

**JACKSON  
COUNTY**  
*Airport Authority*

**Appendix**  
Critical Habitat and  
Species Survey Memo

## MEMORANDUM

---

**To:** Peter van Pelt, Barnard Dunkelberg and  
Company

**From:** Jon Boyce, Anchor QEA, LLC

**Cc:** Elizabeth Appy, Anchor QEA, LLC

**Re:** Rogue Valley International-Medford Airport Critical Habitat and Species  
Inventory

**Date:** March 1, 2011

**Project:** 100158-01.01

---

The purpose of this memorandum is to provide information on the potential presence of species of concern and critical habitat at the Rogue Valley International-Medford Airport (Airport), located in Jackson County, Oregon. In addition, this memorandum also provides a summary of the regulatory framework that guides the management of those habitats and species that will need to be considered when developing areas of the Airport. This information will be incorporated into the environmental inventory chapter of the Master Plan update.

This memorandum includes a description of state and federal species and habitats of concern; a detailed description of listed species, and their habitat, potentially located on Airport property; regulatory guidance and mandates set forth by the various local, state, and federal agencies; and the vegetation survey results conducted on Airport property in May 2010.

### **SPECIES OF CONCERN AND CRITICAL HABITAT**

Currently, the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) list nine federally endangered or threatened species as potentially present in Jackson County (Table 1). The USFWS also lists a number of candidate species and species of concern, which are also shown in Table 1. In addition, the state of Oregon lists threatened and endangered species under the jurisdiction of various departments. The Oregon Department of Fish and Wildlife (ODFW) lists threatened, endangered, and candidate fish and wildlife species, as shown in Table 2. ODFW also lists sensitive species by ecoregion as shown in Attachment A. The Airport is located within the Klamath Mountains ecoregion. The sensitive species list serves as an early warning system to prevent additional future threatened and endangered listings. The Oregon Department of Agriculture (ODA) lists

---

threatened and endangered plant species that occur or have occurred in Jackson County, as shown in Table 3. Finally, the Oregon Natural Heritage Program (ONHP) provides a list of threatened and endangered invertebrates as shown in Table 4.

Available wetland delineation data suggest wetlands, including vernal pools, are present on Airport property (Figure 1). Of the federally and state-listed species provided in Tables 1 through 4, three are associated with vernal pool seasonal wetlands. The three species associated with vernal pool wetlands include two plants—Cook’s lomatium (*Lomatium cookii*) and large-flowered woolly meadowfoam (*Limnanthes floccosa ssp. grandiflora*)—and one crustacean—fairy shrimp (*Branchinecta lynchi*). Critical habitat for Cook’s lomatium has been designated by the USFWS on 74.7 acres of Airport property (Figure 2). A vegetation survey conducted by Anchor QEA, LLC in May 2010, confirmed the presence of Cook’s lomatium on Airport property but did not confirm the presence of any other federally or state-listed plant species or plant species of concern. A willow-herb of the genus *Epilobium* was observed during the survey; however, it could not be confirmed that the plant was *E. siskiyouense*, the species of concern.

## **LISTED SPECIES AND DESIGNATED CRITICAL HABITAT POTENTIALLY ON AIRPORT PROPERTY**

This section describes the vernal pool wetland habitat as well as the biology of each of the Endangered Species Act- (ESA-) listed species and any designated critical habitat potentially present on Airport property.

### **Vernal Pool Wetlands**

A map of all available wetland delineation data on Airport property is shown on Figure 1. The delineation data are a compilation of all available wetland data assembled by the Oregon Natural Heritage Information Center and the Wetlands Conservancy (Oregon Wetlands Cover 2009). The delineation data suggest wetlands, including vernal pools, are present on Airport property.

Vernal pools are seasonal wetlands that form only in regions where specialized soil and climatic conditions exist. During fall and winter, water collects in shallow depressions where downward migration of water is prevented by the presence of a less permeable clay pan layer (duripan) below the soil surface. Later in the spring when rains decrease and the

---

weather warms, the water evaporates and the pools generally disappear by May. The shallow depressions remain relatively dry until late fall and early winter with the advent of greater precipitation and cooler temperatures. Typically, vernal pools occur in a “mount-depression” landscape setting (i.e., “complex”) in which the mounds are upland (e.g., grassland) and the depressions are vernal pools and “swales.” These low lying areas are a topographically complex system with surrounding uplands in which the vernal pools may comprise less than one-quarter of the total land area considered (ADTAC 2007; OFWS 2011).

Vernal pools primarily support native plant species and endemic and/or rare species of plants and macroinvertebrates. Because the pools are inundated on a seasonal basis, they do not promote the development of vegetation typical of permanently flooded wetlands (Federal Register 70:46924-46999). Native plants found in vernal pools exhibit a diverse range of physiological and structural adaptations to the broad range of inundation periods they experience. Some plants are specially adapted for extended periods of inundation, while others transition from floating to erect leaves as the pools dry out (Bauder 2005). Vernal pools also provide habitat for insects and microinvertebrates that, like vernal pool plants, are specially adapted to seasonal inundations.

Vernal pool wetland habitat occurs on 740,000 acres across 30 California counties and Jackson County, Oregon. Vernal pools are a characteristic feature of the Agate Desert area located in Jackson County. The Agate Desert once supported the most extensive system of vernal pools in the region. However, development and agriculture have altered the topography and hydrology across approximately 60 percent of the desert, and less than 15 percent of the original vernal pool habitat remains intact (Wille and Petersen 2006).

### **Vernal Pool Listed Species**

**Cook’s lomatium.** Cook’s lomatium was discovered in 1986 in the vernal pools of the Agate Desert (Kagan 1986). The species is a perennial plant, endemic to the Agate Desert and nearby Illinois Valley. It is a member of the parsley family and can be found in the margins and bottoms of vernal pools of the Agate Desert. Cook’s lomatium depends on seasonal inundation and is threatened by the loss of vernal pool habitat due to industrial, commercial, agricultural, and residential development (USFWS 2000a). Vernal pools are further degraded by factors such as livestock grazing, woody plant encroachment, and invasion of non-native annual grasses. Cook’s lomatium was proposed as endangered by the USFWS in May 2000

---

(2000a, 2000b). A final ruling on the endangered status of Cook's lomatium was made in 2002 (Federal Register 67:68004-68015).

In 2010, more than 6,000 acres were designated critical habitat for Cook's lomatium in Jackson and Josephine counties (Federal Register 75:42490-42570). Selection of the critical habitat units was informed by the priority areas identified in the draft recovery plan published in 2006 (USFWS 2006). The recovery plan identified several populations of Cook's lomatium on Airport property. The presence of Cook's lomatium populations was confirmed in a 2010 site survey of Airport vegetation. (see "Vegetation Survey on Airport Property" section and Figure 3). As part of the critical habitat designation, 74.7 acres within the Airport property received critical habitat designation status in 2010 (see Figure 2).

**Large-flowered woolly meadowfoam.** Large-flowered woolly meadowfoam is an annual species in the meadowfoam family. The plant occurs at the edge of vernal pools, near the wetter, inner edges. Meadowfoam is another endemic species of Oregon and known only to occur within the Agate Desert area in Jackson County. In 2002, the USFWS determined the species to be endangered (Federal Register 67:68004-68015). Threats to the large-flowered woolly meadowfoam are similar to those of Cook's lomatium. Invasive annual grasses, residential and industrial development, and herbicide spraying are all sources of habitat degradation for the meadowfoam. In 2010, 5,840 acres of critical habitat was established for large-flowered woolly meadowfoam within Jackson and Josephine counties (Federal Register 75:42490-42570). None of the designated critical habitat occurs on Airport property.

**Fairy Shrimp.** The vernal pool fairy shrimp is endemic to Oregon and California (Eng et al. 1990) and was listed as threatened in September 1994 (USFWS 1994). At the time of the listing, fairy shrimp were only known to exist in vernal pool complexes in northern California. In 1998, fairy shrimp were first discovered in vernal pools in Jackson County, Oregon (Erickson and Belk 1999).

Vernal pool fairy shrimp are translucent crustaceans less than 2.5 centimeters in length. The shrimp swim on their backs and eat algae and plankton by scraping and straining them from the surfaces of the vernal pool. Fairy shrimp are dependent upon seasonal vernal pool habitat. Fairy shrimp hatch after the first rain, mature after 40 days, and live for only one season. Females produce thick-shelled eggs that become embedded in the dried bottom mud

---

during the dry summer months. The eggs hatch again once the rain returns (Gallagher 1996). Wetland habitats that are inundated year-round cannot support the shrimp, because the shrimp's eggs must dry out before they can hatch (Erikson and Belk 1999).

Similar to other vernal pool species, fairy shrimp populations have declined primarily due to habitat loss and/or alteration to the vernal pool hydrology. Vernal pools are degraded through urban, suburban, and agricultural development as well as the construction of roads, trails, and ditches that can block the flow of water into or out of vernal pool complexes.

In 2005, fairy shrimp were included in the designation of 858,563 acres as critical habitat to four crustaceans and 11 plants in California and southern Oregon (Federal Register 70:46924-46999). None of the designated critical habitat occurs on Airport property.

## **REGULATORY FRAMEWORK**

Regulations at the local, state, and federal level provide the framework for addressing critical habitats and species of concern at the Airport. The Airport is located in Medford, Jackson County, Oregon, and is owned and operated by Jackson County. The Airport is located within the jurisdictional boundaries of both the City of Medford (City) and Jackson County. This section focuses on the regulatory framework provided by the City, Jackson County, the state of Oregon, and the federal government that guides the management of those habitats and species that will need to be considered when developing areas of the Airport property.

### **City of Medford Regulations**

This section contains a description of the City's regulations regarding the protection and management of wetlands, vernal pool wetlands, critical habitats/areas, and endangered species.

### ***City of Medford Comprehensive Plan: Environmental Element***

The City has addressed the issue of critical areas protection in their comprehensive planning documents. The Environmental Element of the Comprehensive Plan (City 2003) provides goals, policies, and implementation strategies for improving and maintaining environmental quality in Medford while accommodating continued growth. The Statewide Planning Goals that oversee the protection and conservation of natural resources in Oregon are *Goal 5: Open*

---

*Spaces, Scenic and Historic Areas, and Natural Resources* and Goal 6: *Air, Water, and Land Resources Quality*. These goals are discussed under the “State Regulations” section of this document. Consistent with the objectives of Goals 5 and 6, the Environmental Element is a guiding document that strives to protect the natural environment and ensure that long-term growth does not adversely affect the natural resources that contribute to Medford’s livability.

The conclusions of the current Environmental Element include the following:

- The City recognizes wetlands as valuable urban resources that can provide water quality maintenance, stormwater detention, wildlife habitat, and open space. The Airport is within the Urban Growth Boundary (UGB) and designated wetlands are found within Airport boundaries.
- Occasionally, the protection of a locally significant wetland (one that has been determined to have significant value according to state criteria) must be balanced against other important community goals. An exceptional “conflicting use” may be more important to the long-term needs of the citizens than preservation of the wetland area.
- The City UGB has been evaluated for potential wetland mitigation sites. Wetland mitigation involves the restoration, enhancement, or creation of wetlands to compensate for permitted wetland losses elsewhere. Restoration and enhancement of existing wetlands is the wetland mitigation most likely to be successful in Medford due to its ecological and climatic characteristics.

### ***City of Medford Municipal Code and City of Medford Land Development Code***

The City’s Land Development Code (LDC) regulates Airport Zoning in Article 3, Section 10.349 “Airport Approach District,” A-A (City 2011). This section defines the purpose of the district as to minimize the nuisance effects of the airport on its surroundings, to minimize the restrictions placed upon the airport operations by surrounding development, and to reduce or eliminate incompatible land use development, which may jeopardize the present and future operations of the airport functions. It is also the purpose of this district to recognize that the continued residential development adjacent to the airport reduces the livability of the area and adversely impacts the health, safety, and welfare of the residents. It is further recognized that certain categories of land use development are most appropriate and compatible with the airport development.

---

The LDC regulates riparian corridors in Article 5, Sections 10.920 through 10.928 (City 2011). This chapter defines riparian corridors and discusses permitted (Section 10.924), conditional (Section 10.925), and prohibited (Section 10.926) activities within these riparian corridors.

### **Jackson County Regulations**

The Airport is under the jurisdiction of the City and Jackson County, and this section provides additional regulatory framework related to potential development at the Airport. The Jackson County Comprehensive Plan (JCCP) is the official long-range land use policy document for Jackson County. The plan sets forth general land use planning policies and allocates land uses into resource, residential, commercial, and industrial categories. The plan serves as the basis for the coordinated development of physical resources, and the development or redevelopment of the county based on physical, social, economic, and environmental factors (Jackson County 2006).

As required by state law, the county's JCCP has been developed in accordance with the Statewide Planning Goals adopted by the Oregon Department of Land Conservation and Development (DLCD). These Statewide Planning Goals provide basic planning direction and establish the framework for planning programs of all governmental agencies and bodies in the state and county. The JCCP addresses each of the 14 applicable Statewide Planning Goals, as well as local goals, and contains policies and implementation strategies aimed at compliance with these goals.

The “Natural and Historic Resources” section of the JCCP is based on Statewide Planning Goal 5, with the stated goals to preserve and conserve valued open-space lands; to protect and maintain existing and establish new, historic, scenic and wildlife areas; and ensure the wise uses of natural resources.

### **Local and Regional Programs Specific to Vernal Pool Wetlands**

#### ***Jackson County Wetland Conservation Plan***

Jackson County is working to develop a Wetland Conservation Plan (WCP) consistent with Statewide Planning Goal 5 to integrate state wetland regulations with land use planning in the Agate Desert area. The WCP will include an inventory of all wetlands, an assessment of

---

their qualities, allocation of parcels into protection or development categories, and implementation mechanisms via county land use ordinances.

### ***Regional Mitigation and Conservation Strategy for Agate Desert Vernal Pool Wetlands***

The ODSL, USACE, USFWS, and U.S. Environmental Protection Agency (USEPA) propose to establish guidelines and standards intended to improve conservation of vernal pool habitat complexes and associated plant and animal species in the Agate Desert area of Jackson County, Oregon. These guidelines will streamline regulatory requirements of Oregon's Removal/Fill Law, and the federal Clean Water Act (CWA) and ESA to provide greater certainty for permit applicants whose actions impact these resources (ODSL et al. 2007).

### **State Regulations**

This section contains a description of the state of Oregon's regulations regarding the protection and management of wetlands, including vernal pool wetlands, critical habitats/areas, and endangered species. Two state agencies have leading roles in integrated planning for and regulation of wetland resources: the ODSL and DLCD. Local governments in Oregon are required by the statewide planning program to adopt comprehensive plans and implementing ordinances consistent with Statewide Planning Goals.

### ***Oregon Department of State Lands: Wetland Removal/Fill Law***

The state of Oregon's Removal/Fill Law (Oregon Revised Statute [ORS] 196.795-990) requires anyone who plans to remove or fill material in waters of the state to obtain a permit from the ODSL.

The purpose of the law, enacted in 1967, is to protect public navigation, fishery, and recreational uses of the waters. "Waters of the state" are defined as "natural waterways including all tidal and nontidal bays, intermittent streams, constantly flowing streams, lakes, wetlands and other bodies of water in this state, navigable and nonnavigable, including that portion of the Pacific Ocean that is in the boundaries of this state." The law applies to all landowners, whether private individuals or public agencies.

---

## ***Department of Land Conservation and Development: Statewide Planning Goals 5 and 6***

**Goal 5.** Goal 5 explicitly addresses protection of wetlands and other natural resources. This goal sets out specific procedures for wetland planning in the form of administrative rules. These rules provide three options for satisfying wetland planning requirements, the most intensive and integrative of which is called a Wetland Conservation Plan (WCP; ODSL and DLCD, 2004). Procedures to complete a WCP are guided by the ORS and Administrative Rules (OARs; ORS 196.678 et. seq; OAR 141-86-005, 141-120-000). While requiring the most amount of effort compared to other wetland planning options, the WCP's comprehensive results achieve the highest level of certainty to serve both development and conservation interests within a planning area.

The City's Environmental Element is primarily guided by the provisions set forth in Statewide Planning Goal 5, which outline policies and objectives for local land use planning to better protect and restore natural resources. Goal 5 is a broad Statewide Planning Goal that covers over a dozen resources, including riparian corridors, wetlands, wildlife and fish habitat, mineral and aggregate resources, energy sources, natural areas, scenic views and sites, open space, ground water resources, wilderness areas, historic resources, cultural areas, adopted Oregon recreation trails, and federal wild and scenic waterways. The objective of Goal 5 is "to protect natural resources, and conserve scenic and historic areas and open spaces." Its provisions provide a framework for local land use regulation, particularly in growing urban areas such as Medford.

Goal 5 requirements are contained in the OAR 660, divisions 16 and 23. Recent (1996) revisions to these OARs call for reform of the conservation efforts of the resources originally covered by Goal 5, with an increased emphasis on the protection of three specific resources: wetlands, riparian areas, and wildlife habitat. The means to achieve the objectives of Goal 5 must be set forth in the City's land use guiding documents: the Comprehensive Plan and LDC.

To comply with Goal 5, a plan or course of action that prohibits, limits, or allows uses that may adversely affect a significant Goal 5 resource must be adopted as part of the Comprehensive Plan and LDC. These actions may include zoning standards, easement

---

requirements, clustered development, preferential assessments, or public acquisition of land, or development rights.

**Goal 6.** Goal 6 focuses on maintaining and improving the quality of the air, water, and land uses of the state. All waste and process discharges from future development, when combined with such discharges from existing developments, shall not threaten to violate or violate applicable state or federal environmental quality statutes, rules, and standards. With respect to the air, water, and land resources of the applicable air sheds and river basins described or included in state environmental quality statutes, rules, standards, and implementation plans, such discharges shall not: 1) exceed the carrying capacity of such resources, considering long range needs; 2) degrade such resources; or 3) threaten the availability of such resources.

Goal 6 requirements are contained in the OAR 660, Division 15. To comply with Goal 6, a management program that details the respective implementation roles and responsibilities for carrying out this goal in the planning area should be established in the Comprehensive Plan. Additionally, programs should manage land conservation and development activities in a manner that accurately reflects the community's desires for a quality environment and a healthy economy and is consistent with state environmental quality statutes, rules, standards, and implementation plans.

***Oregon State Endangered Species Programs (Oregon Department of Fish and Wildlife, Oregon Department of Agriculture, and Oregon Natural Heritage Program)***

The state of Oregon and the federal government maintain separate lists of threatened and endangered species. In 1987, the Oregon Legislature passed an ESA that gave ODA the responsibility and jurisdiction over threatened and endangered plants and reaffirmed ODFW's responsibility for threatened and endangered fish and wildlife. Both of these agencies have entered into cooperative agreements with the USFWS for the purpose of carrying out research and conservation programs for animal and plant species under the federal ESA. ONHP has a similar agreement with the USFWS for invertebrates.

Under state law (ORS 496.171-496.192), the Fish and Wildlife Commission through ODFW maintains the list of native wildlife species in Oregon that have been determined to be either "threatened" or "endangered" according to criteria set forth by rule (OAR 635-100-0105).

---

Additionally, to provide a positive, proactive approach to species conservation, a “sensitive” species classification was created under Oregon’s Sensitive Species Rule (OAR 635-100-040). The sensitive species list focuses fish and wildlife management and research activities on species that need conservation attention. As previously mentioned, plant listings are handled through ODA, while most invertebrate listings are handled through ONHP.

State-listed species would need to be considered (if present) when completing development activities on Airport property.

## **Federal Regulations**

### ***Clean Water Act (Section 404 Discharge of Fill Material in Wetland)***

Section 404 of the CWA establishes a requirement to obtain a permit from the USACE prior to initiating any activity that involves discharge of dredged or fill material into “waters of the United States,” including wetlands. Waters of the United States include navigable waters of the United States, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Wetlands are defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Jurisdictional wetlands must meet three wetland delineation criteria: hydrophytic vegetation, hydric soil types, and wetland hydrology. Pursuant to Section 404 of the CWA, the USACE regulates and issues permits for activities that involve the discharge of dredged or fill materials into waters of the United States.

### ***Endangered Species Act (U.S. Fish and Wildlife Service and National Marine Fisheries Service)***

Pursuant to the federal ESA, the USFWS and NMFS Fisheries divisions have authority over projects that may result in the “take” of federally listed species or the destruction or adverse modification of critical habitat. Under the ESA, the definition of take is to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The USFWS has also interpreted the definition of “harm” to include significant habitat modification that could result in take. If a project has a reasonable likelihood to

---

result in take of a federally listed species, either one of two take approvals is required: 1) an incidental take permit, under Section 10(a) of the ESA (if no other federal action is involved), or 2) a federal interagency consultation and Biological Opinion, under Section 7 of the ESA (if another federal approval is needed).

Generally, Section 7(a)(2) of the ESA requires every federal agency to “insure that any action authorized, funded or carried out by such agency...is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification” of that species’ critical habitat. Federal agencies carry out this obligation by “consulting” with either the USFWS or NMFS. Informal consultation is an optional process that involves discussions and correspondence between NMFS and the action agency. Informal consultation is designed to assist the action agency in determining whether formal consultation is required. Informal consultation may include those federal activities that may have “beneficial, discountable, or insignificant effects upon listed species or their critical habitat...”. If these types of activities are identified, NMFS issues a “not likely to adversely affect” opinion, which exempts the activity from potential jeopardy violations and eliminates the need to undertake formal consultation (50 Code of Federal Regulations [CFR] Section 402.13).

Formal consultation is required when an agency’s proposed action may affect a listed threatened or endangered species or its habitat (50 CFR Section 402.14). Consultation commences with the action agency’s written request for consultation and concludes with NMFS’ issuance of a Biological Opinion that states whether the proposed action is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of its critical habitat. The first step in the formal consultation process is to determine whether any listed species or designated critical habitat may be present in the proposed action area. If there is a species or proposed critical habitat present, then it is the action agency’s responsibility to develop a Biological Assessment that analyzes the effects of the proposed action on the species and its habitat based upon the best scientific and commercial data available during consultation (50 CFR Section 402.12).

Designated critical habitat for Cook’s lomatium is present at the Airport property, and there may be listed salmon species present in Lone Pine Creek, which will need to be considered when planning development at the site. Additionally, other federally listed species (if

---

known to be present) would need to be considered when completing development activities on Airport property.

### ***Migratory Bird Treaty Act (U.S. Fish and Wildlife Service)***

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, implements a series of treaties that provide international migratory bird protection and authorize the Secretary of the Interior to regulate the taking of migratory birds. The MBTA states it shall be unlawful, except as permitted by regulations “to pursue, take, or kill... any migratory bird, or any part, nest or egg of any such bird, included in the terms of conventions” with certain other countries (16 United States Code [USC] 703). The current list of species protected by the MBTA contains several hundred species and essentially includes all native birds. A Section 10(a) permit issued under the ESA may constitute a special purpose permit for the take of a listed species that is also covered by the MBTA.

Any migratory bird species that may be present on Airport property would need to be considered when completing development activities at the site.

## **VEGETATION SURVEY ON AIRPORT PROPERTY**

Anchor QEA biologists performed a vegetation survey of the Airport property in May 2010 to identify and assess vegetation communities. Vegetation data was collected during the survey to map the Airport property vegetation community and provide a site-specific vegetation inventory. Specific information collected included identifying the presence and/or potential presence of the two federally listed threatened and endangered plant species protected under the ESA, as previously described.

### **Methods**

Two Anchor QEA biologists performed the May 2010 vegetation survey of the Airport property, an approximately 400-acre undeveloped area. Prior to field work, Anchor QEA obtained existing information to assist in the investigation, such as ESA data from the USFWS and other agencies, aerial photograph color imagery, and hard copy USFWS National Wetland Inventory (NWI) maps of the Airport property. This information was used during the field survey as part of the ESA analysis. Delineations of wetland boundaries were not included in the May 2010 vegetation survey.

---

To identify and assess vegetation species and habitats within the approximately 400-acre undeveloped area of the Airport property, the survey area was divided into 29 survey segments, typically defined by access roads or other developed features. The survey segments are shown on Figure 3. Anchor QEA biologists walked the entire survey area and identified the presence of plant species within each specific survey segment. In addition, the occurrence of each identified plant species was further categorized as dominant, common, or few within each survey segment.

## Results

The majority of the 400-acre survey area included managed grassland habitat (mowing, etc. to discourage wildlife use) within the Airport fence-line. Even under these conditions, 69 grass and herbaceous species were identified during the survey. A list of all plant species observed within each of the 29 specific survey segments is shown in Table 5.

Of the two ESA-listed plant species associated with vernal pool habitat, large-flowered woolly meadowfoam was not observed during the survey. Cook's lomatium was identified as common within four of the survey segments (Segments 1, 10, 20, and 22), as identified on Figure 3. Another lomatium species, foothills desert parsley (*Lomatium utriculatum*), which is not federally protected but is very similar in appearance to the Cook's lomatium, was observed in 26 of the 29 survey segments. Distinguishing between the two lomatium species requires observing the shape of the involucre bracts beneath the flowers.

Overall, the presence of Cook's lomatium was limited to specific areas of the Airport property with low depressions likely associated with vernal pool habitat. Wetland delineations were not performed as part of the vegetation survey, and at the time of the survey, no inundated areas were present at the Airport to identify potential vernal pool areas. In general, foothills desert parsley was present in locations throughout the survey area, including very disturbed portions of the site such as the grass medians between the runways.

---

## REFERENCES

- ADTAC (Agate Desert Technical Advisory Committee), 2007. *Agate Desert Vernal Pool Final Draft Functional Assessment Methodology*. April 2007.
- Bauder, E.T., 2005. The effects of an unpredictable precipitation regime on vernal pool hydrology. *Freshwater Biology* 50: 2129-2135.
- City of Medford, 2011. Municipal Code. Available from:  
<http://www.ci.medford.or.us/Code.asp?CodeID=0>. Accessed on February 22, 2011.
- City of Medford, 2003. *Comprehensive Plan: Environmental Element*. Prepared by the City of Medford Planning Department. Revised April 17, 2003.
- Eng, L., D. Belk, and C. Eriksen, 1990. Californian Anostraca: Distribution, Habitat, and Status. *Journal of Crustacean Biology* 10:247-277.
- Eriksen, C. and D. Belk, 1999. *Fairy shrimps of California's pools, puddles, and playas*. Mad River Press, Eureka, California.
- Gallagher, S.P., 1996. Seasonal occurrences and habitat characteristics of some vernal pool Branchiopoda in northern California, USA. *Journal of Crustacean Biology* 16: 323-329.
- Jackson County, 2006. Jackson County Comprehensive Plan. Available from:  
<http://www.co.jackson.or.us/Page.asp?NavID=2611>. Accessed on February 22, 2011.
- Kagan, J.S., 1986. A new species of Lomatium (Apiaceae) from southwestern Oregon. *Madro'o*. 33: 71-75
- ODFW (Oregon Department of Fish and Wildlife), 2011. Oregon Department of Fish and Wildlife Office website. Available from:  
<http://www.fws.gov/oregonfwo/FieldOffices/Roseburg/VernalPools/>. Accessed February 22, 2011.
- ODSL, USACE, USFWS, and USEPA (Oregon Department of State Lands, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and U.S. Environmental Protection Agency), 2007. *Regional Mitigation and Conservation Strategy for Agate Desert Vernal Pool Wetlands Habitat and Species*. June 13, 2007.
-

Oregon Wetlands Cover, 2009. Oregon Wetlands Cover, version 20091030, originated by Oregon Natural Heritage Information Center and the Wetlands Conservancy. October 30, 2009.

USFWS (U.S. Fish and Wildlife Service), 1994. Federal Register Final Rule: determination of endangered status for the conservancy fairy shrimp, longhorn fairy shrimp, and the vernal pool tadpole shrimp and threatened status for the vernal pool fairy shrimp. September 19, 1994.

USFWS, 2000a. Endangered Species Bulletin. 25, 4.

USFWS, 2000b. Proposed Endangered Status for the Plants *Lomatium cookii* (Cook's lomatium) and *Limnanthes floccosa ssp. grandiflora* (Large-Flowered Woolly Meadowfoam) in Oregon. Federal Register. 65, 94: 30941-30951.

USFWS, 2006. *Draft Recovery Plan for Listed Species of the Rogue Valley Vernal Pool and Illinois Valley Wet Meadow Ecosystem*. Region 1 USFWS. June 2006.

Wille, S.A. and R.R. Petersen, 2006. Vernal pool conservation in the Agate Desert, near Medford, Oregon. *Verh. Internat. Verein. Limnol.* Volume 29, Lahti, Finland. October 2006.

---

# TABLES

---

Table 1

## USFWS and NMFS Federally Endangered or Threatened Species Potentially Present in Jackson County, Oregon

Common Name	Scientific Name	Status
<b>Listed Species</b>		
<b>Birds<sup>1</sup></b>		
Northern spotted owl	<i>Strix occidentalis caurina</i>	CH T
<b>Invertebrates<sup>1</sup></b>		
<b>Crustaceans</b>		
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	CH T
<b>Plants<sup>1</sup></b>		
Gentner's fritillary	<i>Fritillaria gentneri</i>	E
Large-flowered woolly meadowfoam	<i>Limnanthes floccosa ssp. Grandiflora</i>	CH E
Cook's lomatium	<i>Lomatium cookii</i>	CH E
Kincaid's lupine	<i>Lupinus sulphureous ssp. Kincaidii</i>	CH T
<b>Anadromous Fish<sup>2</sup></b>		
Steelhead (Kalamath Mountains Province ESU)	<i>Oncorhynchus mykiss</i>	T
Chinook (Southern Oregon and Northern California Coastal ESU)	<i>Oncorhynchus tshawytscha</i>	T
Coho (Southern Oregon/Northern California Coasts ESU)	<i>Oncorhynchus kisutch</i>	T
<b>Proposed Species<sup>1</sup></b>		
None		
<b>Candidate Species<sup>1</sup></b>		
<b>Mammals</b>		
<b>Terrestrial:</b>		
Fisher	<i>Martes pennanti</i>	
North American wolverine	<i>Gulo gulo luscus</i>	
<b>Invertebrates</b>		
<b>Insects:</b>		
Mardon skipper	<i>Polites mardon</i>	
<b>Plants</b>		
Siskiyou mariposa lily	<i>Calochortus persistens</i>	
<b>Species of Concern<sup>1</sup></b>		
<b>Mammals</b>		
Pallid bat	<i>Antrozous pallidus pacificus</i>	
Red tree vole	<i>Arborimus longicaudus</i>	
Townsend's western big-eared bat	<i>Corynorhinus townsendii townsendii</i>	
Silver-haired bat	<i>Lasioncycteris noctovigans</i>	
Long-eared myotis bat	<i>Myotis evotis</i>	
Fringed myotis bat	<i>Myotis thysanodes</i>	
Long-legged myotis bat	<i>Myotis volans</i>	
Yuma myotis bat	<i>Myotis yumanensis</i>	
<b>Birds</b>		
Northern goshawk	<i>Accipiter gentilis</i>	
Tricolored blackbird	<i>Agelaius tricolor</i>	
Western burrowing owl	<i>Athene cunicularia hypugaea</i>	
Olive-sided flycatcher	<i>Contopus cooperi</i>	
Yellow-breasted chat	<i>Icteria virens</i>	
Acorn woodpecker	<i>Melanerpes formicivorus</i>	
Lewis' woodpecker	<i>Melanerpes lewis</i>	
Mountain quail	<i>Oreotyx pictus</i>	
Band-tailed pigeon	<i>Patagioenas fasciata</i>	
White-headed woodpecker	<i>Plcoides albolarvatus</i>	
Oregon vesper sparrow	<i>Poocetes gramineus affinis</i>	
Purple martin	<i>Progne subis</i>	
<b>Reptiles and Amphibians</b>		
Northern Pacific pond turtle	<i>Actinemys marmorata marmorata</i>	
Coastal tailed frog	<i>Ascaphus truei</i>	
Common kingsnake	<i>Lampropeltis getula</i>	

Table 1

## USFWS and NMFS Federally Endangered or Threatened Species Potentially Present in Jackson County, Oregon

Common Name	Scientific Name	Status
California mountain kingsnake	<i>Lampropeltis zonata</i>	
Del Norte salamander	<i>Plethodon elongatus</i>	
Siskiyou Mountains salamander	<i>Plethodon stormi</i>	
Northern red-legged frog	<i>Rana aurora aurora</i>	
Foothill yellow-legged frog	<i>Rana boylei</i>	
Cascades frog	<i>Rana cascadae</i>	
<b>Fish</b>		
Jenny Creek Sucker	<i>Catostomus rimiculus ssp.</i>	
Pacific lamprey	<i>Lampetra tridentata</i>	
Coastal cutthroat trout	<i>Oncorhynchus clarki spp</i>	
<b>Invertebrates</b>		
<b>Insects:</b>		
Denning's agapetus caddisfly	<i>Agapetus denningi</i>	
Franklin's bumblebee	<i>Bombus franklini</i>	
Siskiyou chloealtis grasshopper	<i>Choealtis aspasma</i>	
Green Springs Mountain farulan caddisfly	<i>Farula davisii</i>	
Sagehen Creek goeracean caddisfly	<i>Goeracea oregona</i>	
Schuh's homoplectran caddisfly	<i>Homoplectra schuhi</i>	
Siskiyou carabid beetle	<i>Nebria gebleri siskiyouensis</i>	
<b>Plants</b>		
Rogue canyon rock cress	<i>Arabis modesta</i>	
Crater Lake rock-cress	<i>Arabis suffrutescens var. horixontalis</i>	
Greene's mariposa lily	<i>Calochortus greenei</i>	
Broat-fruit mariposa lily	<i>Calochortus netidus</i>	
Umpqua mariposa-lily	<i>Calochortus umpquaensis</i>	
Howell's camassia	<i>Camassia howellii</i>	
Baker's cypress	<i>Cupressa bakeri</i>	
Clustered lady's-slipper	<i>Cypridium fasciculatum</i>	
Siskiyou willow-herb	<i>Epilobium siskiyouense</i>	
Wayside aster	<i>Eucephalus vialis</i>	
Henderson's horkelia	<i>Horkelia hendersonii</i>	
Bellinger's meadowfoam	<i>Limnanthes floccosa ssp. Bellingerana</i>	
Dwarf wooly meadowfoam	<i>Limnanthes floccosa spp. Pumila</i>	
Mt. Ashland lupine	<i>Lupinus aridus spp. Ashlandensis</i>	
White meconella	<i>Meconella oregana</i>	
Detling's microseris	<i>Microseris laciniata ssp. Detlingii</i>	
Red-root yampah	<i>Perideridia erythrorhiza</i>	
Coral seeded allocarya	<i>Plagiobothrys figuratus var. carollicarpus</i>	
Howell's tauschia	<i>Tauschia howellii</i>	
Small-flowered deathcamas	<i>Zigadenus fontanus</i>	

## Notes:

1 US Fish and Wildlife Service, Oregon Fish and Wildlife Office. Last Updated February 12, 2011 (1:42:28 PM).

2 <http://www.nmfs.noaa.gov/pr/species/esa/fish.htm>. accessed 2/23/2011.

## Key

E = endangered

T = threatened

CH = Critical Habitat has been designated for this species

**Table 2**  
**ODFW Threatened, Endangered, and Candidate Fish and Wildlife Species**

Common Name	Scientific Name	State Status	Federal Status
<b>FISH</b>			
Borax Lake chub	<i>Gila boraxobius</i>	E	E
Bull trout (range-wide)	<i>Salvelinus confluentus</i>		T
Columbia River chum salmon	<i>Oncorhynchus keta</i>		T
Foskett speckled dace	<i>Rhinichthys osculus ssp</i>	T	T
Green sturgeon (southern DPS)	<i>Acipenser medirostris</i>		T
Hutton spring tui chub	<i>Gila bicolor ssp.</i>	T	T
Lahontan cutthroat trout	<i>Oncorhynchus clarki henshawi</i>	T	T
Lost River sucker	<i>Deltistes luxatus</i>	E	E
Lower Columbia River Chinook salmon	<i>Oncorhynchus tshawytscha</i>		T
Lower Columbia River coho	<i>Salmon Oncorhynchus kisutch</i>	E	T
Lower Columbia River steelhead	<i>Oncorhynchus mykiss</i>		T
Middle Columbia River steelhead	<i>Oncorhynchus mykiss</i>		T
Modoc sucker	<i>Catostomus microps E</i>		E
Oregon chub	<i>Oregonichthys crameri</i>		T
Oregon coast coho salmon	<i>Oncorhynchus kisutch</i>		T
Pacific sulachon/smelt (southern DPS)	<i>Thaleichthys pacificus</i>		T
Shortnose sucker	<i>Chasmistes brevirostris</i>	E	E
Snake River Chinook salmon	<i>(Fall) Oncorhynchus tshawytscha</i>	T	T
Snake River Chinook salmon (spring/summer)	<i>Oncorhynchus tshawytscha</i>	T	T
Snake River sockeye salmon	<i>Oncorhynchus nerka</i>		E
Snake River steelhead	<i>Oncorhynchus mykiss</i>		T
Southern Oregon coho salmon	<i>Oncorhynchus kisutch</i>		T
Upper Columbia River spring Chinook salmon	<i>Oncorhynchus tshawytscha</i>		E
Upper Columbia River steelhead	<i>Oncorhynchus mykiss</i>		E
Upper Willamette River Chinook salmon	<i>Oncorhynchus tshawytscha</i>		T
Upper Willamette River steelhead	<i>Oncorhynchus mykiss</i>		T
Warner sucker	<i>Catostomus warnerensis</i>	T	T
<b>AMPHIBIANS AND REPTILES</b>			
Columbia spotted frog	<i>Rana luteiventris</i>		C
Green sea turtle	<i>Chelonia mydas</i>	E	E
Leatherback sea turtle	<i>Dermochelys coriacea</i>	E	E
Loggerhead sea turtle	<i>Caretta caretta</i>	T	T
Oregon spotted frog	<i>Rana pretiosa</i>		C
Pacific ridley sea turtle	<i>Lepidochelys olivacea</i>	T	T
<b>BIRDS</b>			
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	
Brown pelican	<i>Pelecanus occidentalis</i>	E	E
California least tern	<i>Sterna antillarum browni</i>	E	E
Marbled murrelet	<i>Brachyramphus marmoratus</i>	T	T
Northern spotted owl	<i>Strix occidentalis caurina</i>	T	T
Short-tailed albatross	<i>Diomedea albatrus</i>	E	E
Streaked horned lark	<i>Eremophila alpestris strigata</i>		C
Western anowy plover	<i>Charadrius alexandrinus nivosus</i>	T	T (Coastal population only)
Yellow-billed cuckoo	<i>Coccyzus americanus</i>		C
<b>MAMMALS</b>			
Blue whale	<i>Balaenoptera musculus</i>	E	E
Columbian white-tailed deer (Lower Columbia River population only)	<i>Odocoileus virginianus leucurus</i>		E
Fin whale	<i>Balaenoptera physalus</i>	E	E
Fisher marten	<i>pennanti C</i>		C
Gray whale	<i>Eschrichtius robustus</i>	E	
Gray wolf	<i>Canis lupus</i>	E	E
Humpback whale	<i>Megaptera novaeangliae</i>	E	E
Kit fox	<i>Vulpes macrotis</i>	T	
North Pacific right whale	<i>Eubalaena japonica</i>	E	E

**Table 2**  
**ODFW Threatened, Endangered, and Candidate Fish and Wildlife Species**

<b>Common Name</b>	<b>Scientific Name</b>	<b>State Status</b>	<b>Federal Status</b>
Northern (Steller) sea lion	<i>Eumetopias jubatus</i>		T
Sea otter	<i>Enhydra lutris</i>	T	T
Sei whale	<i>Balaenoptera borealis</i>	E	E
Sperm whale	<i>Physeter macrocephalus</i>	E	E
Washington ground squirrel	<i>Spermophilus washingtoni</i>	E	
Wolverine gulo gulo	<i>Gulo gulo</i>	T	

Notes:

T = threatened

E = endangered

C = candidate

DPS = Distinct Population Segment

Table created from Oregon Department of Fish and Wildlife (ODFW).

**Table 3**

**ODA Threatened and Endangered Plant Species that Occur or Have Occurred in Jackson County**

<b>Common Name</b>	<b>Scientific Name</b>
Wayside aster	<i>Aster vialis</i>
Umqua mariposa lily	<i>Calochortus umpquaensis</i>
Gentner's fritillary	<i>Fritillaria gentneri</i>
Big-flowered wooly meadowfoam	<i>Limnanthes floccosa ssp. Grandiflora</i>
Dwarf wooly meadowfoam	<i>Limnanthes floccosa ssp. Pumila</i>
Cook's lomatium	<i>Lomatium cookii</i>

Notes:

Oregon Department of Agriculture, Plant Conservation Oregon. Jackson County.

**Table 4**  
**ONHP Threatened and Endangered Invertebrates**

Scientific Name	Common Name	Natural Heritage Rank	State Rank	Federal Status
<i>Acalypta cooleyi</i>	Cooley's lace bug	G2	S2	
<i>Agapetus denningi</i>	Denning's agapetus caddisfly	GH	S1	SOC
<i>Bombus franklini</i>	Franklin's bumblebee	G1	S1	SOC
<i>Bombus occidentalis</i>	Western bumblebee	GU	S1S2	
<i>Boreostolus americanus</i>	American unique-headed bug	G2	S2?	
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp	G3	S2S3	LT
<i>Callophrys johnsoni</i>	Johnson's hairstreak (butterfly)	G3G4	S2	
<i>Chloelalis aspasma</i>	Siskiyou short-horned grasshopper	G1	S1	SOC
<i>Dendrocoris arizonensis</i>	Arizona stink bug	G4	S2	
<i>Deroceras hesperium</i>	Evening fieldslug	G2	S1	
<i>Dumontia oregonensis</i>	A water flea	G1G3	S1	
<i>Farula davisii</i>	Green Springs Mountain farulan caddisfly	GH	SH	SOC
<i>Fluminicola sp. nov.</i>	Keene Creek pebblesnail	G1	S1	
<i>Fluminicola sp. nov.</i>	Nerite pebblesnail	G1	S1	
<i>Fluminicola sp. nov.</i>	Toothed pebblesnail	G1	S1	
<i>Fluminicola sp. nov.</i>	Diminutive pebblesnail	G1	S1	
<i>Fluminicola sp. nov.</i>	Fall Creek pebblesnail	G1	S1	
<i>Goeracea oregona</i>	Sagehen Creek goeracean caddisfly	G3	SNR	SOC
<i>Helminthoglypta hertleini</i>	Oregon shoulderband (snail)	G1	S1	
<i>Homoplectra schuhi</i>	Schuh's homoplectran caddisfly	G3Q	S3	SOC
<i>Isocapnia mogila</i>	Irregular stonefly	G1	SH	
<i>Juga acutifilosa</i>	Scalloped juga (snail)	G2	S1	
<i>Juga sp. nov.</i>	Brown juga (snail)	G1	S1	
<i>Juga sp. nov.</i>	Shasta juga	G4	S4?	
<i>Lanx alta</i>	Highcap lanx (snail)	G2	S1	
<i>Monadenia chaceana</i>	Chace sideband (snail)	G2	S1S2	
<i>Monadenia fidelis celeuthia</i>	Traveling sideband (snail)	G4G5T1	S1	
<i>Moselyana comosa</i>	A caddisfly	G3	S3	
<i>Namamyia plutonis</i>	A caddisfly	G3	S3	
<i>Nebria gebleri siskiyouensis</i>	Siskiyou gazelle beetle	G4G5T4	S4	SOC
<i>Plebejus podarce klamathensis</i>	Gray blue	G3G4T3	S2	
<i>Polites mardon</i>	Mardon skipper (butterfly)	G2G3	S2	C
<i>Pomatiopsis binneyi</i>	Robust walker	G1	S1	
<i>Pristiloma arcticum crateris</i>	Crater Lake tightcoil (snail)	G3G4T3	S1	
<i>Prophysaon sp. nov.</i>	Klamath tail-dropper	G2	S1S2	
<i>Rhyacophila leechi</i>	A caddisfly	G3	S3	
<i>Speyeria coronis coronis</i>	Coronis fritillary (butterfly)	G5T3T4	S1	
<i>Vertigo dalliana</i>	Horseshoe vertigo	G1	S1	
<i>Vespericola sierranus</i>	Siskiyou hesperian (snail)	G2	S1	
<i>Vespericola sp. nov.</i>	Oak Springs hesperian (snail)	G1	S1	

Notes:

Oregon Natural Heritage Program (ONHP), 2010 Rare, Threatened and Endangered Invertebrates

Codes:

Federal Status Key:

SOC = Species of Concern

LT = Listed as a Threatened Species

C = Candidate Species

Natural Heritage and State Ranks Key:

G1 = Critically imperiled throughout its range

S5 = Widespread abundant and secure in Oregon

G2 = Imperiled throughout its range

T = Rank for a subspecies variety

G3 = Rare threatened or uncommon throughout its range

Q = Taxonomic questions

G4 = Not rare apparently secure throughout its range

H = Historic formerly part of the native biota with the implied expectation that it may be rediscovered

G5 = Widespread abundant and secure throughout its range

X = Presumed extirpated or extinct

S1 = Critically imperiled in Oregon

U = Unknown rank

S2 = Imperiled in Oregon

? = Not yet ranked

S3 = Rare threatened or uncommon in Oregon

B = Rank of the breeding population (migratory birds)

S4 = Not rare apparently secure in Oregon

N = Rank of the wintering population (migratory birds)



**Table 5**  
**May 2010 Plant Survey Summary**

Scientific Name	Common Name	Wetland Indicator Status	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
<i>Medicago polymorpha</i>	California burclover	NI	C		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		C		C	C	F	C	C		
<i>Orthocarpus erianthus</i>	Butter and eggs	NI	F		F		F					F			F	C		F	F	C	C									C		
<i>Phalaris arundinacea</i>	Reed canarygrass	FACW																				F							F	F		
<i>Phleum pratense</i>	Timothy grass	FAC						F		C					F							F		F								
<i>Plagiobothrys figuratus</i>	Fragrant popcorn flower	FACW	C	C	C	C	C	C	C	C	C	D	C	F	C	C	C	C	C	C	C	D	D	C	C	D	D	C				
<i>Plagiobothrys nothofulvus</i>	Rusty popcorn flower	FAC	F	F						F			F		F	F	F	F	F		F	C		C		C	C	C	F	C		
<i>Plantago lanceolata</i>	English plantain	FAC	C	F		C	F	C	C	C	C	C	C	D	D	C	C	C	C	D	C	C	C		C	C	D	D	D	F	C	
<i>Poa bulbosa</i>	Bulbous bluegrass	NI	D	D	D	D	D	C	C	C	C	D	C	C	C	D	D	D	D	D	D	D	C	D	D	D	D	D	D	D	C	
<i>Ranunculus occidentalis</i>	Western buttercup	FAC							C	C	F		C	C	C		F					C		C								
<i>Rubus armeniacus</i>	Himalayan blackberry	FACU											F														F					
<i>Rumex crispus</i>	Curly dock	FAC	F	F		F		F		F		F	F		F	F				F	F			C				F	C			
<i>Salsola kali</i>	Russian thistle	UPL										F	F		F	F	F	F	F		F	F	F	F			F	F	F		F	
<i>Saxifraga integrifolia</i>	Northwestern saxifrage	NI	F							F		F	F	F								F		F		F						
<i>Schoenoplectus pungens</i>	Common threesquare	OBL																							F		F	F		F		
<i>Scirpus acutus</i>	Hardstem bulrush	OBL									F																					
<i>Sisyrinchium inflatum</i>	Blue-eyed grass	NI				C		F			F				F		F					F										
<i>Taeniatherum capute-medusae</i>	Medusahead	NI								F	F		C	D	D		C						C		D		C	D	D	D	C	
<i>Thysanocarpus curvipes</i>	Fringepod	NI	F									F												F			F					
<i>Tragopogon dubius</i>	Yellow salsify	NI	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		F	F	F	C	F	C			
<i>Tragopogon salsify</i>	Common salsify	NI																						F					F			
<i>Trifolium depauperatum</i>	Poverty clover	NI			F							F				C	D	F														
<i>Trifolium willdenovii</i>	Tomcat clover	NI	C			F		C		C	C	C	C		C	D	D	D	C	C	C			C	C	D	D	D	D	D		
<i>Typha latifolia</i>	Cattail	OBL									F		F																	F		
<i>Veronica persica</i>	Persian speedwell	NI				F											F										F		F			
<i>Vicia americana</i>	American vetch	FAC	D	C	C	D	C	C		C	D	D	D	D	D	D	D					D		D	D	D	D		D	C		
<i>Zigadenus venenosus</i>	Meadow deathcamus	FAC	C	C				F	D	C	C	C	C	F	F	F	F		F	F	F	F	F							F		

Notes:

F = Few

C = Common

D = Dominant

Wetland Indicator Status

These categories, referred to as the "wetland indicator status" (from the wettest to driest habitats), are as follows:

Obligate wetland plants (OBL): Vegetative species that occur almost always in wetlands (Estimated probability greater than 99 percent)

Facultative wetland plants (FACW): Vegetative species that usually occur in wetlands (Estimated probability 67 to 99 percent)

Facultative plants (FAC): Vegetative species that are equally likely to occur in wetlands (Estimated probability 34 to 66 percent)

Facultative upland (FACU) plants: Vegetative species that usually occur in non-wetlands (Estimated probability 67 to 99 percent)

Obligate upland (UPL) plants: Vegetative species that occur almost always in non-wetlands (Estimated probability greater than 99 percent)

Not listed (NI): Species not listed and presumed to be upland species.

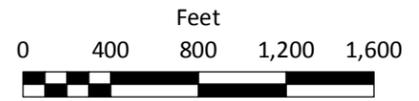
# FIGURES

---

C:\Jobs\100158-01\_Medford\_Airport\Maps\2011\_02\Medford OR Airport Plant Inventory and OR Wetlands.mxd sfox 3/1/2011 10:53:48 AM



Rogue Valley International-Medford Airport Property  
**Oregon Wetlands Cover**  
 Agate Desert Vernal Pool Planning TAC 2000  
 NWI, 1994. Photo Info: 07/82 NWIC, NWI-GX, CIR, Scale: 1:58K  
 Wetlands Consulting, 2002  
**NOTE:**  
 Wetlands Spatial Data Source: Oregon Wetlands Cover,  
 Version 20091030 (October 30, 2009)



**Figure 1**  
Past Identification of Wetland Habitat on Airport Property  
Rogue Valley International-Medford Airport  
Medford, Oregon

Q:\Jobs\100158-01\_Medford\_Airport\Maps\2011\_02\Medford OR Airport Cook's Lomatium Critical Habitat.mxd |stox 3/1/2011 1:34:09 PM



Legend:

- Rogue Valley International-Medford Airport Property
- Cook's Lomatium Critical Habitat
- Cook's Lomatium Critical Habitat on Airport Property (74.7 acres)

**NOTE:**  
Critical Habitat established by Federal Register 75: 42490-42570

Q:\Jobs\100158-01\_Medford\_Airport\Maps\2011\_02\Medford OR Airport Survey Segments.mxd - Isfox 3/1/2011 11:48:34 AM



**Figure 3**  
2010 Vegetation Survey Segments and Approximate Extent of Cook's Lomatium on Airport Property  
Rogue Valley International-Medford Airport  
Medford, Oregon

ATTACHMENT A  
ODFW SENSITIVE SPECIES LIST BY  
ECOREGION

---



## OREGON DEPARTMENT OF FISH AND WILDLIFE

### SENSITIVE SPECIES:

### Frequently Asked Questions and Sensitive Species List

*organized by category*

---

It is Oregon's policy "to prevent the serious depletion of any indigenous species" (ORS 496.012). The Oregon administrative rules for threatened and endangered species (OAR 635-100-0100 to 0130) are intended to help implement this policy. In accordance with these rules, species can be classified as "threatened" (any native species likely to become endangered within the foreseeable future throughout any significant part of its range within the state) or "endangered" (any native species determined to be in danger of extinction). However, recovering species when their populations are severely depleted can be difficult and expensive. In addition, designation of such species can be socially and economically divisive.

To provide a positive, proactive approach to species conservation, a "sensitive" species classification was created under Oregon's Sensitive Species Rule (OAR 635-100-040). The Sensitive Species List focuses fish and wildlife management and research activities on species that need conservation attention. Although the intent of the Sensitive Species List is to prevent species from declining to the point of qualifying as threatened or endangered, this list is not used as a "candidate" list for species to be considered for listing under the Oregon Threatened and Endangered Species rules.

#### **What is a Sensitive Species?**

"Sensitive" refers to naturally-reproducing fish and wildlife species, subspecies, or populations which are facing one or more threats to their populations and/or habitats. Implementation of appropriate conservation measures to address the threats may prevent them from declining to the point of qualifying for threatened or endangered status.

#### **What is the purpose of ODFW's Sensitive Species List?**

The Sensitive Species List serves as an early warning system for biologists, land managers, policy makers, and the public. It helps ensure that conservation actions are prioritized, cost-efficient, and effective.

#### **How is the Sensitive Species List used?**

ODFW uses the sensitive species designations primarily to encourage voluntary actions that will improve species status. Once threats to species are identified, conservation opportunities and strategies can be developed. These actions may include:

- partnering with land management agencies to maintain, improve or restore habitat;
- providing technical expertise, incentives and recognition to landowners who wish to provide wildlife habitat;
- creating cooperative agreements with assurances for private landowners who provide habitat;
- cooperatively incorporating species' needs into activities that could negatively affect species;
- conducting further research to identify threats and methods to address the threats;
- bringing together land managers, researchers, and other people to share information;
- monitoring populations to detect either positive or negative changes in populations; and
- educating people about what these species need to persist and what actions people can take to assist in species' conservation.

Although the Sensitive Species List is primarily a non-regulatory tool, it is referenced in ODFW's Chemical Process Mining Consolidated Application and Permit Review Standards (OAR 635 Division 420) and In-Water Blasting Permits (OAR 635 Division 425).

## **How does the Sensitive Species List relate to the Oregon Conservation Strategy and other species priority lists?**

The Oregon Conservation Strategy (<http://www.dfw.state.or.us/conservationstrategy/>) offers a blueprint for the long-term conservation of Oregon's native fish and wildlife and their habitats through a proactive, non-regulatory and statewide approach to conservation. The Conservation Strategy identifies priority issues, landscapes, habitats and species based on conservation needs and opportunities. The Sensitive Species List is, for the most part, an updated subset of species highlighted in the Conservation Strategy. The Sensitive Species List is focused on the species at greatest risk of further decline and/or becoming threatened or endangered if action is not taken. ODFW intends to merge the Sensitive Species List with the Conservation Strategy when the Conservation Strategy is updated.

Other agencies, the Oregon Natural Heritage Information Center and non-profit organizations also maintain priority species lists. Because each list has different goals and methods, the priorities can be different between lists. The Sensitive Species List reflects Oregon Department of Fish and Wildlife priorities for conserving the species most at-risk.

## **What factors are considered in designating a species as “Sensitive”?**

The factors considered for designating a species sensitive include: imminent or active deterioration of primary habitat; limited population numbers or survival due to parasites, disease, predation, contaminants, disturbance, or other natural or human-caused factors; over-utilization; and inadequate existing state or federal programs for management or conservation of species and/or primary habitats. These factors may also include impacts from invasive non-native species that threaten native species through hybridization, disease introductions, predation, competition, or habitat alteration.

## **How do species get added or removed from the Sensitive Species List?**

The Sensitive Species List is reviewed and updated every two years. Each taxonomic group of animals is reviewed by ODFW biologists and scientific experts from other agencies, universities and private organizations. The scientists are asked to consider new and historic information on species distribution, population trends, and biological needs; changes in threats; gaps in knowledge and data; recent conservation actions; and state and federal programs or regulations. The scientists may propose to remove, add, or re-classify species based on this information. The draft list is then peer-reviewed by state, federal, university, and consulting biologists. The Sensitive Species List is an administrative list and is not formally adopted through a rule-making process.

In addition, any person may request that a species be added to or removed from the Sensitive Species List through a written request that briefly outlines the status of the species and how its condition meets the criteria cited in OAR 635-100-0040(2).

## **What do the sub-categories “critical” and “vulnerable” mean?**

Sensitive Species are assigned to two subcategories. **“Critical”** sensitive species are imperiled with extirpation from a specific geographic area of the state because of small population sizes, habitat loss or degradation, and/or immediate threats. Critical species may decline to point of qualifying for threatened or endangered status if conservation actions are not taken. **“Vulnerable”** sensitive species are facing one or more threats to their populations and/or habitats. Vulnerable species are not currently imperiled with extirpation from a specific geographic area or the state but could become so with continued or increased threats to populations and/or habitats.

Previous versions of the Sensitive Species List had two additional categories, “Unknown” and “Peripheral or Naturally Rare.” These two categories were eliminated during the 2008 update to focus the Sensitive Species List on the species most at risk and to increase its utility as a conservation, monitoring and research tool.

## **What if there is not enough information to determine whether a species should be sensitive?**

The status of some species cannot be determined because there isn't basic information on distribution, habitat associations and abundance. This basic information is needed before population status or threats can be evaluated. The Conservation Strategy notes such species ("data gaps") for fish and wildlife. In addition, the ODFW website provides a list of fish species with information needs.

**What about species which just migrate through the state, barely reach Oregon, or are recent arrivals?**

With the exception of species at risk throughout their range, only species that reproduce in Oregon are considered. Breeding populations of migratory birds are considered separately from migrant or wintering populations. As a result, only breeding populations are designated for some birds that also occur as common migrants or winter residents. The Sensitive Species List does not include bird species that only winter in Oregon or migrate through the state.

Peripheral species which barely reach the state are not considered for inclusion on the Sensitive Species List unless they are considered threatened, endangered, sensitive, or of special concern in an adjoining state(s). Similarly, species that are naturally rare are not included unless there are known threats to their populations and/or habitats.

Priority is given to species which were known to occur historically in Oregon. Some species are expanding their range into Oregon but do not have long-term historical status as breeding species. If they establish permanent breeding populations, they may be considered for inclusion in the future. Non-native species, those that were accidentally or intentionally released into the state, are not included.

**What is the difference between "sensitive species" and "sensitive bird nesting, roosting and watering sites"?**

"Sensitive species" is a designation applied to species which are declining in numbers and are facing one or more threats to their populations and/or habitats. "Sensitive bird nesting, roosting, and watering sites" is a designation applied to sites. It is used by the Oregon Department of Forestry, ODFW and local jurisdictions to protect key sites that are used by wildlife and are prone to disturbances from human activity and habitat alterations.

**Why are subspecies and "Species Management Units" designated as "Sensitive Species?" Also, why are some species designated by geographic units like ecoregions or watersheds?**

For the purpose of the Sensitive Species List, "species" means any group or population of wildlife that interbreeds and is substantially reproductively isolated. This interpretation of the term "species" may include subspecies. Because factors affecting species survival or reproduction may differ across Oregon, species' status may be designated statewide or by geographic area; i.e., fish by Species Management Unit and terrestrial wildlife species by ecoregion.

Species that are otherwise doing well within most parts of their range within the state are not considered for designation on a smaller geographic area basis unless (1) there is historical evidence that they were present in significant numbers in that geographic area and (2) they are or potentially could be at risk of extirpation from that geographic area. Although designating species within an ecoregion may be based on local surveys, the basis is often a qualitative evaluation of populations and threats based on local expertise.

Terrestrial wildlife (amphibians, birds, mammals and reptiles) are considered by ecoregion (Figure 1). Ecoregions are portions of the state with similar climate and vegetation. The Oregon Department of Fish and Wildlife uses the Environmental Protection Agency's Level III Ecoregion map ([http://www.epa.gov/wed/pages/ecoregions/or\\_eco.htm](http://www.epa.gov/wed/pages/ecoregions/or_eco.htm)), but combines the Snake River Plain with the Northern Basin and Range. This ecoregional map is used by several other state agencies, including the Oregon Natural Heritage Information Center. If an ecoregion is not included for a species, the species is considered sensitive throughout its range in Oregon.

Where possible, fish species were designated by Species Management Unit (SMU). Native fish in Oregon are managed by SMU as directed by the Native Fish Conservation Policy (OAR 635-007-0502 to OAR 635-007-

0509). Species Management Units represent a collection of populations from a common geographic region that share similar genetic and ecological characteristics. During the development of the 2005 Native Fish Status Report, SMUs were identified for many species. Hydrologic units were used to define general distribution for both SMUs and species (Figure 2).

### **Why are species that are “threatened” or “endangered” under the federal Endangered Species Act included on the Sensitive Species List?**

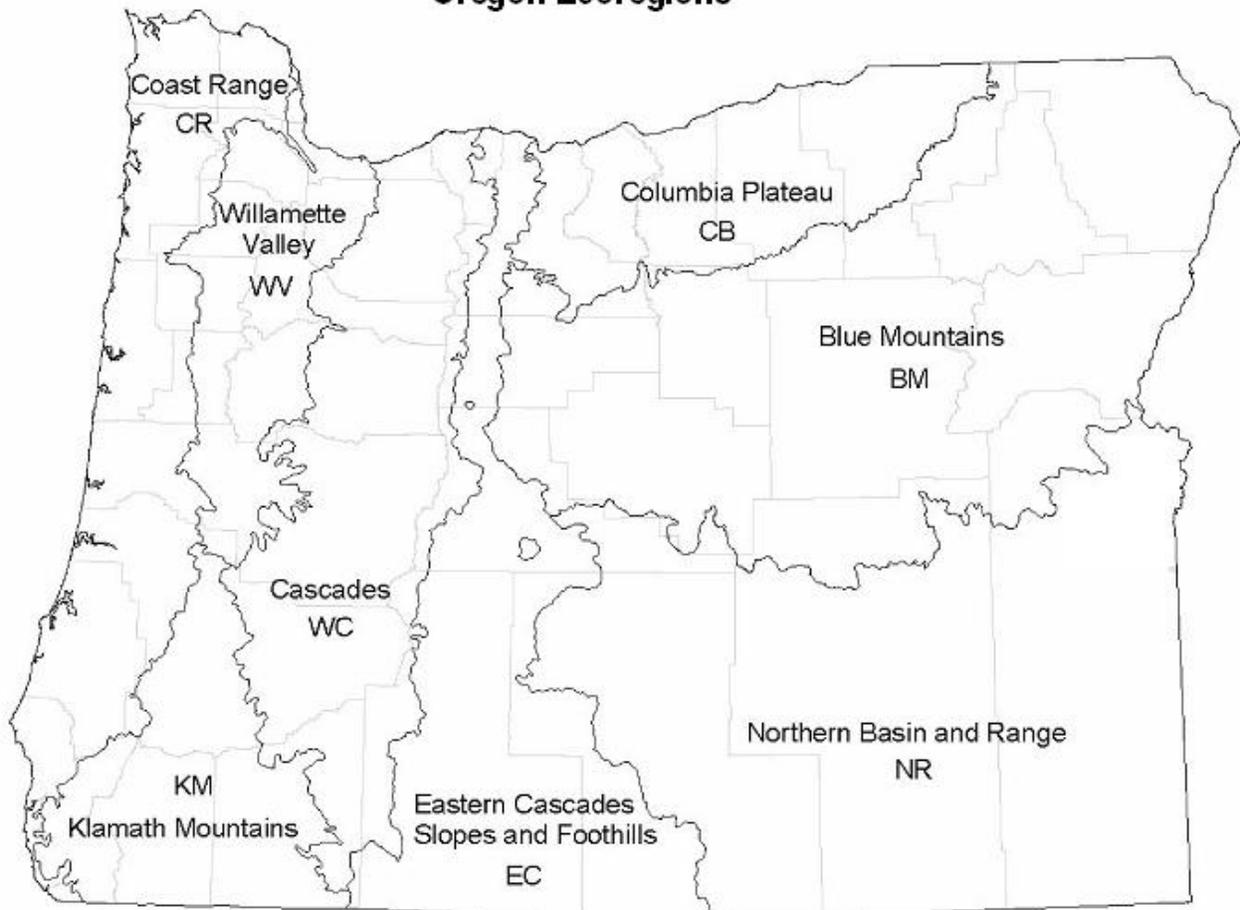
The State of Oregon and the federal government maintain separate lists of Threatened and Endangered species under different laws. Some species are listed as threatened or endangered under federal law but not under state law and may be included as state “Sensitive Species.”

### **What taxonomic standards are used to define species?**

As scientists learn more about certain animals, they may change species classification and/or names. ODFW uses these widely-accepted taxonomic standards and also consulted the Integrated Taxonomic Information System (ITIS; <http://www.itis.gov>). Taxonomic information is current as of May 2008.

- *Fish, species*: Nelson, J. S., E. J. Crossman, H. Espinosa-Perez, L. T. Findley, C. R. Gilbert, R. N. Lea, and J. D. Williams. 2004. Common and scientific names of fishes from the United States, Canada, and Mexico. American Fisheries Society, Special Publication 29, Bethesda, Maryland.
- *Fish, subspecies*:
  - Behnke, Robert J. 2002. Trout and Salmon of North America. The Free Press. New York.
  - Integrated Taxonomic Information System. <http://www.itis.gov>. Updated 27 February 2008.
  - Moyle, P. B. 2002. Inland Fishes of California. Revised and expanded. University of California Press. Berkeley, California.
- *Amphibians and Reptiles*: Crother, B. I., editor. 2008. Scientific and standard English names of amphibians and reptiles of North America north of Mexico, with comments regarding confidence in our understanding. 6th Edition. Society for the Study of Amphibians and Reptiles, Herpetological Circular No. 37, 84 pages.
- *Birds*: Banks, R. C. et al. 2007. Forty-eighth supplement to the American Ornithologists’ Union Checklist of North American Birds. The Auk 124(3):1109–1115.
- *Mammals*: Wilson, D. E., and D. M. Reeder, editors. 2005. Mammal Species of the World. A Taxonomic and Geographic Reference. 3rd Edition. Johns Hopkins University Press. 2,142 pages.

## Oregon Ecoregions



Source: Oregon State University Institute for Natural Resources  
(Oregon Natural Heritage Information Center)

*Figure 1. Ecoregions used for determining status of terrestrial wildlife (amphibians, reptiles, birds, and mammals).*



Data Source: Oregon BLM and US Forest Service HUC4 boundary Layer (1:24,000).

Subbasin Number, Name	Subbasin Number, Name	Subbasin Number, Name	Subbasin Number, Name
16040201, Upper Quinn	17060106, Lower Grande Ronde	17090005, North Santiam	17100310, Lower Rogue
16040205, Thousand- Virgin	17070101, Middle Columbia-Lake Wällula	17090006, South Santiam	17100311, Illinois
17050103, Middle Snake-Succor	17070102, Wällula Wällula	17090007, Middle Willamette	17100312, Chetco
17050105, South Fork Owyhee	17070103, Umatilla	17090008, Yamhill	17120001, Hamey/Malheur Lakes
17050106, East Little Owyhee	17070104, Willow	17090009, Molalla-Pudding	17120002, Silves
17050107, Middle Owyhee	17070105, Middle Columbia-Hood	17090010, Tualatin	17120003, Donner Und Blitzen
17050108, Jordan	17070201, Upper John Day	17090011, Clackamas	17120004, Silver
17050109, Crooked-Fattlesnake	17070202, North Fork John Day	17090012, Lower Willamette	17120005, Summer Lake
17050110, Lower Owyhee	17070203, Middle Fork John Day	17100201, Necanicum	17120006, Lake Abert
17050115, Middle Snake-Payette	17070204, Lower John Day	17100202, Nehalem	17120007, Warner Lakes
17050116, Upper Malheur	17070301, Upper Deschutes	17100203, Wilson-Trask-Nestucca	17120008, Quano
17050117, Lower Malheur	17070302, Little Deschutes	17100204, Siletz-Yaquina	17120009, Alvord Lake
17050118, Bully	17070303, South Fork Crooked	17100205, Alesa	18010101, Smith River
17050119, Willow	17070304, Upper Crooked	17100206, Siuslaw	18010201, Williamson
17050201, Brownlee Reservoir	17070305, Lower Crooked	17100207, Sittoos	18010202, Sprague
17050202, Burnt River	17070306, Lower Deschutes	17100301, North Umpqua	18010203, Upper Klamath Lake
17050203, Powder River	17070307, Trout	17100302, South Umpqua	18010204, Lost River
17060101, Hells Canyon	17080001, Lower Columbia-Sandy	17100303, Umpqua	18010205, Butte
17060102, Innaha River	17080003, Lower Columbia-Clatskanie	17100304, Coos	18010206, Upper Klamath River
17060103, Lower Snake-Astin	17080006, Lower Columbia	17100305, Coquille	18010209, Lower Klamath River
17060104, Upper Grande Ronde River	17090001, Middle Fork Willamette	17100306, Sixes	18020001, Goose Lake
17060105, Wällowa River	17090002, Coast Fork Willamette	17100307, Upper Rogue	
	17090003, Upper Willamette	17100308, Middle Rogue	
	17090004, Mckenzie	17100309, Applegate	

Figure 2: Oregon sub-basins based on 4<sup>th</sup> field hydrologic unit codes (HUC).



# Oregon Department of Fish and Wildlife

## SENSITIVE SPECIES LIST

### Organized by Category

An asterisk (\*) indicates that the species, Distinct Population Segment (DPS) or Evolutionarily Significant Unit (ESU) is federally listed as threatened or endangered by either NOAA's National Marine Fisheries Service or the U.S. Fish and Wildlife Service. Parenthetical scientific names are proposed taxonomic changes not yet adopted by the American Fisheries Society Committee on Names of Fishes.

Sensitive Species: Fish. USGS Hydrologic Unit (HU) distribution is based on current known distribution as described in the ODFW Native Fish Status Report, literature review, or expert information. A species or Species Management Unit (SMU) may be distributed in all or a portion of the HU where appropriate habitat exists. For anadromous species, the distribution does not include migration corridors. Figure 2 displays the location of the hydrologic units in Oregon.

### SENSITIVE – CRITICAL

Common Name	Scientific Name	USGS HU distribution (current)
<b>FISH</b>		
Modoc Sucker*	<i>Catostomus microps</i>	Goose Lake (18020001)
Westslope Cutthroat Trout	<i>Oncorhynchus clarki lewisi</i> (Behnke 2002)	Upper John Day (17070201)
Chum Salmon (Columbia River ESU)*	<i>Oncorhynchus keta</i>	Lower Columbia (17080006), Lower Columbia-Clatskanie (17080003), Lower Willamette (17090012), Lower Columbia-Sandy (17080001)
Chum Salmon (Coastal Chum Salmon SMU/Pacific Coast ESU)	<i>Oncorhynchus keta</i>	Nehalem (17100202), Necanicum (17100201), Wilson-Trask-Nestucca (17100203), Yamhill (17090008), Siletz-Yaquina (17100204)
Steelhead (Klamath Mountains Province ESU, Klamath Summer Steelhead SMU)	<i>Oncorhynchus mykiss</i>	Upper Klamath River (18010206)
Steelhead (Lower Columbia River ESU/SMU, winter run)*	<i>Oncorhynchus mykiss</i>	Lower Columbia (17080006), Lower Columbia-Clatskanie (17080003), Lower Willamette (17090012), Lower Columbia-Sandy (17080001), Clackamas (17090011), Middle Columbia-Hood (17070105)
Steelhead (Lower Columbia River ESU/SMU, summer run)*	<i>Oncorhynchus mykiss</i>	Middle Columbia-Hood (17070105)
Steelhead (Middle Columbia River ESU, summer run)*	<i>Oncorhynchus mykiss</i>	Lower Deschutes (17070306), Trout (17070307), Upper Deschutes (17070301), Lower Crooked (17070305), Upper John Day (17070201), North Fork John Day (17070202), Middle Fork John Day (17070203), Lower John Day (17070204), Umatilla (17070103), Walla Walla (17070102)
Great Basin Redband Trout (Catlow Valley Redband Trout SMU)	<i>Oncorhynchus mykiss newberrii</i> (Behnke 2002)	Guano (17120008)
Great Basin Redband Trout (Goose Lake Redband Trout SMU)	<i>Oncorhynchus mykiss newberrii</i> (Behnke 2002)	Goose Lake (18020001)

Common Name	Scientific Name	USGS HU distribution (current)
Great Basin Redband Trout (Warner Lakes Redband Trout SMU)	<i>Oncorhynchus mykiss newberrii</i> (Behnke 2002)	Warner Lake (17120007)
Great Basin Redband Trout (Fort Rock Redband Trout SMU)	<i>Oncorhynchus mykiss newberrii</i> (Behnke 2002)	Summer Lake (17120005)
Chinook Salmon (Upper Willamette River ESU, spring run/Willamette Spring Chinook SMU)*	<i>Oncorhynchus tshawytscha</i>	Molalla-Pudding (17090009), North Santiam (17090005), South Santiam (17090006), Mckenzie (17090004), Middle Fork Willamette (17090001), Coast Fork Willamette (17090002), Upper Willamette (17090003)
Chinook Salmon (Coastal Spring Chinook SMU)	<i>Oncorhynchus tshawytscha</i>	Wilson-Trask-Nestucca (17100203), Siletz-Yaquina (17100204), Alsea (17100205), Coquille (17100305), North Umpqua (17100301), South Umpqua (17100302)
Chinook Salmon (Lower Columbia River Chinook ESU/SMU, fall run)*	<i>Oncorhynchus tshawytscha</i>	Lower Columbia (17080006), Lower Columbia-Clatskanie (17080003), Lower Columbia-Sandy (17080001), Clackamas (17090011), Middle Columbia-Hood (17070105), Lower Willamette (17090012)
Chinook Salmon (Lower Columbia River Chinook ESU/SMU, spring run)*	<i>Oncorhynchus tshawytscha</i>	Lower Columbia-Sandy (17080001), Clackamas (17090011)
Oregon Chub*	<i>Oregonichthys crameri</i>	North Santiam (17090005), Upper Willamette (17090003), South Santiam (17090006), Mckenzie (17090004), Middle Fork Willamette (17090001), Coast Fork Willamette (17090002)
Umpqua Chub	<i>Oregonichthys kalawatseti</i>	Umpqua (17100303), North Umpqua (17100301), South Umpqua (17100302)
Bull Trout (Willamette Bull Trout SMU)*	<i>Salvelinus confluentus</i>	Mckenzie (17090004), Middle Fork Willamette (17090001)
Bull Trout (John Day Bull Trout SMU)*	<i>Salvelinus confluentus</i>	North Fork John Day (17070202), Middle Fork John Day (17070203), Upper John Day (17070201)
Bull Trout (Umatilla Bull Trout SMU)*	<i>Salvelinus confluentus</i>	Umatilla (17070103)
Bull Trout (Grande Ronde Bull Trout SMU)*	<i>Salvelinus confluentus</i>	Upper Grande Ronde River (17060104), Wallowa River (17060105), Lower Grande Ronde (17060106)
Bull Trout (Imnaha Bull Trout SMU)*	<i>Salvelinus confluentus</i>	Imnaha River (17060102)
Bull Trout (Hells Canyon Bull Trout SMU)*	<i>Salvelinus confluentus</i>	Brownlee Reservoir (17050201), Powder River (17050203)
Bull Trout (Hood River Bull Trout SMU)*	<i>Salvelinus confluentus</i>	Middle Columbia-Hood (17070105)
Bull Trout (Malheur River Bull Trout SMU)*	<i>Salvelinus confluentus</i>	Upper Malheur (17050116)
Bull Trout (Odell Lake Bull Trout SMU)*	<i>Salvelinus confluentus</i>	Upper Deschutes (17070301)
Bull Trout (Klamath Lake Bull Trout SMU)*	<i>Salvelinus confluentus</i>	Upper Klamath Lake (18010203), Sprague (18010202)

## SENSITIVE - CRITICAL

Common Name	Scientific Name	Ecoregion
<b>AMPHIBIANS</b>		
Columbia Spotted Frog	<i>Rana luteiventris</i>	Columbia Plateau, Northern Basin and Range
Oregon Spotted Frog	<i>Rana pretiosa</i>	
Foothill Yellow-legged Frog	<i>Rana boylei</i>	Willamette Valley
Northern Leopard Frog	<i>Lithobates pipiens</i>	
<b>REPTILES</b>		
Western Painted Turtle	<i>Chrysemys picta bellii</i>	
Western Pond Turtle	<i>Actinemys marmorata</i>	
Western Rattlesnake	<i>Crotalus oreganus</i>	Willamette Valley
<b>BIRDS</b>		
Columbian Sharp-tailed Grouse	<i>Tympanuchus phasianellus columbianus</i>	
Red-necked Grebe	<i>Podiceps grisegena</i>	Breeding Population
Ferruginous Hawk	<i>Buteo regalis</i>	Columbia Plateau
Yellow Rail	<i>Coturnicops noveboracensis</i>	
Upland Sandpiper	<i>Bartramia longicauda</i>	
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	
Burrowing Owl	<i>Athene cunicularia</i>	Blue Mountains, Columbia Plateau, Eastern Cascades Slopes and Foothills, Klamath Mountains, Willamette Valley
Common Nighthawk	<i>Chordeiles minor</i>	Willamette Valley
Lewis's Woodpecker	<i>Melanerpes lewis</i>	
White-headed Woodpecker	<i>Picoides albolarvatus</i>	
Streaked Horned Lark	<i>Eremophila alpestris strigata</i>	Coast Range, Klamath Mountains, Willamette Valley
Purple Martin	<i>Progne subis</i>	
Yellow-breasted Chat	<i>Icteria virens</i>	Willamette Valley
Oregon Vesper Sparrow	<i>Pooecetes gramineus affinis</i>	Klamath Mountains, Willamette Valley
Sage Sparrow	<i>Amphispiza belli</i>	Columbia Plateau
Western Meadowlark	<i>Sturnella neglecta</i>	Willamette Valley
<b>MAMMALS</b>		
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	
Fisher	<i>Martes pennanti</i>	

## SENSITIVE – VULNERABLE

Common Name	Scientific Name	USGS HU distribution (current)
<b>FISH</b>		
Goose Lake Sucker	<i>Catostomus occidentalis lacusanserinus</i> (Moyle 2002)	Goose Lake (18020001)
Alvord Chub	<i>Gila alvordensis</i> ( <i>Siphateles alvordensis</i> )	Alvord Lake (17120009)
Miller Lake Lamprey	<i>Lampetra minima</i> ( <i>Entosphenus minimus</i> )	Williamson (18010201), Sprague (18010202)
Western Brook Lamprey	<i>Lampetra richardsoni</i>	Columbia River system and coastal streams including the Rogue
Pacific Lamprey	<i>Lampetra tridentate</i> ( <i>Entosphenus tridentata</i> )	Columbia River system and coastal streams including the Rogue
Coastal Cutthroat Trout (Lower Columbia Coastal Cutthroat Trout SMU/ Southwestern Washington/Columbia River ESU)	<i>Oncorhynchus clarkii clarkii</i>	Lower Columbia-Clatskanie (17080003), Lower Columbia (17080006), Lower Willamette (17090012), Middle Columbia-Hood (17070105), Lower Columbia-Sandy (17080001), Clackamas (17090011)
Coho Salmon (Coastal Coho Salmon SMU/Oregon Coast ESU)*	<i>Oncorhynchus kisutch</i>	Nehalem (17100202), Necanicum (17100201), Wilson-Trask-Nestucca (17100203), Siletz-Yaquina (17100204), Alsea (17100205), Siuslaw (17100206), Siltcoos (17100207), Umpqua (17100303), Coos (17100304), South Umpqua (17100302), Coquille (17100305), Sixes (17100306), North Umpqua (17100301)
Coho Salmon (Southern Oregon/Northern California Coasts ESU/Rogue (and Klamath) Coho SMU)*	<i>Oncorhynchus kisutch</i>	Middle Rogue (17100308), Lower Rogue (17100310), Illinois (17100311), Upper Rogue (17100307), Applegate (17100309)
Inland Columbia Redband Trout	<i>Oncorhynchus mykiss gairdneri</i>	Lower Owyhee (17050110), Jordan (17050108), Middle Owyhee (17050107), South Fork Owyhee (17050105), East Little Owyhee (17050106), Lower Malheur (17050117), Upper Malheur (17050116), Bully (17050118), Willow (17050119), Burnt River (17050202), Lower Snake-Asotin (17060103), Walla Walla (17070102), , Lower Grande Ronde (17060106), Middle Fork John Day (17070203), Lower John Day (17070204), Brownlee Reservoir (17050201), Powder River (17050203), Imnaha River (17060102), North Fork John Day (17070202), Upper Grande Ronde River (17060104), Wallowa River (17060105), Willow (17070104), Umatilla (17070103), South Fork Crooked (17070303), Upper Crooked (17070304), Upper John Day (17070201), Little Deschutes (17070302), , Lower Crooked (17070305), Upper Deschutes (17070301), Trout (17070307), Middle Columbia-Hood (17070105), Lower Deschutes (17070306)
Great Basin Redband Trout (Malheur Lakes Redband SMU)	<i>Oncorhynchus mykiss newberrii</i> (Behnke 2002)	Silvies (17120002), Harney-Malheur Lakes (17120001), Silver (17120004), Donner Und Blitzen (17120003),
Great Basin Redband Trout (Chewaucan Redband Trout SMU)	<i>Oncorhynchus mykiss newberrii</i> (Behnke 2002)	Lake Abert (17120006)
Great Basin Redband Trout (Upper Klamath Basin Redband Trout SMU)	<i>Oncorhynchus mykiss newberrii</i> (Behnke 2002)	Sprague (18010202), Upper Klamath Lake (18010203), Williamson (18010201), Lost River (18010204), Upper Klamath River (18010206)

<b>Common Name</b>	<b>Scientific Name</b>	<b>USGS HU distribution (current)</b>
Steelhead (Upper Willamette River ESU, winter run/Willamette Winter Steelhead SMU)*	<i>Oncorhynchus mykiss</i>	Tualatin (17090010), Yamhill (17090008), Molalla-Pudding (17090009), North Santiam (17090005), South Santiam (17090006), Upper Willamette (17090003), Middle Willamette (17090007)
Steelhead (Oregon Coast ESU, summer run/Coastal Summer Steelhead SMU)	<i>Oncorhynchus mykiss</i>	Siletz-Yaquina (17100204), North Umpqua (17100301)
Steelhead (Oregon Coast ESU, winter run/Coastal Winter Steelhead SMU)	<i>Oncorhynchus mykiss</i>	Nehalem (17100202), Necanicum (17100201), Wilson-Trask-Nestucca (17100203), Siletz-Yaquina (17100204), Alsea (17100205), Siuslaw (17100206), Umpqua (17100303), Coos (17100304), North Umpqua (17100301), South Umpqua (17100302), Coquille (17100305), Sixes (17100306)
Steelhead (Klamath Mountains Province ESU, summer run/Rogue Summer Steelhead SMU)	<i>Oncorhynchus mykiss</i>	Upper Rogue (17100307), Middle Rogue (17100308), Applegate (17100309), Lower Rogue (17100310)
Steelhead (Snake River Basin ESU/Snake Summer Steelhead SMU)*	<i>Oncorhynchus mykiss</i>	Imnaha River (17060102), Upper Grande Ronde River (17060104), Wallowa River (17060105), Lower Grande Ronde River (17060106)
Chinook Salmon (Mid-Columbia River ESU/SMU, fall run)	<i>Oncorhynchus tshawytscha</i>	Lower Deschutes (17070306)
Chinook Salmon (Rogue Spring Chinook SMU)	<i>Oncorhynchus tshawytscha</i>	Upper Rogue (17100307), Middle Rogue (17100308)
Chinook Salmon (Middle Columbia Spring Chinook SMU)	<i>Oncorhynchus tshawytscha</i>	Lower Deschutes (17070306), Upper Deschutes (17070301), Lower Crooked (17070305), Upper John Day (17070201), North Fork John Day (17070202), Middle Fork John Day (17070203)
Chinook Salmon (Southern Oregon/Northern California Coast ESU, fall run/Rogue Fall Chinook SMU)	<i>Oncorhynchus tshawytscha</i>	Lower Rogue (17100310), Illinois (17100311), Chetco (17100312), Upper Rogue (17100307), Middle Rogue (17100308), Applegate (17100309), Sixes (17100306)
Millicoma Dace	<i>Rhinichthys cataractae</i> ssp.	Coos (17100304)
Bull Trout (Deschutes Bull Trout SMU)*	<i>Salvelinus confluentus</i>	Lower Deschutes (17070306), Upper Deschutes (17070301)

## SENSITIVE - VULNERABLE

Common Name	Scientific Name	Ecoregion
<b>AMPHIBIANS</b>		
Cope's Giant Salamander	<i>Dicamptodon copei</i>	
Columbia Torrent Salamander	<i>Rhyacotriton kezeri</i>	
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	
Cascade Torrent Salamander	<i>Rhyacotriton cascadae</i>	
Larch Mountain Salamander	<i>Plethodon larselli</i>	
Del Norte Salamander	<i>Plethodon elongatus</i>	
Siskiyou Mountains Salamander	<i>Plethodon stormi</i>	
Clouded Salamander	<i>Aneides ferreus</i>	
Black Salamander	<i>Aneides flavipunctatus</i>	
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	
Rocky Mountain Tailed Frog	<i>Ascaphus montanus</i>	
Coastal Tailed Frog	<i>Ascaphus truei</i>	
Western Toad	<i>Anaxyrus boreas</i>	
Northern Red-legged Frog	<i>Rana aurora</i>	Klamath Mountains, Willamette Valley
Cascades Frog	<i>Rana cascadae</i>	
Columbia Spotted Frog	<i>Rana luteiventris</i>	Blue Mountains, Eastern Cascades Slopes and Foothills
Foothill Yellow-legged Frog	<i>Rana boylei</i>	Coast Range, Klamath Mountains, West Cascades
<b>REPTILES</b>		
Northern Sagebrush Lizard	<i>Sceloporus graciosus graciosus</i>	Columbia Plateau
Common Kingsnake	<i>Lampropeltis getula</i>	
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	
<b>BIRDS</b>		
Greater Sage-Grouse	<i>Centrocercus urophasianus</i>	Blue Mountains, Columbia Plateau, Eastern Cascades Slopes and Foothills
Spruce Grouse	<i>Falcapennis canadensis</i>	
Mountain Quail	<i>Oreortyx pictus</i>	Northern Basin and Range
American White Pelican	<i>Pelecanus erythrorhynchos</i>	Breeding Population
Snowy Egret	<i>Egretta thula</i>	Breeding Population
Northern Goshawk	<i>Accipiter gentilis</i>	
Swainson's Hawk	<i>Buteo swainsoni</i>	
Ferruginous Hawk	<i>Buteo regalis</i>	Blue Mountains, Eastern Cascades Slopes and Foothills
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	
Arctic Peregrine Falcon	<i>Falco peregrinus tundrius</i>	
Greater Sandhill Crane	<i>Grus canadensis tabida</i>	Central Valley Population (Oregon Breeding Population)
Black Oystercatcher	<i>Haematopus bachmani</i>	
Long-billed Curlew	<i>Numenius americanus</i>	Blue Mountains, Columbia Plateau, Eastern Cascades Slopes and Foothills

## SENSITIVE - VULNERABLE

Common Name	Scientific Name	Ecoregion
<b>BIRDS continued</b>		
Franklin's Gull	<i>Larus pipixcan</i>	
Cassin's Auklet	<i>Ptychoramphus aleuticus</i>	
Rhinoceros Auklet	<i>Cerorhinca monocerata</i>	
Tufted Puffin	<i>Fratercula cirrhata</i>	
Flammulated Owl	<i>Otus flammeolus</i>	
Burrowing Owl	<i>Athene cunicularia</i>	Northern Basin and Range
Great Gray Owl	<i>Strix nebulosa</i>	
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	Willamette Valley
American Three-toed Woodpecker	<i>Picoides dorsalis</i>	
Black-backed Woodpecker	<i>Picoides arcticus</i>	
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Blue Mountains, Eastern Cascades Slopes and Foothills, Klamath Mountains
Olive-sided Flycatcher	<i>Contopus cooperi</i>	
Willow Flycatcher	<i>Empidonax traillii adastus</i>	Blue Mountains, Columbia Plateau, Eastern Cascades Slopes and Foothills, Northern Basin and Range
Little Willow Flycatcher	<i>Empidonax traillii brewsteri</i>	Coast Range, Klamath Mountains, West Cascades, Willamette Valley
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Blue Mountains, Columbia Plateau, Eastern Cascades Slopes and Foothills
White-breasted Nuthatch (=Slender-billed Nuthatch)	<i>Sitta carolinensis aculeata</i>	Coast Range, Klamath Mountains, West Cascades, Willamette Valley
Western Bluebird	<i>Sialia mexicana</i>	Coast Range, Klamath Mountains, West Cascades, Willamette Valley
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	
Bobolink	<i>Dolichonyx oryzivorus</i>	
<b>MAMMALS</b>		
California Myotis	<i>Myotis californicus</i>	
Fringed Myotis	<i>Myotis thysanodes</i>	
Long-legged Myotis	<i>Myotis volans</i>	
Hoary Bat	<i>Lasiurus cinereus</i>	
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	
Spotted Bat	<i>Euderma maculatum</i>	
Pallid Bat	<i>Antrozous pallidus</i>	
Pygmy Rabbit	<i>Brachylagus idahoensis</i>	
Black-tailed Jackrabbit	<i>Lepus californicus</i>	Willamette Valley
White-tailed Jackrabbit	<i>Lepus townsendii</i>	
Western Gray Squirrel	<i>Sciurus griseus</i>	Willamette Valley
Red Tree Vole	<i>Arborimus longicaudus</i>	Coast Range
Ringtail	<i>Bassariscus astutus</i>	
American Marten	<i>Martes americana</i>	Blue Mountains, Coast Range
Columbian White-tailed Deer*	<i>Odocoileus virginianus leucurus</i>	Coast Range (Columbia River Population)