West Linn Solar Highway Project

Biology Technical (Baseline) Report

Clackamas County

November 12, 2009

Prepared by: Mindy Trask Title: ODOT Conservation Programs Coordinator

Reviewed by: Steve Gisler Title: ODOT Biologist Date: 11/5/2009

Project Description

The following project information was obtained from the Biological No Effect Memorandum (July 15, 2009; Appendix A).

Project Type: Renewable solar photovoltaic electricity generation facility
Location: North side of Interstate 205 (MP 6.8-7.4)
Township/Range/Section(s): T2S, R1E, sec 35&36
Lat/Long: 45.35057N/-122.63970W
City: West Linn, Oregon
County: Clackamas
HUC6: 170900070405 (Middle Willamette subbasin, Abernathy Creek watershed)
Project Topography: Steep, south-facing, terraced rock slope
Surrounding Environment: Previously disturbed rock slope and equipment storage yard, surrounded by urban/residential development

The project will install, operate, and maintain a large (3MW) array of solar panels for renewable photovoltaic power generation. The panels will be installed across an approximate 43 acre site comprised of a steep, south-facing rocky slope that was previously disturbed through rock removal, terracing, and construction of an ODOT equipment and material storage yard. Besides panel installation, the project will also entail construction of unpaved roads for maintenance and emergency vehicle access, stormwater conveyance improvements, construction of wire fencing to protect the site from vandalism, and connection of the facility with the existing electrical grid.

Methods

An Oregon Natural Heritage Information Center database (ORNHIC 2009) search for special status species records was conducted for a five-mile radius area surrounding the Area of Potential Impact (API). The U.S. Fish and Wildlife Service (USFWS) Endangered Species website was examined for sensitive species potentially occurring within the northern Willamette Valley (USFWS 2009). Steve Gisler, ODOT Biologist, conducted a field survey of the API on June 4, 2009, to search for listed plants and potential habitat for special status animals. Mindy Trask, ODOT Environmental Project Manager, reviewed aerial photographs and other data sources (see References) to evaluate the API and vicinity for other potential wildlife concerns.

Existing Conditions

The API is located on a cut-slope above I-205, in the City of West Linn, in Clackamas County (Figure 1). The entire cut-slope within and surrounding the API is owned by ODOT, and ODOT utilizes a portion of the slope for storage of maintenance equipment. The landscape setting of the API is an urbanized, residential area. As described in the project description, the API is located on a previously disturbed site. A thorough historical land-use review was completed as part of the project's wetland delineation report (Vigil-Agrimis 2009). According to this report, the site was cleared and graded in 1969 to build I-205. The hill was cut into terraces, and a thin layer of topsoil now remains over the basalt bedrock.

Plants

Several volunteer trees are growing on the terraces of the cut-slope, and include Douglas-fir (*Pseudotsuga menziesii*), big-leaf maple (*Acer circinatum*), black cottonwood (*Populus trichocarpa*), Oregon white oak (*Quercus garryana*), and madrone (*Arbutus menziesii*). A total of 268 trees are located within the API, the vast majority of which are 12-inch or larger, 10-30 year old Douglas-fir. According to the ODOT Forester's report, none of the trees were of sufficient size or type to be considered of marketable value (email from Dan Lepschat to Lynn Averbeck, June 8, 2009).

Most of the site, however, is dry, grassland habitat, dominated by non-native grasses and forbs (see plant list in Appendix B).

The API also contains seep and shallow swale habitats. According to the wetland delineation report, a spring fed, 0.5-acre emergent wetland occurs near the middle of the API, two separate intermittent streams flow along the western and eastern boundaries of the site, and a three separate, small (<0.01 to 0.2 acres) roadside ditch wetlands are found along I-205. The 0.5-acre emergent wetland is dominated by cattail (*Typha latifolia*), soft rush (*Juncus effuses*), and watercress (*Rorippa nasturtium-aquaticum*). The intermittent streams are mostly outside of the API, and both enter the far western and eastern corners of the API. The western intermittent stream contains forested wetland vegetation, dominated by black cottonwood, common horsetail (*Equisetum telmateia*), and perennial grasses. The eastern intermittent stream is similar, but also associated with an emergent wetland where it intersects the I-205 roadside ditch, dominated by cattail, soft rush, and perennial grasses.

As shown on the plant list (Appendix B), several noxious weeds were observed in the API during the June 2009 field survey. The noxious weeds were present throughout the site, although there is a substantial patch of Himalayan blackberry (*Rubus armeniacus*) just west of the ODOT storage yard. The weeds found on-site are species that are common in the vicinity, particularly on disturbed sites like this.

Several special status plant species potentially occur within the region (i.e., northern Willamette Valley) and a few have been recorded within 10 miles of the API (Table 1). Several records of white rock larkspur are found in the vicinity, one of which is located across the freeway from the API, within an ODOT Special Management Area (property owned by ODOT with listed plants. The API contains potentially suitable, although low quality, habitat for white rock larkspur. Most of the nearby special status plant records are at the Nature Conservancy's Camassia Nature Preserve, located approximately 1.2 miles east of the API (Figures 1 and 2).

Table 1. Special status plant species potentially occurring in the project vicinity.

Scientific Name	**Common Name**	**Status (Fed/ State/ORNHIC)[1]**	**Habitat**
PLANTS			
Cimicifuga elata var. elata[2]	tall bugbane	SOC/C/1	moist mixed-coniferous forest
Delphinium nuttallii ssp. ochroleucum[2]	white rock larskspur	-/LE/1	Oregon white oak woodland and savanna, shallow soil on basalt rocky outcrops\
Delphinium pavonaceum	peacock larkspur	SOC/LE/1	Willamette prairie, heavy soil, roadsides

Scientific Name	Common Name	Status (Fed/ State/ORNHIC)[1]	Habitat
Erigeron decumbens var. *decumbens*[2]	Willamette daisy	LE/LE/1	Willamette prairie, wet meadow, heavy soil
Lathyrus holochlorus[2]	thin-leaved peavine	SOC/-/1	Willamette Valley, dry meadows, fence rows
Montia howellii[2]	Howell's montia	-/C/4	Seeps and grassy swales.
Sericocarpus rigidus[2]	white-topped aster	SOC/LT/1	rocky grassland
Sidalcea campestris	meadow checkermallow	-/-/4	Grasslands and roadsides
Sidalcea nelsoniana	Nelson's checkermallow	LT/LT/1	Willamette prairie wetlands, well drained soil, roadsides
Sullivantia oregana[2]	Oregon sullivantia	SOC/C/1	Seeps and springs on rocky cliffs
Zizia aptera[2,3]	golden alexanders	-/-/3	Moist of wet places.

1. Status information from Oregon Natural Heritage Information Center (ORNHIC 2009). LE = Federally or State listed Endangered, LT = Federally of State listed Threatened; SOC = Federal Species of Concern; C = candidate for listing under State or Federal Endangered Species Acts; 1= Oregon Natural Heritage Information Center (ORNHIC) List 1 (taxa considered threatened or endangered throughout their range); 2 = ORNHIC List 2 (taxa threatened with extirpation or presumed extirpated in Oregon).
2. Recorded within a 10 mile radius of the API (ORNHIC 2009).
3. Assumed extirpated because record is early 20th century herbarium specimen.

No special status plants were observed during the June 2009 plant survey. Furthermore, although the API contains superficially suitable habitat for several of the species on Table 1, the likelihood of any of these actually occurring on-site is negligible because of its past grading history. This supposition is further supported by the predominance of introduced and early successional plants observed in the floristic composition (see Appendix B).

Wildlife

Because of the disturbed, fallow condition of the site, it most closely resembles the Developed, Open Space habitat type according to the Oregon Ecological Systems vegetation classification (ORNHIC 2008). However, it functions as a dry grassland habitat. The trees are not abundant enough to merit classification as a forest or woodland habitat type, and not of the appropriate composition to merit classification as Oak Savanna. The API is at the end of Oregon's Willamette Valley Ecoregion.

The API and vicinity are expected to be utilized mainly by birds and small mammals that occur in pastures and agricultural settings, such as sparrows, red tail hawk (*Buteo regalis*), and raccoon (*Procyon lotor*). Larger mammals such as black-tailed deer (*Odocoileus hemionus*), coyote (*Canis latrans*) and bobcat (*Lynx rufus*) and are expected to be fairly uncommon in the area due the surrounding development, busy highway, and steep bluffs between the highway and the Willamette River. Appendix A contains a list of wildlife observations collected by Dr. Richad Mishaga, a wildlife biologist who lives nearby. This list includes one special status mammal (Western gray squirrel) and several special status birds (Table 2).

Several special status animals have been recorded by ORNHIC near the API, although no State or Federally listed species are known or expected to occur in the API (Figure 2; Table 2). Intermittent streams in the API (described in Aquatic section below) have a low potential of supporting northern red-legged frog (Table 2). However, chances are high that the water quality is too poor and gradient too steep for this species. API does not have suitable habitat to support any of the bats or turtles on Table 2, or Oregon spotted frog. There are no structures or trees large enough for roosting bats, insufficient open water habitat for turtles, and Oregon spotted frog is not expected to occur this low in elevation or in the types of aquatic habitats in the API.

Table 2. Special status animal species potentially occurring in the project vicinity.

Scientific Name	**Common Name**	**Status (Fed/ State/ORNHIC)[1]**	**Habitat**
MAMMALS			
Corynorhinus townsendii[2]	Townsend's big-eared bat	SOC/SC/2	caves, mines, tunnels, buildings
Myotis evotis[2]	long-eared bat	SOC/-/4	forests, caves
Myotis thysanodes[2]	fringed myotis	SOC/SV/2	caves, buildings, bridges
Scirus griseus	Western gray squirrel	-/SU/4	oak woodlands
BIRDS			
Chordeiles minor	common nighthawk	-/SC/4	Willamette Valley prairie
Empidonax traillii brewsteri	Little willow flycatcher	-/SV/4	riparian woodlands
Eremophila alpestris strigata[2]	streaked horned lark	C/SC/1	prairies, open fields, parks; nests on the ground
Falco peregrinus anatum[2]	American peregrine falcon	-/SV/2	nest on high cliffs and bridges
Haliaeetus leucocephalus[2]	bald eagle	-/-/4	tall trees near large bodies of water
Melanerpes formicivorus	acorn woodpecker	SOC/ /	oak woodlands and savanna
Patagioenas fasciata	band-tailed pigeon	SOC/-/4	montane coniferous forests and oak woodlands
Pooecetes gramineus affinis[2]	Oregon vesper sparrow	SOC/SC/2	prairies, open fields, agricultural fields; nests on the ground
Prognes subis[2]	purple martin	SOC/SC/2	Riparian near open water and often near sandy beaches
Sturnella neglecta	Western meadowlark	-/SC/4	prairies, open fields, fence rows; nests on the ground
AMPHIBIANS			
Rana aurora aurora[2]	northern red-legged frog	SOC/SV/2	ponds or slow perennial streams with dense vegetation
Rana pretiosa[2]	Oregon spotted frog	C/SC/1	cold mountain streams

Scientific Name	Common Name	Status (Fed/ State/ORNHIC)[1]	Habitat
REPTILES			
Actinemys marmorata marmorata[2]	northwestern pond turtle	SOC/SC/2	densely vegetated, permanent water with basking sites
Chrysemys picta[2]	painted turtle	-/SC/2	slow moving streams, lakes, perennial streams, mud bottom
FISH			
Acipenser medirostris[2]	green sturgeon	LT/-/4	streams
Lampreta tridentata[2]	Pacific lamprey	-/SV/1	streams
Oncorhynchus kisutch[2]	coastal coho salmon	LT/SC/1	streams
Oncorhynchus mykiss[2]	Upper Willamette River steelhead	LT/SC/1	streams
Oncorhynchus tshawytschva	Upper Willamette River Chinook salmon	LT/SC/1	streams
Oregonichthys crameri[2]	Oregon chub	LT/SC/1	streams

1. Status information from ORNHIC (2009). LE = Federally or State listed Endangered, LT = Federally of State listed Threatened; PT = proposed for listing as threatened; SOC = Federal Species of Concern; C = candidate for listing under State or Federal Endangered Species Acts; SC = State Critical list; SU = State Undetermined list; SV = State Vulnerable list; 1= Oregon Natural Heritage Information Center (ORNHIC) List 1 (taxa considered threatened or endangered throughout their range); 2 = ORNHIC List 2 (taxa threatened with extirpation or presumed extirpated in Oregon).
2. Recorded within a 10 mile radius of the API (ORNHIC 2009).

The API also does not have suitable habitat for three of the birds on Table 2, the bald eagle, American peregrine falcon, and purple martin. Potential nesting and roosting habitat for bald eagles (included on Table 2 because so recently delisted) may occur along the Willamette River, but the trees within or near the API are not suitable for nesting or roosting bald eagles. Likewise, potential nesting and hunting habitat for American peregrine falcon (also recently delisted in Oregon) may occur along the steep rocky bluffs of the Willamette River, but there is no suitable nesting habitat on or near to the API. The trees within the API are probably too small to be used as even perch trees for these predators. Suitable habitat for purple martin is not found within or near the API.

Suitable, although low quality nesting habitat, is found within the API for several of the bird species listed on Table 2, many of which nest on the ground sometimes even in disturbed habitats. Several of these species have been observed on the ODOT property at this API at some point in the last 10 years of so (Appendix B), but these observations are not in the Oregon Natural Heritage Information Center database (2009).

Although not considered sensitive species, other birds that are protected by the Federal Migratory Bird Treaty Act (MBTA) have the potential to nest in trees, shrubs, or on the ground within the API. Most birds in Oregon are covered by the MBTA, except certain non-native or resident species, such as European starling (*Sturnus vulagaris*), house sparrow (*Passer domesticus*) and rock dove (AKA non-native pigeon) (*Columba livia*). The MBTA prohibits direct killing of birds, including chicks and eggs.

Oregon Conservation Strategy

The Oregon Conservation Strategy is Oregon's State Wildlife Action Plan, part of a big-picture framework for conservation (ODFW 2005). The Strategy uses the best available science to create a broad vision and conceptual framework for long-term conservation of Oregon's native fish and wildlife, and is intended to be a broad framework for all of Oregon. As part of the Strategy report, key habitats, key wildlife species and regionally-specific Conservation Opportunity Areas (COAs) were identified for each Ecoregion. The API is near the Willamette River floodplain COA (wv-03) of the Willamette Valley Ecoregion. Key habitats in this COA are aquatic, bottomland hardwoods, and riparian, and key species are foothill yellow-legged frog, northern red-legged frog, northwestern pond turtle, all riparian birds, and salmonids. Although the site is not located within this COA, as described in the sections above, the API contains a small amount of riparian habitat associated with the intermittent streams. Lack of connectivity from the API to the Willamette River floodplain substantially reduces the value of the site to this COA.

However, 'Barriers to fish and wildlife movement' is one of the main six Key Conservation Issues in the state. While roads are an indispensable component of our society, the modern road network has fragmented the natural environment, leaving animal populations isolated from one another. Recognizing the urgency of this problem, governors of the Western states have commissioned a report on Wildlife Corridors, and established a Western Governors Wildlife Council to implement the recommendations from that report. The initiative recognizes the importance of habitat connectivity in mitigating for global warming, energy siting, land use, oil and gas, and transportation.

The Oregon Department of Fish and Wildlife (with agency partners including ODOT and others) identified key movement areas for wildlife, or wildlife linkages. Concurrently, ODOT and Mason, Bruce, and Girard, Inc. analyzed state highways throughout Oregon to identify wildlife collision hot spots. The two datasets have been combined, along with data on Conservation Opportunity Areas and Land Ownership, to create priority wildlife linkages across Oregon's highways (ODFW 2008). Relative to all state highways in Oregon, the section of I-205 adjacent to the API is considered a medium-low priority collision hot spot, and was not identified as a wildlife linkage area, nor is it located near any of the statewide mapped wildlife linkage areas.

Portland Metropolitan government has also evaluated wildlife habitat and corridors, and since this was a finer scale evaluation, is more representative of regional wildlife priorities. According to Environmental Planning Manager Lori Hennings (personal communication with Mindy Trask, October 30, 2009), the project site is not within or adjacent to any key habitat patches or wildlife corridors. The closest key corridor is located along the Willamette River, south of I-205. The closest regionally significant habitats are found along the Tualatin River and in Camassia Nature Preserve (Figure 1).

Oregon Department of Fish and Wildlife biologist Jim Brick reviewed wildlife passage issues on and surrounding the API (site visit on November 9, 2009). He observed deer sign in the southwestern portion of the ODOT property, and tracks leading through the site from the northwest down to the southwest corner, then east towards Tanner Creek. Small mammal tracks were also observed.

ODOT maintains two databases that represent animal-vehicle collisions (AVCs), crash reports and carcass reports. The statewide wildlife collision hot spot analysis described above was based

on the carcass reports. Several AVCs have been reported along this section of highway (6 crash reports involving wildlife from 1993-2008 none of which resulted in a serious injury, and 17 deer carcass reports from 1996-2006). Even though the API is near mileposts 6.8 to 7.4, this summary includes all records between and including mileposts 6.0 and 8.0 because the precision or accuracy of the records is unverifiable. This is actually a fairly low rate of AVCs (roughly less than one AVC per mile per year), but only represents incidents with large animals, and only those that were reported.

Aquatic Resources and Fish

The API is within the Middle Willamette subbasin and the Abernethy Creek watershed (6th field HUC 170900070402). Several Federally listed fish species are found in this watershed (Table 2), in the Willamette River upstream of Willamette Falls, less than half of a mile to the south of the API (Figures 1 and 2). However, no potential fish-bearing streams are found within the API, as confirmed by Oregon Department of Fish and Wildlife Biologist Jim Brick (personal communication with Mindy Trask, November 6, 2009). According to the wetland delineation report, both of the intermittent streams described in the Plants section (above) flow through small culverts under I-205, then down a steep slope before reaching the Willamette River floodplain. The western intermittent stream appears to flow into Bernert Creek south of I-205, which then flows into the Willamette River approximately 0.4 mile upstream of the falls (Figure 1). The eastern intermittent stream, if hydrologically connected at all, appears to flow into the water treatment plant. The gradient of both of these drainages is far too steep to support any fish.

Potential Impacts

Plants

No special status plants are known or expected to occur within the API. Several ODA List B noxious weed species are found within the API, and construction activities have the potential to increase or spread noxious weeds.

Wildlife & Oregon Conservation Strategy

Although the API is within a moderately developed area, it contains suitable habitat for several special status wildlife species (Appendix B). Most of these are unlikely to utilize habitats directly within the API on a regular basis because of the past disturbance history and proximity to highly urbanized land uses. However, this same urbanization makes the open space in and surrounding the API all that much more valuable to local wildlife. The project has the potential to impact nesting birds and wildlife seeking refugia, primarily during construction. However, the project also has the potential to have a more long-term, although small-scale, impact to birds and resident wildlife due to loss of nesting and foraging habitat.

Aquatic Resources and Fish

Although fish are not expected in streams within or directly adjacent to the API, both listed and non-listed native fish may occur downslope in Bernett Creek, and definitely in the Willamette River. As described in the Endangered Species Act No Effect document (Appendix A), the project has the potential to contribute sedimentation into designated critical habitat for listed salmonids during construction. The proposed tree removal was not believed to result in changes in downstream fisheries habitat, water quality or flow conditions due to the small tree sizes and distance to designated critical habitat. However, large trees are a valuable resource for fish

habitat enhancement. Oregon Department of Fish and Wildlife requested that ODOT salvage large trees (see Recommendations, Aquatic), and donate them to a local watershed council for future enhancement efforts.

Recommendations

Weed Control

- A biologist or weed control expert should conduct pre-construction weed surveys when the project design components have been refined, to map locations within the project limits. The surveys should be conducted at the appropriate season (summer) to identify target species.
- All construction vehicles should be washed prior to leaving the project area and any exported fill material should be properly disposed of to avoid the spread of weed seeds.
- Implement weed removal prior to ground disturbing operations to prevent spread of weed seed during construction, and also during the plant establishment period to prevent spread of noxious weeds.
- If topsoil is needed for site restoration, the onsite topsoil should not be used because it probably contains many weed seeds. Instead, imported topsoil should be used. Contract specifications should require use of weed-free topsoil and compost.

Wildlife and Migratory Birds

- Minimize tree and shrub clearing as much as possible.
- Salvage and save as many log pieces as possible (those not utilized for aquatic enhancement, and at least >24 inch diameter and 10 feet long). Incorporate logs into the site restoration plan, or landscaping surrounding the facility on ODOT property.
- Vegetation clearing and grading activities should be completed outside of a generalized spring nesting period (April 1 through June 30). ODOT should begin early coordination with ODOT's liaisons with the Wildlife Services branch of the Animal and Plant Health and Inspection Service (APHIS), at least a year prior to construction.
- Landscaping surrounding the facility should be designed to be consistent with the existing condition, comprised of grassland with patches of native trees.
- Coordinate a wildlife biologist or Oregon Department of Fish and Wildlife/ODOT liaison to design exclusionary fencing around the facility that would minimize impacts to wildlife (described in further detail below).

Exclusionary fencing is likely to be a necessary component of the project, to prevent human trespass. The effect of exclusionary fencing at this location on wildlife movement is complex and difficult to predict. A substantial barrier already exists due to the busy freeway, lack of crossing opportunities for terrestrial wildlife across the freeway, and the near vertical rock slope between I-205 and the Willamette River floodplain. Given the existing deer tracks and sign, exclusionary fencing around the facility is unlikely the substantially impact movement opportunities as long as sufficient open space remains surrounding the west, north, and east sides. There is a small possibility that such exclusionary fencing could funnel animals towards the freeway. Because the site is not located within any local, regional, or statewide priority

wildlife area, the main focus of fencing and wildlife access should be the safety concern associated with large animal-vehicle collisions on I-205.

Exclusionary fencing high enough to exclude deer is therefore recommended around the proposed solar facility and along the north side of I-205 between mileposts 6.7 and 7.4 (to the west and east of the intermittent drainages). The extension of the fence to these locations may minimize the risk of funneling wildlife movement toward the highway. However, if possible, I recommend that the fence be specifically designed to allow passage of smaller animals between the ODOT lands and residential community to the north of the facility, by leaving a 4 to 6 inch gap along the base of the fence, everywhere but along I-205. The mesh size of the fence material and depth that the fence is installed should be designed to restrict small animals from moving between the facility and I-205.

Aquatic Resources

- Salvage and save large trees (14 to 18 inch diameter, 20 to 32 feet long, conifer trees with in-tact root wad) for use by others as aquatic enhancement.
- Coordinate with a local watershed council for donating salvaged trees.
- Erosion controls should be designed and implemented to ensure sediment originating from the project does not enter any waterways.

References

Hatch, A., S. Wray, S. Jacobson, M. Trask, and K. Roberts. 2008. Final report on Oregon Wildlife Linkage workshops hosted by ODFW in 2007. Oregon Department of Fish and Wildlife, Salem, OR.

Oregon Department of Fish and Wildlife (ODFW). 2005. Oregon Conservation Strategy. Oregon Department of Fish and Wildlife, Salem, OR.

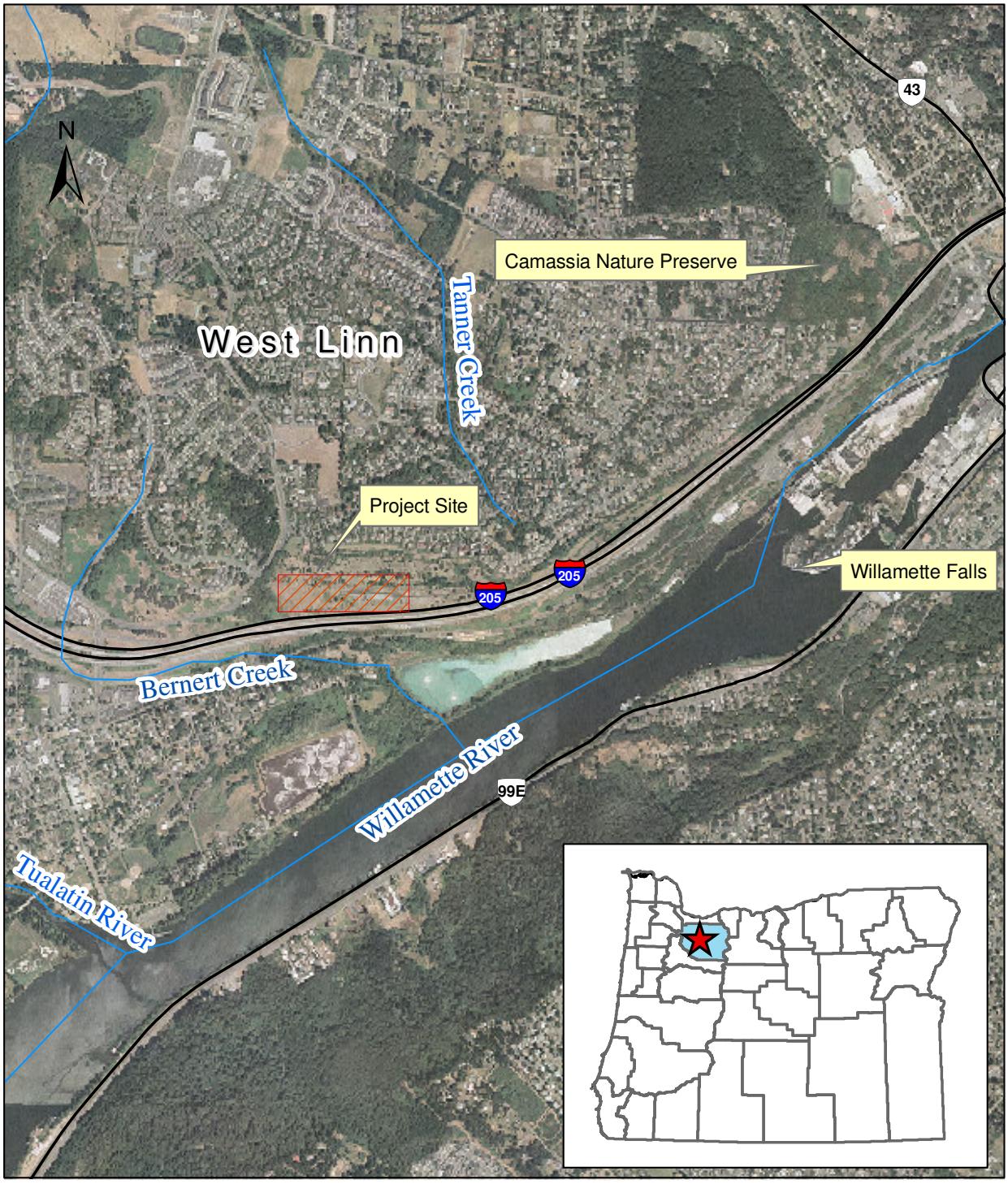
_____. 2008. Wildlife Linkages datasets. https://nrimp.dfw.state.or.us/DataClearinghouse/default.aspx?p=202&XMLname=806.xml

Oregon Natural Heritage Information Center (ORNHIC). 2008. Oregon Ecological Systems. Oregon Natural Heritage Information Center, Portland, OR.

_____. 2009. The Biological and Conservation Data System, Element Occurrence Record Digital Data Set, June 15, 2009. Oregon Natural Heritage Information Center, Portland, OR.

United States Fish and Wildlife Service (USFWS). 2009. Environmental Conservation Online System, species reports, last updated November 4, 2009. http://ecos.fws.gov/tess_public/

Vigil-Agrimis, Inc. 2009. Wetlands/waters delineation report for Highway Solar Project, July 15, 2009. Prepared for Oregon Department of Transportation, Salem, OR.



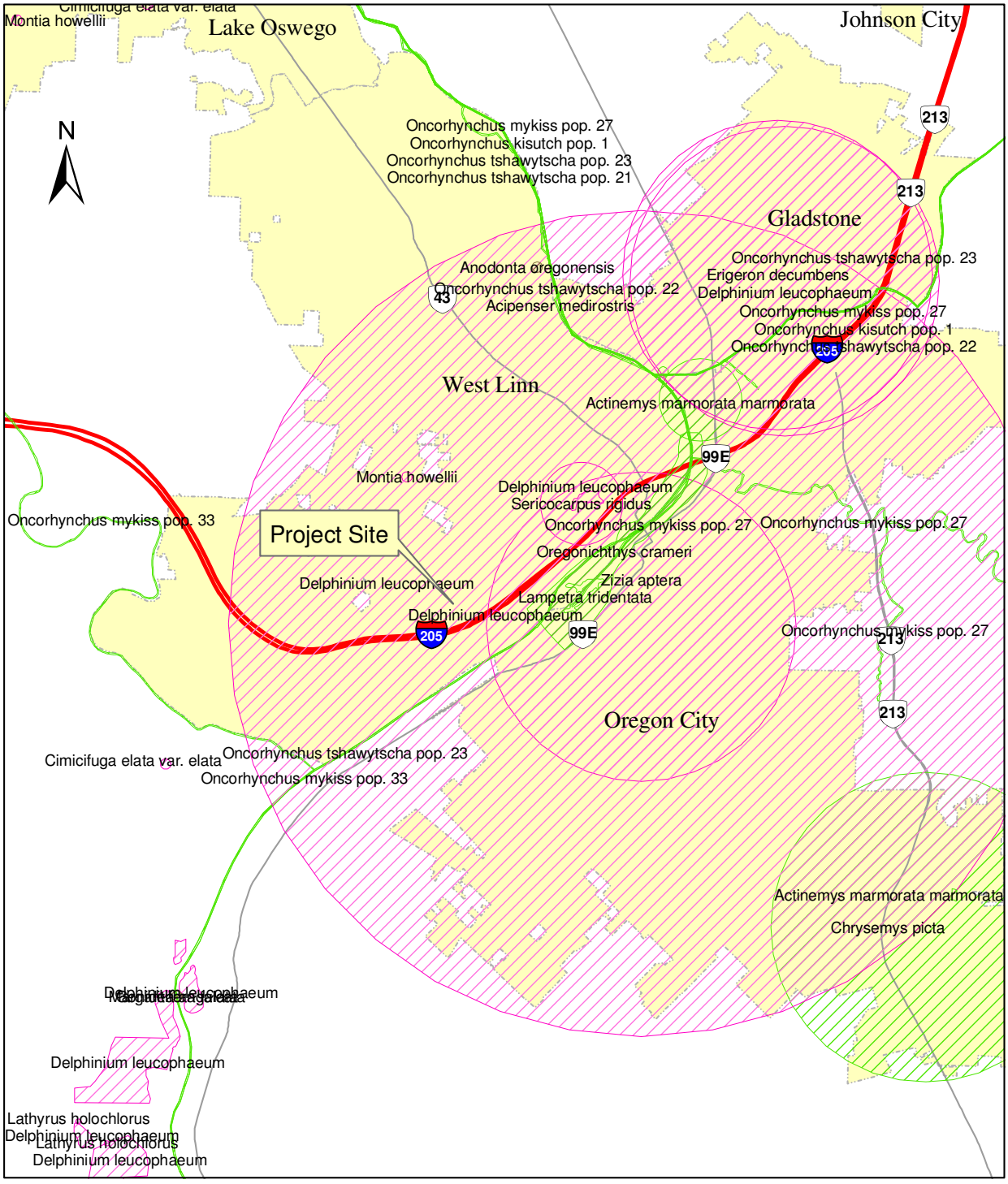
Miles
0 0.15 0.3 0.6

DISCLAIMER:
This product is for informational purposes only and may not have been prepared for or be suitable for legal, engineering or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

FIGURE 1

West Linn Solar Project Vicinty Map

OREGON DEPARTMENT OF TRANSPORTATION



Miles

0 0.5 1 2

DISCLAIMER:
This product is for informational purposes only and may not have been prepared for or be suitable for legal, engineering or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

FIGURE 2

Oregon Natural Heritage Information Center
June 2009 Records

OREGON DEPARTMENT OF TRANSPORTATION

Appendix A

ESA Finding of NO EFFECT

KN: N/A Project Name: West Linn Solar Highway Project

Fed Aid No: DE-EE0000308 (USDOE – Congressionally-Directed Appropriation)

July 15, 2009

☒ USFWS Species ☒ NMFS Species ☒ EFH

Project Type: Renewable solar photovoltaic electricity generation facility.
Location: North side of Interstate 205 (MP 6.8-7.4), West Linn, Oregon.
Township/Range/Section(s): T2S, R1E, sec 35&36.
Lat/Long: 45.35057N/-122.63970W.
City: West Linn, Oregon.
County: Clackamas.
HUC6: 170900070405 (Middle Willamette subbasin, Abernathy Creek watershed).
Project Topography: Steep, south-facing, terraced rock slope.
Surrounding Environment: Previously disturbed rock slope and equipment storage yard, surrounded by urban/residential development.
☒ **Area of Project Impact (API) map** is attached, including survey/clearance area(s) and location(s) of closest aquatic resources.

Data Sources and Survey Method(s) Utilized: (Check all that apply.)

☐	NMFS Staff Contacted *[Include name(s)]*	Date(s):
☐	USFWS Staff Contacted *[Include name(s)]*	Date(s):
☐	Species List – NMFS Website	Date(s):
☐	Species List – USFWS Website	Date(s):
☐	Federal Register	Date(s):
☒	ORNHIC Database	Date(s): June 3, 2009
☐	StreamNet	Date(s):
☐	ODOT TransGIS Environmental	Date(s):
☒	Field Survey – Complete Assessment	Date(s): June 4, 2009
☐	Field Survey – Appropriate Sample	Date(s):
☐	Other *[Provide references if appropriate]*	Date(s):

Field Survey Technique(s): Complete pedestrian survey of API.

Listed Species likely to be within the API: Given the lack of aquatic resources and mature coniferous forest habitat within the API, likely listed species are limited to listed plants, specifically the state-listed white rock larkspur (*Delphinium leucophaeum*), which is known from several neighboring populations along the Willamette River and the nearby Camassia Natural Area managed by The Nature Conservancy. A botanical survey performed by the ODOT Biologist on June 4, 2009 confirmed the highly disturbed habitat condition within the API and the lack of white rock larkspur or other listed plants in the project area (a complete list of plant species observed within the API is available from the author upon request).

The project has been designed to avoid impacts to a small intermittent drainage (a tributary to the Willamette River) just beyond the west end of the API; this drainage currently lacks fish but likely provided historic cutthroat trout and other fish use prior to installation of downstream artificial obstructions. As designed, the project is not expected to generate off-site stormwater or other indirect effects beyond the project area. As such, listed fish and their habitats are considered outside the boundaries of the API.

Designated Critical Habitat within the API: None.

Essential Fish Habitat (EFH) within the API: None.

Brief Project Description: The project will install, operate, and maintain a large (3MW) array of solar panels for renewable photovoltaic power generation. The panels will be installed across an approximate 43 acre site comprised of a steep, south-facing rocky slope that was previously disturbed through rock removal, terracing, and construction of an ODOT equipment and material storage yard. Besides panel installation, the project may also entail construction of unpaved roads for maintenance and emergency vehicle access, stormwater conveyance improvements, construction of a paved bicycle-pedestrian path, construction of wire fencing to protect the site from vandalism, and connection of the facility with the existing electrical grid.

Finding of Effect. *This No Effect determination is based on an early, conceptual-level design of the project. Subsequent changes in project scope or scale could invalidate this No Effect determination.*

ODOT, acting as an agent of FHWA or other federal agency because of a federal nexus, determines that the project will have: (Check all that apply.)

☒ **No Effect on Listed Species**…
☒ Because there is no reason to believe that listed species are present in the Area of Project Impact (API). [*Absence Determination*]
☐ Because **avoidance measures** will be implemented to prevent effects on the listed species identified below that occur or are likely to occur within the API. (Complete **Section A** below.)

☒ **No Effect on Designated Critical Habitat**…
☒ Because designated critical habitat does not occur in the API. [*Absence Determination*]
☐ Because **avoidance measures** will be implemented to prevent effects on the designated critical habitat identified below that occurs within the API. (Complete **Section B** below.)

☒ **No Effect on Essential Fish Habitat**…
☒ Because EFH does not occur in the API. [*Absence Determination*]
☐ Because **avoidance measures** will be implemented to prevent effects on EFH identified below that occurs within the API. (Complete **Section C** below.)

Required Avoidance Measures.

For each applicable section below:

- Identify *specific* project impacts that could affect the identified resource if avoidance measures are not implemented to eliminate *all* potential impacts.
- Provide a brief description of *each* required avoidance measure.

Section A – Listed Species: This No Effect determination hinges, in part, on avoidance of impacts to the unnamed intermittent stream located beyond the west end of the API. Modification of this drainage, or allowing sediment or pollutants from the project to enter this drainage, could result in downstream effects to listed fish and their habitat in the Willamette River, which would negate the assumptions and findings of this No Effect memo. Therefore, erosion control BMPs should be implemented to ensure sediment originating from the project (if any) does not enter this waterway.

Section B – Designated Critical Habitat: Same as above.

Section C – Essential Fish Habitat: Same as above.

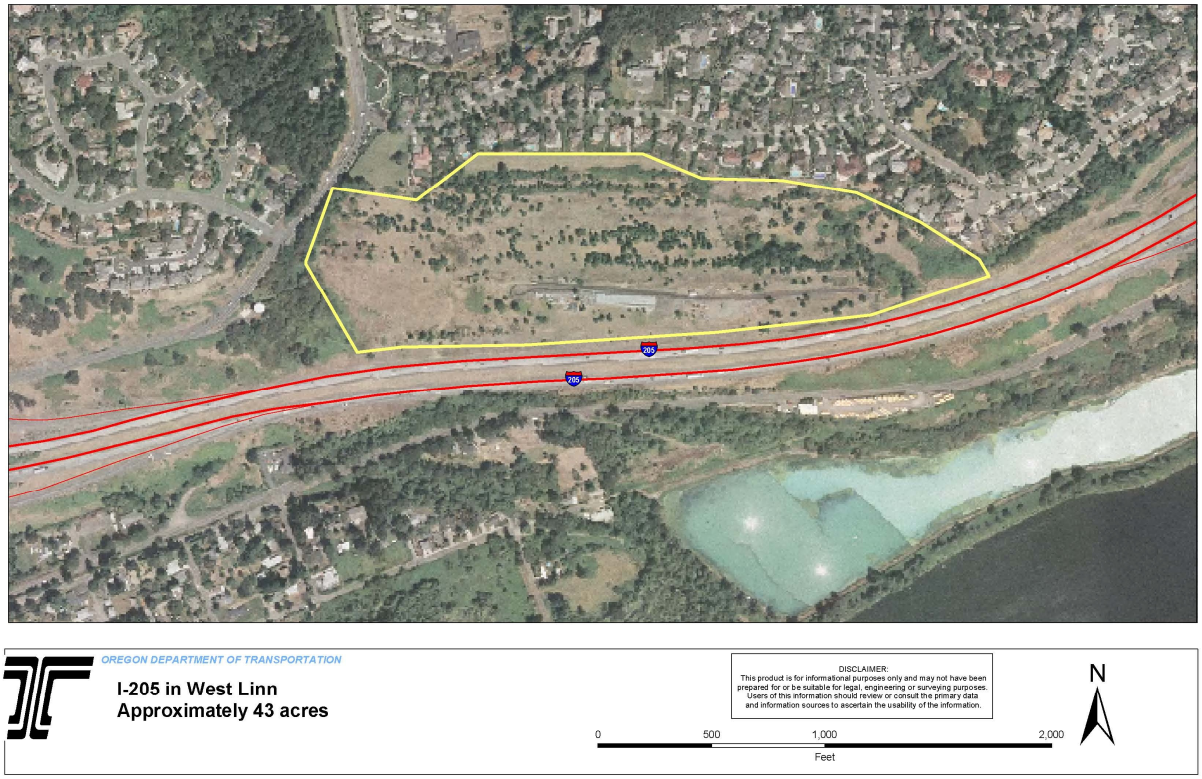
Additional Supportive Information: (Optional)

Individual Responsible for the No Effect Determination:

Steven Gisler, ODOT Region 2 Biologist July 15, 2009

Individuals Responsible for Ensuring Implementation of Avoidance Measures (if they are required)**:**

Lynn Averbeck, OIPP Project Director July 15, 2009
Allison Hamilton, OIPP Project Director July 15, 2009



Approximate boundary (yellow line) of survey limits and defined API for this project. Any expansion of the API could negate the findings in this No Effect memo and require additional surveys.

Appendix B

SPECIES LISTS

Vascular plant species observed by Steve Gisler, June 15, 2009.

Scientific Name	Common Name	Form[1]	Status[2]
Acer macrophyllum	big-leaf maple	T	N
Aira caryophyllea	silver hairgrass	AG	I
Amelanchier alnifolia	serviceberry	T	N
Anaphalis margaritaceae	western pearly everlasting	PF	N
Anthriscus caucalis	bur chervil	AF	I
Apocynum androsaemifolium	spreading dogbane	FP	N
Arbutus menziesii	Pacific madrone	T	N
Arrhenatherum elatius	tall oatgrass	PG	I
Avena fatua	wild oat	AG	I
Bromus rigidus	rip-gut brome	AG	I
Bromus sp.	brome	AG	I
Centaurium umbellatum	European centaury	AF	I
Cerastium glomeratum	sticky chickweed	AF	I
Chrysanthemum leucanthemum	oxeye daisy	PF	I
Cichorium intybus	chickory	BF	I
Cirsium arvense	Canada thistle	PF	I-B
Cirsium vulgare	bull thistle	BF	I-B
Clarkia amoena	farewell to spring	AF	N
Conium maculatum	poison hemlock	BF	I-B
Cornus sericea	redosier dogwood	S	N
Securigera varia	crown vetch	PF	I
Corylus cornuta	western hazelnut	S	N
Crataegus monogyna	oneseed hawthorn	S	I
Crepis capillaris	smooth hawksbeard	AF	I
Cynosurus echinatus	bristly dogstail grass	AG	I
Cytisus scoparius	Scotch broom	S	I-B
Dactylis glomerata	orchard grass	AG	I
Daucus carota	Queen Anne's lace	BF	I
Dianthus armeria	Deptford pink	AF	I
Dipsacus sylvestris	teasel	BF	I
Draba verna	spring draba	AF	I
Elymus glaucus	blue wildrye	PG	N
Epilobium cilitatum ssp. watsonii	fringed willowherb	PF	N
Eschscholzia californica	California poppy	AF	N
Schedonorus phoenix	tall fescue	PG	I
Festuca occidentalis	western fescue	PG	N

Scientific Name	Common Name	Form[1]	Status[2]
Galium aparine	stickywilly	PF	N
Galium parisiense	wall bedstraw	AF	I
Geranium lucidum	shining geranium	AF	I-B
Geranium molle	dovefoot geranium	AF	I
Geranium robertianum	Robert geranium	AF	I-B
Goodyera oblongifolia	western rattlesnake plantain	PF	N
Holcus lanatus	velvet grass	PG	I
Holodiscus discolor	ocean spray	S	N
Hypericum perforatum	common St. Johnswort	PF	I-B
Hypochaeris radicata	hairy cat's ear	PF	I
Ilex aquifolium	English holly	S	I
Juncus effusus	common rush	PG	N
Lactuca serriola	prickly lettuce	AF	I
Linum perenne	blue flax	PF	I
Lolium perenne	perennial ryegrass	PG	I
Melilotus alba	white sweetclover	AF	I
Myosotis discolor	changing forget-me-not	AF	I
Plantago lanceolata	English plantain	AF	I
Polystichum munitum	western swordfern	PF	I
Populus trichocarpa	cottonwood	T	N
Prunella vulgaris	common selfheal	PF	N/I
Prunus cerasus	sour cherry	S	I
Pseudotsuga menziesii	Douglas-fir	T	N
Pteridium aquilinum	western brackenfern	PF	N
Pyrus malus	crab apple	T	I
Quercus garryana	Oregon white oak	T	N
Rhamnus purshiana	Cascara buckthorn	S	N
Rorippa officinanle	watercress	PF	I
Rosa multiflora	multiflora rose	S	I
Rubus armeniacus	Himalayan blackberry	S	I-B
Rubus laciniatus	cutleaf blackbeerry	S	I
Rubus ursinus	California blackberry	S	N
Rumex acetosella	common sheep sorrel	PF	I
Rumex crispus	curley dock	PF	I
Salix sp.	willow	S	N
Senecio jacobaea	tansy ragwort	PF	I-B
Silene vulgaris	maidenstears	PF	I
Solanum dulcamera	climbing nightshade	PF	I
Sonchus asper	spiny sowthistle	PF	I
Sorbus sp.	mountain-ash	S	N
Taraxacum officinale	common dandelion	PF	I

Scientific Name	Common Name	Form[1]	Status[2]
Toxicodendron diversiloba	poison oak	S	N
Tragopogon dubius	yellow salsify	AF	I
Trifolium spp.	clover	AF	I
Typha latifolia	cattail	PG	N
Verbascum thapsus	common mullein	BF	I
Veronica anagallis-aquatica	water speedwell	BF	N
Vicia tetrasperma	lentil vetch	AF	I
Vinca major	periwinkle	PF	I
1. AF = annual forb, AG = annual grass; BF = biennium forb, PF = perennial forb; PG = perennial grass; S = shrub; T = tree.			
2. I = introduced, I-B = introduced & ODA Noxious Weed List B, N = native.			

VERTEBRATE WILDLIFE OBSERVED
ON THE ODOT- ADMINISTERED OAK SAVANNA HABITAT

This list is the compilation of qualitative, casual records of over 100 species of vertebrate wildlife observed on the public lands administered by the Oregon Department of Transportation located between Barrington Drive/ Riverknoll Way and I-205 in West Linn over a 14-yr period (1995-2009).

Prepared by Richard Mishaga, Ph.D., Wildlife Ecologist
3320 Barrington Drive, West Linn, Oregon

No.	SCIENTIFIC NAME	COMMON NAME	STATUS REMARKS
	AMPHIBIANS		
1	*Pseudacris regilla*	Pacific chorus frog	
	REPTILES		
2	*Sceloporus occidentalis*	Western fence lizard	
3	*Charina bottae*	Northern rubber boa	
4	*Pituophis catenifer catenifer*	Pacific gopher snake	
5	*Thamnophis ordinoides*	Northwestern garter snake	
	BIRDS		
6	*Branta canadensis*	Canada goose	
7	*Anas platyrhynchos*	Mallard	
8	*Phasianus colchicus*	Ringed-neck pheasant	
9	*Callipepla californica*	California quail	
10	*Ardea herodias*	Great blue heron	
11	*Cathartes aura*	Turkey vulture	
12	*Pandion haliaetus*	Osprey	
13	*Haliaeetus leucocephalus*	Bald eagle	Delisted Federally Threatened Species
14	*Circus cyaneus*	Northern harrier	
15	*Accipiter striatus*	Sharp-shinned hawk	
16	*Accipiter cooperii*	Cooper's hawk	
17	*Buteo jamaicensis*	Red-tailed hawk	
18	*Falco sparverius*	American kestrel	
19	*Falco peregrinus anatum*	American peregrine falcon	Delisted Federally Endangered Species
20	Charadrius vociferus	Killdeer	
21	*Gallinago delicata*	Wilson's snipe	
22	*Larus canus*	Mew gull	
23	*Larus delawarensis*	Ring-billed gull	
24	*Larus argentatus*	Herring gull	
25	*Patagioenas fasciata*	Band-tailed pigeon	Federal Species of Concern
26	*Zenaida macroura*	Mourning dove	
27	*Tyto alba*	Barn owl	
28	*Megascopis kennicottii*	Western screech owl	
29	*Bubo virginianus*	Great horned owl	
30	*Asio flammeus*	Short-eared owl	Audubon Watch List: Oregon birds critically imperiled
31	*Chordeiles minor*	Common nighthawk	State Critically Sensitive Species in the Willamette Valley
32	*Chaetura vauxi*	Vaux's swift	
33	*Calypte anna*	Anna's hummingbird	
34	*Selasphorus rufus*	Rufous hummingbird	

Vertebrate Species Observed:
ODOT West Linn Property
1995 - 2009

9/2/2009
Richard Mishaga

35	*Melanerpes formicivorus*	Acorn woodpecker	Federal Species of Concern
36	*Picoides pubescens*	Downy woodpecker	
37	*Colaptes auratus*	Northern flicker	
38	*Contopus sordidulus*	Western wood-pewee	
39	*Empidonax traillii brewsteri*	Little willow flycatcher	State Vulnerable Sensitive Species &
			Audubon Watch List: Oregon birds critically imperiled
40	*Tyrannus verticalis*	Western kingbird	
41	*Vireo huttoni*	Hutton's vireo	
42	*Vireo gilvus*	Warbling vireo	
43	*Cyanocitta stelleri*	Steller's jay	
44	*Aphelocoma californica*	Western scrub jay	
45	*Corvus brachyrhynchos*	American crow	
46	*Eremophila alpestris*	Horned lark	State Critically Sensitive Species in the Willamette Valley
47	*Tachycineta thalassina*	Violet-green swallow	
48	*Stelgidopteryx serripennis*	Northern rough-winged swallow	
49	*Hirundo rustica*	Barn swallow	
50	*Poecile atricapillus*	Black-capped chickadee	
51	*Psaltriparus minimus*	Bushtit	
52	*Sitta carolinensis*	White-breasted nuthatch	
53	*Certhia americana*	Brown creeper	
54	*Thryomanes bewickii*	Bewick's wren	
55	*Troglodytes aedon*	House wren	
56	*Turdus migratorius*	American robin	
57	*Bombycilla cedrorum*	Cedar waxwing	
58	*Vermivora celata*	Orange-crowned warbler	
59	*Dendroica nigrescens*	Black-throated gray warbler	
60	*Oporornis tolmiei*	MacGillivray's warbler	
61	*Piranga ludoviciana*	Western tanager	
62	*Pipilo maculatus*	Spotted (Rufous-sided) towhee	
63	*Pooecetes gramineus affinis*	Oregon vesper sparrow	Federal Species of Concern &
			State Critically Sensitive Species
64	*Passerculus sandwichensis*	Savannah sparrow	
65	*Melospiza melodia*	Song sparrow	
66	*Zonotrichia leucophrys*	White-crowned sparrow	
67	*Zonotrichia atricapilla*	Golden-crowned sparrow	
68	*Junco hyemalis*	Dark-eyed junco	
69	*Pheucticus melanocephalus*	Black-headed grosbeak	
70	*Passerina amoena*	Lazuli bunting	
71	*Agelaius phoeniceus*	Red-winged blackbird	
72	*Sturnella neglecta*	Western meadowlark	State Critically Sensitive Species in the Willamette Valley
73	*Euphagus cyanocephalus*	Brewer's blackbird	
74	*Molothrus ater*	Brown-headed cowbird	
75	*Carpodacus mexicanus*	House finch	
76	*Carduelis pinus*	Pine siskin	
77	*Carduelis psaltria*	Lesser goldfinch	
78	*Carduelis tristis*	American goldfinch	
79	*Coccothraustes vespertinus*	Evening grosbeak	
	MAMMALS		
80	*Sorex vagrans*	Vagrant shrew	
81	*Scapanus ovatus*	Coast mole	
82	*Sylvilagus bachmani*	Brush rabbit	
83	*Sciurus griseus*	Western gray squirrel	State Potentially Sensitive Species: Status Undetermined

Vertebrate Species Observed:
ODOT West Linn Property
1995 - 2009

9/2/2009
Richard Mishaga

2 of 3

84	*Tamiasciurus douglasii*	Douglas' squirrel	
85	*Spermophilus beecheyi*	California ground squirrel	
86	*Tamias townsendii*	Townsend's chipmunk	
87	*Microtus canicaudus*	Gray-tailed vole	
88	*Peromyscus maniculatus*	Deer mouse	
89	*Canis latrans*	Coyote	
90	*Vulpes vulpes*	Red fox	
91	*Procyon lotor*	Northern raccoon	
92	*Mustela frenata*	Long-tailed weasel	
93	*Mephitis mephitis*	Striped skunk	
94	*Odocoileus hemionus columbianus*	Black-tailed deer	
	INTRODUCED AND/OR INVASIVE SPECIES		
95	*Rana catesbeiana*	Bullfrog	
96	*Didelphus virginiana*	Opossum	
97	*Sylvilagus floridanus*	Eastern cottontail	
98	*Sciurus niger*	Eastern fox squirrel	
99	*Rattus norvegicus*	Norway rat	
100	*Mus musculus*	House mouse	
102	*Felis catus*	Domestic house cat	
103	*Colinus virginianus*	Northern bob-white	
104	*Sturnus vulgaris*	European starling	
105	*Passer domesticus*	House sparrow	

Vertebrate Species Observed:
ODOT West Linn Property
1995 - 2009

3 of 3

9/2/2009
Richard Mishaga