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G. Conservation Assessments for Federally Listed Plant Species, Candidate Plant Species, and Plant Species of Concern

In general, the federally listed and proposed endangered and threatened plant taxa described below have very limited ranges and narrow habitat requirements and are restricted to very small areas. Because of these factors, it is anticipated that they can be effectively managed while meeting other land-management objectives. DNR maintains a database on these species, including both site-specific and species-specific information, that will be useful in locating and protecting known sites and potential habitat. However, no comprehensive inventories of these species exist for DNR-managed lands.

Federally Listed Plant Species

Brief statements about each species are provided below; additional information can be obtained from either the U.S. Fish and Wildlife Service's Endangered Species Office in Olympia or DNR's Natural Heritage Program.

ARENARIA PALUDICOLA

Swamp sandwort was historically known to occur in "swamps near Tacoma" but has not been seen or collected in Washington since the late 1800s. Reports from several other western Washington locations have been determined to be misidentifications. However, additional inventory in Washington is needed, primarily in wetlands within the Puget Lowlands. The only known extant site in the world is found in a brackish wetland in California. However, this species could occur in wetlands near the Pacific Coast, Willapa Bay, or Puget Sound. The HCP for the five west-side planning units and the OESF would likely provide better protection of this species' habitat because of their better overall wetland and riparian protections.

HOWELLIA AQUATILIS

Water howellia is an aquatic annual generally found in vernal ponds or portions of ponds in which there is a significant seasonal draw down of the water level. All known ponds have a deciduous tree component around their perimeters; most have conifers as well. The species is currently known to occur in Washington, Idaho, and Montana. In Washington, it has been found in Clark, Pierce and Spokane Counties. Historically it was also known to occur in Thurston and Mason Counties, as well as in Oregon and California. There has been no inventory of water howellia on DNR-managed lands, but if water howellia does occur in the planning area, then the HCP would reduce adverse effects because it offers better overall wetlands protection.

LOMATIUM BRADSHAWII

Bradshaw's lomatium was thought to be endemic to the Willamette Valley in Oregon until 1994, when it was discovered in Clark County, Washington. The one site in Washington is a seasonally flooded wetland dominated by grasses, sedges and rushes. As far as is now known within the HCP planning area, this species is restricted to wetlands in flood-plain habitats at low elevations in the Columbia Planning Unit. Although not known to occur on DNR-managed lands, some DNR-managed lands may provide potential habitat. The HCP provides better protection of this species' habitat because

of its better overall wetland and riparian protections. The OESF would have no effect, as the species is not known or expected to occur in the planning unit.

SIDALCEA NELSONIANA

Nelson's checkermallow was also thought to be restricted to Oregon until relatively recently. There are known sites in Cowlitz and Lewis counties, Washington. These sites are in low elevation, moist meadows within the South Coast and Columbia HCP planning units. These sites may qualify as wetlands. There is a limited amount of DNR-managed land that contains suitable habitat. There is expected to be no change regarding the effects of management on this species due to its restriction to open, moist meadow habitats.

Plant Species Proposed for Federal Listing

CASTILLEJA LEVISECTA

Golden paintbrush occurs from Thurston County northward to Vancouver Island. Historically it was also known to occur in the Willamette Valley in Oregon and in Clark County, Washington. The species is restricted to grasslands and areas dominated by a mixture of grasses and shrubs. Although this species occurs in grasslands, it could be affected by timber harvest through road building, yarding, or decking logs on adjacent grasslands. Where conifers invade *C. levisecta* habitat, the removal of trees is beneficial to the species. There are only 10 known sites with *C. levisecta* in the world, eight of which are in Washington and one of these is a DNR-managed natural area preserve. All sites are quite small in area and are subject to a variety of threats, the most serious of which is the invasion by a mixture of Douglas-fir, Scot's broom, blackberries, and roses. It is not known to occur, nor is it expected to occur within the OESF. There is little to no DNR-managed land adjacent to sites that harbor this species. The HCP is not expected to have any effect on this species.

Federal Candidate Plant Species

There is one vascular plant species that is a candidate for listing (as of February 1996) under the federal ESA which is known to occur, or is reasonably suspected of occurring, within the HCP planning area. Additional information about this species can be obtained from DNR's Natural Heritage Program.

SIDALCEA OREGANA VAR. CALVA

This taxon is restricted to the Chelan Planning Unit. It may occur on DNR-managed forest land. It can occur along small riparian areas and some of the sites would qualify as wetlands. The HCP can be expected to provide better protection due to the overall better riparian zone and wetlands protections. The OESF would have no effect since the taxon is not known or expected to occur on the OESF.

Plant Species of Concern

There are a number of vascular plant taxa that are species of concern to the U.S. Fish and Wildlife Service (as of February 1996) which are known to occur, or are reasonably suspected of occurring, within the HCP Planning Area. Additional information about these species can be obtained from DNR's Natural Heritage Program.

ABRONIA UMBELLATA SSP. ACUTALATA

This taxon is thought to be extirpated from the state of Washington. The historic locations were coastal sand dunes. Timber management under the HCP and OESF would have no effect.

ARTEMISIA CAMPESTRIS SSP. BOREALIS VAR. WORMSKIOLDII

This taxon is restricted to areas immediately adjacent to the Columbia River in Grant and Klickitat counties. The areas do not support conifers and are far enough removed from DNR forest management that management activities are not likely to have any impact.

ASTER CURTUS

This taxon is restricted to grassland habitats in the lowlands of the Puget trough. It may occur in grasslands adjacent to DNR-managed forest land. It is not known nor expected to occur on the OESF. Because the plant is generally restricted to nonforested habitats, the HCP and the OESF are expected to have little effect on this species.

ASTRAGALUS AUSTRALIS VAR. OLYMPICUS

This taxon is restricted to relatively high elevations in the northeastern portion of the Olympic Peninsula. It is only known to occur in the Olympic National Park and Olympic National Forest.

ASTRAGALUS PULSIFERAE VAR. SUKSDORFII

In Washington, this taxon is restricted to the Klickitat Planning Unit and occurs in somewhat open ponderosa pine stands with a relatively sparse understory. The one known site of *A. pulsiferae* on DNR-managed land is within a designated dispersal habitat management area. Higher harvest levels may provide better habitat protection for this taxon than lower harvest levels. However, increased harvest levels may not be a recommended method for enhancing the habitat for this taxon; prescribed burns, or allowing natural fires to burn, would likely be a preferable method. The OESF would not be affected, as the taxon is not known or expected to occur there.

ASTRAGALUS SINUATUS

This taxon does not occur within the HCP Planning Area. It is restricted to a very small range east of the planning area in Chelan County.

BOTRYCHIUM ASCENDENS

This taxon appears to have a fairly broad ecological amplitude and wide geographic range. However, there is insufficient information available regarding its response to timber harvest activities to evaluate the HCP and its effects.

CALOCHORTUS LONGEBARBATUS VAR. LONGEBARBATUS

In Washington, this taxon is restricted to the Klickitat Planning Unit. It could occur on DNR-managed lands. It occurs primarily in open grasslands, but occasionally extends into open forest stands. Within the Yakama Indian Reservation, it can be found within harvested units and along roadway openings. Although this taxon could benefit from timber harvest in areas adjacent to meadow openings, it is anticipated that there will be no change regarding the effects of management on this species. The OESF will have no effect since the taxon is not known or expected to occur on the OESF.

CASTILLEJA CRYPTANTHA

This taxon does not occur and is not expected to occur, on DNR-managed lands within the HCP Planning Area. It is restricted to subalpine and alpine meadows around the northern perimeter of Mt. Rainier.

CIMICIFUGA ELATA

This taxon occurs in DNR Dispersal management areas and potentially within NRF management areas. The taxon occurs within the North Coast, Straits, South Puget, South Coast, and Columbia planning units. The HCP is expected to be beneficial due to the lower timber harvest levels in NRF and Dispersal management areas. The OESF would have no effect, since the taxon is not known or expected to occur on the OESF.

CORYDALIS AQUAE-GELIDAE

This taxon occurs primarily along Types 3 through 5 waters, including small seeps, and is restricted to the Columbia Planning Unit. It could occur on DNR-managed lands. The HCP is expected to provide better protection due to the overall better riparian zone protections.

CYPRIPEDIUM FASCICULATUM

This taxon occurs within a variety of coniferous stands within the Klickitat, Yakima, and Chelan planning units. It could occur on DNR-managed lands. There is insufficient information available regarding this species' response to timber harvest activities to evaluate the HCP and its effects.

DELPHINIUM LEUCOPHAEUM

This taxon is essentially a grassland species and is restricted to the South Coast Planning Unit. It could occur on DNR-managed lands. The HCP is expected to have no effect on this species. The OESF would have no effect since the taxon is not known or expected to occur on the OESF.

DELPHINIUM VIRIDESCENS

This taxon is restricted to the Chelan and Yakima planning units. It may occur on DNR-managed lands. It can occur along small riparian areas and some of the sites would qualify as wetlands. The HCP can be expected to provide better protection due to the overall better riparian zone and wetlands protections. The OESF is expected to have no effect since the taxon is not known or expected to occur on the OESF.

DODECATHEON AUSTROFRIGIDUM

In Washington, this taxon is currently known only to occur in the Mt. Colonel Bob Wilderness Area of the Olympic National Forest. However, in Oregon it is known to occur in lower elevation riparian areas. The HCP and the OESF would presumably provide better protection due to overall better riparian zone protections.

ERIGERON HOWELLII

In Washington, this taxon is restricted to the Columbia Planning Unit. It generally occurs in open areas. Canopy removal is not expected to have a negative impact, but ground-disturbing activity might. There is insufficient information to analyze how the HCP would affect this species. The OESF would have no effect since the taxon is not known or expected to occur on the OESF.

ERIGERON OREGANUS

In Washington, this taxon is restricted to the Columbia Planning Unit. It occurs within owl dispersal habitat; however, it is found primarily on exposed rock. Canopy removal will not generally have a negative impact. There is probably no change regarding the effects of management on this species. The OESF would have no effect since the taxon is not known or expected to occur on the OESF.

FILIPENDULA OCCIDENTALIS

In Washington, this taxon is restricted to river and creek banks in southwest Washington, in the Columbia and South Coast HCP planning units. Some DNR-managed land is relatively close to known sites for this taxon. It is expected that the HCP could provide more protection because of its better riparian protections. The deferrals and protections for the marbled murrelet provided by the HCP could also benefit this species. The OESF would have no effect since the taxon is not known or expected to occur on the OESF.

HACKELIA VENUSTA

This taxon is restricted to the Chelan Planning Unit. All known sites are on U.S. Forest Service lands. Some DNR-managed land occurs within the range of this species. Canopy removal would not have a negative impact and in fact might be beneficial. However, ground-disturbing activities could have a negative impact. At present, there is insufficient data to analyze the HCP and its potential effects on this species.

LATHYRUS TORREYI

This taxon was thought to be extirpated from the state of Washington. The historic locations were scattered in Clark and Pierce counties. The only extant site is at McChord Air Force Base, where it inhabits a mature conifer stand with an open understory. Timber management on DNR-managed lands under the HCP and OESF is unlikely to have an adverse effect.

LOMATIUM SUKSDORFII

In Washington, this taxon is restricted to the Klickitat Planning Unit. It may occur on DNR-managed lands. It can occur within riparian areas, but it is not restricted to such areas. It occurs on slopes that may support scattered individual conifers, on the edges of conifer stands, or in stand openings. There is likely no change regarding the effects of management on this species. The OESF would have no effect since the taxon is not known or expected to occur on the OESF.

LOMATIUM TUBEROSUM

This taxon is restricted to talus slopes, mostly in nonforested areas, although there can be trees adjacent to the talus. Conservation measures for talus slopes will benefit this species. Within the HCP Planning Area, this taxon is known only to occur within the Yakima Planning Unit.

LUPINUS SULPHUREUS VAR. KINCAIDII

This taxon is essentially a grassland species and, in Washington, is restricted to the South Coast Planning Unit. It is unlikely to occur on DNR-managed lands. The HCP is expected to have no effect on this species. The OESF is expected to have no effect since the taxon is not known or expected to occur on the OESF.

MECONELLA OREGANA
This taxon occurs in grasslands, sometimes adjacent to forested areas, although generally in somewhat savannah-like conditions. It is expected that there would no change regarding the effects of management on this species. The OESF would have no effect since the taxon is not known or expected to occur on the OESF.

MIMULUS JUNGERMANNIOIDES
This taxon was historically known to occur in the Klickitat Planning Unit, but is currently thought to be extirpated from the state of Washington. It is restricted to seepage areas in exposed basalt. It is unlikely to occur on DNR-managed lands. The HCP is not expected to have any impact on this taxon. The OESF would have no effect since the taxon is not known or expected to occur on the OESF.

PENSTEMON BARRETTIAE
This taxon occurs primarily on exposed basalt in Washington and is known to occur only in the Klickitat Planning Unit. It may occur on DNR-managed lands. It may occur within riparian areas, although it is not restricted to riparian areas. There is expected to be no change regarding the effects of management on this species. The OESF would have no effect since the taxon is not known or expected to occur on the OESF.

PETROPHYTUM CINERASCENS
This taxon is within the very eastern edge of the Chelan Planning Unit. In fact, it is restricted to rock outcrops adjacent to the Columbia River.

RANUNCULUS RECONDITUS
This taxon is known to occur in Klickitat County, but not within the HCP planning area.

RORIPPA COLUMBIAE
This taxon is restricted to the immediate shores of the Columbia River and islands in the Columbia River along the Hanford Reach and in Skamania County. No DNR-managed lands are known to harbor this species and timber management under the HCP is not expected to have an impact.

SILENE SEELYI
This taxon is restricted to cracks in exposed rock in a small portion of the Chelan, and maybe the Yakima, planning units. Although it is not known to occur on DNR-managed lands, some DNR-managed lands are in close proximity to known locations for this species. The species is probably not affected to any great degree by canopy removal. It is expected that there would be no change regarding the effects of management on this species.

SISYRINCHIUM SARMENTOSUM
In Washington, this taxon is restricted to the Klickitat Planning Unit. It may occur on DNR-managed lands. It occurs in moist meadows and small forest openings, and it may be occur in riparian and/or wetland areas. The HCP can be expected to provide better protection due to the better riparian and wetland protections. The OESF would have no effect since the taxon is not known or expected to occur on the OESF.

SULLIVANTIA OREGANA

In Washington, this taxon is known to occur only in the Columbia Planning Unit and occurs within waterfall spray zones and seepage areas. A site with *S. oregana* is located in a DNR-managed natural area preserve, and other sites may occur in DNR-managed parcels adjacent to the preserve. The HCP is expected to provide better protection because of its better riparian and wetland protections The OESF would have no effect since the taxon is not known or expected to occur on the OESF.

TAUSCHIA HOOVERI

This taxon is restricted to lithosolic, nonforested habitats. It is known to occur on DNR-managed land. It occurs mostly east of the HCP Planning Area, although some sites are within the Yakima and perhaps the Klickitat planning units.

TRIFOLIUM THOMPSONII

This taxon is known to occur only in the Chelan Planning Unit. It is a grassland species, but it also occurs on the edge of forest stands. Fire is important in maintaining its habitat. This species is known to occur on DNR-managed lands. There is expected to be no change regarding the effects of management on this species. The OESF would have no effect since the taxon is not known or expected to occur on the OESF.