



# **J.R. Palensky Wildlife Area**

## **Land Management Plan**

**2023-2033**

**July 3, 2023**



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## J.R. Palensky Wildlife Area Land Management Plan 2023-2033

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J.R. Palensky Wildlife Area is located at NW Rafton Rd, Portland, OR 97231 (Figure 1). Appendix A includes the legal description of the property.

In 1993 Bonneville Power Administration (BPA) contracted the Oregon Department of Fish and Wildlife (ODFW) to manage this property. Short-term land management plans were developed and completed from 1995 to present. BPA maintains authority of the property and sets the site rules (Appendix B). The role of ODFW is to manage habitat for the Conservation Values and to perform custodial management of the property.

J.R. Palensky Wildlife Area (hereafter referred to as Palensky Wildlife Area or PWA) contains seven contiguous tax lots in Multnomah County and spans 440 acres (Table 1; Figure 2). The property's legal description is attached in Appendix A. Acreage data was obtained from the 2021 Multnomah County Surveyor and Assessor Image Locator (SAIL) website. All parcels were purchased in 1991 and have been managed in a similar manner.

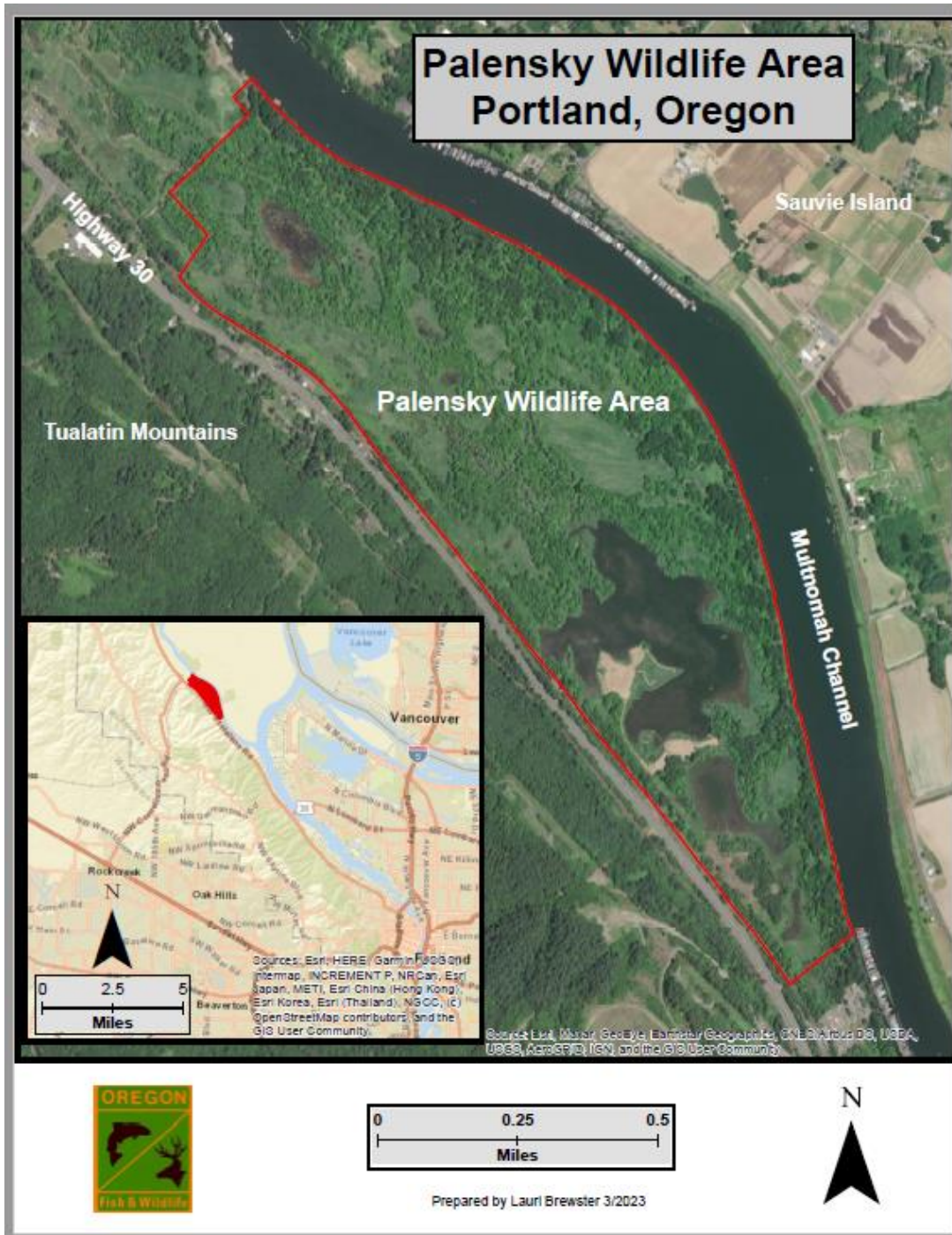


Figure 1. Location of J.R. Palensky Wildlife Area.

Table 1. The land parcels within Palensky Wildlife Area.

Section	Tax Lot	Township	Range	Acres
17	700	2N	1W	1.0
17	800	2N	1W	16.0
20	100	2N	1W	178.2
20	200	2N	1W	82.0
20	2200	2N	1W	140.7
28	1200	2N	1W	21.4
29	100	2N	1W	0.7
<b>Total</b>				<b>440</b>

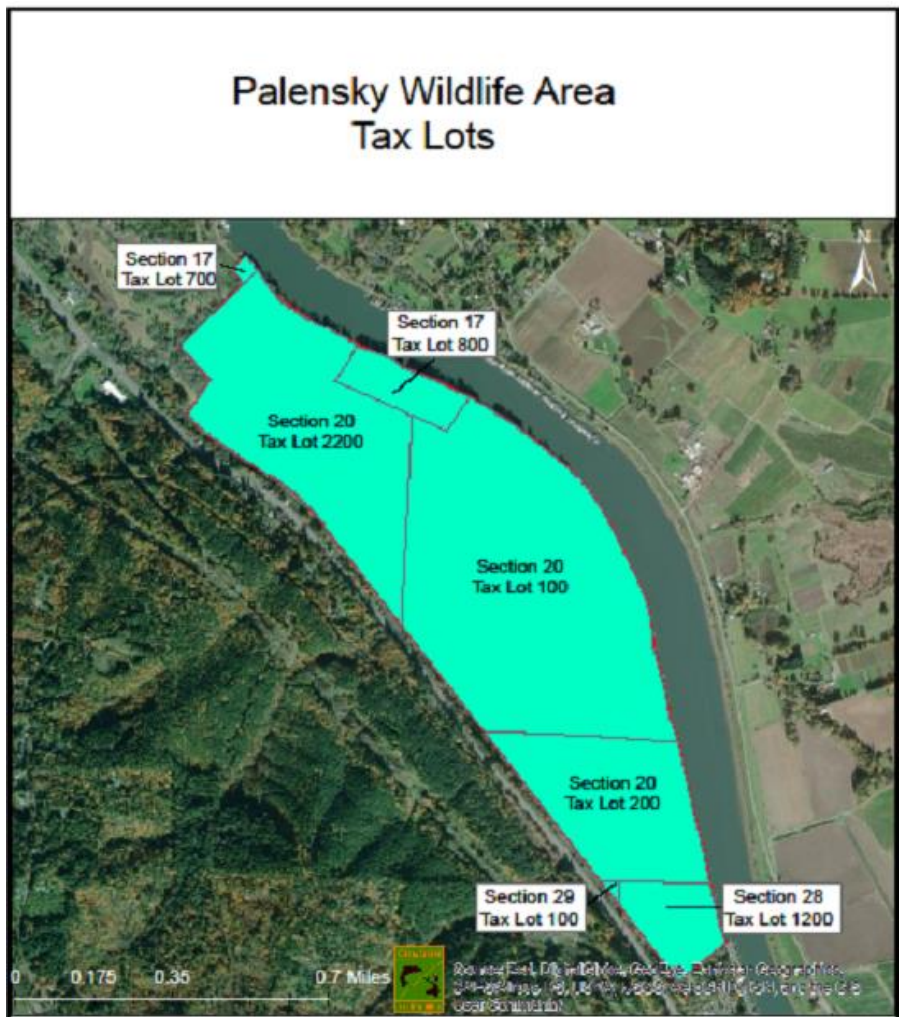


Figure 2. Tax lots within Palensky Wildlife Area.

## CONSERVATION VALUES

The purpose of this acquisition was to protect 440 acres of wetland and riparian habitats for wildlife in the northern Willamette Basin. This purchase was an opportunity to permanently protect some of the last remaining floodplain habitats along the lower Willamette River, situated between the Tualatin Mountains to the west and the southern end of Sauvie Island to the east.

In 1991, Palensky Wildlife Area (formerly named Burlington Bottoms) was purchased by Bonneville Power Administration (BPA) as one of the first wildlife mitigation sites in Oregon to provide partial mitigation for the impacts associated with the construction of hydroelectric facilities under the Willamette and Columbia River Basins Fish and Wildlife Program. There is no conservation easement on the property.

In 2010, the BPA and the State of Oregon signed an agreement that established goals for BPA to mitigate the effects of the constructions, inundation, and operation of the Willamette River Basin Flood Control Projects in the Willamette Valley. Under the terms of the Agreement, Oregon and the BPA agreed to acquire an additional 16,880 acres of wildlife mitigation property to protect 26,537 acres (or more) by the end of 2025. To accomplish this mitigation objective the parties established the Willamette Wildlife Mitigation Program (WWMP), managed by the Oregon Department of Fish and Wildlife (ODFW). Projects protected prior to the agreement, including PWA, contribute acreage towards BPA's total mitigation obligation.

From 1993 to present, BPA has contracted ODFW to manage the Palensky Wildlife Area property. Throughout that period, ODFW staff has managed custodial and habitat restoration on the property.

The Conservation Values of Palensky Wildlife Area include the following:

- A permanent lake that provides habitat for numerous resident and migratory wildlife.
- Wet prairie habitat.
- Seasonal ponds that provide important breeding habitat for native amphibians.
- Grassland habitat with a long history of documented native turtle nesting activity.
- 300 acres of riparian forest habitat, including areas of mature hardwood forest.
- Refugia for ESA-listed fish utilizing the adjacent Multnomah Channel.
- A 440-acre parcel in Multnomah County, Oregon's most populous county.
- Close proximity to Oregon Department of Fish and Wildlife's (ODFW) Sauvie Island Wildlife Area.

This management plan is grounded in the findings and recommendations of Oregon's State Wildlife Conservation Plan, the Oregon Conservation Strategy (OCS) (ODFW 2016), a comprehensive, state-wide strategy for conservation in Oregon. PWA contains three habitats identified as Strategy Habitats (Wetlands, Flowing Water and Riparian, and Grasslands) and hosts numerous species categorized as Strategy Species in the OCS. The land management activities at PWA will focus on the protection and enhancement of Strategy Habitats, through the lens of Strategy Species and species with state and federal listings. These species are listed in Table 3 on page 28.

In its capacity as land manager, the vision of ODFW is to protect and enhance the existing habitat types within Palensky Wildlife Area. Management efforts will target non-native plants, increase habitat complexity, and improve habitat for OCS strategy species.

### **CONNECTIVITY**

The PWA site contributes 440 acres to a unique and complex area of nearby protected wetlands and riparian forest. Figure 3 illustrates sites in the vicinity of Palensky Wildlife Area with ongoing conservation and restoration activities.

Palensky Wildlife Area is located within the Sauvie Island-Scappoose COA and the entire western boundary of PWA borders the Forest Park COA (Figure 4). A third COA, the Lower Willamette River Floodplain COA is just a few miles east of Palensky. The goals of this management plan are consistent with the Recommended Conservation Actions of the OCS for these three COAs. Smith-Bybee Lakes and Columbia Slough, as well as Hayden Island-Government Island are two additional COAs in close proximity to PWA (Figure 4).

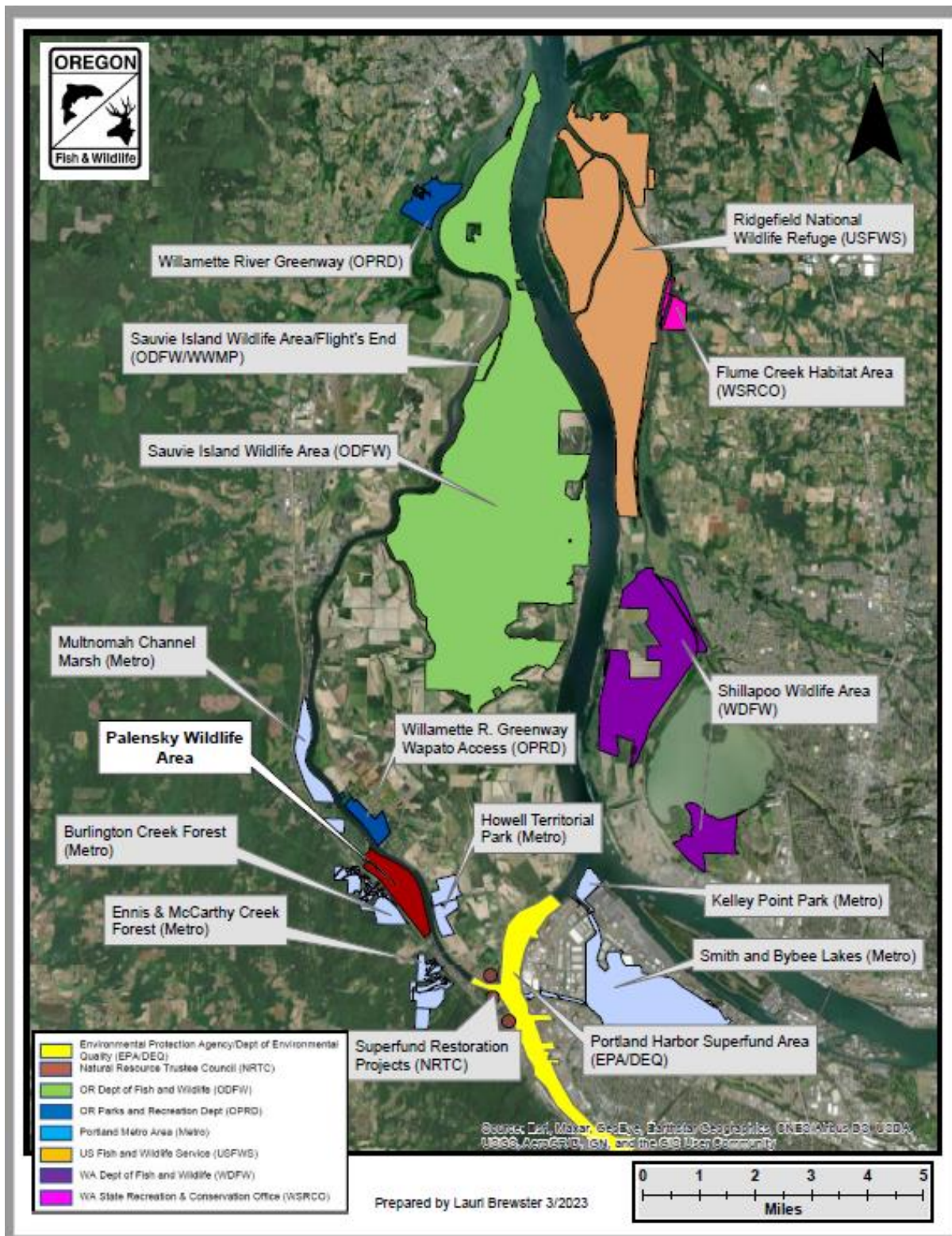


Figure 3. Sites near Palensky Wildlife Area with conservation and restoration activities.



This land management plan addresses the following eight Recommended Conservation Actions for the Sauvie Island-Scappoose COA in the OCS:

- Encourage/promote American beaver (*Castor canadensis*) activity.
- Improve grassland habitats for grassland associated species.
- Maintain wetlands and open water areas for the benefit of waterfowl, shorebirds, turtles, amphibians, and bats.
- Protect and expand Oregon white oak habitat.
- Protect and improve habitat for turtles, amphibians, and bats.
- Protect and restore wetlands (seasonal and perennial).
- Reduce road mortality for amphibians and other wildlife crossing Highway 30
- Restore disconnected floodplains.

This land management plan addresses the following eight Recommended Conservation Actions for the nearby Lower Willamette River Floodplain COA in the OCS:

- Improve aquatic and riparian habitat complexity and diversity.
- Improve riparian buffers.
- Maintain and enhance isolated wetlands to provide habitat for amphibians and turtles.
- Maintain and expand Oregon white oak habitat.
- Protect and restore shallow water and off-channel habitats.
- Remove fish and wildlife passage barriers.
- Restore floodplain function and connectivity.
- Restore riparian and wetland plant communities.

### **ADJACENT LAND USE**

Knife River's Angell Quarry is located west of PWA in the Tualatin Mountains. The quarry is a construction aggregate company. An unnamed stream passes through the quarry before draining into PWA. In 2017, the Department of Environmental Quality (DEQ) issued the quarry a civil penalty for pollution (extreme turbidity) downstream of its operations. The quarry also received penalties for violating its National Pollutant Discharge Elimination System (NPDES) permit. ODFW staff plan to follow-up with DEQ about remediation efforts following these violations.

A privately owned landfill operated on the property adjacent to the Angell Quarry from 1969-1977 (Metro 2004) and sits atop the same stream channel as the Angell Quarry. DEQ water quality tests show an abundance of iron iodizing bacteria and iron deposits downstream of the old landfill,

suggesting leachate from the landfill. ODFW has observed rusty, orange-colored sedimentation in this stream within PWA and will reach out to DEQ to obtain more information about heavy metal leaching from this landfill.

West Multnomah Soil and Water Conservation District (WMSWCD) holds an easement on the property adjacent to the northern boundary of PWA. WMSWCD has been actively restoring that property and ODFW staff communicates regularly with them about invasive plant observations and management.

Metro owns and manages a 339-acre forest parcel west of PWA and U.S. Highway 30. This upland forest is important non-breeding habitat for northern red-legged frogs (*Rana aurora*). Metro is currently seeking permits for the development of a large parking lot and several miles of bike trails. ODFW is seeking significant mitigation from Metro for the proposed project.

The unincorporated community of Burlington borders the northwestern half of PWA's western boundary. The property to the south of PWA contains a truck salvage company and there is a forest buffer between the two properties. There is a houseboat moorage on the western bank of the Multnomah Channel near the southeast boundary of PWA. None of these adjacent land uses appear to threaten the Conservation Values at PWA.

The railroad and highway adjacent to PWA are discussed in the section on threats to Conservation Values on page 35.

## **CURRENT AND HISTORICAL LAND USE**

Archeological research in the Portland Basin and within close proximity to PWA suggest the property was likely utilized by the Chinookans (see cultural resources section on page 22). In the context of land management, this is significant because it highlights the need for cultural resource surveys prior to ground disturbing activities at PWA.

The Burlington North Santa Fe (BNSF) Railroad Company was very active on the property in the 1930's. BNSF built railroad spur lines, berms, wyes, and roads on the property (Figure 5). The fill changed soil composition and topography across the wetlands and resulted in major filling of portions of the wetlands. The construction of berms and roads resulted in limited hydrological connectivity within the property.

Although the grassland habitat is not a naturally occurring habitat on this property and only exists because of the added fill, there is a benefit to maintaining the habitat as grassland and working to enhance the habitat for the species that use it. For example, this is the areas where land managers observe turtle nesting of both northwestern pond turtles (*Actinemys marmorata marmorata*) and western painted turtles (*Chrysemys picta bellii*). Management activities such as the prevention of

woody encroachment in the grassland habitat and adding habitat complexity would benefit numerous wildlife species. The goals for grassland habitat are detailed in Table 5 on page 39.

PGE has two utility lines in PWA (Figure 6) and periodically accesses the property for vegetation maintenance. The utility line running SW to NE is the historical location of a road that was used to access the Burlington Ferry that shuttled people across the Multnomah Channel. The ferry operated from 1910 – 1950 and closed when the Sauvie Island bridge was constructed in 1950.

Multnomah County Vector Control applies a larvicide to the wetland areas of PWA one to two times annually for mosquito control. The soil bacterium *Bacillus thuringiensis israelensis* (commonly referred to as Bti) is dispersed in aerial applications.

PWA was used as a grazing area for horses and cows for decades prior to BPA purchasing the property. Although unconfirmed, it is widely believed that farmers planted reed canary grass (*Phalaris arundinacea*) to ensure abundant forage material for the livestock.

ODFW has been managing PWA since 1993 with the goal of maintaining the Conservation Values and enhancing habitat. The property has been used solely for conservation and restoration activities.



Figure 5. 1948 aerial photograph of Palensky Wildlife Area shows historical Ferry Road and railroad berms and wye. Photo by U.S. Army Corps of Engineers.

### **INTERIM MANAGEMENT ACTIVITIES**

Management activities from 1995 to the present have focused on maintaining and enhancing existing habitats. Mechanical and chemical treatment of invasive plants, as well as planting native vegetation formed the bulk of these activities. Ducks Unlimited installed a water control structure (Figure 6) in 2008 as part of an effort to enhance the hydrology of the site and control reed canary grass, a nonnative invasive plant species. The structure was removed in 2021 as part of a collaborative habitat

restoration project between BPA, ODFW and the Columbia River Estuary Study Taskforce (CREST) to achieve current conservation priorities.

Metal forestry gates were installed on the north and south management access roads. These gates were installed near the property boundaries to prevent non-management vehicles from entering the property and they remain locked. A third gate was constructed just outside the PWA boundary on NW Rafton Road to control parking and dumping between U.S. Highway 30 and the ODFW south gate (Figure 6). ODFW staff worked with the BNSF Railroad Company on this gate installation because it is placed on BNSF property.

As part of the construction and operation of the water control structure at PWA in 2008, a permit (Permit #R-13987) was obtained from the Oregon Water Resources Department (OWRD) to store public waters from the Multnomah Channel and several unnamed ephemeral streams that flow into the site from the Tualatin Mountains within the wetlands at PWA. Current management does not support this strategy and did not seek to renew the permit.

In 2015 ODFW obtained a 5-year Limited Water Use License (LL-1664) from OWRD to pump surface water from the Multnomah Channel to maintain a minimum water depth of ten inches in Horseshoe Lake during drought or otherwise low water years. All plastic piping used for this project has been removed from the property. ODFW staff will not renew this license; professional opinion suggests habitat availability at PWA and within the adjacent Multnomah Channel is adequate to support turtle populations during low water years.

### **Timeline of Significant Interim Management Activities**

**1991** – The property was purchased by BPA to provide partial mitigation for the impacts associated with the construction of the hydroelectric facilities in the Willamette and Columbia Rivers. Cattle and fencing were removed from the property.

**1993** – BPA contracted ODFW to manage the property and a HEP (habitat evaluation procedure) was conducted that established a baseline of 1,319 habitat units.

**1994** – BPA completed an Environmental Assessment on the property.

**1995** – ODFW began managing PWA on the ground.

**1998** – Rail car bridge installed to expand management access on south side of property (Figure 6).

**2008** – Water control structure installed in the Multnomah Channel Slough by Ducks Unlimited.

**2015** – Limited water use permit obtained for water pumping.

**2021** – Limited water use permit for water pumping expired and not renewed.

**2021** – Large scale property clean-up effort. Significant debris removed from the property, additional private property signage added and continued mowing and spraying of invasive plants.

**2021-2022** – BPA contracted CREST for a restoration project. The project restored hydrological connections between PWA and McCarthy Creek which had been restricted by a berm, a private road and two undersized culverts. McCarthy Creek was redirected to improve flow between it and PWA, and the culverts were replaced with channel spanning bridges. The water control structure (Figure 6) was removed to increase flow between PWA and the Multnomah Channel. The slough between the Multnomah Channel and where the water control structure was located serves as backchannel habitat for ESA salmonids in the Multnomah Channel, as documented in a 2020 ODFW fish survey. ODFW provided logistical support for this project.

In addition to improved hydrological connections with neighboring waterbodies, hydrology was enhanced within the property by reconnecting backchannels and creating swales. Wetland habitat near three seasonal ponds was scraped and lowered to expand seasonal pond habitat. These actions, in conjunction with large woody debris placement and the installation of beaver dam analogs, aim to retain water in the site for longer periods. All construction areas were replanted with a diverse mix of native vegetation. Appendix C illustrates the location of all components of CREST’s restoration project.

**2023** – CREST restoration project completed after a supplemental planting effort in February 2023.

## **MANAGEMENT ACCESS AND INFRASTRUCTURE**

There are two access points used by property managers and both have ongoing issues. Both management access points are essential for management activities throughout the property because the Multnomah channel slough prohibits vehicle and equipment access to the entirety of the property from just one of the access points.

PWA access from the southern entrance (NW Rafton Road) is complicated by the railroad tracks located between two gates (Figure 6). The BNSF Railroad Company often leaves rail cars on the tracks for hours at a time which block entrance or egress to vehicles and equipment. Management staff have been able to temporarily resolve the issue by placing calls to the railroad emergency phone number but the time it takes to clear the tracks varies widely.

The second access point is complicated by an unnamed, private road (Figure 6) that is used to access the north entrance of the property. A private gate along this road is occasionally locked to prevent trash dumping and unauthorized access. The landowner and renters living on the private site have numerous locks daisy-chained on the gate. Previously, the landowner provided ODFW staff with a key to a shared lock, but this proved to be an unreliable solution to maintaining management access. A survey map (Appendix D) shows that BPA owns part of this private road although the landowner of the abutting property disputes this fact. Management activities on the northern section of the property

will be jeopardized if land ownership changes and the new owner does not provide access to ODFW or if the current landowner chooses to cease providing access. Historical documents suggest BPA and ODFW tried unsuccessfully to negotiate an access easement with the landowner in 2000. BPA's realty staff reached out to the landowner on numerous occasions between 2020 and 2022 to discuss opportunities for an access agreement or easement but it remains unknown if those are viable options.

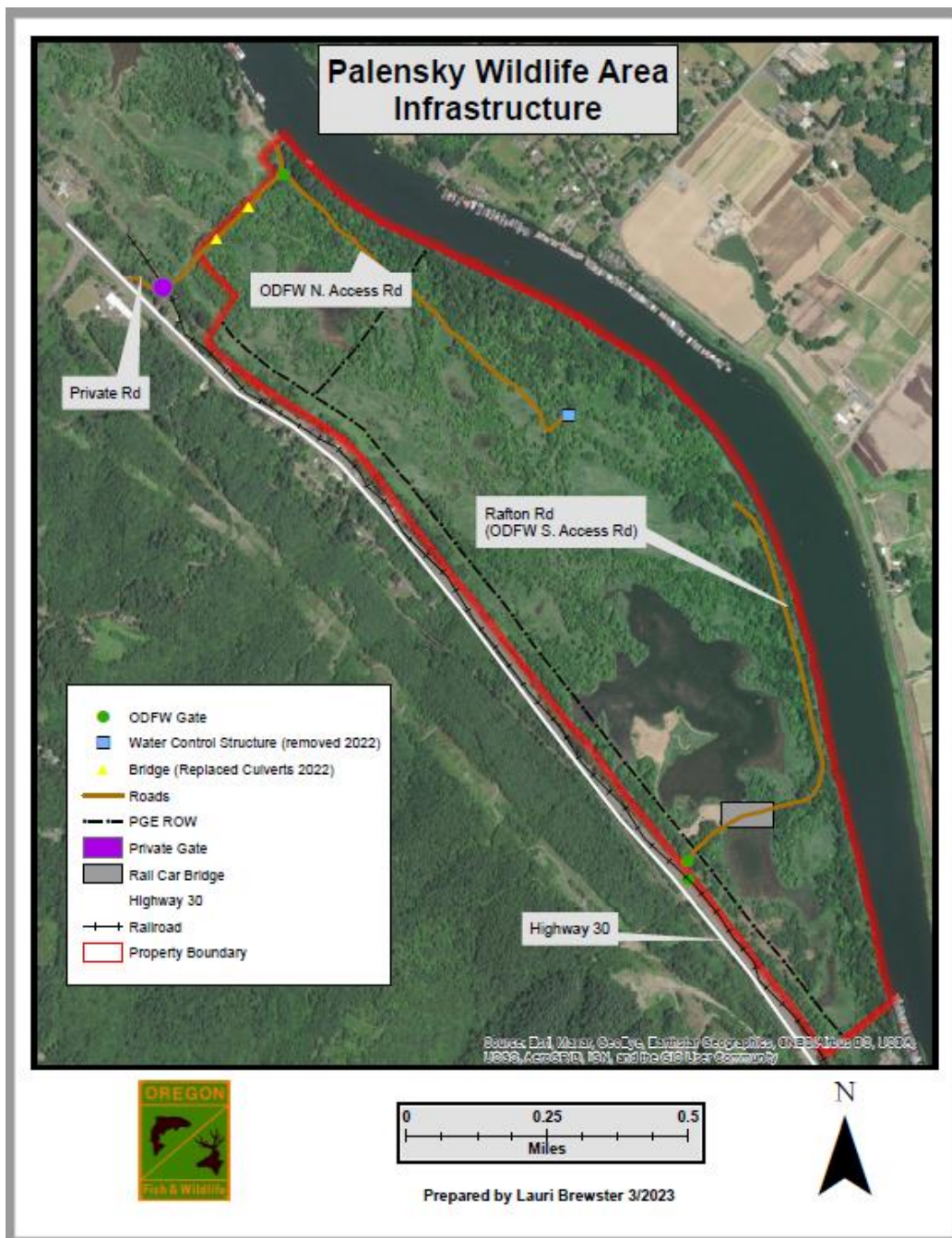


Figure 6. Infrastructure at Palensky Wildlife Area.

There are two areas on the property where management staff would like to utilize seasonal bridges to expand the reach of motorized equipment necessary for restoration (Figure 7). The first area is an ephemeral stream on the southwest side of the property that prohibits vehicles and equipment from being able to reach the southern portion of the property until June or July when the stream and mud have dried out. A seasonal bridge over this stream would enable staff to extend accessibility into the spring and fall months. This would simplify logistics for projects planned in this area such as seeding, building turtle nesting mounds, scraping ground vegetation, and installing turtle basking structures. The unnamed stream is located west of South Pond (Figure 7). The other desired crossing is over the Multnomah channel slough, exactly where CREST installed a temporary bridge during the 2021 restoration project. Goal 2 (Table 5) addresses these challenges.

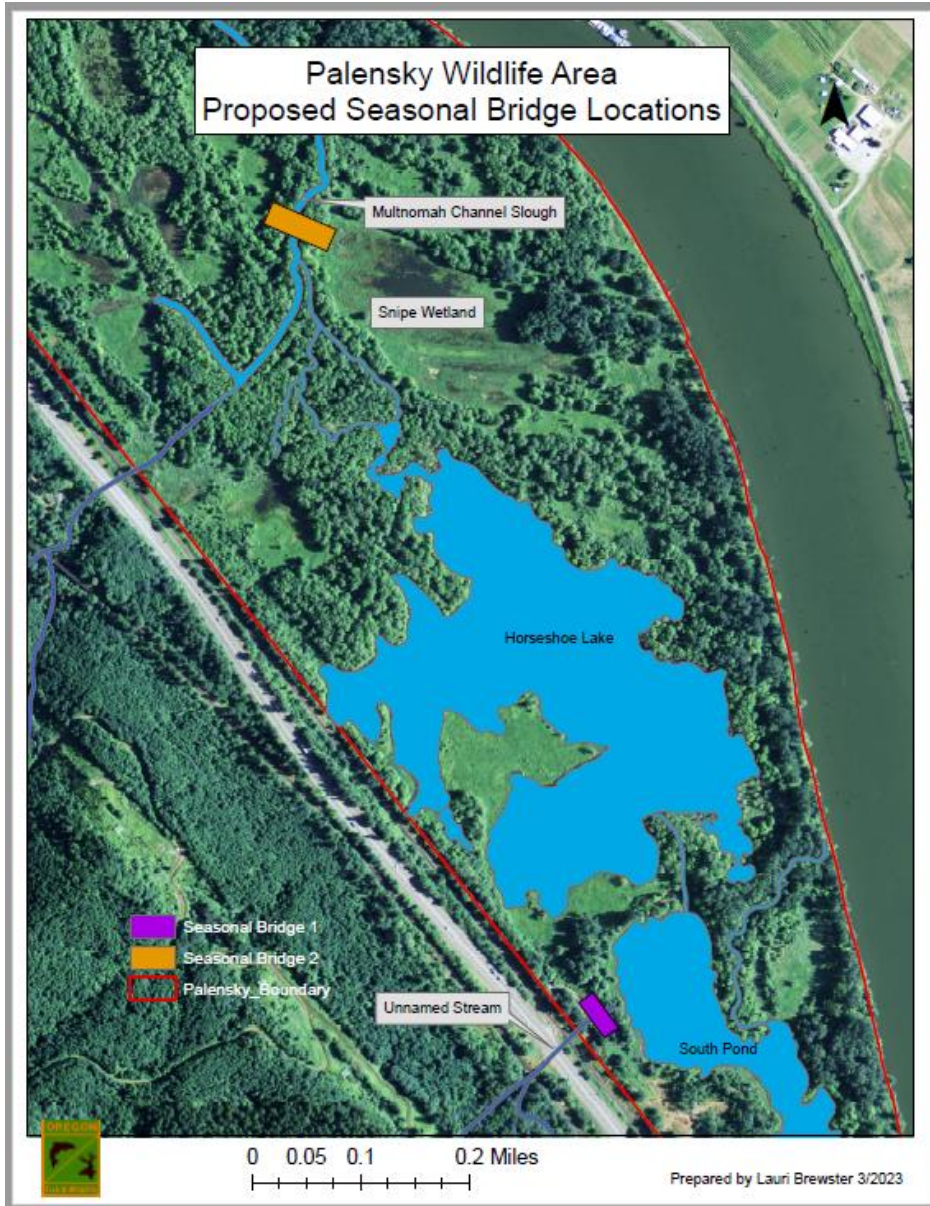


Figure 7. Proposed locations for two seasonal bridges at Palensky Wildlife Area.

### PUBLIC ACCESS AND USE

There is no public access to PWA. Access is by BPA/ODFW permission only. The southern access point is complicated by easement restrictions. The section of Rafton Road between U.S. Highway 30 and the PWA boundary is owned by the BNSF Railroad Company. An active railroad line crosses this stretch of Rafton Road and BNSF has communicated to ODFW that they would not allow a public crossing at that location. Public access via PWA’s north entrance is not possible because it would require the use of a private road between Highway 30 and the PWA management access point.

## HISTORICAL AND CULTURAL USES

The Multnomah people are a band of the Chinookan people who inhabited Sauvie Island and the Multnomah Channel. Archeological research suggests the Multnomah people resided in this location year-round and did not move seasonally like other Chinookan groups. The difference is attributed to abundant natural resource availability throughout the year.

PWA's wetland and riparian habitats with abundant wildlife, fish, and vegetation known to be valuable to the Multnomah people such as wapato (*Sagittaria latifolia*) and camas (*Camassia quamash*) would have provided an ideal location for hunting, gathering and perhaps inhabitation by native people. Remnants of the Multnomah people that would be encountered at PWA include flaked stone tools, ground stone implements, stone sculptures, charcoal, fire-cracked rock, and ground depressions from semi-subterranean dwellings (Pettigrew 1981). The Multnomah people are believed to have used Western red cedar (*Thuja plicata*) to build houses and canoes. This species is nearly absent from PWA and is in decline locally because of climate change and its inability to tolerate drought.

Lewis and Clark encountered the Multnomah people in 1805. British exploration and trading activity throughout the next decades exposed the Multnomah people to many diseases. In the 1830's smallpox, measles, and malaria had nearly eliminated the band. In 1910 the United States government moved the remaining Multnomah people to the Grand Ronde Community Reservation.

Two archaeological sites have been discovered directly across the Multnomah Channel from PWA on Sauvie Island and four other archaeological sites have been uncovered within one mile of PWA (Appendix E).

Cultural resource surveys have been conducted at PWA in 1994, 2003, 2008, 2009, and 2020 (Appendix E).

ODFW staff believe there is a medium to high probability of finding culturally significant sites on the property. The exception to this is in areas where fill has been added to the property (as discussed in land use history above), in which case we would expect a low probability of finding culturally significant sites. These areas include the roads and berms on the southern portion of the property where in some places the fill has been estimated at 40 feet in depth.

ODFW will consult with BPA prior to any ground disturbing projects for a Section 106 review. BPA's Inadvertent Discovery Procedure will be followed if cultural resources are encountered.

## **LAND USE AGREEMENTS/INCOME GENERATING ACTIVITIES/WATER RIGHTS**

There are no current or previous land use agreements for this property. There are no income generating activities, granting of rights or water rights associated with the property.

## **STAKEHOLDER AND PUBLIC INVOLVEMENT**

This land management plan will be open for public review and comments following a review from BPA staff. ODFW will coordinate the public review process.

## **EASEMENT RESTRICTIONS AND PROHIBITIONS**

There is no easement for this property.

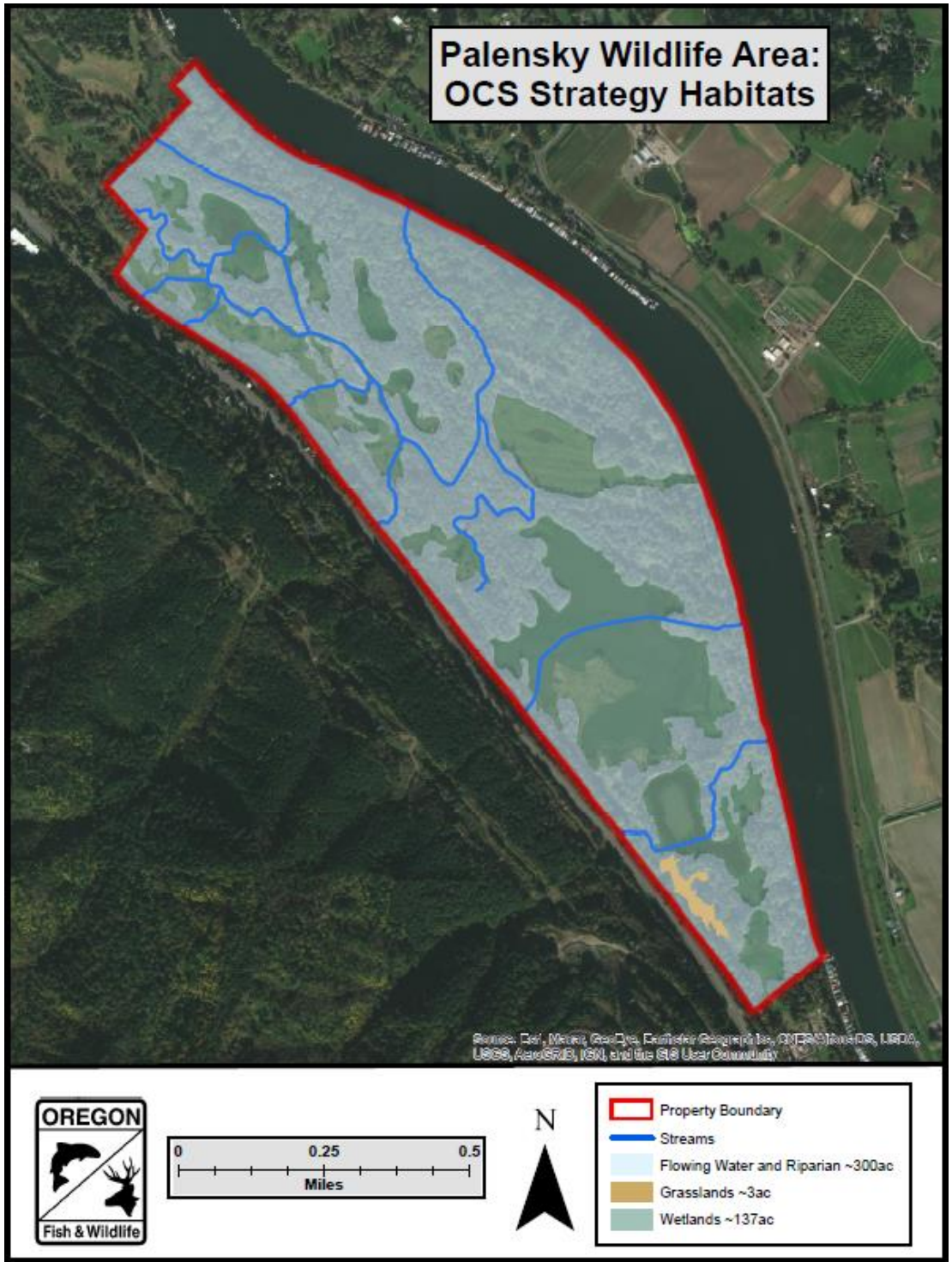


Figure 8. Oregon Conservation Strategy Habitats within Palensky Wildlife Area.

Table 2. Oregon Conservation Strategy habitats and acreage within Palensky Wildlife Area.

OCS Strategy Habitat	Acres
Flowing Water and Riparian	300
Wetlands	137
Grasslands	3
<b>Total</b>	<b>440</b>

## CURRENT HABITAT CONDITIONS

### OCS Strategy Habitat: Flowing Water and Riparian

Flowing water and riparian habitat at PWA spans 300 acres and includes five ephemeral streams and the backwater channel connecting the property to the Multnomah Channel, the Multnomah channel slough. The riparian forest is dominated by Oregon ash (*Fraxinus latifolia*), black cottonwood (*Populus trichocarpa*) and Pacific willow (*Salix lucida*). Bigleaf maple (*Acer macrophyllum*) dominates in some areas. Stands of large diameter ash and cottonwood trees are present along the Multnomah Channel and much of the interior forests. Snags and cavities are plentiful throughout the forest and natural regeneration of these species is occurring. The expansive riparian forest provides high value habitat for neotropical migratory songbirds as well as residential species.

The understory of the riparian forest includes native shrub species such as Douglas spirea (*Spiraea douglasii*), red elderberry (*Sambucus racemose*), common snowberry (*Symphoricarpos albus*) and Pacific ninebark (*Physocarpus capitatus*). However, native vegetation is limited in the understory due to the dominance of non-native shrubs, grasses and forbs including Himalayan blackberry (*Rubus armeniacus*), reed canary grass, English ivy (*Hedera helix*) and Robert geranium (*Geranium robertianum*).

### OCS Strategy Habitat: Wetlands

PWA contains 137 acres of wetland habitat. The wetland habitats are composed of both permanently and seasonally wet habitats.

Horseshoe Lake is a permanent, shallow lake that spans nearly 40 acres. The lake is fed by ephemeral streams and rainwater and its depth ranges seasonally from approximately 2-6 feet deep. The bottom substrate is composed of multiple feet of mud. The shoreline perimeter of Horseshoe Lake is dominated by Oregon ash and Pacific willow. Reed canary grass is present along the shorelines of the lake and dominates in some areas. Creeping water primrose (*Ludwigia peploides*) has recently invaded the lake and is rapidly expanding. The non-native, invasive American bullfrog (*Lithobates catesbeianus*) is abundant in the lake. Water quality is poor and non-native fish dominate the lake, but it still provides important habitat for resident and migratory birds, beaver, and native turtles.

The wetland habitat includes 53 acres of wet prairie located primarily in the central and northern portions of the property. The wet prairie habitat is dominated by reed canary grass and Himalayan blackberry but does contain some native grasses and sedges. Historical records suggest Columbia sedge (*Carex aperta*) could be present in some of the wet prairie habitat, but surveys have not been

conducted. This species is now considered to be rare but was once common in the lower Columbia basin (Piper and Beattie 1915; Gorman 1926). It is likely that reed canary grass has extirpated this species.

PWA contains nearly 40 acres of seasonal wetlands. The seasonal ponds are critical breeding habitat for the amphibians on the property. Native amphibians breed in these shallow ponds and hatch out before the ponds dry up for the season. The seasonal ponds are dominated by native aquatic vegetation such as smartweed (*Polygonum* spp.) and pondweed (*Potamogeton* spp.), as well as emergent plants such as wapato, broadleaf cattail (*Typha latifolia*) and simple-stem bur-reed (*Sparganium erectum*). The non-native, invasive yellow flag iris (*Iris pseudacorus*) has been observed in some ponds.

### **OCS Strategy Habitat: Grasslands**

Three acres of grassland habitat (upland prairie) are located in the southern portion of the property. These grasslands are present because of deposited fill material and would not otherwise be naturally occurring in this site. The grasslands are dominated by various non-native grass species, Scotch broom (*Cytisus scoparius*), Queen Anne's lace (*Daucus carota*), oxeye daisy (*Leucanthemum vulgare*) and are being encroached by Himalayan blackberry.

## **DESIRED FUTURE HABITAT CONDITIONS**

The focus of land management for this property is to maintain and enhance the existing habitats. PWA is composed of three habitat types, all of which are OCS strategy habitats. These habitats will not be converted into different habitat types and the acreage per habitat will remain the same. The OCS habitat map for the property (Figure 8) represents both current and future habitat types.

Targeted efforts to reduce invasive plants will occur in all three habitat types. Invasive plants will be mapped, and priority treatment areas will be determined based on factors such as likeliness of eradication and the degree to which they are negatively impacting target species and their habitat.

Desired future conditions also include the improvement and expansion of turtle habitat. Nesting areas known to be used historically by both native turtle species are overgrown with ground vegetation and partially shaded by the canopy. Mechanical treatments such as scraping ground vegetation, canopy thinning, and the removal of encroaching shrubs will greatly improve the nesting habitat. The addition of nesting mounds would also increase available nesting habitat that has become overgrown (Appendix I).

Habitat complexity will be added to the grassland and wetland habitats. The addition of woody debris to these habitats will benefit native birds, mammals, reptiles, amphibians, and pollinators.

Proposed native planting projects are outlined in Table 5 and project locations are mapped in Appendix J. These planting efforts would increase native plant abundance and diversity within all habitat types.

This management plan also includes an expansion of wildlife surveys conducted on the property. The

goal of these surveys is to fill data gaps regarding the species present on the property. Ongoing species lists will be generated.

Another desired future habitat condition is an improved migration channel for the amphibians that migrate seasonally between the Forest Park COA and the Sauvie Island-Scappoose COA. The seasonal migration of northern red-legged frogs, an OCS Strategy Species, has been well documented by ODFW staff. This species uses PWA's wetland habitat for breeding and the upland forest habitat of the Forest Park COA for non-breeding habitat. Goal 2 (Table 5) outlines a strategy for exploring the feasibility of an amphibian underpass on U.S. Highway 30, an area where significant road mortality exists during northern red-legged frog migration events (Figure 9).

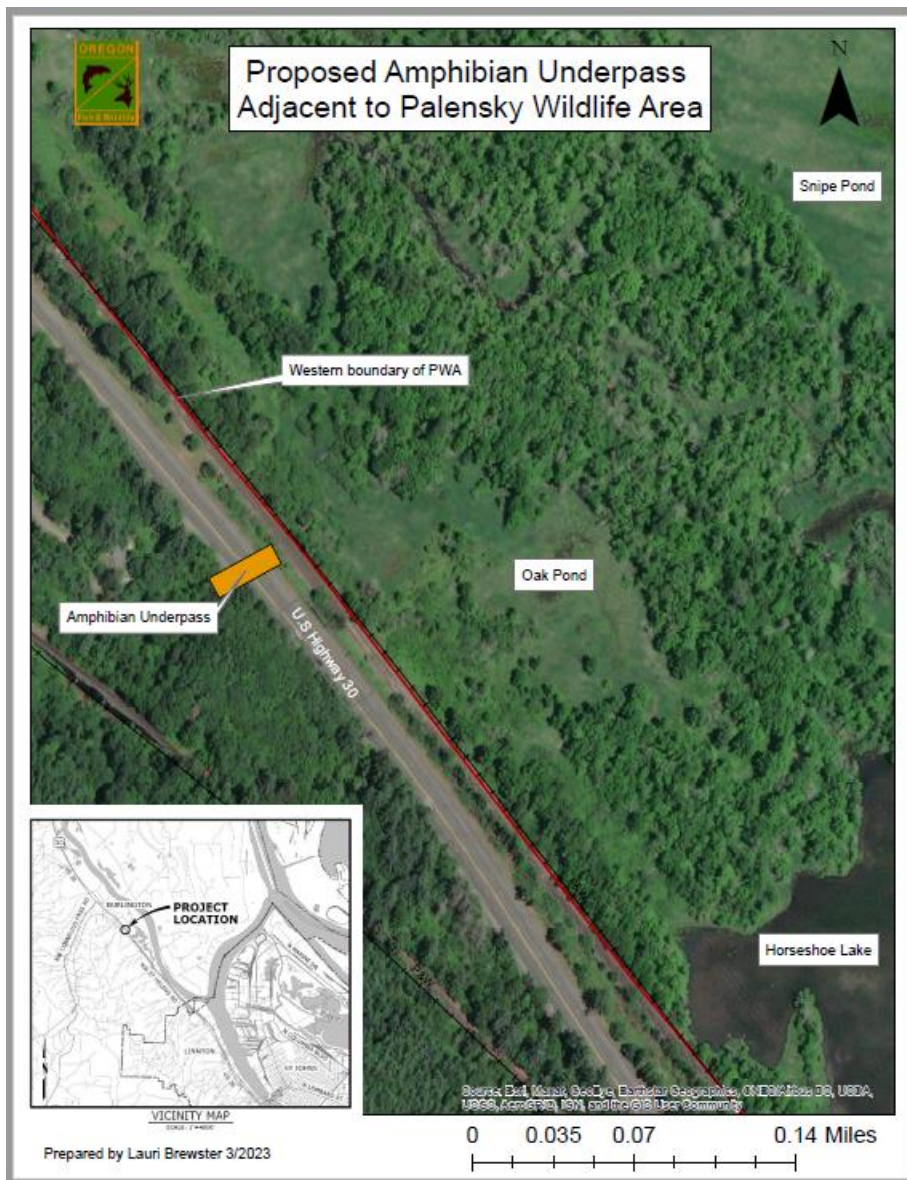


Figure 9. Location of proposed amphibian underpass in proximity to Palensky Wildlife Area.

### SPECIAL STATUS SPECIES

Table 3. Oregon Conservation Strategy and special status species that have been documented at Palensky Wildlife Area by ODFW staff.

Priority Focal Species	Scientific Name	OCS	Federal Status	State Status	Occurrence
Bald Eagle	<i>Haliaeetus leucocephalus</i>		Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act		Throughout property
Dusky Canada Goose	<i>Branta canadensis occidentalis</i>	OCS		Sensitive	Horseshoe Lake
American White Pelican	<i>Pelecanus erythrorhynchos</i>	OCS		Sensitive	Horseshoe Lake
Greater Sandhill Crane	<i>Grus canadensis tabida</i>	OCS		Sensitive	Near Horseshoe Lake
Western Bluebird	<i>Sialia mexicana</i>	OCS		Sensitive	Near Horseshoe Lake
Purple Martin	<i>Progne subis</i>	OCS	Species of Concern	Sensitive	Throughout property
Willow Flycatcher	<i>Empidonax traillii</i>	OCS	Species of Concern	Sensitive	Throughout property
Coho Salmon	<i>Oncorhynchus kisutch</i>	OCS	Threatened	Endangered	Multnomah channel slough
Fall Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	OCS	Threatened	Sensitive	Multnomah channel slough
Northern Red-legged Frog	<i>Rana aurora</i>	OCS	Species of Concern	Sensitive	Throughout property, breeds in seasonal ponds
Western Painted Turtle	<i>Chrysemys picta bellii</i>	OCS		Sensitive	Throughout property
Northwestern Pond Turtle	<i>Actinemys marmorata marmorata</i>	OCS	Species of Concern	Sensitive	Throughout property
California Myotis	<i>Myotis californicus</i>	OCS		Sensitive	Between Horseshoe Lake and South Pond

Silver-haired Bat	<i>Lasionycteris noctivagans</i>	OCS	Species of Concern	Sensitive	Between Horseshoe Lake and South Pond
Long-legged Myotis	<i>Myotis volans</i>	OCS	Species of Concern	Sensitive	Between Horseshoe Lake and South Pond
Hoary Bat	<i>Lasiurus cinereus</i>	OCS	Species of Concern	Sensitive	Between Horseshoe Lake and South Pond

PWA is located within the Willamette River Anchor Habitats for ESA listed salmonid species. Fish surveys conducted by ODFW at PWA in 2020 documented Chinook salmon (*Oncorhynchus tshawytscha*) in the Multnomah channel slough. Historic documents suggest Coho salmon (*Oncorhynchus kisutch*) have been observed at PWA but this has not been confirmed by ODFW.

Northwestern pond turtles are currently under review by U.S. Fish and Wildlife Service for possible listing under the Endangered Species Act. These turtles have been observed on the property and in 2021, ODFW began using trapping and marking efforts to gain a better understanding of the population using the site. Some of the goals identified in this land management plan target habitat improvements for northwestern pond turtles.

### **INVASIVE SPECIES**

American bullfrogs, oriental weatherfish (*Misgurnus anguillicaudatus*), common carp (*Cyprinus carpio*) and nutria (*Myocastor coypus*) are the most significant invasive fish and wildlife on the property. These species have been observed throughout the wetland and riparian habitats.

Reed canary grass, Himalayan blackberry, Scotch broom, and creeping water primrose are the most significant invasive plants on the property. See Figure 10 for a map of the approximate distribution of each species.

Other invasive plant species present on the property include common teasel (*Dipsacus fullonum*), bull thistle (*Cirsium vulgare*), English ivy (*Hedera helix*), Robert geranium (*Geranium robertianum*), oxeye daisy (*Leucanthemum vulgare*), tansy ragwort (*Jacobaea vulgaris*), yellow flag iris, Japanese knotweed (*Fallopia japonica*) and parrot feather (*Myriophyllum aquaticum*). A table with B-listed noxious weeds observed at PWA is included in Appendix F.

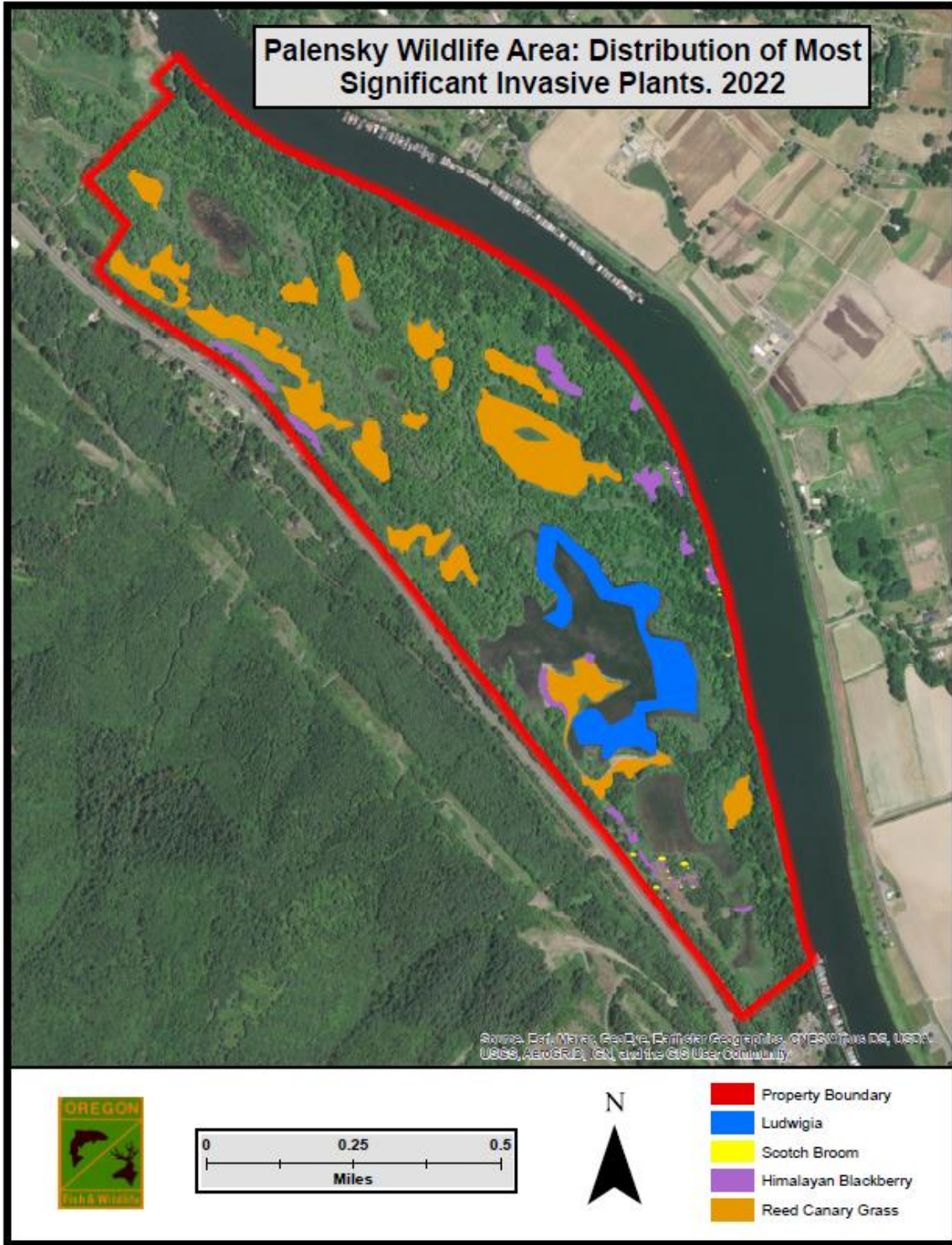


Figure 10. Distribution of most significant invasive plant species within Palensky Wildlife Area.

## HYDROLOGIC CONSIDERATIONS

PWA is located along the Multnomah Channel, a 21.5-mile-long river connecting the lower Willamette River to the Columbia River. Over time, the hydrologic regime has changed dramatically due to human manipulation of the Willamette River and associated streams and channels. Hydrology modifications began with Euro-American settlement when the river was being used as a principal arterial for transporting farm and forest goods (Primozych 2004). The U.S. Army Corps of Engineers (Corps) began removing trees and snags from the river in the 1880s, decreasing stream complexity and reducing habitat for fish and wildlife. In 1908, the Corps began dredging the Willamette, which included blocking side channels, scraping gravel bars, and building wing dikes to change the depth and course of the river.

These modifications have resulted in a significant decline in plant, fish, and wildlife species diversity, as well as decreased wetland functionality and large-scale habitat loss, particularly grassland and wet prairie habitats (Noss et al. 1995).

The activities discussed in the land use history section of this plan resulted in several manmade hydrological barriers within and along the boundaries of PWA. CREST's restoration project aimed to restore hydrological connections on the property. Figure 11 illustrates the current hydrology at PWA.

Water levels at PWA are impacted by tidal influence from the Columbia River, water released at dams, beaver dams, snowpack, rainfall, the McCarthy Creek, and runoff from the six ephemeral streams draining from the Tualatin Mountains. This array of factors creates challenges for land managers to plan and implement management and restoration activities. As mentioned in goal 2 of the management access goals (Table 5), management staff would benefit from the use of seasonal bridges at two locations on the property (Figure 7).

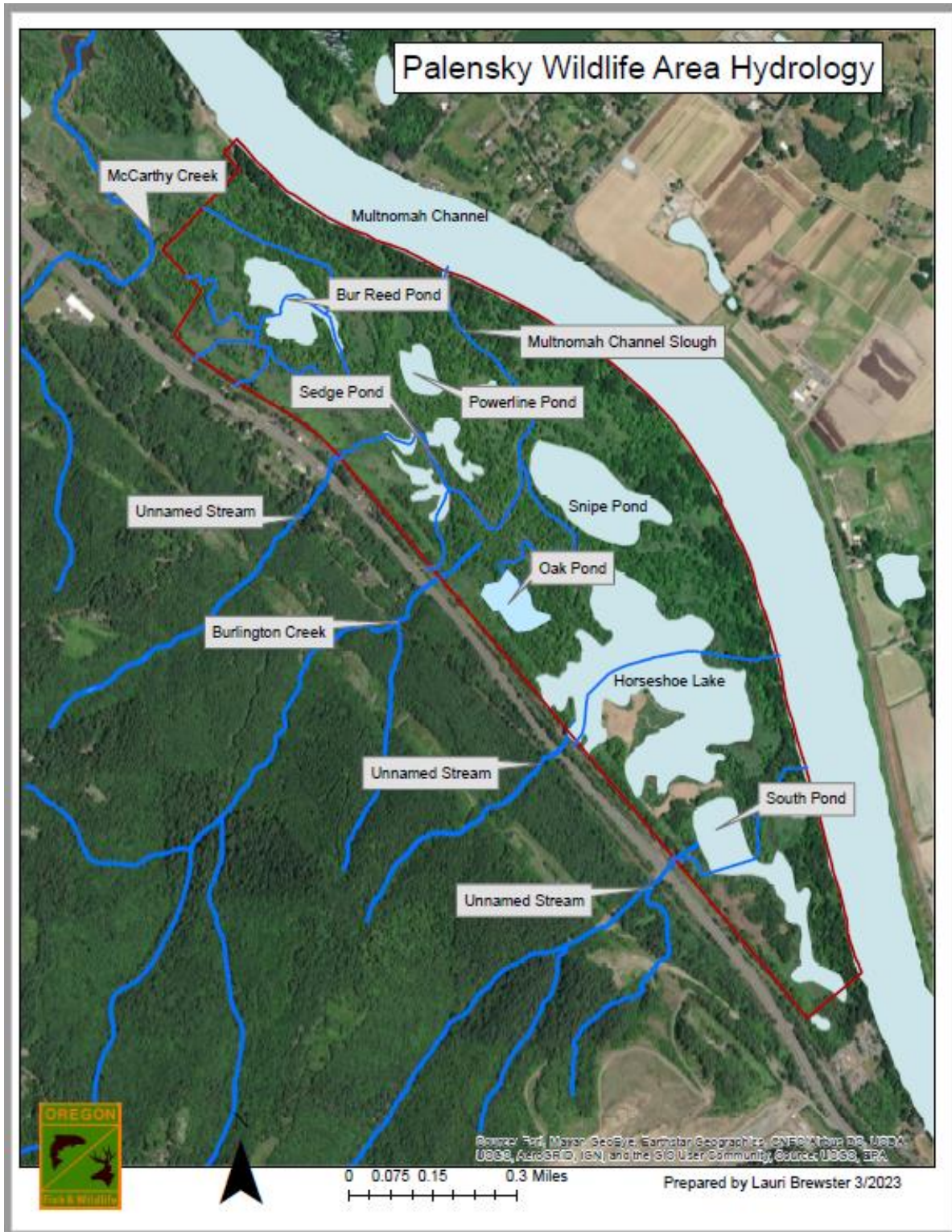


Figure 11. Palensky Wildlife Area hydrology.

## SOIL TYPES

See Figure 12 for a map of the various soil types within Palensky Wildlife Area and Table 4 for the percentage of the property that contains the different soil types.

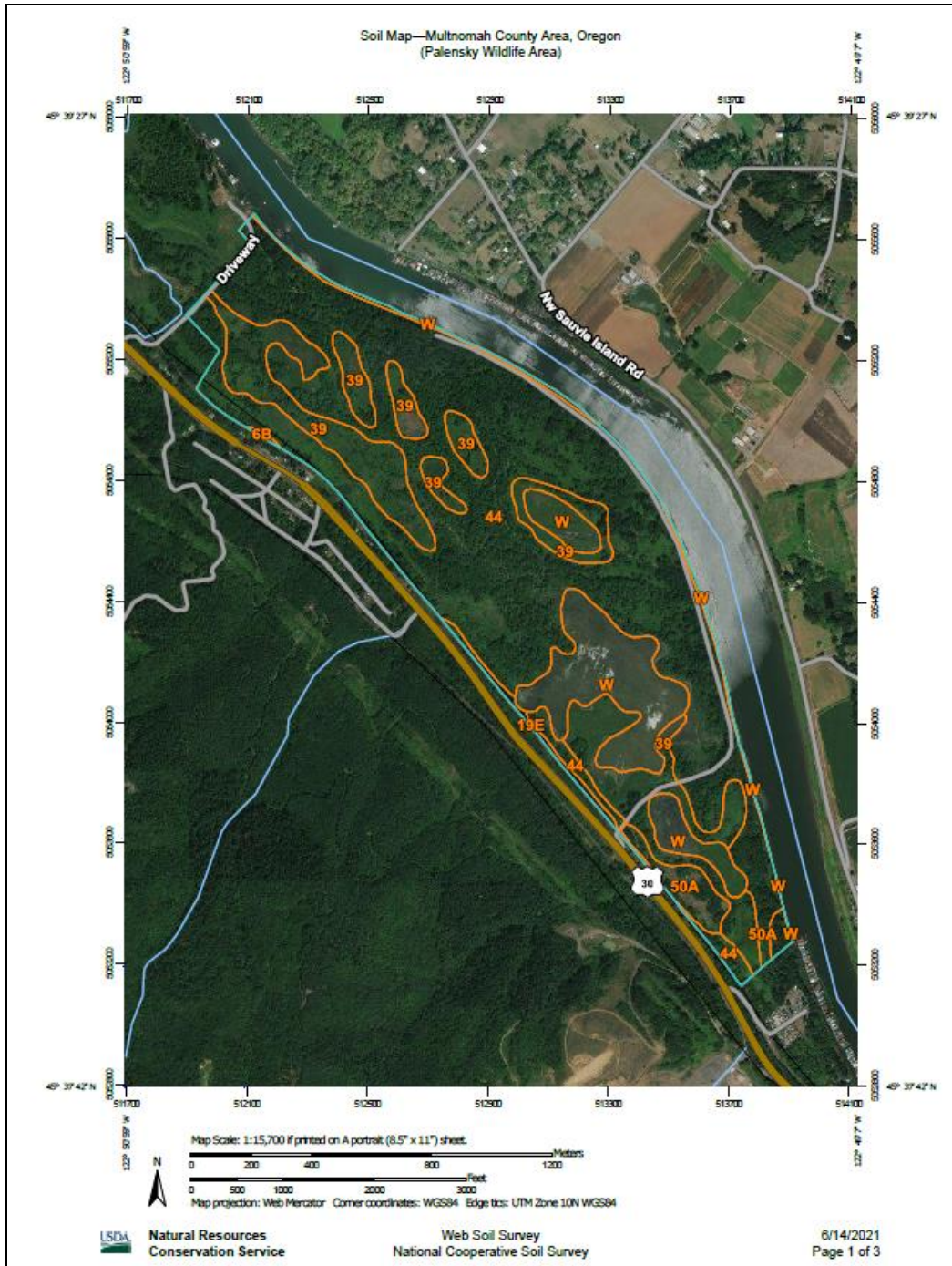


Figure 12. Soil types within Palensky Wildlife Area. See Table 4 for map unit symbols.

Table 4. Acreage and percent coverage of soil types within Palensky Wildlife Area.

<b>Map Unit Symbol</b>	<b>Map Unit Name</b>	<b>Acres in PWA</b>	<b>Percentage of PWA</b>
6B	Burlington fine sandy loam, 0 to 8 percent slopes	0.4	0.1
19E	Haploxerolls, steep	3.3	0.8
39	Rafton silt loam	91.0	20.7
44	Sauvie silt loam	274.4	62.4
50A	Urban land, 0 to 3 percent slope	11.3	2.6
W	Water	59.6	13.5
<b>Totals for PWA</b>		<b>440</b>	<b>100%</b>

## **THREATS TO CONSERVATION VALUES**

The threats to the Conservation Values at PWA include: invasive species, climate change, impacts from adjacent properties, and trespassing.

### **Invasive Species**

American bullfrog, common carp, Oriental weatherfish, and nutria are all established and prolific on the property. These species both outcompete and predate native wildlife, as well as reduce habitat quality. The shallow water and muddy substrate in Horseshoe Lake make it particularly vulnerable to the increased level of water turbidity caused by these invasives.

Given their establishment and the open system of PWA, management actions to control these invasive wildlife species are futile and not cost effective.

Reed canary grass, Himalayan blackberry, Scotch broom and creeping water primrose are the invasive plants that most significantly threaten the Conservation Values at PWA (Figure 10). The encroachment of these invasive plant species outcompetes native species and limits plant diversity. Invasive plant domination also leads to a decline in forage quality and a loss of valuable breeding sites. Appendix F includes a list of the B-listed noxious weeds present at PWA.

Management activities to control invasive plants in all three Strategy Habitats at PWA are included in Table 5.

### **Climate Change**

Climate change models for western Oregon predict significant changes throughout the next century. Summers droughts, winter flooding, increased size and frequency of wildfires, greater susceptibility to pests, disease and invasives species are some of the impacts we can expect (Bachelet et al. 2011).

The climate change predictions for the Pacific Northwest suggest the wetland and riparian habitats within PWA will be negatively impacted. Within PWA we would expect to see overall less water in the wetland system because of snowpack declines, lower summer river flows and increased summer temperatures. Reduced water availability and increased air and water temperatures could significantly impact the plant and animal species composition, distribution, phenology, and timing of wildlife life cycles. These threats would likely compound other threats facing OCS strategy habitats and strategy species at PWA.

The restoration project completed by CREST in 2023 is expected to retain water in PWA longer into the summer. This adds some habitat resilience. Future planting plans will anticipate hotter and drier conditions and will prioritize native species that are best suited for these conditions. Planting plans will also consider the changing ranges of native plants with respect to climate change.

### **Temperature**

Annual temperatures in Oregon will increase by 5 degrees F by the 2050s and 8 degrees by the 2080s (IPCC 2014). The frequency and duration of extreme heat events (days above 90 degrees F) are both

expected to increase.

### **Precipitation**

Climate science models predict that the amount of summer precipitation received in western Oregon will decrease, leading to an increase in droughts. Winter precipitation is projected to increase, with a higher proportion of the precipitation received in the form of rain rather than snow. Both the frequency and intensity of high precipitation events in winter are expected to increase, resulting in winter flooding events of increased magnitude. The amount of snowpack in the western Cascade Region is projected to decline and lead to runoff that is both lower in volume and that occurs earlier in the season. In general, flooding events will be influenced more by rainfall events than snowmelt (Dalton et al. 2021).

An adaption strategy recommended by the 2021 State Agency Climate Change Adaptation Framework for Oregon (Department of Land Conservation and Development 2021) is to restore watershed health, resiliency, and capacity for natural water storage. This land management plan supports this strategy by managing invasive plants, planting vegetation that is more drought tolerant and working with partners to maximize natural water storage on the property.

CREST completed a project in 2023 that will improve the hydrological functioning at PWA. Specifically, the property's connection to the McCarthy Creek was reestablished, channel spanning bridges replaced undersized culverts, swales and beaver dam analogs were added and marsh plain lowering was conducted to expand seasonal wetland habitat. ODFW has also been working with the Oregon Department of Transportation (ODOT) to address culvert blockages that occur west of PWA along Highway 30. These blockages cause water flowing from the Tualatin Hills to pool on Highway 30 rather than drain into PWA through ephemeral streams.

### **Wildfires**

Wildfires in Oregon are expected to increase in size and frequency because of climate change. Research has shown that wildfires in riparian areas result in significantly more damage in the overstory than the understory (Halofsky and Hibbs 2008). Deciduous hardwoods such as the black cottonwood, bigleaf maple and Oregon ash at PWA are vulnerable to basal area mortality and crown scorch. Halofsky and Hibbs (2008) also suggest the severity of wildfire in riparian habitats corresponds directly to the degree of severity of the wildfire in the nearby uplands. This suggests the severity of a wildfire at PWA would be determined by the degree of fire severity in the Tualatin Mountains.

General recommendations for increasing wildfire resiliency are included in the management goals of this plan. These actions include retaining water longer into the summer months, planting native trees and shrubs in areas where natural recruitment is not occurring, and diversifying vegetation age classes. More of the fire-resistant species, Oregon white oak will be planted throughout the property. Oregon white oak already occurs on the property, but no recruitment has been observed.

### **Extreme Weather Events**

Climate change is causing increased storm frequency and intensity. Periodic flooding was a historical component of PWA but the flooding events resulting from climate change would likely be significantly more frequent and intense than those occurring in the past (Doppelt et al. 2009).

The shallow-rooted trees in a riparian forest are more susceptible to falling in high windstorms and ice storms than deeper rooted trees. Such events could cause streambank erosion and decrease water quality through sediment input and reduced stream shading. Although downed woody debris is a healthy part of a riparian ecosystem, the effects of climate change could contribute to a rapid influx of downed woody debris, which would add a significant amount of fire fuel to the understory.

### **Pests and Disease**

The projected changes in temperature and precipitation caused by climate change create a scenario where forest insects, diseases and invasive plants will become more widespread (OCCRI 2019).

The highly destructive beetle, emerald ash borer (*Agrilus planipennis*) was first detected in Oregon in June of 2022. This insect first arrived in the United States in 2002 and has since killed an estimated 100 million ash trees (Oregon Department of Forestry 2022). The Oregon ash in PWA has a high risk of infestation given that the first and only detection of the beetle was in the town of Forest Grove, approximately 20 miles from PWA. Adults are estimated to disperse an average of two miles per year and are likely to be present at PWA within the timeframe of this land management plan. Objective 4 of the Flowing Water/Riparian goals (Table 4) addresses the management approach in response to this pest.

The flighted spongy moth complex, formerly known as Asian gypsy moths (*Lymantria dispar asiatica*) are invasive, defoliating insects that have been found in two areas near PWA (Forest Park and North Portland). In 2015 the Oregon Department of Agriculture (ODA) treated those areas and is actively monitoring for the species. Given the proximity of these areas to PWA and the fact that the larvae are generalists, land managers will monitor for this species and work with ODA to install traps at PWA.

Wildlife diseases are expected to become more prevalent and widespread with climate change. Animal congregation around limited water resources, combined with compromised immune systems from animal stress put wildlife species at a greater risk of becoming infected with current and emerging diseases. ODFW witnessed the impact of avian influenza on waterfowl at PWA during the summer of 2022. White nose syndrome in bats, chytrid fungi in amphibians, West Nile virus in birds and mammals, avian cholera, septicemic cutaneous ulcerative disease in turtles, and rabbit hemorrhagic disease are just some of the emerging diseases that could have significant impacts on the wildlife at PWA. Land managers will continue reporting suspected disease outbreaks to ODFW wildlife biologists.

### **Adjacent Land Use and Proximity to Railroad and Highway**

As mentioned in the section on adjacent land use, the gravel mine, landfill, and development of Metro's Burlington Creek Forest could have significant impacts on the Conservation Values at PWA. Runoff from the landfill or gravel mine could introduce heavy metals or result in phosphorus loading and increased algal blooms throughout the wetlands.

Hazardous waste spills along the railroad tracks west of the property (Figure 6) are a potential threat and could have serious negative impacts to habitats and wildlife at PWA. In 2012, a train derailed west of PWA and resulted in ethanol spilling into nearby riparian habitat. In 2022 a diesel spill

occurred on the tracks just north of PWA in Scappoose. It is also likely that with increased droughts predicted for this area, the threat of fires caused by railroad sparks will increase.

U.S. Highway 30 runs parallel with the western boundary of PWA. This highway is known to be lethal for amphibians that utilize this important migration channel between the Tualatin mountains and PWA during the breeding season. ODFW staff has been tracking amphibian road mortalities for several years. Goal 2 of the wildlife goals in Table 4 is an attempt to reduce amphibian mortality on Highway 30.

### **Trespass**

The proximity of the railroad and highway to PWA result in high visibility of the site from people walking on the tracks, driving by the south access road, and illegally parking in the pullout area at the south gate on Rafton Road. The property has a history of trespassing by people who reach the site by boat and by foot.

Trespassers can pose a threat to the Conservation Values of the site by disturbing wildlife, impacting habitats, removing vegetation, poaching fish and wildlife, littering and other unauthorized activities. Trespassing, dumping of wildlife, poaching of plants and wildlife, property theft and camping have been observed at PWA by ODFW staff.

Camera footage, footprints, litter, and direct encounters with trespassers suggest most trespassers enter the property from the railroad tracks and from Rafton Road. Private property signs have been placed at the south and north entrance gates as well as along the shoreline of the Multnomah Channel on the eastern edge of the property. All gates always remain locked.

Property managers have established a relationship with Oregon State Police (OSP), and they are aware of trespass issues on the property. OSP has assisted land managers in the past by escorting trespassers off the property. Goal 1 of the trespass goals (Table 5) attempts to discourage trespass at the site.

## **AGRICULTURE/GRAZING/FORESTRY/FIRE**

There are no plans to incorporate any of these practices at PWA. However, with the recent emerald ash borer discovery in Forest Grove, Oregon, future ash thinning might be desired. Land managers would like to map the current Oregon Ash on the property and consult with the Oregon Department of Agriculture about best management practices to prepare for a likely invasion. ODFW will present a thinning or forest management plan to BPA if cutting is recommended. There is no record of fire on this property and no plans for controlled burns.

## **ENVIRONMENTAL REGULATIONS**

- National Historic Preservation Act (Section 106)
- State Historic Preservation (ORS 358.635)

- Clean Water Act (Section 404) (U.S. Army Corps of Engineers)
- Removal-Fill Law (ORS 196.765-990) (Oregon Department of State Lands)
- Endangered Species Act (Section 7) (U.S. Fish and Wildlife Service)
- National Environmental Policy Act (NEPA)

**GOALS, OBJECTIVES, AND STRATEGIES**

The overarching goals, objectives, and strategies for PWA are described in Table 5.

Table 5. Goals, objectives, and strategies for Palensky Wildlife Area.

<b>Flowing Water/Riparian Habitat Goals</b>
<b>Goal 1: Maintain and enhance native vegetation.</b>
Objective 1: Conduct annual surveys for invasive plants. Survey for recent invasives (Japanese knotweed and yellow flag iris) to prevent further spread or establishment, as well as survey for new invasive species.
Strategy 1.1: Conduct Early Detection Rapid Response (EDRR) surveys and map results.
Objective 2: Treat 100% of ivy patches by 2024. Currently less than 20 patches.
Strategy 2.1: Use mechanical and chemical methods to treat ivy.
Objective 3: Treat 5 patches of Himalayan blackberry (minimum of 25m in length) along the Multnomah Channel Slough by 2026 and plant native shrubs in treated areas. by 2033.
Strategy 3.1: Prioritize patches based on potential habitat improvement value.
Strategy 3.2: Use mechanical and chemical treatments to control Himalayan blackberry patches.
Strategy 3.3: Replant treated areas with native shrubs. (Appendix J)
Objective 4: In response to the detection of emerald ash borer in Oregon in 2022, develop an adaptive management plan for Oregon ash by 2024.
Strategy 4.1: Map Oregon ash trees within PWA.
Strategy 4.2: Develop list of trees and shrubs to possibly underplant while ash is still alive.
Strategy 4.3: Stay informed on the spread and adaptive management strategies by Oregon Department of Forestry, Oregon Department of Agriculture, and other experts.

<b>Wetlands Habitat Goals</b>
<b>Goal 1: Increase habitat complexity for wildlife.</b>
Objective 1: Increase woody debris around lake and pond shorelines in 10 locations by 2025.
Strategy 1.1: Move woody debris collected during access road maintenance to shorelines.
Objective 2: Increase diversity and abundance of native shrubs and trees throughout 15 acres of deciduous swamp/shrubland habitats between 2023 and 2028.
Strategy 2.1: Plant native shrubs and trees. (Appendix J)
Objective 3: Build and place 20 turtle basking structures in and around Horseshoe Lake and South Pond prior to summer of 2024.
Strategy 3.1: Build basking structures using natural materials.
<b>Goal 2: Improve quality of important egg-laying habitats.</b>
Objective 1: In known turtle nesting areas, reduce canopy cover to less than 5% and reduce ground vegetation (native and non-native) where it is currently encroaching nesting sites by 2024.
Strategy 1.1: Use chemical and mechanical treatments to reduce canopy cover and encroaching vegetation.
Objective 2: Improve habitat in and around at least one seasonal pond where amphibian egg masses are laid to increase native plant species abundance and diversity. Annually. 2023-2033.
Strategy 2.1: Plant native wetland seed mix, willow stakes and bare root plants. (Appendix J)
<b>Goal 3: Control population of creeping water primrose in Horseshoe Lake.</b>
Objective 1: By 2025, reduce percent cover of creeping water primrose by 80%. Currently covers approximately 12 acres on the lake.
Strategy 1.1: Seek contract proposals, coordinate treatment implementation, and monitor results.
Objective 2: Control residual population annually. 2024-2033.
Strategy 2.1: Use a combination of hand-pulling and chemical treatments.

<b>Goal 4: Focus management of reed canary grass on acreage where land managers view the greatest potential for habitat improvement value.</b>
Objective 1: Prioritize acreage currently dominated by reed canary grass and develop treatment schedule for the next 10 years. 2024.
Strategy 1.1: Use treatment schedule to guide location and timeline for mechanical and chemical treatment.
<b>Goal 5: Conduct targeted surveys for yellow flag iris, parrot feather, and any other recently observed invasive plants in the wetlands.</b>
Objective 1: Conduct Early Detection Rapid Response (EDRR) surveys annually within all seasonal and permanent ponds/lakes.
Strategy 1.1: Map locations of invasives and use appropriate treatment.
<b>Grasslands Habitat Goals</b>
<b>Goal 1: Maintain and enhance native vegetation in the grassland habitat.</b>
Objective 1: Reduce Scotch broom to less than 25 stems by 2028. Current estimate is less than 200 stems on the property.
Strategy 1.1: Use mechanical and chemical methods to remove Scotch broom.
Objective 2: Increase native plant diversity and abundance by adding native grass and forbs two times throughout 3 acres. 2023-2025.
Strategy 2.1: Seed native grasses and forbs throughout upland prairie. (Appendix J)
<b>Goal 2: Improve and expand nesting areas for wildlife.</b>
Objective 1: Add woody debris to existing brush piles and add additional brush piles to increase areas for ground nesting wildlife. Annually.
Strategy 1.1: Use woody debris from access road trimming to improve upon and create new brush piles.
Objective 2: By 2026, reduce vegetation growing in and around turtle nesting areas by 50%.
Strategy 2.1: Remove vegetation from existing nesting areas by scraping and hand-pulling.
Strategy 2.2: Control invasive plants encroaching nesting areas.
Objective 3: By 2024, add 50 cubic yards of soil to known turtle nesting areas. (Appendix I)

Strategy 3.1: Build turtle nesting areas throughout 5 acres.
<b>Goal 3: Prevent woody vegetation from encroaching grassland habitat.</b>
Objective 1: Retain current acreage (3 acres) of open grassland habitat. Ongoing.
Strategy 1.2: Use mechanical and chemical treatments to thwart encroaching woody vegetation.
<b>Goal 4: Support regeneration of Oregon White Oak trees in the upland areas of PWA.</b>
Objective 1: Develop a planting plan for Oregon white oak trees at PWA by Fall 2024.
Strategy 1.1: Map current Oregon white oak trees.
Strategy 1.2: Identify planting areas and develop timeline for plantings. (Appendix J)
<b>Wildlife Goals</b>
<b>Goal 1: Document wildlife species at PWA, which an emphasis on OCS Strategy Species.</b>
Objective 1: Collect data on OCS strategy species using PWA to help fill data gaps identified in the 2016 OCS. Annually unless noted otherwise.
Strategy 1.1: Use trapping methods to monitor the population of northwestern pond turtles and western painted turtles.
Strategy 1.2: Use amphibian egg mass surveys to monitor the population of northern red-legged frogs.
Strategy 1.3: Use acoustic surveys to monitor presence/absence of bats. Four species of OCS bats have been documented on the property.
Strategy 1.4: Use a variety of survey methods to monitor presence/absence of birds. Seven OCS Strategy Species have been documented on the property.
Strategy 1.5: Conduct 3 fish surveys between 2023 and 2033. Two OCS Strategy Species have been documented on the property.
Objective 2: Use surveys and incidental observations to document wildlife species inhabiting the property. Ongoing.
Strategy 2.1: Conduct surveys and collect incidental observations of birds, fish, mammals, pollinators, amphibians, and reptiles.

<b>Goal 2: Address barriers to migration for amphibians utilizing PWA as breeding grounds.</b>
Objective 1: Support the planned construction of an amphibian underpass connecting PWA and the Forest Park COA in spring of 2024. Ongoing.
Strategy 1.1: Continue working with BPA, Oregon Department of Transportation and CREST to finalize plans for construction and maintenance of the underpass.
Strategy 1.2: Identify additional grant opportunities to fill funding gap.
<b>Management Access Goals</b>
<b>Goal 1: Ensure staff has management access to the entire property.</b>
Objective 1. Secure long-term management access to the northern end of the property by 2033.
Strategy 1.1: Work with BPA to explore easement options for the private road.
Strategy 1.2: Assess feasibility of expanding length of southern access road. This would entail clearing trees and building a bridge across the Multnomah Channel Slough for vehicles and motorized equipment to connect it to the northern ODFW management access road.
<b>Goal 2: Increase equipment mobility options in two areas currently limited by streams.</b>
Objective 1. By 2024, develop temporary bridge designs for the ephemeral stream on the southern portion of the property and the Multnomah channel slough.
Strategy 1.1: Work with BPA on environmental clearance.
<b>Goal 3: Maintain north and south management roads free of debris to allow vehicle and equipment passage.</b>
Objective 1: Maintain the entire length of both access roads free of woody debris and encroaching vegetation. Ongoing.
Strategy 1.1: Use mechanical and chemical means to keep roads free of debris.
<b>Tribal and Research Access Goals</b>
<b>Goal 1: Increase opportunities for tribal access to PWA.</b>

Objective 1: By 2025, reach out to three local tribes to gauge interest in using PWA for events or harvest.
Strategy 1.1: Provide tribes with maps of the property and offer site tours.
<b>Goal 2: Increase opportunities for PWA to be used for research and environmental educational projects.</b>
Objective 1: By 2025, reach out to five schools, agencies, organizations, or other entities that could have an interest in conducting research projects at PWA.
Strategy 1.1: Consult with partners, BPA, ODFW staff and others to inquire about potentially interested groups or projects.
<b>Trespass Goals</b>
<b>Goal 1: Discourage trespass from the south access area on Rafton Road.</b>
Objective 1: Implement at least one deterrent to foot traffic from the south gate by 2024.
Strategy 1.1: Use rocks, wood, thorny vegetation, razor wire, or other materials to discourage foot traffic around the south gate.
Objective 2: Maintain signs for no trespassing and no parking.
Strategy 2.1: Replace signs as soon as possible when they are stolen or vandalized.
Objective 3: Monitor and record trespass activities with trail cameras. Ongoing.
Strategy 3.1: Install cameras near both gates and maintain supportive relationship with Oregon State Police.

## MONITORING

Table 6. Monitoring strategies and timelines for all goals and objectives from Table 5.

<b>FLOWING WATER/RIPARIAN GOALS</b>
<b>Goal 1: Maintain and enhance native vegetation.</b>
Objective 1: Conduct annual surveys for invasive plants. Survey for recent invasives (Japanese knotweed and yellow flag iris) to prevent further spread or establishment, as well as survey for new invasive species.
Monitoring: Surveys will be conducted annually, and maps will be updated with species locations.
Objective 2: Treat 100% of ivy patches by 2024. Currently less than 20 patches.
Monitoring: Map and treat all ivy patches by 2024. Continue to monitor patches annually.
Objective 3: Treat 5 patches of Himalayan blackberry (minimum of 25m in length) along the Multnomah Channel Slough by 2026 and plant native shrubs in treated areas by 2033.
Monitoring: Identify, map, and treat 5 patches. Replant by 2033.
Objective 4: In response to the detection of emerald ash borer in Oregon in 2022, develop an adaptive management plan for Oregon ash by 2024.
Monitoring: Develop a draft plan before the end of 2023 and a more developed plan before the end of 2024.
<b>WETLANDS GOALS</b>
<b>Goal 1: Increase habitat complexity for wildlife.</b>
Objective 1: Increase woody debris around lake and pond shorelines in 10 locations by 2025.
Monitoring: Identify and map 10 locations to place woody debris by 2024 and place wood by 2025.
Objective 2: Use surveys and incidental observations to document wildlife species inhabiting the property. Ongoing.
Monitoring: Update species lists from surveys and observations twice annually.
Objective 3: Increase diversity and abundance of native shrubs and trees throughout 15 acres of deciduous swamp/shrubland habitats between 2023 and 2028.
Monitoring: In 2023 seek cultural clearance for desired planting locations (Appendix J). Develop timeline for ordering and planting after cultural clearance.
<b>Goal 2: Improve quality of important egg-laying habitats.</b>
Objective 1: In known turtle nesting areas, reduce canopy cover to less than 5% and reduce ground vegetation (native and non-native) where it is currently encroaching nesting sites by 2024.
Monitoring: Measure percent canopy cover in 2023 and 2024.
Objective 2: Improve habitat in and around at least one seasonal pond where amphibian egg masses are laid to increase native plant species abundance and diversity. 2024-2033.
Monitoring: In 2024, map areas that would benefit from re-seeding or re-planting following CREST's project. Develop planting plan by 2025.
<b>Goal 3: Control population of creeping water primrose in Horseshoe Lake.</b>
Objective 1: By 2025, reduce percent cover of creeping water primrose by 80%. Currently covers approximately 12 acres on the lake.

Monitoring: Treat population in 2023 and measure percent coverage in 2024.
Objective 2: Control residual population annually. 2024-2033.
Monitoring: Spot spray remaining population annually.
<b>Goal 4: Focus management of reed canary grass on acreage where land managers view the greatest potential for habitat improvement value.</b>
Objective 1: Prioritize acreage currently dominated by reed canary grass and develop treatment schedule for the next 10 years. 2024.
Monitoring: Map and identify priority treatment areas in 2023. Develop plan for long-term treatment by 2024.
<b>Goal 5: Conduct targeted surveys for yellow flag iris, parrot feather, and any other recently observed invasive plants in the wetlands.</b>
Objective 1: Conduct Early Detection Rapid Response (EDRR) surveys annually within all seasonal and permanent ponds/lakes.
Monitoring: Annually conduct EDRR surveys.
<b>GRASSLAND GOALS</b>
<b>Goal 1: Maintain and enhance native vegetation in the grassland habitat.</b>
Objective 1: Reduce Scotch broom to less than 25 stems by 2028. Current estimate is less than 200 stems on the property.
Monitoring: Treat all known Scotch broom by 2025 and continue surveying for new growth.
Objective 2: Increase native plant diversity and abundance by seeding native grass and forbs two times throughout 3 acres between 2023-2025.
Monitoring: Create timeline for planting plan (Appendix J) by 2023.
<b>Goal 2: Improve and expand nesting areas for wildlife.</b>
Objective 1: Add woody debris to existing brush piles and add additional brush piles to increase areas for ground nesting wildlife. Annually.
Monitoring: Add to existing brush piles in 2024 and add additional brush piles annually.
Objective 2: By 2026, reduce vegetation growing in and around turtle nesting areas by 50%.
Monitoring: Measure encroaching vegetation in 2023 and identify areas to cut or treat in 2024.
Objective 3: By 2024, add 50 cubic yards of soil to known turtle nesting areas. (Appendix I)
Monitoring: Complete 50-100% of project in 2023 and complete by 2024.
<b>Goal 3: Prevent woody vegetation from encroaching grassland habitat.</b>
Objective 1: Retain current acreage (3 acres) of open grassland habitat. Ongoing.
Monitoring: Use mechanical and chemical treatments annually to thwart encroaching woody vegetation.
<b>Goal 4: Support regeneration of Oregon White Oak trees in the upland areas of PWA.</b>
Objective 1: Develop a planting plan for Oregon white oak trees at PWA by Fall 2024.
Monitoring: Choose oak planting locations from potential areas identified in Appendix J and develop planting plan by 2026.

<b>WILDLIFE GOALS</b>
<b>Goal 1: Document wildlife species at PWA, with an emphasis on OCS Strategy Species.</b>
Objective 1: Collect data on OCS strategy species using PWA to help fill data gaps identified in the 2016 OCS. Annually unless noted otherwise.
Monitoring: Conduct surveys annually.
Objective 2: Use surveys and incidental observations to document wildlife species inhabiting the property. Ongoing.
Monitoring: Update species lists twice annually.
<b>Goal 2: Address barriers to migration for amphibians utilizing PWA as breeding grounds.</b>
Objective 1: Support the planned construction of an amphibian underpass connecting PWA and the Forest Park COA in spring of 2024. Ongoing.
Monitoring: Meet with partners quarterly to assess needs and budget.
<b>MANAGEMENT ACCESS GOALS</b>
<b>Goal 1: Ensure staff has management access to the entire property.</b>
Objective 1: Secure long-term management access to the northern end of the property by 2033.
Monitoring: Check-in with BPA quarterly on progress towards obtaining easement or other solutions.
<b>Goal 2: Increase equipment mobility options in two areas currently limited by streams.</b>
Objective 1: By 2024, develop seasonal/temporary bridge designs for the ephemeral stream on the southern portion of the property and the Multnomah channel slough.
Monitoring: Build one seasonal/temporary bridge in 2023 and one in 2024.
<b>Goal 3: Maintain north and south management roads free of debris to allow vehicle and equipment passage.</b>
Objective 1: Maintain the entire length of both access roads free of woody debris and encroaching vegetation. Ongoing.
Monitoring: Annually trim vegetation along road edges and remove fallen trees from road.
<b>TRIBAL AND RESEARCH ACCESS GOALS</b>
<b>Goal 1: Increase opportunities for tribal access to PWA.</b>
Objective 1: By 2025, reach out to three local tribes to gauge interest in using PWA for events or harvest.
Monitoring: Identify all tribes in 2023 and make contact by 2025.
<b>Goal 2: Increase opportunities for PWA to be used for research and environmental educational projects.</b>
Objective 1: By 2025, reach out to five schools, agencies, organizations, or other entities that could have an interest in conducting research projects at PWA.
Monitoring: Identify interested groups in 2024 and make contact by 2025.

<b>TRESPASS GOALS</b>
<b>Goal 1: Discourage trespass from the south access area on Rafton Road.</b>
Objective 1: Implement at least one deterrent to foot traffic from the south gate by 2024.
Monitoring: Identify deterrent in 2023 and place by 2024.
Objective 2: Maintain signs for no trespassing and no parking.
Monitoring: Inspect signage monthly and replace as needed.
Objective 3: Monitor and record trespass activities with trail cameras. Ongoing.
Monitoring: Place camera by 2024.

### **ADAPTIVE MANAGEMENT**

An adaptive management framework will be used to achieve the goals, objectives, and desired future conditions for PWA. An emphasis will be placed on the potential impacts to the Conservation Values of the site. ODFW will incorporate new science, BMPs and restoration strategies as they become available.

### **CURRENT AND POTENTIAL PARTNERS**

**Current Partners** – CREST, Scappoose Bay Watershed Council, West Multnomah Soil and Water Conservation District, Multnomah County Environmental Health Services/Vector Control, Oregon Department of Transportation.

**Potential partners** - The Wetlands Conservancy, Portland Audubon, Xerces Society, Department of Environmental Quality, Metro, tribal groups, U.S. Fish and Wildlife, Portland State University, University of Portland, Oregon State University.

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## Appendix A

### Legal Description of Palensky Wildlife Area

BOOK 2478 PAGE 697

EXHIBIT "A"

PARCEL I:

Those portions of Sections 17, 20, 21, 28 and 29, Township 2 North, Range 1 West, Willamette Meridian, Multnomah County, Oregon, described as follows, to-wit:

COMMENCING at the Southwest corner of the Northwest 1/4 of said Section 28; thence South 89°55' East a distance of 1871.58 feet to a point (iron rod) on the East right-of-way line of Burlington Northern Railroad Company's (formerly Northern Pacific Railway Company's) Main Track; thence North 47°10' West along said right-of-way line a distance of 845.98 feet to the beginning of a curve to the right with a radius of 1382.7 feet; thence along the arc of said curve a distance of 466.46 feet; thence North 27°50' West a distance of 429.65 feet to the beginning of a curve to the left with a radius of 2914.9 feet; thence along the arc of said curve a distance of 377.28 feet to the true point of beginning (concrete monument) of the parcel to be described; thence continuing along the East line of said Railroad Company's right-of-way on the last above described curve a distance of 225.56 feet; thence North 39°41' West a distance of 6660.4 feet to the beginning of a curve to the left with a radius of 1960.1 feet; thence along the arc of said curve a distance of 657.89 feet; thence North 58°55' West a distance of 758.91 feet to the beginning of a curve to the right with a radius of 1860.1 feet; thence along the arc of said curve a distance of 556.1 feet (concrete monument); thence leaving said Railroad Company's right-of-way line, North 33°49' East a distance of 488.26 feet; thence North 46°13' West a distance of 538.5 feet; thence North 44°00' East a distance of 1026.84 feet; thence North 46°00' West a distance of 214.5 feet; thence North 44°00' East a distance of 214.5 feet to the point of intersection with the West meander line of the Willamette Slough; thence Southeasterly along said meander line to a point in said Section 28 distant 691.0 feet and bearing North 50°19' East from the true point of beginning; thence South 50°19' West a distance of 691.0 feet to the true point of beginning.

- END OF EXHIBIT "A" -

Burlington Bottoms (Glacier Park)  
October 10, 1991

- 3 -

## **Appendix B**

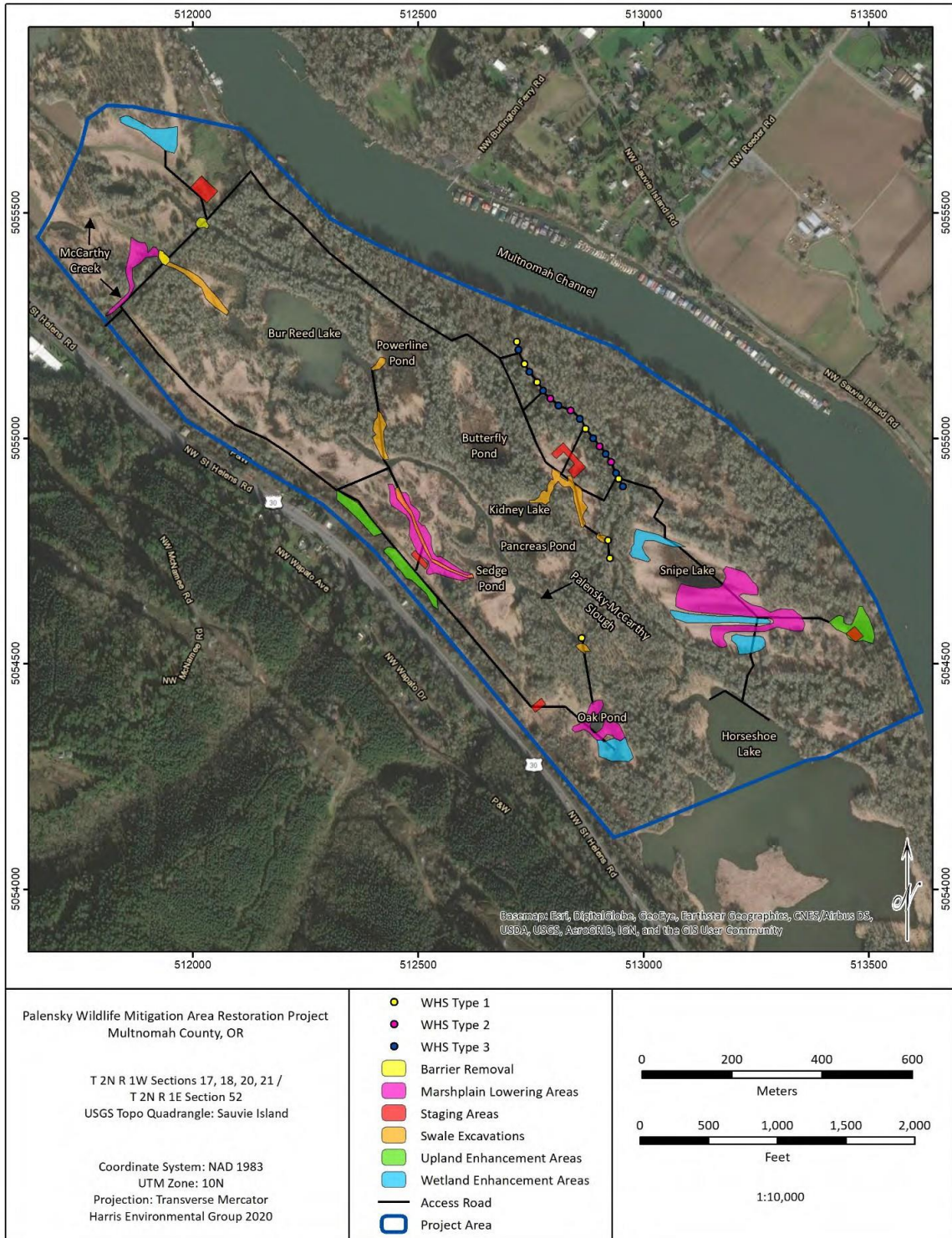
### Bonneville Power Administration Property Rules

BPA is preparing this document for inclusion.



## Appendix C

The location of all components of the restoration project completed by Columbia River Estuary Study Taskforce (CREST). Map created by CREST.



# Appendix D

## Survey of Palensky Wildlife Area

**LEGAL DESCRIPTION. TRACT BRLTN-WL-001 PER BOOK 2472 PAGE 885, RECORDED NOVEMBER 18, 1997**

THOSE PORTIONS OF SECTIONS 17, 20, 21, 28 AND 29, TOWNSHIP 2 NORTH, RANGE 1 WEST, WILLAMETTE MERIDIAN, MULTNOMAH COUNTY, OREGON, DESCRIBED AS FOLLOWS, TO WIT:

COMMENCING AT THE SOUTHWEST CORNER OF THE NORTHWEST 1/4 OF SAID SECTION 28, THENCE SOUTH 89°51' EAST A DISTANCE OF 181.58 FEET TO A POINT (IRON ROD) ON THE EAST RIGHT-OF-WAY LINE OF BURLINGTON NORTHERN RAILROAD COMPANY'S FORMERLY NORTHERN RAILWAY COMPANY'S MAIN TRACK, THENCE NORTH 87°05' WEST ALONG SAID RIGHT-OF-WAY LINE A DISTANCE OF 46.46 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT WITH A RADIUS OF 1362.7 FEET, THENCE ALONG THE ARC OF SAID CURVE A DISTANCE OF 498.46 FEET, THENCE NORTH 27°50' WEST A DISTANCE OF 248.5 FEET TO THE BEGINNING OF A CURVE TO THE LEFT WITH A RADIUS OF 294.8 FEET, THENCE ALONG THE ARC OF SAID CURVE A DISTANCE OF 377.28 FEET TO THE TRUE POINT OF BEGINNING (CONCRETE MONUMENT) OF THE PARCEL TO BE DESCRIBED, THENCE CONTINUING ALONG THE EAST LINE OF SAID PARCEL A DISTANCE OF 100.00 FEET TO THE POINT OF BEGINNING (CONCRETE MONUMENT) OF THE PARCEL TO BE DESCRIBED, THENCE SOUTH 89°51' WEST A DISTANCE OF 1665.4 FEET TO THE BEGINNING OF A CURVE TO THE LEFT WITH A RADIUS OF 1960.1 FEET, THENCE ALONG THE ARC OF SAID CURVE A DISTANCE OF 857.89 FEET, THENCE NORTH 58°25' WEST A DISTANCE OF 188.71 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT WITH A RADIUS OF 1960.1 FEET, THENCE ALONG THE ARC OF SAID CURVE A DISTANCE OF 281.1 FEET (CONCRETE MONUMENT), THENCE LEAVING SAID RAILROAD COMPANY'S RIGHT-OF-WAY LINE, NORTH 24°45' WEST A DISTANCE OF 38.26 FEET, THENCE NORTH 80°17' WEST A DISTANCE OF 388.5 FEET, THENCE NORTH 41°07' EAST A DISTANCE OF 1038.84 FEET, THENCE NORTH 46°50' WEST A DISTANCE OF 214.3 FEET, THENCE NORTH 44°50' EAST A DISTANCE OF 214.3 FEET TO THE POINT OF INTERSECTION WITH THE WEST BOUNDARY LINE OF THE UNLAKED ACRES, THENCE SOUTH 87°05' WEST ALONG SAID BOUNDARY LINE TO A POINT IN SAID SECTION 28 DISTANT 181.0 FEET AND BEARING NORTH 57°05' EAST FROM THE TRUE POINT OF BEGINNING.

**BASE OF BEARINGS AND COORDINATES**  
BEARINGS AND COORDINATES SHOWN HEREON ARE OREGON STATE PLANE COORDINATE SYSTEM - NORTH ZONE (NAD83) (EPOCH 2010.0000), BASED UPON THE NAD83 ORIGIN SOLUTION FOR POINT "BRLTN-001".  
UNITS FOR DISTANCES AND COORDINATES ARE INTERNATIONAL FEET. DISTANCES SHOWN ARE GROUND. COORDINATES SHOWN ARE GRID. THE OVERALL PROJECT CORNERED GROUND TO GRID SCALE FACTOR IS 0.999984 AND THE CONVERGENCE ANGLE IS 17.9097. BOTH CALCULATED AT CONTROL POINT "BRLTN-001".

**TITLE RECORD**  
STEWART TITLE COMPANY, ORDER NO. 0109-28022, EFFECTIVE DATE, MARCH 07, 2018.

**SURVEY NARRATIVE**

**PURPOSE OF SURVEY**  
THIS SURVEY WAS PERFORMED AT THE REQUEST OF BONNEVILLE POWER ADMINISTRATION (BPA) DURING THE MONTH OF JULY AND DECEMBER OF 2018. THE PURPOSE OF THIS SURVEY IS TO RETRACE, RESOLVE AND MONUMENT THE NORTHWESTERLY BOUNDARY LINE OF BPA-FEE OWNED TRACT BRLTN-WL (TAX PARCELS 2N1W 2200 & 2N1W17 0700).

**ANALYSIS OF RECORD DOCUMENTS**  
BPA ACQUIRED FEE OWNERSHIP OF THE BURLINGTON BOTTOMS WETLAND PARCEL, BRLTN-WL, IN 1991. THE PROPERTY WAS GRANTED BY GLACIER PARK COMPANY, VIA SPECIAL WARRANTY DEED, RECORDED IN BOOK 2472, PAGE 885, MULTNOMAH COUNTY RECORDS, ON NOVEMBER 18, 1997. THE ADJOINING PROPERTY TO THE EAST BOUNDARY LINE WAS DEEDED TO ENVART BY A WARRANTY DEED, RECORDED IN BOOK 2546, PAGE 1156, MULTNOMAH COUNTY RECORDS, ON MAY 30, 1992 (TAX PARCEL, 2N1W18 0200). SAID WARRANTY DEED WAS RE-RECORDED TO INCLUDE AN EXHIBIT TO SAID BOOK 2546 PAGE 121, EPI, 1992.

COURSES ALONG SAID BPA NORTHWESTERLY LINE DIFFER BETWEEN THE BPA AND ENVART DEEDS. THE BPA DEED APPEARS TO BE BASED ON SURVEY DATA (PROPERTY OF BURLINGTON BOTTOMS WETLAND), SURVEYED JULY 1938 BY MCGUIRE & POWERS, WHICH IS THE ONLY AVAILABLE SURVEY THAT DEPICTS SAID BPA LINE. FROM THE ENVART DEED, THE COURSES OF THIS LINE HAVE BEEN REPORTED OVER TIME WITH VARYING BEARINGS AND DISTANCES AND HAVE BEEN CALLED TO ATTENTION. AN ANALYSIS OF HISTORICAL DEEDS FROM BOTH PARCELS REVEALED THAT OUR DETERMINATION THAT THE BPA DEED IS MORE HARMONIOUS WITH RESPECT TO THE EXISTING SURVEY AND OBSERVED EVIDENCE IN THE FIELD.

ONE OF OUR TASKS IN THIS SURVEY WAS TO DETERMINE WHETHER THERE EXISTS AN AGREEMENT ON THE ACCESS ROAD THAT RUNS ALONG SAID BPA NORTHWESTERLY BOUNDARY. AFTER REVIEW OF PUBLICLY AVAILABLE DOCUMENTS FOR BOTH PROPERTIES, WE HAVE FOUND NO EVIDENCE OF AN AGREEMENT FOR THIS LANKED ACCESS ROAD. ITS PROXIMITY TO SAID BPA BOUNDARY IS SHOWN ON THIS SURVEY.

**MEASUREMENT PROCEDURES AND METHODS**  
THIS SURVEY WAS PERFORMED UTILIZING A TRIMBLE R6-MODELS DGNSS SYSTEM AND TRIMBLE S6 TOTAL STATION TO COLLECT STATIC DATA ON CONTROL POINT BRLTN-001 AND SIX OTHER TERRESTRIAL DATA ON ALL OTHER PROPERTY CORNERS, CADASTRAL CORNERS, AND RIGHT-OF-WAY MONUMENTS. INDEPENDENT STATIC SESSIONS AT CONTROL POINT BRLTN-001 WERE PROCESSED THROUGH THE NATIONAL GEODETIC SURVEY'S (NGS) ONLINE USER POSITIONING SERVICE (ORUS), PRODUCING A FINAL COORDINATE TIED TO THE NATIONAL SPATIAL REFERENCE SYSTEM (NAD83). THE ORUS SOLUTION WAS DERIVED FROM THE FOLLOWING CONTINUALLY OPERATING REFERENCE STATIONS (CORS): WDMN (DEB433), WNRG (GGR82), AND P446 (BPA155).

**RETRACING METHODOLOGY AND BOUNDARY RESOLUTION**

**CADASTRAL CORNERS**  
AS PART OF THIS SURVEY THE SECTION CORNER COMMON TO SECTIONS 17, 18, 19 AND 20 (W4200W0500) AND THE SECTION CORNER COMMON TO SECTIONS 17, 18 AND 19 (W4200W0500), TOWNSHIP 2 NORTH, RANGE 1 WEST, WILLAMETTE MERIDIAN WERE LOCATED AND TIED. BOTH CORNERS WERE FOUND IN GOOD CONDITION AND ACCEPTED AS THE TRUE LOCATIONS, DEFINING THE LINE COMMON TO SECTIONS 17 AND 18.

OUR MEASURED BEARING AND DISTANCE FOR THIS SECTION LINE CLOSELY MATCH THAT WHICH IS SHOWN ON SURVEY NO. 6557 (MULTNOMAH COUNTY SURVEYOR, JUNE 2006).

**PROPERTY CORNERS**  
THE ONLY EVIDENCE LOCATED THAT SHOWS MONUMENTS ALONG THE SUBJECT TRACT'S NORTHWESTERLY LINE IS SURVEY G-419 (PRIORITY OF BIRTH REALTY CO. (BURLINGTON), SURVEY JULY 1938 BY MCGUIRE & POWERS). THIS SURVEY SHOWS TWO "CONCRETE MONUMENTS": THE FIRST AT SAID NORTHWESTERLY LINE'S INTERSECTION WITH THE RAILROAD'S NORTHWESTERLY RIGHT-OF-WAY (BRLTN-PO1). SET THIS SURVEY AND THE SECOND 103.84 FEET THEREFROM (BRLTN-PO2). FOUND THIS SURVEY, NO EVIDENCE OF BRLTN-PO1 WAS FOUND DURING OUR FIELD SURVEY. BRLTN-PO2 WAS FOUND TO BE A 4" X 4" CONCRETE MONUMENT (TYPICAL IN THIS AREA) WITH A 1/2" IRON PIPE CAPPED WITH A WELDED (NOT OF RECORD). THIS MONUMENT WAS ACCEPTED AS THE TRUE PROPERTY CORNER, AND THE LINE BETWEEN IT AND FOUND MONUMENT #13 WAS HELD AS THE BEST EVIDENCE OF THE ALIGNMENT OF THE FIRST COURSE OF SAID NORTHWESTERLY BPA BOUNDARY LINE AS IT LEAVES THE RAILROAD'S NORTHWESTERLY RIGHT-OF-WAY. BRLTN-PO1 WAS SET AT THE INTERSECTION OF SAID LINE AND SAID RAILROAD NORTHWESTERLY RIGHT-OF-WAY, AND FITS THE EXISTING EVIDENCE OF THE ALIGNMENT OF THE FIRST COURSE OF SAID LINE AND SAID RAILROAD NORTHWESTERLY RIGHT-OF-WAY, AND FITS THE EXISTING STREET AS SHOWN ON THE 1888 PLAN OF BURLINGTON, AS WELL AS 2007 HIGHWAY MAP 3-20.

CORNERS BRLTN-PO3, BRLTN-PO4, AND BRLTN-PO5 WERE SET IN THIS SURVEY AT RECORD BPA DEED COURSES FROM BRLTN-PO1. THERE IS NO PREVIOUS RECORD OF ANY MONUMENTS SET AT THESE LOCATIONS AND NONE WERE FOUND DURING OUR FIELD SURVEY.

THE CORNER BRLTN-PR1 WAS CALCULATED AS THE INTERSECTION OF THE RECORD BPA DEED COURSE AND THE SURVEYED TOP-OF-BANK OF THE MULTNOMAH CHANNEL. WILLAMETTE ILLUSTRATION AND FILL IN AN AREA OF DENSE THICKETS. A MORE USUALLY LOCATION WAS MONUMENTED ALONG SAID LINE, BEING JUST OUTSIDE THE TRAIL-LINE AND 15.41' FROM THE CALCULATED CORNER, AS A REFERENCE TO THE TRUE LOCATION.

**NORTHERN PACIFIC RAILROAD RIGHT-OF-WAY**  
THE RAILROAD RIGHT-OF-WAY WAS ESTABLISHED BY HOLDING THE AS-BUILT CENTERLINE OF THE TRACKS FOR TANGENTS, AND THEN HOLDING RECORD SPIRAL-CURVE-SPIRAL LENGTHS, PER RAILWAY MAP G-100, IN ORDER TO BEST FIT RECORD STATIONS. THIS SOLUTION RESULTED IN THE CLOSEST MATCH TO THE FIELD-LOCATED CENTERLINE, RIGHT-OF-WAY SHOWN IS RECORDS OFFSET FROM CENTERLINE, WHICH AGREES WITH FOUND MONUMENTS #10 AND #12 SET IN SURVEY NO. 39005. STATION 44+81.40 WAS CALCULATED PERPENDICULAR TO SAID CENTERLINE AT FOUND MONUMENT #10 AND USED AS A CHECK BETWEEN THE SPIRAL-TO-TANGENT STATION 33+27.33 AND THE STATIONING UTILIZED IN SURVEY NO. 39005.

### RECORD OF SURVEY

#### BURLINGTON BOTTOMS WETLAND

LYING WITHIN  
THE SW 1/4 OF SECTION 17, T. 2 N., R. 1 W., WILLAMETTE MERIDIAN  
MULTNOMAH COUNTY, OREGON

SECTION DIAGRAM  
NOT TO SCALE

VICINITY MAP  
NOT TO SCALE

MULTNOMAH COUNTY  
SURVEY RECORDS  
DATE FILED: MARCH 14, 2019  
66573  
REGISTER NUMBER

STATION	NORTHING	EASTING	MONUMENT TABLE	DESCRIPTION
W4200W0500-00	73275.00	761064.40	FOUND 4" X 4" CONCRETE POST W/ 4" BRASS DISC, MARKED "2N1W 18 19 17 19 20 1897", PER BEARING TREE BOOK B, PAGE 204	
W4200W0500-00	730784.76	760209.66	FOUND 4" X 4" CONCRETE POST W/ 4" X 1/2" BRASS DISC, MARKED "2N1W 18 19 17 19 20 1897", PER BEARING TREE BOOK B, PAGE 204	
BRLTN-001	730204.71	760193.78	SET 5/8" X 3/4" REBAR W/ TYPICAL 3/4" ALUMINUM CAP, MARKED "BRLTN-001 DA19" (SET 12/20/18)	
BRLTN-PO1	731587.25	760257.24	SET 5/8" X 3/4" REBAR W/ TYPICAL 3/4" ALUMINUM CAP, MARKED "BRLTN-PO1 L3 7038 DA19" (SET 12/13/2018)	
BRLTN-PO2	731955.89	760219.40	FOUND 4" X 4" CONCRETE MON. W/ 1/2" IRON PIPE W/ 90° ELBOW, PER SN G-419	
BRLTN-PO3	732077.77	760194.10	SET 5/8" X 3/4" REBAR W/ TYPICAL 3/4" ALUMINUM CAP, MARKED "BRLTN-PO3 L3 7038 DA19" (SET 12/13/2018)	
BRLTN-PO4	732036.45	760275.02	SET 5/8" X 3/4" REBAR W/ TYPICAL 3/4" ALUMINUM CAP, MARKED "BRLTN-PO4 L3 7038 DA19" (SET 12/13/2018)	
BRLTN-PO5	732036.30	760267.02	SET 5/8" X 3/4" REBAR W/ TYPICAL 3/4" ALUMINUM CAP, MARKED "BRLTN-PO5 L3 7038 DA19" (SET 12/13/2018)	
BRLTN-PR1	732036.30	760267.54	SET 5/8" X 3/4" ALUMINUM ROD W/ TYPICAL 3/4" ALUMINUM CAP, MARKED "BRLTN-PR1 L3 7038 DA19" (SET 12/11/2018)	
100	731975.61	760198.42	SET 5/8" X 3/4" REBAR W/ 2" ALUMINUM CAP, MARKED "200A, P.C. CONTROL POINT" (SET 7/23/18)	
201	732046.58	760303.07	FOUND 5/8" REBAR W/ YELLOW PLASTIC CAP, MARKED "ANS ENGR.", PER SN 1855	
202	732064.18	760184.47	FOUND 5/8" REBAR W/ YELLOW PLASTIC CAP, MARKED "ANS ENGR.", PER SN 1855	
203	732186.42	760188.14	FOUND 5/8" REBAR W/ YELLOW PLASTIC CAP, MARKED "ANS ENGR.", PER SN 1855	
304	732002.38	760182.03	FOUND 5/8" REBAR W/ YELLOW PLASTIC CAP, MARKED "ANS ENGR.", PER SN 1855	
205	732025.07	760268.13	FOUND 5/8" REBAR W/ YELLOW PLASTIC CAP, MARKED "ANS ENGR.", PER SN 1855	
207	732076.18	760214.97	FOUND 5/8" REBAR W/ YELLOW PLASTIC CAP, MARKED "ANS ENGR.", PER SN 1855	
210	734135.83	760201.36	FOUND 5/8" REBAR W/ YELLOW PLASTIC CAP, MARKED "ANS ENGR.", PER SN 1855	
211	731913.20	760197.02	FOUND 1" GALVANIZED IRON PIPE, PER SN 1198	
212	731448.27	760103.00	FOUND 3/4" IRON PIPE, CONCRETE FILLER, PER SN G-419	

SHEET INDEX

SHT. NO.	DESCRIPTION
1	VICINITY MAP, LEGAL DESCRIPTION, MONUMENT TABLE, SURVEY NARRATIVE
2	SURVEY SHEET REFERENCES

SURVEYORS CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE SURVEYING RECORDING ACT AT THE REQUEST OF BONNEVILLE POWER ADMINISTRATION IN JULY AND DECEMBER OF 2018.

KURT LUEBKE, PLS 70938 DATE 3-7-2019  
 REGISTERED PROFESSIONAL LAND SURVEYOR  
 OREGON  
 APR 9, 2002

BURLINGTON BOTTOMS WETLAND  
 RECORD OF SURVEY  
 MULTNOMAH COUNTY, OREGON  
 JANUARY, 2019  
 NO SCALE  
 SHEET 1 OF 2  
 DESIGNED: C. GREENHAWLT DRAWN: N. LAFOND CHKD: K. LUEBKE  
 WID: 0042017-01 PROJ: NO. 6661-043 BPA SERIAL: 336973-C  
 EPOCH: 12-31-2008

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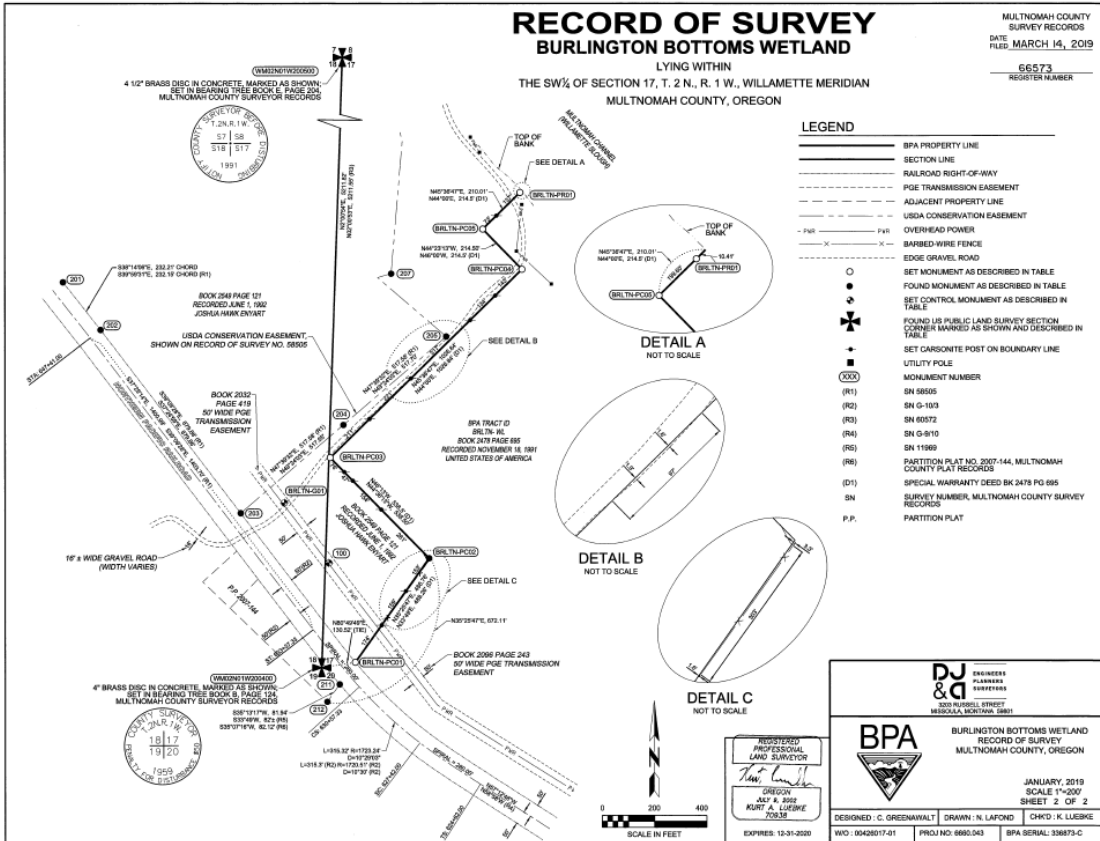
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# RECORD OF SURVEY

## BURLINGTON BOTTOMS WETLAND

LYING WITHIN  
THE SW¼ OF SECTION 17, T. 2 N., R. 1 W., WILLAMETTE MERIDIAN  
MULTNOMAH COUNTY, OREGON

MULTNOMAH COUNTY  
SURVEY RECORDS  
DATE FILED: MARCH 14, 2019  
66573  
REGISTER NUMBER



**LEGEND**

	BPA PROPERTY LINE
	SECTION LINE
	RAILROAD RIGHT-OF-WAY
	POE TRANSMISSION EASEMENT
	ADJACENT PROPERTY LINE
	USDA CONSERVATION EASEMENT
	OVERHEAD POWER
	BARBED WIRE FENCE
	EDGE GRAVEL ROAD
	SET MONUMENT AS DESCRIBED IN TABLE
	FOUND MONUMENT AS DESCRIBED IN TABLE
	SET CONTROL MONUMENT AS DESCRIBED IN TABLE
	FOUND US PUBLIC LAND SURVEY SECTION CORNER MARKED AS SHOWN AND DESCRIBED IN TABLE
	SET CARBONITE POST ON BOUNDARY LINE
	UTILITY POLE
	MONUMENT NUMBER
(R1)	SN 50505
(R2)	SN G-103
(R3)	SN 60372
(R4)	SN G-810
(R5)	SN 11969
(R6)	PARTITION PLAT NO. 2007-144, MULTNOMAH COUNTY PLAT RECORDS
(D1)	SPECIAL WARRANTY DEED BK 2478 PG 695
SN	SURVEY NUMBER, MULTNOMAH COUNTY SURVEY RECORDS
P.P.	PARTITION PLAT

**DETAIL A**  
NOT TO SCALE

**DETAIL B**  
NOT TO SCALE

**DETAIL C**  
NOT TO SCALE

 ENGINEERS PLANNERS SURVEYORS 3202 HUBBELL STREET MULTNOMAH, OREGON 97148		
 <b>BPA</b> BURLINGTON BOTTOMS WETLAND RECORD OF SURVEY MULTNOMAH COUNTY, OREGON		
JANUARY, 2019 SCALE 1"=200' SHEET 2 OF 2		
DESIGNED: C. GREENAWALT	DRAWN: N. LAFOND	CHKD: K. LUEBKE
W/O: 00428017-01	PROJ. NO: 6660-043	BPA SERIAL: 338873-C

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## Appendix E

Summary of cultural resource surveys conducted at PWA and nearby archaeological sites.

### Cultural resource surveys at Palensky Wildlife Area

Year	Surveyor	Acres Surveyed	SHPO No.	Result
1994	Eastern Washington University (Thomas)	10	14765	No cultural resources
2003	NRCS (Spencer)	3	18780	No cultural resources
2008	BPA (Santos)	6	22110	No cultural resources
2009	BPA (Peterson)	5.2	22778	No cultural resources
2020	Harris Environmental Group, Inc. (Holschuh, Patterson, Plumer & Mastrangelo)	28.9	?	No cultural resources

### Archaeological sites near Palensky Wildlife Area

Site Name	Site ID	Distance from PWA
The Sunken Village Site	35MU4	1 mile E/SE across Multnomah Channel
The McCarthy Creek Bridge	35MU215	0.95 miles
The Douglas Site	35MU12	0.91 miles E/SE across Multnomah Channel
The Bybee Howell House	34MU195	0.69 miles E across Multnomah Channel
The Howells Site	35MU62	0.5 miles across Multnomah Channel
The Matthew White Historic Debris Scatter	35MU135	0.38 miles across Multnomah Channel

## Appendix F

### Oregon Department of Agriculture's B-Listed Noxious Weeds Present at Palensky Wildlife Area

<b>Common Name</b>	<b>Scientific Name</b>
Armenian (Himalayan) blackberry	<i>Rubus armeniacus</i>
bull thistle	<i>Cirsium vulgare</i>
creeping water primrose	<i>Ludwigia peploides</i>
English hawthorn	<i>Crataegus monogyna</i>
English ivy	<i>Hedera helix</i>
Japanese knotweed	<i>Fallopia japonica</i>
parrot feather	<i>Myriophyllum aquaticum</i>
reed canary grass	<i>Phalaris arundinacea</i>
Robert geranium	<i>Geranium robertianum</i>
Scotch broom	<i>Cytisus scoparius</i>
tansy ragwort	<i>Jacobaea vulgaris</i>
yellow flag iris	<i>Iris pseudacorus</i>

## Appendix G

### Plant Species Known to Occur at Palensky Wildlife Area (2019)

#### ACERACEAE

Big leaf maple (*Acer macrophyllum*)

#### ALISMATACEAE

American water plantain (*Alisma subcordatum*)

Narrowleaf / Lanceleaf water plantain (*Alisma lanceolatum* 1)

Northern water plantain (*Alisma triviale*)

Wapato, Arrowhead (*Sagittaria latifolia*)

#### ANACARDIACEAE

Poison oak (*Toxicodendron diversiloba*)

#### APIACEAE

Wild carrot (*Daucus carota*)

Cow parsnip (*Heracleum lanatum*)

Water parsley (*Oenanthe sarmentosa*)

#### APOCYNACEAE

Common dogbane (*Apocynum cannabinum*)

#### AQUIFOLIACEAE

Holly (*Ilex aquifolium*)

#### ARALIACEAE

Ivy (*Hedera helix*)

#### ASTERACEAE

Big devils's beggarticks (*Bidens cernua*)

False dandelion (*Hypochaeris radicata*)

Leafy beggarticks (*Bidens frondosa*)

Lowland cudweed (*Gnaphalium palustre*)

Nodding beggarticks (*Bidens cernua*)

Oxe-eye daisy (*Leucanthemum vulgare*)

Pearly everlasting (*Anaphalis margaritacea*)

Purple cudweed (*Gnaphalium purpureum*)

Canada thistle (*Cirsium arvenso*)

Bullthistle (*Cirsium vulgare*)

Prickly lettuce (*Lactuca scariola*)

Common dandelion (*Taraxacum officinale*)

Smooth hawkbeard (*Crepis capillaris*)

Tarweed (*Madia sativa*)

Tansy ragwort (*Senecio jacobaea*)

### **BERBERIDACEAE**

Tall Oregon-grape (*Mahonias aquifolium*)

### **BETULACEAE**

Beaked hazelnut (*Corylus cornuta*)

Common filbert (*Corylus avellana*)

Red alder (*Alnus rubra*)

### **BRASSICACEAE**

Wintercress (*Barbarea orthoceras*)

Wild radish (*Raphanus sativus*)

### **CARYOPHYLLACEAE**

Chickweed (*Cerastium glomeratum*)

Chickweed (*Stellaria media*)

Coontail (*Ceratophyllum demersum*)

### **CAPRIFOLIACEAE**

Common snowberry (*Symphoricarpos albus*)

Red elderberry (*Sambucus racemosa*)

### **CORNACEAE**

Red-osier dogwood (*Cornus sericea*)

### **CYPERACEAE**

Dense sedge (*Carex densa*)

Green-sheath sedge (*Carex feta*)

Slough sedge (*Carex obnupta*)

Ross' sedge (*Carex rossii*)

Pointed broom sedge (*Carex scoparia*)

One-sided sedge (*Carex unilateralis*)

Red-rooted flatsedge (*Cyperus erythrorhizos*)

Common spike-rush (*Eleocharis obtuse*)

### **DIPSACACEAE**

Teasel (*Dipsacus fullonum*)

### **EQUISETACEAE**

Field horsetail (*Equisetum arvense*)

### **FABACEAE**

White clover (*Trifolium repens*)

Red clover (*Trifolium pretense*)

Hairy vetch (*Vicia hirsuta*)

Birds-foot trefoil (*Lotus corniculatus*)

### **FAGACEAE**

Oregon white oak (*Quercus garryana*)

## **GROSSULARIACEAE**

Gooseberry (*Ribes divaricatum*)

## **HALORAGIDACEAE**

Variable leaf milfoil (*Myriophyllum aquaticum*)

Eurasian water milfoil (*Myriophyllum spicatum*)

Whorled water milfoil (*Myriophyllum verticillatum*)

## **IRIDACEAE**

Flag Iris (*Iris pseudocorus*)

## **JUNCAGINACEAE**

Sharp fruited rush (*Juncus acuminatus*)

Bolander's rush (*Juncus bolanderi*)

Toad rush (*Juncus bufonius*)

Soft rush (*Juncus effusus*)

Daggerleaf rush (*Juncus ensifolius*)

Grass-leaf rush (*Juncus marginatus*)

Pointed rush (*Juncus oxymeris*)

Spreading rush (*Juncus patens*)

Slender rush (*Juncus tenuis*)

## **LAMIACEAE**

Pennyroyal (*Mentha pulegium*)

Self-heal (*Prunella vulgaris*)

## **LEMNACEAE**

Common duckweed (*Lemna minor*)

## **LILIACEAE**

Common camas (*Camassia quamash*)

## **OLEACEAE**

Oregon ash (*Fraxinus latifolia*)

## **ONAGRACEAE**

Hairy willow-herb (*Epilobium cilatum*)

False loose-strife (*Ludwigia palustris*)

Autumn willow-herb (*Epilobium brachycarpum*)

Fireweed (*Epilobium angustifolium*)

## **PAPAVERACEAE**

California poppy (*Eschscholzia californica*)

## **POACEAE**

European sliver hairgrass (*Aira caryophylla*)

Sweet vernal grass (*Anthoxanthum odoratum*)

Western mannagrass (*Glyceria occidentalis*)

Velvet grass (*Holcus lanatus*)

Meadow barley (*Hordeum brachyantherum*)

Knot grass (*Paspalum distichum*)  
Reed canarygrass (*Phalaris arundinacea*)  
Barnyard grass (*Echinochloa crus-galli*)  
Tufted hairgrass (*Deschampsia cespitosa*)  
Tall fescue (*Festuca arundinacea*)

#### **POLEMONIACEAE**

Needle-leaf navarretia (*Nararretia intertexta*)

#### **POLYGONACEAE**

Water smartweed (*Polygonum amphibium*)  
Oval-leaf knotweed (*Polygonum arenastrum*)  
Knotweed (*Polygonum coccineum*)  
Black bindweed (*Polygonum convolvulus*)  
Japanese knotweed (*Polygonum cuspidatum*)  
Douglas' knotweed (*Polygonum douglasii*)  
Marshpepper smartweed (*Polygonum hydropiperoides*)  
Curlytop knotweed (*Polygonum lapathifolium*)  
Heartweed (*Polygonum persicaria*)  
Sheep sorrel (*Rumex acetosella*)

#### **POLYPODIACEAE**

Lady fern (*Athyrium felix-femina*)  
Licorice fern (*Polypodium glycirriza*)  
Sword fern (*Polystichum munitum*)

#### **POTAMOGETONACEAE**

Curly pondweed (*Potamogeton crispus*)  
Ribon-leaf pondweed (*Potamogeton epihydrus*)  
Sage pondweed (*Potamogeton pectinatus*)

#### **RANUNCULACEAE**

Western buttercup (*Ranunculus occidentalis*)

#### **RHAMNACEAE**

Cascara (*Rhamnus purshiana*)

#### **ROSACEAE**

AngloAmerican hawthorn (*Crataegus monogyna x susdorfii*)  
Bird cherry (*Prunus avium*)  
English hawthorn (*Crataegus laevigata*)  
Evergreen blackberry (*Rubus laciniatus*)  
Himalayan blackberry (*Rubus armeniacus*)  
Multiflora rose (*Rosa multiflora*)  
Nootka rose (*Rosa nutkana*)  
Oregon avens (*Geum macrophyllum*)  
Osoberry (*Oemleria cerasiformis*)  
Spirea, hard hack (*Spiraea douglasii*)  
Serviceberry (*Amelanchier alnifolia*)

Thimbleberry (*Rubus parviflorus*)  
Western crabapple (*Malus fusca*)  
Wild strawberry (*Fragaria vesca*)

#### **RUBIACEAE**

Catchweed bedstraw (*Galium aparine*)

#### **SALICACEAE**

Cottonwood (*Populus trichocarpa*)  
Scouler's willow (*Salix scouleriana*)  
Pacific willow (*Salix lucida*)

#### **SAXIFRAGACEAE**

Fringecup (*Tellima grandiflora*)

#### **SOLANACEAE**

Climbing nightshade (*Solanum dulcamara*)

#### **SPARGANIACEAE**

Simplestem bur-reed (*Sparganium  
emersum*)  
Giant bur-reed (*Sparganium eurycarpum*)

#### **TAXACEAE**

Western red-cedar (*Thuja plicata*)

#### **TYPHACEAE**

Narrow-leaf cattail (*Typha angustifolia*)  
Cattail (*Typha latifolia*)

#### **URTICACEAE**

Stinging nettle (*Urtica dioica*)

## Appendix H

### Wildlife Species Known to Occur on Nearby Sauvie Island Wildlife Area. 2019

#### Birds

#### Symbols

S - March – May	C - Common
S - June – August	R – Rare
F - September – November	U – Uncommon
W - December - February	A - Accidental
# - Threatened or Endangered Species	O - Occasional
* Breeds locally	

	SEASON			
	S	S	F	W
<b>Loons and Grebes</b>				
Pied-billed Grebe*	C	C	C	C
Western Grebe	O	O	O	O
<b>Pelicans and Cormorants</b>				
American White Pelican	R	R	R	R
Double-crested Cormorant	C	O	C	C
<b>Bitterns, Herons and Ibis</b>				
Black-crowned Night Heron	R	R	R	R
Green Heron*	U	U	U	R
Cattle Egret			R	R
Snowy Egret			R	
Great Egret	U	U	U	U
Great Blue Heron*	C	C	C	C
<b>Waterfowl</b>				
Tundra Swan	U	R	U	C
Trumpeter Swan	R	R	R	R
Canada Goose	C	U	C	C
Cackling Goose	C		C	C
Brant	O	O	O	
Wood Duck*	C	C	U	U
Mallard*	C	C	C	C
American Black Duck				A
Gadwall*	U	O	U	U
Green-winged Teal	C	U	C	C
American Wigeon	C	U	C	C
Eurasian Wigeon	O		O	O
Northern Pintail*	C	U	C	C

Northern Shoveler*	C	O	C	C
Blue-winged Teal*	R	R	R	R
Cinnamon Teal*	U	C	U	O
Canvasback	O		O	O
Redhead				O
Ring-necked Duck	C		U	C
Greater Scaup	O		O	O
Lesser Scaup	C	R	U	C
Common Merganser	U		O	U
Red-breasted Merganser	R	R		R
Hooded Merganser*	U	O	O	O
Ruddy Duck	U	O	U	U
Bufflehead	U		U	U

<b>Raptors</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Turkey Vulture*	U	U	O	R
Osprey*	U	U	U	R
Northern Harrier*	U	U	U	U
Golden Eagle	R	R		R
Bald Eagle*	U	O	C	U
Sharp-shinned Hawk	U	U	U	U
Cooper's Hawk*	O	O	O	O
Northern Goshawk	R			R
Red-shouldered Hawk				A
Red-tailed Hawk*	C	C	C	C
American Kestrel*	C	C	C	C
Merlin	O	O	O	O
Peregrine Falcon		O	O	O

<b>Gallinaceous Birds</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Ring-necked Pheasant*	U	O	U	U
California Quail*	R	R	R	R

<b>Rails, Coots and Cranes</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
American Coot*	U	U	U	U

<b>Shorebirds</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Black-bellied Plover			R	R
Pacific Golden Plover			A	
Semipalmated Plover		O	O	O
Killdeer*	C	C	C	C
Greater Yellowlegs	O	O	U	O
Lesser Yellowlegs	U	O	U	
Solitary Sandpiper	R	R	R	
Spotted Sandpiper	O	O	O	
Whimbrel		O		
Long-billed Curlew		A		
Marbled Godwit		A	A	
Sanderling		A	A	
Semipalmated Sandpiper			A	

Western Sandpiper	U	U	U	
Least Sandpiper	U	U	U	O
Baird's Sandpiper	R		R	
Pectoral Sandpiper			O	
Willet	O		O	
Sharp-tailed Sandpiper				A
Dunlin	U		U	U
Stilt Sandpiper				A
Buff-breasted Sandpiper				A
Ruff				A
Short-billed Dowitcher				U
Long-billed Dowitcher	U	U	U	O
Wilson's Snipe*	U	O	U	C
Wilson's Phalarope	O	R	O	
Red-necked Phalarope	A	A	A	
Red Phalarope	R		R	

<b>Gulls and Terns</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Parasitic Jaeger			A	
Franklin's Gull	A	A	A	A
Bonaparte's Gull	O	R	O	R
Ring-billed Gull	C	U	U	C
Mew Gull	U	O	O	C
California Gull	C	O	U	C
Herring Gull	U		O	U
Glaucous Gull	R			O
Thayer's Gull	O		O	U
Western Gull	O	O	U	U
Glaucous-winged Gull	C	O	U	C
Slaty-backed Gull				A
Sabine's Gull			A	A
Black-legged Kittiwake			A	
Caspian Gull	O	O	O	
Forster's Tern			A	
Common Tern	A		A	

<b>Doves and Cuckoos</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Band-tailed Pigeon	O	O	O	O
Rock Dove*	C	C	C	C
Mourning Dove*	U	C	U	O
Yellow-billed Cuckoo			A	

<b>Owls</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Barn Owl*	O	O	O	O
Short-eared Owl	O		O	O
Long-eared Owl	R	R	R	R
Great Horned Owl*	U	U	U	U
Western Screech-Owl*	U	U	U	O
Northern Pygmy-Owl	O	O	O	O
Northern Saw-whet Owl	A	A	A	A

Northern Hawk-Owl				A
Barred Owl	O	O	O	O
<b>Nighthawks and Swifts</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Vaux's Swift*	U	U	O	
<b>Hummingbirds</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Anna's Hummingbird	C	C	C	C
Rufous Hummingbird*	C	C	U	
<b>Kingfishers</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Belted Kingfisher*	U	C	U	U
<b>Woodpeckers</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Northern Flicker*	C	C	C	C
Red-breasted Sapsucker*	O	O	O	O
Downy Woodpecker*	C	C	C	C
Hairy Woodpecker	O	O	O	O
Pileated Woodpecker*	O	O	O	O
<b>Flycatchers</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Olive-sided Flycatcher		O	O	
Western Wood-Peevee*	R	C	O	
Willow Flycatcher*	U	U		
Least Flycatcher	R	R		
Hammond's Flycatcher	O	O	R	
Pacific-slope Flycatcher*	U	C	R	
Western Kingbird	R	R		
<b>Shrikes</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Loggerhead Shrike	R			
Northern Shrike	O		O	O
<b>Vireos</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Hutton's Vireo	R	R	R	R
Cassin's Vireo	U	O		
Red-eyed Vireo	O	O		
Warbling Vireo*	C	C	O	
<b>Jays and Crows</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Blue Jay			A	
Steller's Jay	C	U	U	C
Gray Jay	R			R
Western Scrub Jay*	C	C	C	C
Black-billed Magpie	A		A	
American Crow*	C	C	C	C
Common Raven	A	A	A	A

<b>Larks and Swallows</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Tree Swallow*	C	C	R	R
Violet-green Swallow*	U	C	O	R
Purple Martin*	O	U	O	
No. Rough-winged Swallow*	O	U	O	
Barn Swallow*	U	C	C	R
<b>Chickadees and Bushtits</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Black-capped Chickadee*	C	C	C	C
Chestnut-backed Chickadee*	R	R	R	R
Bushtit*	C	C	C	C
<b>Nuthatches and Creepers</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Brown Creeper*	C	C	C	C
White-breasted Nuthatch*	O	O	O	O
Red-breasted Nuthatch*	C	C	C	C
<b>Wrens</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
House Wren*	U	C	O	R
Winter Wren	R	R	R	R
Bewick's Wren*	C	C	C	C
Marsh Wren*	C	C	U	U
<b>Kinglets</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Golden-crowned Kinglet	U	O	C	C
Ruby-crowned Kinglet	U	O	C	C
<b>Thrushes</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Western Bluebird	R		R	R
Swainson's Thrush*	C	C		
Varied Thrush	U		U	C
American Robin*	C	C	C	C
Townsend's Solitaire	A		A	A
<b>Mockingbirds and Starlings</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Cedar Waxwing	C	C	U	U
European Starling*	C	C	C	C
<b>Warblers</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Orange-crowned Warbler*	C	C	O	O
Yellow-rumped Warbler*	C	C	U	U
Black-throated Gray Warbler*	U	R	U	
Townsend's Warbler	O		O	O
Yellow Warbler*	U	U	O	
MacGillivray's Warbler	U	U	R	
Wilson's Warbler	U	O	O	
Common Yellowthroat*	C	C	O	O
Yellow-breasted Chat	R	R		

<b>Tanagers</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Western Tanager	C	C	O	

<b>Sparrows</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Spotted Towhee*	C	C	C	C
American Tree Sparrow	A			
Fox Sparrow	O		O	U
Savannah Sparrow*	C	C	U	U
Lincoln's sparrow	O	O	O	O
Song Sparrow*	C	C	C	C
Vesper Sparrow	R	R	R	
White-throated Sparrow				R
White-crowned Sparrow	U	U	U	U
Golden-crowned Sparrow	C		C	C
Dark-eyed Junco	C	R	C	C
Black-headed Grosbeak*		U		
Lazuli Bunting		U		

<b>Blackbirds</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Western Meadowlark*	U	U	U	U
Yellow-headed Blackbird*	O	O		
Red-winged Blackbird*	C	C	O	C
Tricolored Blackbird		A		
Rusty Blackbird	A			A
Brewer's Blackbird*	C	C	C	C
Brown-headed Cowbird*	C	C	U	O
Bullock's Oriole*	U	U	O	

<b>Finches and Grosbeaks</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
Purple Finch*	U	U	U	U
House Finch*	C	C	U	C
Pine Siskin*	O	O	O	O
American Goldfinch*	C	C	U	U
Lesser Goldfinch	A	A	A	A

<b>Weaver Finches</b>	<b>S</b>	<b>S</b>	<b>F</b>	<b>W</b>
House Sparrow*	U	U	U	U

**Mammals**

(\* denotes non-native species)

Virginia Opossum*	<i>Didelphis virginiana</i>	Douglas' Squirrel	<i>Tamiasciurus douglasii</i>
Vagrant Shrew	<i>Sorex vagrans</i>	Camas Pocket Gopher	<i>Thomomys bulbivorus</i>
Pacific Shrew	<i>Sorex pacificus</i>	American Beaver	<i>Castor canadensis</i>
Pacific Water Shrew	<i>Sorex bendirii</i>	Deer Mouse	<i>Peromyscus maniculatus</i>
Trowbridge's Shrew	<i>Sorex trowbridgii</i>	Dusky-Footed Woodrat	<i>Neotoma fuscipes</i>
Shrew Mole	<i>Neurotrichus gibbsii</i>	Bushy-Tailed Woodrat	<i>Neotoma cinerea</i>
Townsend's Mole	<i>Scapanus townsendii</i>	Gray-Tailed Vole	<i>Microtus canicaudus</i>
Little Brown Myotis	<i>Myotis lucifugus</i>	Townsend's Vole	<i>Microtus townsendii</i>
Yuma Myotis	<i>Myotis yumanensis</i>	Creeping Vole	<i>Microtus oregoni</i>
Long Eared Myotis	<i>Myotis evotis</i>	Muskrat	<i>Ondatra zibethicus</i>
Fringed Myotis	<i>Myotis thysanodes</i>		
Long Legged Myotis	<i>Myotis volans</i>	Porcupine	<i>Erethizon dorsatum</i>
California Myotis	<i>Myotis californicus</i>	Nutria*	<i>Myocastor coypus</i>
Silver Haired Bat	<i>Lasionycteris noctivagans</i>	Coyote	<i>Canis latrans</i>
Big Brown Bat	<i>Eptesicus fuscus</i>	Red Fox	<i>Vulpes vulpes</i>
Hoary Bat	<i>Lasiurus cinereus</i>	Gray Fox	<i>Urocyon cinereoargenteus</i>
Townsend's Big-Eared Bat	<i>Plecotus townsendii</i>	Raccoon	<i>Procyon lotor</i>
Pallid Bat	<i>Antrozous pallidus</i>	Long-tailed Weasel	<i>Mustela frenata</i>
Brush Rabbit	<i>Sylvilagus bachmani</i>	Mink	<i>Mustela vison</i>
Townsend's Chipmunk	<i>Tamias townsendii</i>	Western Spotted Skunk	<i>Spilogale gracilis</i>
California Ground Squirrel	<i>Spermophilus beecheyi</i>	Striped Skunk	<i>Memphitis memphitis</i>
Eastern Fox Squirrel*	<i>Sciurus niger</i>	River Otter	<i>Lutra canadensis</i>
Eastern Gray Squirrel	<i>Sciurus carolinensis</i>		
Western Gray Squirrel	<i>Sciurus griseus</i>	Elk	<i>Cervus elaphus</i>
Pacific Jumping Mouse	<i>Zapus trinotatus</i>	Black-tailed Deer	<i>Odocoileus hemionus</i>

### Amphibians and Reptiles

Northwestern Salamander	<i>Ambystoma gracile</i>		
Long-toed Salamander	<i>Ambystoma macrodactylum</i>	Northern Alligator Lizard	<i>Elgaria coerulea</i>
Ensatina	<i>Ensatina eschscholtzi</i>	Rubber Boa	<i>Charina bottae</i>
Dunn's Salamander	<i>Plethodon dunni</i>	Northwestern Garter Snake	<i>Thamnophis ordinoides</i>
Western Red-backed Salamander	<i>Plethodon vehiculum</i>	Common Garter Snake	<i>Thamnophis sirtalis</i>
Pacific Chorus Frog	<i>Pseudacris regilla</i>		
Northern red-legged Frog	<i>Rana aurora aurora</i>		
Bullfrog*	<i>Rana catesbeiana</i>		
Western Painted Turtle	<i>Chrysemys picta bellii</i>		
Northwestern Pond Turtle	<i>Actinemys marmorata marmorata</i>		

### Fish

Coho Salmon	<i>Oncorhynchus kisutch</i>	Redside Shiner	<i>Richardsonius balteatus</i>
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	Sculpin	<i>Cottus spp.</i>
Black Crappie*	<i>Pomoxis nigro-annularis</i>	Common Carp*	<i>Cyprinus carpio</i>
White Crappie*	<i>Pomoxis annularis</i>	Yellow Bullhead*	<i>Ictalurus natalis</i>
Bluegill*	<i>Lepomis macrochirus</i>	Brown Bullhead*	<i>Ictalurus nebulosus</i>
Largemouth Bass*	<i>Micropterus salmoides</i>		
Warmouth Bass*	<i>Lepomis gulosus</i>		
Pumpkinseed*	<i>Lepomis gibbosus</i>		
Three-spined stickleback	<i>Gasterosteus aculeatus</i>		

## **Appendix I**

### **Expansion of available turtle nesting sites at Palensky Wildlife Area**

#### **Objective**

Increase the amount of suitable nesting areas for two native turtle species at Palensky Wildlife Area.

#### **Background**

ODFW staff has observed northwestern pond turtles and western painted turtles nesting at Palensky Wildlife Area since 1995. Both species are Oregon Conservation Strategy Species and are known to have low rates of egg viability and hatchling survivorship. The areas with suitable nesting conditions have been reduced over time. Heavily compacted soils and erosion appear to play a role in this reduction. ODFW staff captured several turtle nesting attempts over the past two seasons where turtles spent hours trying to dig nests and then left the area without laying. Rapidly encroaching vegetation, particularly that of invasive plants, has negatively impacted suitable nesting locations.

#### **Project Timing**

Nesting mounds will be installed mid-May 2022 or 2023. This will allow time for last year's hatchlings to emerge and allow us to complete the installation prior to the beginning of this year's nesting season. A mini excavator will be used to build the mounds and pack down the soil.

#### **Access**

BPA's Environmental Protection Specialist, Thomas Delorenzo has reviewed maps, visited the site, and approved the use of Seasonal Bridge 1 (Figure 7) to facilitate the movement of equipment and materials to the project site.

#### **Materials**

50 cubic yards of soil substrate. As per the ODFW Native Turtle Best Management Practices (2015), substrate will be composed of equal portions of loam, fine clay, sand, and aggregate. Soil will be sourced locally and certified weed free. Metal nest protection materials.

#### **Project Design and Location**

10 nesting mounds (8ftx10ft. No taller than 18"). Approximately 5 cubic yards of soil per mound.

Mound locations were chosen based on factors including historical nesting, south facing slopes, proximity to wetlands (less than 50 meters as indicated by research), open canopy cover, and management access.

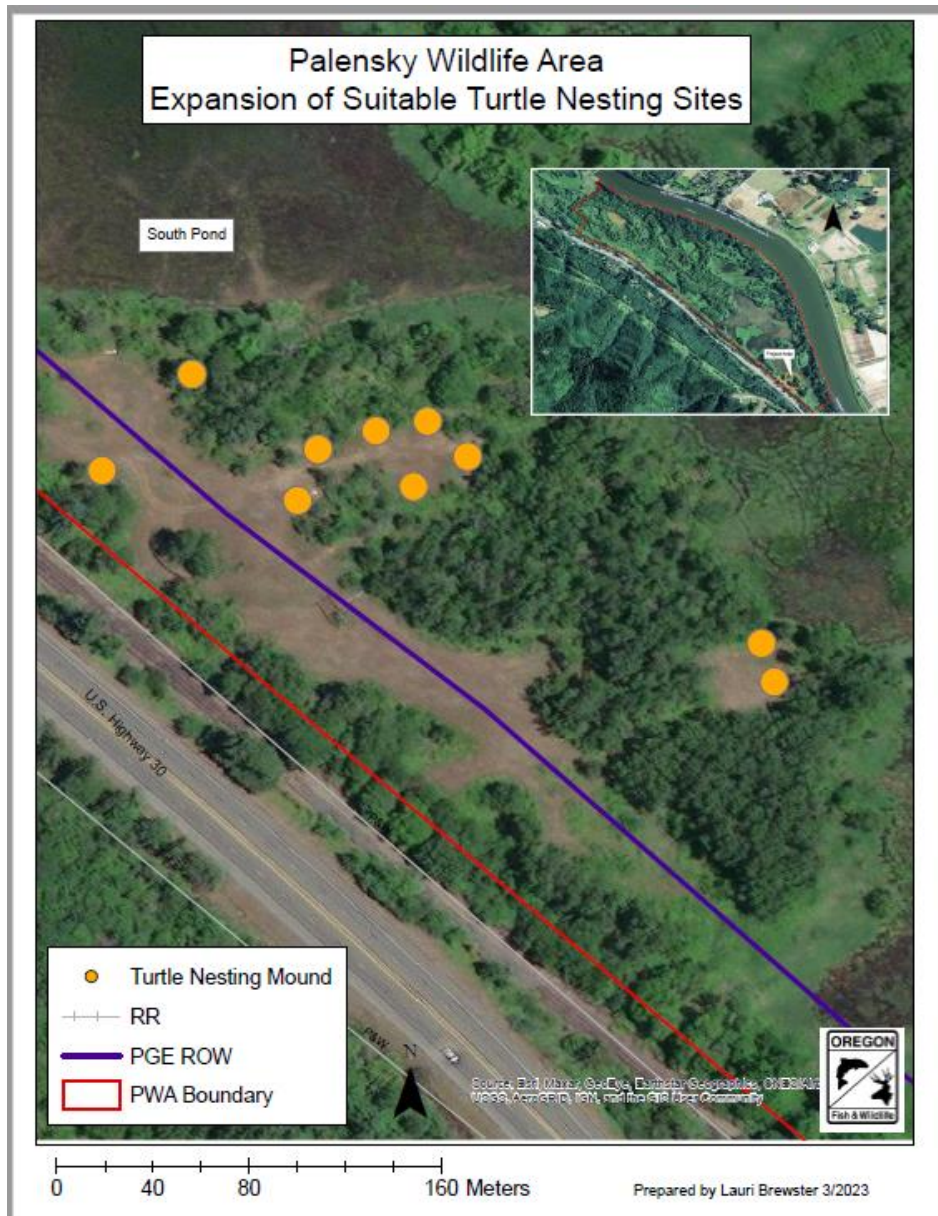
#### **Maintenance and Monitoring**

Nesting mounds will be kept free of weeds using mechanical control methods. Canopy cover above the mounds will be trimmed as needed to maintain an open canopy. Throughout the months of June, July, and August, WWMP Technicians and the Project Biologist will monitor the mounds for signs of nesting activity. Confirmed nests will be

protected using metal coverings for the first few weeks (when odors are strongest) and the nesting date will be recorded.

### Permitting

ODFW communicated with Melinda Butterfield, Department of State Lands (DSL) Aquatic Coordinator for Multnomah County on 2/3/2022. After reviewing the project location and the amount of fill being used in the proposed project, DSL confirmed that it is not required to seek a removal-fill permit or proprietary waterway authorization.



## Appendix J

Desired locations for planting projects at Palensky Wildlife Area.

These are the planting projects we anticipate during the timeline of this land management plan. All of these are project are described in Table 5. Previous cultural resource surveys (1994, 2003, 2008, 2009, 2020) listed in this land management plan cover some of the desired planting locations.

