain seven parking areas, twelve gates, seven hunter check stations, two viewing platforms, twenty miles of road and two miles of interpretive trail including three bridges.

Strategy 2. Prioritize repairs of structures including water control structures, fences, culverts, ditches, dikes and all associated infrastructure based on the results of the department's maintenance master plan.

Strategy 3. Conduct annual inventories and maintain operational integrity of facilities, structures, equipment and vehicles. Work will include scheduled maintenance of all equipment and vehicles and completing repair and upgrades as needed.

Strategy 4. Work with local citizens, private interest groups, ODFW archeologist and the State Historic Preservation Office to develop a plan for removal of concrete structures left over from Camp Adair. This plan will include a strategy for preserving historically significant structures, and establishing educational opportunities such as signs, maps, markers and self-guided trails.

Plan Implementation

Funding

Since its inception in 1950, funding for the operation and maintenance of the EEWWA has been accomplished primarily from annual hunting license and tag revenues. Over the past five years, funding for the operation and maintenance of the EEWWA has averaged approximately \$180,000 annually. To implement many of the proposed actions and achieve the objectives and goals of this plan, the Department will need additional funding and staff to undertake several types of projects including: upgrades of existing facilities, construction of new facilities or amenities (e.g. orientation kiosks and interpretive signs), species and habitat monitoring and habitat projects to increase wildlife value. Currently WA staff relies heavily on volunteer hosts and the Habitat Renovation Crew to complete habitat restoration work.

Staffing / Organization

The Oregon Department of Fish and Wildlife manages 17 wildlife areas throughout the state. The wildlife areas encompass approximately 200,000 acres and are found in both Department administrative regions. The EEWWA is located in the West Region, and is part of the South Willamette Watershed District. The WA is currently staffed by one full-time Manager and one Fish and Wildlife Technician 2 who is works at the WA eight months of every calendar year.

Compliance Requirements

The 2018 E.E. Wilson Wildlife Area Management Plan was developed to comply with all Federal and State laws, Oregon Revised Statutes (ORS), Oregon Administrative Rules (OAR), and department policies. Full implementation of all components of this plan will require compliance with the laws, regulations, rules, and policies listed in **Appendix E**.

Partnerships

A number of other state, federal, and local agencies and interest groups assist with management activities on the EEWWA. These partners play an important role in helping

the Department achieve its mission and reach the EEWWA goals. Some examples include:

- The USFWS conducts Kincaid's lupine and Fender's blue butterfly surveys as staff and time allows.
- The Oregon Department of Forestry and the Adair Rural Fire Department conduct controlled burns to aid in habitat management.
- The United States Geological Survey conducts annual amphibian surveys, focusing on the Northern red-legged frog.
- The Oregon Department of Agriculture conducts biological control of noxious weeds.

The Department will continue to rely on these and future partners to help implement this plan and provide guidance on management in later revisions. Given the proximity of EEWWA to population centers such as Salem, Corvallis, and Albany, the Department welcomes and encourages more public participation in planning then area's management and in its operation.

Adaptive Management

This plan provides for an adaptive management of the WA. 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 will be 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 five years and updated every ten years. In the meantime, however, the department will be reviewing and updating this plan periodically (at least as often as every five 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.

Summary of Accomplishments Over the Past 10 Years.

- Construction of a public archery park that includes a fenced youth range, adult range with multiple targets ranging from 10 – 100 yards, a designated broadhead shooting area and an elevated shooting platform.
- Construction of two new covered shooting stations on the public shotgun range.
- Construction of two new equipment storage pole barns located at the maintenance shop.
- Construction of a new fenced/graveled equipment storage lot located south of the maintenance shop.
- Demolition and reconstruction of a pole barn located adjacent to the WA office.
- Construction of a new pheasant holding facility.
- Construction of multiple elevated walking paths on the angling pond trail.
- Replacement of water control structures on Canal and South ponds.
- An archeological survey of the wildlife area including an inventory of all remaining military building foundations.

Summary of Education Events Held At E.E. Wilson Wildlife Area Over the Past 10 Years.

- Youth Outdoor Day (500 – 750 kids/year)
- Oregon National Guard Youth Day
- E.E. Wilson Youth Pheasant Hunt
- Oregon Trappers Association Trapping School
- Youth Rabbit Hunt hosted by Mary's Peak Hound Club
- Shotgun Skills Clinic hosted by Mary's Peak Hound Club
- Small Game Clinic hosted by Mary's Peak Hound Club
- Disabled Hunters/ Disabled Oregon Paralyzed Veterans of America annual rabbit hunt hosted by Mary's Peak Hound Club
- Mary's Peak Hound Club Field trials and bench shows
- Willamalane Adult Activity Center – Birding Trips
- OBH Archery Instruction Events
- Grants Getaways TV Episode - Archery Range.
- I&E Big Game Workshop
- I&E Shotgun Workshop
- I&E Family Pheasant Hunt
- I&E Women's Pheasant Hunt
- Wildlife Sport Fisheries Restoration Conference for Western U.S.
- Avery House Nature Center Field Day
- OSU KidSpirit Youth Archery Events
- College Hill School Field Trip (Alternative High School)
- Boy Scout Jamboree (2015, 2017)

- ODFW Running Wild Fun Run
- OSU 4H Field Visit
- USFWS Monarch Butterfly/Milkweed Tour
- OSU Wetland Class Field Day
- OSU field day - Beaver Lodges/Wetlands
- OSU Grassland Prairie Restoration Field Day
- OSP/OSU Wildlife Law Enforcements Field Day
- OSP Training Exercises
- Oregon National Guard Training Exercises.
- Friends of Luckiamute Scenic Natural Area field tour and work day
- Adair Volunteer Fire Department training prescribed burn.

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Appendices

Appendix A. Land Acquisitions and Adjustments Involving the E.E. Wilson

Date	Acres	Action	Cooperator
1950	+2032	Quit-claim deed	GSA
1950s	-266	Reclaimed	GSA
2000	+50.54	Purchased	Valley landfills
2002	+54.60	Land Exchange	Santiam Christian School District
2002	-83.00	Land Exchange	Santiam Christian School District
Total	1788.14		

Appendix B. Plants Occurring on E.E. Wilson Wildlife Area

Scientific Name	Common Name
<i>Acer macrophyllum</i>	Big-leaf maple
<i>Achillea millifolium</i>	Common yarrow
<i>Agrostis alba</i>	Creeping bentgrass
<i>Agrostis microphylla</i>	Small leaved bentgrass
<i>Agrostis tenuis</i>	Colonial bentgrass
<i>Aira caryophylla</i>	European hairgrass
<i>Alisma gramineum</i>	Narrow-leaf water plantain
<i>Alisma plantago-aquatica</i>	Water plantain
<i>Allium</i> spp.	Wild onion, Wild garlic
<i>Alnus rubra</i>	Red alder
<i>Alopecurus aequalis</i>	Short-awn foxtail
<i>Alopecurus pratensis</i>	Meadow foxtail
<i>Amaranthus retroflexus</i>	Rough pigweed
<i>Amelanchier alnifolia</i>	Serviceberry
<i>Ammania robusta</i>	Grand red stem
<i>Anaphalis margaritacea</i>	Pearly everlasting
<i>Anthemis arvensis</i>	Mayweed chamomile, Stinking mayweed
<i>Anthemis cotula</i>	Stinkweed, Dog fennel
<i>Anthriscus scandicina</i>	Bur chervil
<i>Antirrhinum orontium</i>	Lesser snapdragon
<i>Apocynum androsaemifolium</i>	Bitter dogbane
<i>Aquilegia formosa</i>	Western columbine
<i>Arabidopsis thaliana</i>	Wall cress
<i>Arbutus menziesii</i>	Madroño, Madrone, Arbutus
<i>Asclepias speciosa</i>	Showy milkweed
<i>Aster hallii</i>	Hall's aster
<i>Aster subspicatus</i>	Douglas' aster
<i>Avena fatua</i>	Wild oat
<i>Azolla mexicana</i>	Mexican mosquito fern
<i>Baccharis pilularis</i>	Chaparral broom, Coyote broom
<i>Barbarea orthoceras</i>	American winter cress
<i>Beckmannia syzigachne</i>	Slough grass
<i>Berberis aquifolium</i>	Oregon grape
<i>Bidens cernua</i>	Nodding bagger-ticks
<i>Bidens frondosa</i>	Sticktight, Leafy beggar-tick
<i>Brassica campestris</i>	Field mustard, Turnip
<i>Briza minor</i>	Little quaking grass
<i>Bromus</i> spp.	Brome
<i>Callitriche stagnalis</i>	Common Wwater starwort
<i>Callitriche verna</i>	Marsh water starwort
<i>Camassia quamash</i>	Common camas

<i>Capsella bursa-pastoris</i>	Shepherd's purse
<i>Cardamine oligosperma</i>	Little western bittercress
<i>Carex aperta</i>	Columbia sedge
<i>Carex canescens</i>	Hoary sedge
<i>Carex densa</i>	Dense sedge
<i>Carex feta</i>	Green-Sheathed sedge
<i>Carex lanuginosa</i>	Woolly sedge
<i>Carex obnupta</i>	Slough sedge
<i>Carex ovalis</i>	Oval Fruited sedge
<i>Carex unilateralis</i>	One-sided sedge
<i>Centaurea jacea</i>	Brown knapweed
<i>Centaureum erythraea</i>	Common centaury
<i>Cerastium viscosum</i>	Sticky mouse-ear chickweed
<i>Chaenomeles lagenaria</i>	Flowering quince
<i>Chamaesyce serpyllifolia</i> subsp. <i>Serpyllifolia</i>	Tyme-leaved spurge
<i>Chenopodium album</i>	Pigweed
<i>Chrysanthemum leucanthemum</i>	Ox-eye daisy
<i>Cichorium intybus</i>	Chicory
<i>Cirsium arvense</i>	Canada thistle
<i>Cirsium vulgare</i>	Bull thistle
<i>Claytonia exigua</i>	Glaucous miner's lettuce
<i>Comandra umbellata</i>	Bastard toad-flax
<i>Conium maculatum</i>	Poison hemlock
<i>Convolvulus nyctagineus</i>	Night blooming morning glory
<i>Convolvulus arvensis</i>	Field morning glory, Small bindweed
<i>Conyza canadensis</i>	Horseweed
<i>Cornus stolonifera</i>	Red osier dogwood
<i>Corylus avellana</i>	Filbert
<i>Crataegus douglasii</i>	Black hawthorn
<i>Cyperus aristatus</i>	Awed cyperus
<i>Cyperus erythrorhizos</i>	Red-rooted cyperus
<i>Cytisus scoparius</i>	Scot's broom
<i>Cytisus scoparius</i> var. <i>andre</i>	Scot's broom, Variety Andre
<i>Dactylis glomerata</i>	Orchard grass
<i>Datura stramonium</i>	Jimsonweed
<i>Daucus carota</i>	Wild carrot, Queen Anne's lace
<i>Delphinium menziesii</i>	Menzies' larkspur
<i>Deschampsia cespitosa</i>	Tufted hairgrass
<i>Dianthus armeria</i>	Deptford pink
<i>Digitalis purpurea</i>	Foxglove
<i>Dipsacus fullonum</i>	Common teasel
<i>Downingia elegans</i>	Elegant downingia
<i>Echinochloa crusgalli</i>	Barnyard grass
<i>Eleocharis acicularis</i>	Needle spike rush
<i>Eleocharis ovata</i>	Ovate spike rush

<i>Eleocharis palustris</i>	Common spike rush
<i>Epilobium angustifolium</i>	Fireweed
<i>Epilobium brachycarpum</i>	Tall annual willow herb
<i>Epilobium ciliatum</i> subsp. <i>glandulosum</i>	Common willow herb
<i>Epilobium ciliatum</i> subsp. <i>watsonii</i>	Common willow herb
<i>Epilobium densiflorum</i>	Densely flowered willow herb
<i>Epilobium minutum</i>	Tiny willow herb
<i>Epilobium paniculatum</i>	Tall annual willow herb
<i>Equisetum</i> spp.	Horsetail
<i>Eryngium petiolatum</i>	Oregon coyote thistle
<i>Eschscholzia californica</i>	California poppy
<i>Festuca arundinacea</i>	Tall fescue
<i>Fragaria</i> spp.	Strawberry
<i>Fraxinus latifolia</i>	Oregon ash
<i>Galium aparine</i>	Cleavers
<i>Geranium oreganum</i>	Western geranium
<i>Geranium pusillum</i>	Small-flowered cranesbill
<i>Geum macrophyllum</i>	Large-leaved avens
<i>Glechoma hederacea</i>	Ground ivy
<i>Glyceria occidentalis</i>	Western manna grass
<i>Gnaphalium palustre</i>	Lowland cudweed
<i>Gnaphalium uliginosum</i>	Marsh cudweed
<i>Gratiola ebracteata</i>	Bractless hedge hyssop
<i>Hedera helix</i>	English ivy
<i>Heracleum lanatum</i>	Cow parsnip
<i>Holcus lanatus</i>	Velvet grass
<i>Holcus mollis</i>	Creeping velvet grass
<i>Hordeum brachyantherum</i>	Meadow barley
<i>Hypericum parforatum</i>	Common St-John's-wort, Klamath weed
<i>Hypochaeris radicata</i>	Rough cat's-ear
<i>Iris</i> spp.	Iris
<i>Iris tenax</i>	Tough leaved iris
<i>Juglans</i> spp.	Walnut
<i>Juncus acuminatus</i>	Sharp fruited rush
<i>Juncus bolanderi</i>	Bolander's rush
<i>Juncus bufonius</i>	Toad rush
<i>Juncus effusus</i>	Common rush
<i>Juncus ensifolius</i> var. <i>ensifolius</i>	Dagger-leaf rush
<i>Juncus patens</i>	Spreading rush
<i>Juncus</i> spp.	Rush
<i>Juncus tenuis</i>	Slender rush
<i>Juniperus occidentalis</i>	Juniper
<i>Lactuca saligna</i>	Willow lettuce
<i>Lactuca serriola</i>	Prickly lettuce
<i>Lamium purpureum</i>	Red dead nettle

<i>Lathyrus aphaca</i>	Yellow pea
<i>Lathyrus sphaericus</i>	Grass pea
<i>Lathyrus latifolius</i>	Perennial pea
<i>Leersia oryzoides</i>	Rice cut-grass
<i>Lemna minor</i>	Common duckweed
<i>Lindernia dubia</i> var. <i>anagallidea</i>	False pimpernel
<i>Lolium multiflorum</i>	Italian ryegrass
<i>Lomatium dissectum</i>	Lace-leaved lomatium
<i>Lomatium nudicaule</i>	Naked lomatium
<i>Lonicera ciliosa</i>	Orange honeysuckle
<i>Lotus corniculatus</i>	Birdsfoot-trefoil
<i>Lotus micranthus</i>	Small-flowered lotus
<i>Lotus pinnatus</i>	Bog lotus
<i>Lotus purshianus</i>	Spanish clover
<i>Ludwigia palustris</i>	Water purslane
<i>Lupinus polyphyllus</i>	Large leaved lupine
<i>Lupinus revularis</i> var. <i>albicaulix</i>	Riverbank lupine var. <i>albicaulix</i>
<i>Lupinus rivularis</i>	Riverbank lupine
<i>Lupinus sulphureus kincaidii</i>	Kincaid's lupine
<i>Lythrum hyssopifolium</i>	Hyssop loosestrife
<i>Lythrum portula</i>	Purslane loosestrife
<i>Lythrum salicaria</i>	Purple loosestrife
<i>Madia elegans</i>	Common madia
<i>Madia glomerata</i>	Stinking tarweed, Mountain tarweed
<i>Madia gracilis</i>	Common tarweed
<i>Madia sativa</i>	Coast tarweed
<i>Marah oreganus</i>	Coast manroot
<i>Melilotus alba</i>	White sweet clover
<i>Melissa officinalis</i>	Lemon balm
<i>Mentha arvensis</i>	Field mint
<i>Mentha piperita</i>	Peppermint
<i>Mentha pulegium</i>	Pennyroyal
<i>Mimulus guttatus</i>	Common monkeyflower
<i>Montia linearis</i>	Slender-leaved montia
<i>Myosotis discolor</i>	Yellow-and-Blue scorpion grass
<i>Myosotis laxa</i>	Small forget-me-not
<i>Myosotis macrosperma</i>	Large seed forget-me-not
<i>Myosotis scorpioides</i>	Forget-me-not
<i>Myriophyllum</i> spp.	Milfoil
<i>Narcissus</i> spp.	Daffodil, Narcissuses, Paper whites
<i>Navarretia intertexta</i>	Needle-leaved navarretia
<i>Navarretia squarrosa</i>	Skunkweed
<i>Oemleria cerasiformis</i>	Osoberry, Indian plum
<i>Oenanthe sarmentosa</i>	Water parsley, Pacific oenanthe
<i>Osmorhiza chilensis</i>	Sweet cicely

<i>Panicum capillare</i>	Common witchgrass
<i>Parentucellia viscosa</i>	Yellowweed
<i>Paspalum distichum</i>	Jointgrass, Knotgrass
<i>Pastinaca sativa</i>	Parsnip
<i>Perideridia gairdneri</i>	Guirdner's yampah
<i>Phalaris aquatica</i>	Harding grass
<i>Phalaris arundinacea</i>	Reed Canary grass
<i>Phalaris</i> spp.	Canary grass, Harding grass
<i>Phleum pratense</i>	Timothy
<i>Phoradendron villosum</i>	Western mistletoe
<i>Plagiobothrys figuratus</i>	Fragrant popcorn flower
<i>Plagiobothrys nothofulvus</i>	Rusty popcorn flower
<i>Plantago lanceolata</i>	English plantain
<i>Plantago major</i>	Common plantain
<i>Poa</i> spp.	Bluegrass
<i>Polygonum aviculare</i>	Knotweed
<i>Polygonum californicum</i>	California knotweed
<i>Polygonum douglasii</i>	Douglas' knotweed
<i>Polygonum hydropiper</i>	Smartweed, Water pepper
<i>Polygonum hydropiperoides</i>	Mild water-pepper
<i>Polygonum lapathifolium</i>	Willowweed
<i>Polygonum persicaria</i>	Lady's thumb
<i>Polypodium glycyrrhiza</i>	Licorice-fern
<i>Polystichum munitum</i>	Sword-fern
<i>Populus trichocarpa</i>	Black cottonwood
<i>Potamogeton natans</i>	Floating pondweed
<i>Potentilla gracilis</i>	Slender cinquefoil
<i>Prunus</i> spp.	Plum
<i>Prunus emarginata</i>	Bittercherry
<i>Prunus virginiana</i>	Chokecherry
<i>Pseudotsuga menziesii</i>	Douglas fir
<i>Pteridium aquilinum</i>	Bracken-fern
<i>Pyrus communis</i>	Pear
<i>Pyrus malus</i>	Apple
<i>Quercus garryana</i>	Oregon white oak
<i>Ranunculus aquatilis</i>	Water buttercup
<i>Ranunculus austro-oreganus</i>	Southern Oregon buttercup
<i>Ranunculus sceleratus</i>	Celery leaved buttercup
<i>Rhamnus purshiana</i>	Cascara
<i>Ribes divaricatum</i> var. <i>divaricatum</i>	Coast black gooseberry
<i>Robinia pseudo-acacia</i>	Locust spp.
<i>Rorippa curvisiliqua</i>	Western yellow cress
<i>Rosa eglanteria</i>	Sweetbrier, Eglantine
<i>Rosa multiflora</i>	Multiflowered rose
<i>Rosa nutkana</i>	Nootka rose

<i>Rosa pisocarpa</i>	Clustered wild rose
<i>Rotala ramosior</i>	Toothcup
<i>Rubus armeniacus</i>	Himalayan blackberry
<i>Rubus laciniatus</i>	Evergreen blackberry
<i>Rubus parviflorus</i>	Thimbleberry
<i>Rubus ursinus</i>	Dewberry, Trailing blackberry
<i>Rumex acetosella</i>	Sheep sorrell
<i>Rumex conglomeratus</i>	Clustered dock
<i>Rumex crispus</i>	Curly Leaved dock
<i>Rumex mexicana</i>	Dock spp.
<i>Salix hookeriana</i> var. <i>piperi</i>	Hookers willow
<i>Salix</i> spp.	Willow
<i>Sambucus racemosa</i> var. <i>arborescens</i>	Red elderberry
<i>Sanicula crassicaulis</i>	Snakeroot
<i>Saxifraga intergrifolia</i>	Grassland saxifrage
<i>Schoenoplectus tabernaemontani</i>	Great bulrush
<i>Scirpus microcarpus</i>	Small-fruited bulrush
<i>Schoenoplectus mucronatus</i>	Panicked bulrush
Sedge spp.	Sedge spp.
<i>Sedum album</i>	White stonecrop
<i>Senecio jacobaea</i>	Tansy ragwort
<i>Senecio vulgaris</i>	Common groundsel
<i>Setaria viridis</i>	Green foxtail
<i>Sidalcea campestris</i>	Meadow sidalcea
<i>Sicalcea nelsoniana</i>	Nelson's checkerbloom
<i>Sisyrinchium idahoense</i>	Blue-eyed grass
<i>Solanum physalifolium</i>	Hairy nightshade
<i>Solanum nigrum</i>	Black nightshade
<i>Solidago</i> spp.	Goldenrod
<i>Solanum dulcamara</i>	Bittersweet nightshade
<i>Sonchus asper</i>	Prickley sow thistle
<i>Sonchus oleraceus</i>	Common sow thistle
<i>Sparganium emersum</i>	Simple-stemmed burreed
<i>Spergularia</i> spp.	Sandspurry
<i>Spiraea douglasii</i>	Douglas hardhack
<i>Spiraea vanhouttei</i>	Vanhoutte spirea
<i>Stachys palustris</i>	Marsh hedgenettle
<i>Stellaria</i> spp.	Starwort
<i>Symphoricarpos albus</i>	Snowberry
<i>Syringa vulgaris</i>	Common lilac
<i>Tanacetum vulgare</i>	Tansy
<i>Tellima grandiflora</i>	Fringecups
<i>Thuja plicata</i>	Western red cedar
<i>Toxicodendron diversilobum</i>	Poison oak
<i>Trifolium dubium</i>	Shamrock

<i>Trifolium gracilentum</i>	Pinpoint clover
<i>Trifolium macraei</i>	Twin-head clover
<i>Trifolium pratense</i>	Red clover
<i>Trifolium procumbens</i>	Low hop clover
<i>Trifolium repens</i>	White clover
<i>Trifolium subterraneum</i>	Subterranean clover
<i>Triticum aestivum</i>	Wheat
<i>Typha angustifolia</i>	Slender-leaved cattail
<i>Typha latifolia</i>	Broadleaf cattail
<i>Veratrum californicum</i>	California false hellebore
<i>Veratrum caudatum</i>	Tailed false hellebore
<i>Verbascum blattaria</i>	Moth mullein
<i>Verbascum thapsus</i>	Common mullein
<i>Veronica americana</i>	American brooklime
<i>Veronica peregrina</i>	Purslane speedwell
<i>Veronica scutellata</i>	Marsh speedwell
<i>Vicia cracca</i>	Bird vetch
<i>Vicia hirsuta</i>	Hairy vetch
<i>Vicia sativa</i>	Common vetch
<i>Vicia villosa</i>	Woolly vetch
<i>Vinca major</i>	Greater periwinkle
<i>Vulpia myuros</i>	Foxtail fescue
<i>Wyethia angustifolia</i>	Mule's ear
<i>Xanthium strumarium</i>	Cocklebur
<i>Zizania aquatica</i>	Wild rice

Appendix C. Wildlife Documented on E.E. Wilson Wildlife Area

Mammals

Scientific Name	Common Name
<i>Didelphis virginiana</i>	Opossum
<i>Sorex bendirii</i>	Marsh shrew
<i>Sorex vagrans</i>	Vagrant shrew
<i>Neotrichus gibbsii</i>	Shrew-mole
<i>Scapanus townsendii</i>	Townsend's mole
<i>Sylvilagus bachmani</i>	Brush rabbit
<i>Myotis evotis</i>	Long-eared myotis
<i>Myotis thysanodes</i>	Fringed myotis
<i>Myotis volans</i>	Long-legged myotis
<i>Sylvilagus floridanus</i>	Eastern cottontail
<i>Lepus californicus</i>	Black-tailed jackrabbit
<i>Spermophilus beecheyi</i>	California ground squirrel
<i>Sciurus griseus</i>	Western gray squirrel
<i>Spermophilus townsendii</i>	Townsend's chipmunk
<i>Erethizon dorsatum</i>	Porcupine
<i>Castor canadensis</i>	Beaver
<i>Myocastor coypus</i>	Nutria
<i>Thomomys bulbivorus</i>	Camas pocket gopher
<i>Neotoma fuscipes</i>	Dusky-footed woodrat
<i>Peromyscus maniculatus</i>	Deer mouse
<i>Microtus canicaudus</i>	Gray-tailed vole
<i>Microtus townsendii</i>	Townsend's vole
<i>Microtus oregoni</i>	Creeping vole
<i>Mus musculus</i>	House mouse
<i>Zapus trinotatus</i>	Pacific jumping mouse
<i>Rattus norvegicus</i>	Norway rat
<i>Vulpes vulpes</i>	Red fox
<i>Urocyon cinereoargenteus</i>	Gray fox
<i>Canis latrans</i>	Coyote
<i>Procyon lotor</i>	Raccoon
<i>Spilogale gracilis</i>	Striped skunk
<i>Mustela erminea</i>	Short-tailed weasel
<i>Mustela vison</i>	Mink
<i>Lontra canadensis</i>	Northern river otter
<i>Odocoileus hemionus columbianus</i>	Black-tailed deer
<i>Cervus elaphus roosevelti</i>	Roosevelt elk
<i>Felis concolor</i>	Cougar
<i>Lynx rufus</i>	Bobcat
<i>Ursus americanus</i>	Black bear
<i>Ondatra zibethicus</i>	Muskrat

Reptiles

Scientific Name	Common Name
<i>Clemmys marmorata</i>	Western pond turtle
<i>Chrysemys picta belli</i>	Western painted turtle
<i>Trachemys scripta elegans</i>	Red-eared slider
<i>Sceloporus occidentalis</i>	Western fence lizard
<i>Elgaria multicarinata</i>	Southern alligator lizard
<i>Diadophis punctatus</i>	Ring-necked snake
<i>Thamnophis ordinoides</i>	Northwestern garter snake
<i>Thamnophis sirtalis concinnus</i>	Red-spotted garter snake
<i>Pituophis melanoleuces</i>	Gopher snake
<i>Contia tenuis</i>	Sharptail snake
<i>Charina bottae</i>	Rubber boa
<i>Coluber constrictor mormon</i>	Western yellow-bellied racer

Amphibians

Scientific Name	Common Name
<i>Ambystoma macrodactylum macrodactylum</i>	Western long-toed salamander
<i>Taricha granulosa granulosa</i>	Rough-skinned newt
<i>Pseudacris regilla</i>	Pacific tree frog
<i>Rana aurora aurora</i>	Northern red-legged frog
<i>Rana catesbeiana</i>	Bullfrog

Fish

Scientific Name	Common Name
<i>Ameiurus natalis</i>	Yellow bullhead
<i>Ameiurus nebulosus</i>	Brown bullhead
<i>Cyprinus carpio</i>	Common carp
<i>Gambusia affinis</i>	Western mosquitofish
<i>Lepomis cyanellus</i>	Green sunfish
<i>Lepomis gibbosus</i>	Pumpkinseed sunfish
<i>Lepomis macrochirus</i>	Bluegill sunfish
<i>Lepomis microlophus</i>	Red-eared sunfish
<i>Micropterus salmoides</i>	Largemouth bass
<i>Oncorhynchus mykiss</i>	Rainbow trout
<i>Richardsonius batteatus</i>	Redside shiner

Birds

Occurrence: Common = C, Uncommon = U, Occasional = O, Rare = R

Latin name	Common name	Spring	Summer	Fall	Winter
<i>Gavia immer</i>	Common loon			R	R
<i>Podilymbus podiceps</i>	Pied-billed grebe	C	C	C	C
<i>Podiceps auritus</i>	Horned grebe			R	
<i>Aechmophorus occidentalis</i>	Western grebe				R
<i>Phalacrocorax auritus</i>	Double-crested cormorant	U		U	U
<i>Botaurus lentiginosus</i>	American bittern	O	R		R
<i>Ardea herodias</i>	Great blue heron	C	C	C	C
<i>Casmerodius albus</i>	Great egret	O	R	O	O
<i>Butorides veriscens</i>	Green heron	U	O	O	
<i>Nycticorax nycticorax</i>	Black-crowned night heron		R		
<i>Plegadis chihi</i>	White-faced Ibis	R			
<i>Cathartes aura</i>	Turkey vulture	C	C	C	O
<i>Cygnus columbianus</i>	Tundra swan	U		U	U
<i>Cygnus buccinator</i>	Trumpeter swan			R	R
<i>Anser albifrons</i>	Greater white-fronted goose	U		R	R
<i>Chen caerulescens</i>	Snow goose				R
<i>Branta canadensis</i>	Canada goose	C	C	C	C
<i>Branta hutchinsii</i>	Cackling goose	U		U	C
<i>Aix sponsa</i>	Wood duck	C	C	C	U
<i>Anas crecca</i>	Green-winged teal	C		C	C
<i>Anas platyrhynchos</i>	Mallard	C	C	C	C
<i>Anas acuta</i>	Northern pintail	U		U	C
<i>Anas discors</i>	Blue-winged teal	U	U	R	
<i>Anas cyanoptera</i>	Cinnamon teal	C	U	R	R
<i>Anas clypeata</i>	Northern shoveler	U		U	U
<i>Anas strepera</i>	Gadwall	R		R	O
<i>Anas penelope</i>	Eurasian wigeon	R			R
<i>Anas americana</i>	American wigeon	U		O	U
<i>Aythya valisineria</i>	Canvasback			R	R
<i>Aythya americana</i>	Redhead (duck)	R			R
<i>Aythya collaris</i>	Ring-necked duck	C	R	U	C
<i>Aythya marida</i>	Greater scaup	R			R
<i>Aythya affinis</i>	Lesser scaup	U		U	U
<i>Melanitta perspicillata</i>	Surf scoter				R
<i>Bucephala albeola</i>	Bufflehead	U			U
<i>Lophodytes cucullatus</i>	Hooded merganser	C	C	C	C
<i>Mergus merganser</i>	Common merganser				O
<i>Mergus serrator</i>	Red-breasted merganser	R			
<i>Oxyura jamaicensis</i>	Ruddy duck			R	O
<i>Pandion haliaetus</i>	Osprey	U	U	O	R
<i>Elanus leucurus</i>	White-tailed kite	O		O	O
<i>Haliaeetus leucecephalus</i>	Bald eagle	U	O	U	U
<i>Circus cyaneus</i>	Northern harrier	C	C	C	C

<i>Accipiter striatus</i>	Sharp-shinned hawk	U	O	U	U
<i>Accipiter cooperii</i>	Cooper's hawk	U	O	U	U
<i>Accipiter gentilis</i>	Northern goshawk	R		R	R
<i>Buteo lineatus</i>	Red-shouldered hawk	O	O	U	U
<i>Buteo jamaicensis</i>	Red-tailed hawk	C	C	C	C
<i>Buteo lagopus</i>	Rough-legged hawk	U		R	U
<i>Aquila chrysaetos</i>	Golden eagle		R	R	R
<i>Falco sparverius</i>	American kestrel	C	C	C	C
<i>Falco columbarius</i>	Merlin	O		O	O
<i>Falco mexicanus</i>	Prairie falcon		R		R
<i>Falco peregrinus</i>	Peregrine falcon		R	R	R
<i>Phasianus colchicus</i>	Ring-necked Pheasant	U	U	A	U
<i>Bonasa umbellus</i>	Ruffed grouse	R		R	R
<i>Meleagris gallopavo</i>	Wild turkey	O	O	O	O
<i>Callipepla californica</i>	California quail	C	C	C	C
<i>Oreortyx pictus</i>	Mountain quail	O	O	O	O
<i>Rallus limicola</i>	Virginia rail	C	C	U	O
<i>Porzana Carolina</i>	Sora	U	U		
<i>Fulica Americana</i>	American coot	C	C	U	U
<i>Grus Canadensis</i>	Sandhill crane	R		R	R
<i>Charadrius semipalmatus</i>	Semipalmated plover	R		O	
<i>Charadrius vociferus</i>	Killdeer	C	C	C	C
<i>Himantopus mexicanus</i>	Black-necked stilt	R			
<i>Tringa melanoleuca</i>	Greater yellowlegs	C	O	C	O
<i>Tringa flavipes</i>	Lesser yellowlegs	O	R	O	R
<i>Tringa solitaria</i>	Solitary sandpiper	O	R	O	
<i>Actitis macularia</i>	Spotted sandpiper	U	U	O	
<i>Calidris alba</i>	Sanderling	R			
<i>Calidris mauri</i>	Western sandpiper	U	O	U	O
<i>Calidris pusilla</i>	Semipalmated sandpiper			R	
<i>Calidris minutilla</i>	Least sandpiper	C	O	C	U
<i>Calidris bairdii</i>	Baird's sandpiper			R	
<i>Calidris melanotos</i>	Pectoral sandpiper		R	O	
<i>Calidris alpina</i>	Dunlin	C		U	U
<i>Limnodromus griseus</i>	Short-billed dowitcher	O			
<i>Limnodromus scolopaceus</i>	Long-billed dowitcher	U	R	U	O
<i>Gallinago delicata</i>	Wilson's snipe	U	O	U	U
<i>Phalaropus tricolor</i>	Wilson's phalarope	O			
<i>Phalaropus lobatus</i>	Red-necked phalarope		R		
<i>Phalaropus fulicaria</i>	Red phalarope				R
<i>Larus philadelphia</i>	Bonaparte's gull			R	
<i>Larus canus</i>	Mew gull	O			
<i>Larus delawarensis</i>	Ring-billed gull	U			U
<i>Larus glaucooides (thayeri)</i>	Iceland (Thayer's) gull	R			O
<i>Larus californicus</i>	California gull	U	O	O	U
<i>Larus argentatus</i>	Herring gull	O			O
<i>Sterna forsteri</i>	Forster's tern	R			
<i>Larus occidentalis</i>	Western gull				R

<i>Larus glaucescens</i>	Glaucous-winged gull	U		O	U
<i>Sterna caspia</i>	Caspian tern	R			
<i>Columba livia</i>	Rock Pigeon (I)	R	R	R	R
<i>Columba fasciata</i>	Band-tailed pigeon	U	U	O	
<i>Zenaida macroura</i>	Mourning dove	C	C	C	U
<i>Streptopelia decaocto</i>	Eurasian collared dove	U	U	U	U
<i>Coccyzus americanus</i>	Yellow-billed cuckoo		R		
<i>Tyto alba</i>	Barn-owl	U	U	U	U
<i>Otus kennicottii</i>	Western screech-owl	U	U	U	U
<i>Bubu virginianus</i>	Great horned owl	C	U	U	U
<i>Strix varia</i>	Barred Owl	O	O	O	U
<i>Glauucidium gnoma</i>	Northern pygmy-owl				R
<i>Asio otus</i>	Long-eared owl	R	R	R	O
<i>Asio flammeus</i>	Short-eared owl	O			O
<i>Aegolius acadicus</i>	Northern saw-whet owl	R			R
<i>Chordeiles minor</i>	Common nighthawk	R	O	R	
<i>Chaetura vauxi</i>	Vaux's swift	O	U	O	
<i>Cypsepeloides niger</i>	Black swift			R	
<i>Calypte anna</i>	Anna's hummingbird	U	O	U	U
<i>Selasphorus rufus</i>	Rufous hummingbird	C	U	O	
<i>Stellula calliope</i>	Calliope hummingbird	R			
<i>Ceryle alcyon</i>	Belted kingfisher	U	U	U	U
<i>Melanerpes lewis</i>	Lewis' woodpecker	R		R	
<i>Melanerpes formicivorus</i>	Acorn woodpecker	U	U	U	U
<i>Sphyrapicus ruber</i>	Red-breasted sapsucker	U	U	U	U
<i>Sphyrapicus varius</i>	Yellow-bellied sapsucker				R
<i>Picoides pubescens</i>	Downy woodpecker	C	C	U	U
<i>Picoides villosus</i>	Hairy woodpecker	O	O	U	U
<i>Colaptes auratus</i>	Northern flicker	C	C	C	C
<i>Dryocopus pileatus</i>	Pileated woodpecker	O	O	O	U
<i>Contopus borealis</i>	Olive-sided flycatcher	U	O		
<i>Empidonax oberholseri</i>	Dusky flycatcher	R			
<i>Empidonax hammondi</i>	Hammond's flycatcher	O			
<i>Contopus sordidulus</i>	Western wood-pewee	C	C	U	
<i>Empidonax traillii</i>	Willow flycatcher	U	U		
<i>Empidonax difficilis</i>	Pacific-slope flycatcher	U	U	O	
<i>Sayornis nigricans</i>	Black phoebe	O	O	O	O
<i>Sayornis saya</i>	Say's phoebe	R		R	R
<i>Tyrannus verticalis</i>	Western kingbird	O	R		
<i>Tyrannus tyrannus</i>	Eastern kingbird	R			R
<i>Progne subis</i>	Purple martin	O	O		
<i>Tachycineta bicolor</i>	Tree swallow	C	C	U	O
<i>Tachycineta thalassina</i>	Violet-green swallow	C	C	C	O
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged swallow	U	O		
<i>Hirundo pyrrhonota</i>	Cliff swallow	C	C	U	
<i>Hirundo rustica</i>	Barn swallow	C	C	C	
<i>Cyanocitta stelleri</i>	Steller's jay	C	U	U	C
<i>Aphelocoma californica</i>	California scrub-jay	C	C	C	C

<i>Corvus brachyrhynchos</i>	American crow	C	C	C	C
<i>Corvus corax</i>	Common raven	U	U	U	U
<i>Parus atricapillus</i>	Black-capped chickadee	C	C	C	C
<i>Parus rufescens</i>	Chestnut-backed chickadee	O	O	O	U
<i>Psaltiriparus minimus</i>	Bushtit	U	U	C	C
<i>Sitta Canadensis</i>	Red-breasted nuthatch	U	U	U	U
<i>Sitta carolinensis</i>	White-breasted nuthatch	U	U	U	U
<i>Certhia Americana</i>	Brown creeper	O	O	O	U
<i>Thryomanes bewickii</i>	Bewick's wren	C	C	C	C
<i>Troglodytes aedon</i>	House wren	O	U	R	
<i>Troglodytes pacificus</i>	Pacific wren	U		U	U
<i>Cistothorus palustris</i>	Marsh wren	C	U	U	U
<i>Cistothorus platensis</i>	Sedge wren				R
<i>Regulus satrapa</i>	Golden-crowned kinglet	U		U	C
<i>Regulus calendula</i>	Ruby-crowned kinglet	U		U	C
<i>Sialia mexicana</i>	Western bluebird	U	U	U	U
<i>Myadestes toensendii</i>	Townsend's solitaire	R		R	R
<i>Catharus ustulatus</i>	Swainson's thrush	C	C	U	
<i>Catharus guttatus</i>	Hermit thrush	O		O	U
<i>Turdus migratorius</i>	American robin	C	C	C	C
<i>Ixoreus naevius</i>	Varied thrush	U		U	C
<i>Mimus polyglottos</i>	Northern mockingbird				R
<i>Chamaea fasciata</i>	Wrentit	U	U	U	U
<i>Anthus rubescens</i>	American pipit	O	R	O	U
<i>Bombycilla cedrorum</i>	Cedar waxwing	C	C	C	O
<i>Lanius excubitor</i>	Northern shrike	O		O	O
<i>Lanius ludovicianus</i>	Loggerhead shrike			R	
<i>Sturnus vulgaris</i>	European starling (I)	C	C	C	C
<i>Virio cassinii</i>	Cassin's vireo	U	O	O	
<i>Vireo solitarius</i>	Blue-headed vireo		R		
<i>Vireo olivaceus</i>	Red-eyed vireo		R		
<i>Vireo huttoni</i>	Hutton's vireo	O	O	O	O
<i>Vireo gilvus</i>	Warbling vireo	C	U	O	
<i>Vermivora celata</i>	Orange-crowned warbler	C	U	O	R
<i>Vermivora ruficapilla</i>	Nashville warbler	O	R	R	
<i>Dendroica petechia</i>	Yellow warbler	U	O	R	
<i>Dendroica palmarum</i>	Palm warbler			R	
<i>Dendroica coronata</i>	Yellow-rumped warbler	C		U	C
<i>Dendroica nigrescens</i>	Black-throated gray warbler	U	U	U	
<i>Dendroica townsendii</i>	Townsend's warbler	R			R
<i>Oporornis tolmiei</i>	MacGillivray's warbler	O	O		
<i>Geothlypis trichas</i>	Common yellowthroat	C	C	U	R
<i>Wilsonia pusilla</i>	Wilson's warbler	U	U	O	
<i>Icteria virens</i>	Yellow-breasted chat	U	U	R	
<i>Piranga lucoviciiana</i>	Western tanager	U	O	U	
<i>Pheucticus melanocephalus</i>	Black-headed grosbeak	C	C	R	
<i>Passerina amoena</i>	Lazuli bunting	U	U		
<i>Passerina cyanea</i>	Indigo bunting			R	

<i>Pipilo erythrophthalmus</i>	Spotted towhee	C	C	C	C
<i>Poliophtila caerulea</i>	Blue-gray gnatcatcher	R	R		
<i>Spizella arborea</i>	American tree sparrow				R
<i>Spizella passerina</i>	Chipping sparrow	O	R	R	
<i>Poocetes gramineus</i>	Vesper sparrow	R		R	R
<i>Passerculus sandwichensis</i>	Savannah sparrow	C	C	U	O
<i>Passerella iliaca</i>	Fox sparrow	C		C	C
<i>Melospiza melodia</i>	Song sparrow	C	C	C	C
<i>Melospiza lincolni</i>	Lincoln's sparrow	U		U	C
<i>Melospiza georgiana</i>	Swamp sparrow	R		R	O
<i>Zonotrichia albicollis</i>	White-throated sparrow	U		O	U
<i>Zonotrichia querula</i>	Harris's sparrow				R
<i>Zonotrichia atricapilla</i>	Golden-crowned sparrow	C	R	C	C
<i>Zonotrichia leucophrys</i>	White-crowned sparrow	C	C	C	U
<i>Junco hyemalis</i>	Dark-eyed junco	C	O	C	C
<i>Agelaius phoeniceus</i>	Red-winged blackbird	C	C	C	U
<i>Sturnella neglecta</i>	Western meadowlark	O	R	O	U
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed blackbird	R			
<i>Euphagus cyanocephalus</i>	Brewer's blackbird	C	C	C	C
<i>Molothrus ater</i>	Brown-headed cowbird	C	C	U	R
<i>Icterus bullockii</i>	Bullock's oriole	O	O		
<i>Carpodacus purpureus</i>	Purple finch	C	U	U	C
<i>Carpodacus mexicanus</i>	House finch	C	C	C	U
<i>Loxia curvirostra</i>	Red crossbill		R	R	R
<i>Carduelis pinus</i>	Pine siskin	U		U	U
<i>Carduelis psaltria</i>	Lesser goldfinch	U	O	U	U
<i>Carduelis tristis</i>	American goldfinch	U	C	C	U
<i>Coccothraustes vespertinus</i>	Evening grosbeak	U		R	R
<i>Passer domesticus</i>	House sparrow (I)	O	R	R	R

***** This list was compiled by local bird expert Joel Geier. Occurrences are based on personal observations, reviewing decades of field notes, and other historical data.**

Appendix D. State Water Rights on the E.E. Wilson Wildlife Area

State Water Rights

Pond/River	Permit	Rate
Luckiamute River	28749	1.43 cfs
Pond #9-14,15A-D,16,17*	R-75510	39.0 Acre Ft.
Pond #1, 2, 3, 4, 5, 6A, 6B**	R-75508	64.4 Acre Ft.
Pond #18-27***	R-75009	28.8 Acre Ft.
Pond #8 (canal)	R-11541	20.0 Acre Ft.
Pond#7 (angling)	R-7933	40.0 Acre Ft.
Coffin Butte Pond	R-85247	0.235 Acre Ft.

* snipe, wheatfield #1&2, Heron, horseshoe, pipit complex, south, phalarope, parking lot

** shop, A St., B St, wild rice, pilings, Northwest corner, cottonwood,

***Beehive, killdeer, mallard, green-winged teal, hooters, big dike, big dike borrow, buffy's

Appendix E. Legal Obligations Influencing Management of the E.E. Wilson 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
ORS 570.535 Landowner responsibility for weed control

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
635-008-0190 E.E. Wilson 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