US Forest Service, Pacific Northwest Region **Attachment to Powerline Operating Plans**

Best Management Practices and Project Design Criteria to minimize effects to ESA listed species and their habitat.

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The Forest Services Pacific Northwest Region is in the process of consulting with US Fish and Wildlife and National Marine Fisheries regarding Endangered Species Act listed species as it relates to maintenance of powerlines on National Forest System lands. This document will evolve during that process and will need to be updated. The timeline for completing this process is expected to take till the end of 2023. This document should be an attachment to all powerline operating plans or agreements. Individual forest may have additional local BMP's or PDC's.

Best Management Practices

Application of Best Management Practices (BMPs) is considered an effective and practicable means of minimizing adverse effects to species and their habitats that may result from routine O&M activities. Designed for, and applied to, different types of O&M activities, BMPs are standard practice for the owner/operators, which can implement them as conditions warrant (e.g., within specific seasons, in specific locations). Examples of BMPs include minimizing stream crossings, washing vehicles prior to entering and leaving NFS lands, minimizing soil disturbance, and limiting off-road travel. The Forest Service standardized their BMPs in their *National Best Management Practices for Water Quality Management on National Forest System Lands* (U.S. Forest Service 2012) publication. This document lists the BMPs to be implemented based on local conditions when O&M activities are being implemented and will be utilized for activities while on Forest Service lands. This will minimize effects to ESA listed species and their critical habitat.

Project Design Criteria

Project Design Criteria (PDCs) include specific measures used to minimize or avoid impacts on species-specific federally threatened and endangered species, proposed and candidate species for listing, and their designated critical habitats. Examples of species-related PDCs include but are not limited to scheduling work outside of limited operating periods; imposing resource-specific buffer zones; and adherence to Forest Service habitat and species management guidelines, strategies, and plans. Following is the list of proposed PDCs that will be applied for routine powerline O&M activities.

Best Management Practices

Best management practices (BMPs) are standard practices owner/operators implement while carrying out operations and maintenance (O&M) activities; these are practices or combinations of practices that are determined to be effective and practicable means of preventing or reducing the negative impacts of an activity. Many of these BMPs were compiled from the *National Best Management Practices for Water Quality Management on National Forest System Lands*[1] (referred to as *the Forest Service guidance* below) using plain language and reflect the components of the measures related to routine powerline O&M work. These BMPs will be utilized during implementation of O&M activities to minimize impacts to aquatic and terrestrial ESA-listed species and their critical habitats.

1.1.1.1 Introduction or Spread of Invasive Plant Species

Consult with the Forest or Ranger District annually and more often as necessary to discuss weed prevention and management needs.

Clean all tools, construction equipment, and heavy-duty vehicles before entering NFS lands.

Use weed-free sources for imported project materials (e.g., gravel, straw, and fill) to the extent practicable (e.g., where and when sources are available).

Maintain facilities and infrastructure (e.g., spur roads, towers, staging areas, etc.) to limit the introduction and spread of weeds.

Use suitable species and establishment techniques to revegetate the site in compliance with Forest direction and requirements per FSM 2070 and FSM 2080 for vegetation ecology and prevention and control of invasive species.

1.1.1.2 Operations in Aquatic Ecosystems

Use suitable measures to avoid or minimize impacts to the waterbody when implementing reconstruction and maintenance activities.

- Equipment will not be operated in or across stream channels, except at existing or designated stream crossings.
- Conduct operations during dry periods.
- Stage work activities as needed to limit the extent of disturbed areas without installed stabilization measures.
- Promptly install and appropriately maintain erosion control measures. Plant-based erosion control measures shall be certified weed free mulch.

[1] U.S. Department of Agriculture Forest Service. 2012. *National Best Management Practices for Water Quality Management on National Forest System Lands.* FS-990a. April. Volume 1: National Core BMP Technical Guide.

- A spill containment and control plan will be completed that includes notification procedures, specific clean up and disposal instructions, quick response containment and clean up materials available on site, proposed methods for disposal of spilled materials and training for spill containment. The plan must be available for inspection as requested and meet requirements of all applicable laws and regulations.
- Promptly install and appropriately maintain spill prevention and containment measures.
- Promptly rehabilitate or stabilize disturbed areas as needed following construction or maintenance activities.
- Stockpile and protect topsoil for reuse in site revegetation.
- Minimize bank and riparian area excavation during construction to the extent practicable.
- Keep excavated materials out of the waterbody.
- Properly compact fills to avoid or minimize erosion.
- Contour site to disperse runoff, minimize erosion, stabilize slopes, and provide a favorable environment for plant growth.

1.1.1.3 Erosion Control

Install sediment and stormwater controls before initiating surface-disturbing activities to the extent practicable.

Schedule, to the extent practicable, reconstruction and maintenance activities to avoid direct soil and water disturbance during periods of the year when heavy precipitation and runoff are likely to occur.

Maintain erosion and stormwater controls as necessary to ensure proper and effective functioning.

Routinely inspect reconstruction sites to verify that erosion and stormwater controls are implemented and functioning as designed and are appropriately maintained. Use site planning and site erosion control measures commensurate with the scope of the project to prevent erosion and sediment discharge from the project site. Before significant earthwork begins, install appropriate, temporary erosion controls downslope to prevent sediment deposition in the riparian area, wetlands, or water body.

During reconstruction:

- Complete earthwork in wetlands, riparian areas, and stream channels as quickly as possible.
- Cease project operations when high flows may inundate the project area, except for efforts to avoid or minimize resource damage.
- If eroded sediment appears likely to be deposited in the stream during construction, install additional sediment barriers as necessary.

- Temporary erosion control measures may include fiber wattles, silt fences, jute matting, wood fiber mulch and soil binder, or geotextiles and geosynthetic fabric.
- Soil stabilization using wood fiber mulch and tackifier (hydro-applied) may be used to reduce erosion of bare soil, if the materials are free of noxious weeds and nontoxic to aquatic and terrestrial animals, soil microorganisms, and vegetation.
- Remove sediment from erosion controls if it reaches one-third of the exposed height of the control.
- Whenever surface water is present, maintain a supply of sediment control materials and an oil-absorbing floating boom at the project site.
- Stabilize all disturbed soils following any break in work unless reconstruction will resume within four days.
- Remove temporary erosion controls after reconstruction is complete and the site is fully stabilized.

1.1.1.4 Road Operations and Maintenance

Aggressively address unauthorized uses of the corridor, such as motorized vehicle use, that are exposing soils, increasing erosion, or damaging the facilities.

Use suitable measures to communicate and enforce road use restrictions.

Use suitable measures to avoid or minimize adverse effects to soil, water quality, or riparian resources when proposed operations involve use of roads by traffic and during periods for which the road was not designed.

Periodically inspect owner/operator travel routes to evaluate condition and assist in setting maintenance and improvement priorities.

Maintain the road surface drainage system to intercept, collect, and remove water from the road surface and surrounding slopes in a manner that reduces concentrated flow in ditches, culverts, and over fill slopes and road surfaces.

- Clean ditches and catch basins only as needed to keep them functioning.
- Do not undercut the toe of the cut slope when cleaning ditches or catch basins.
- Use suitable measures to avoid, to the extent practicable, or minimize direct discharges from road drainage structures to nearby waterbodies.

Grade road surfaces only as necessary to meet the smoothness requirements and to provide adequate surface drainage.

Remove vegetation from swales, ditches, and shoulders, and cut and fill slopes only when it impedes adequate drainage, vehicle passage, or obstructs necessary sight distance to avoid or minimize unnecessary or excessive vegetation disturbance.

Maintain permanent stream crossings and associated fills and approaches to reduce the likelihood that water would be diverted onto the road or erode the fill if the structure becomes obstructed.

Regularly inspect culverts and clean as necessary.

Provide for sufficient cross drainage to minimize changes to, and avoid restricting, natural surface and subsurface water flow of the wetland under the road to the extent practicable.

Specifically, Road Maintenance and Reconstruction will follow:

- Road maintenance and reconstruction activities to be implemented during the dry season (generally May 15 to October 15) unless the road segment has no hydrologic connection to streams.
- Waste material generated from road maintenance (ditch cleaning, blading, etc.) will be placed in a pre-designated area outside of riparian areas.
- If vegetation is removed from ditch lines where ditches are hydrologically connected to any stream, install an effective sediment trap to prevent sediment from entering streams (e.g. wattles, mulching cleared ditches within 100 feet of stream crossing culverts) until vegetation is re-established.
- All new replacement culverts will be designed to pass at least a 100-year flood streamflow.
- Culvert and bridge replacements occurring on fish-bearing streams shall adhere to the design criteria in the Aquatic Restoration Biological Opinion II (ARBO II)(NMFS 2013a or most recent version). Projects will follow all provisions in the following sections:
    - Section B: General Aquatic Conservation Measures
    - Section C: Work Area Isolation & Fish Capture and Release
    - Section E, subcategory 1. PDC for Aquatic Restoration Activity Categories: Fish Passage Restoration.
- Require an approved dewatering plan for all perennial stream crossing culvert replacements that maintains downstream flow.
- Require the complete excavation of fill material over the culvert at each replacement site prior to extracting the existing culvert.
- Replacement bridges, including temporary bridges, must consist of a single span with the abutments located outside of bankfull width. Abutment work areas must be isolated from any flowing water.
- Fresh concrete (cured less than 72 hours), concrete contaminated wastewater, welding slag and grindings, concrete saw cutting by-products, and sandblasting abrasives shall be contained and not come in contact with waterbodies or wetlands. Concrete will be prepared at least 150 feet from water bodies.

- No stream crossing may occur in active ESA listed species spawning sites, when adults, eggs or alevins are present.
- Do not place temporary crossings in areas that may increase the risk of channel re-routing or avulsion, or in potential spawning habitat, e.g., pools and pool tailouts.
- Minimize the number of temporary stream crossings; use existing stream crossings whenever reasonable.
- Wherever possible, vehicles and machinery will cross streams at right angles to the main channel.
- Restore affected stream banks or channels once all stream crossings are completed.

1.1.1.5 Low-Water Crossings

Work with the Forest or District to pre-identify the minimum number of low water crossing locations needed to complete operation and maintenance work.

Minimize use of low water crossings to the fewest number of crossings necessary to complete required work activities.

1.1.1.6 Parking and Staging Areas

Limit the size and extent of temporary parking or staging areas.

Take advantage of existing openings, sites away from waterbodies, and areas that are apt to be more easily restored to the extent practicable.

1.1.1.7 Equipment Refueling and Servicing

Refueling or maintenance of vehicles and equipment will occur at a minimum of 150 feet outside of water courses and riparian habitat. All project equipment will be equipped with hazardous spill prevention and containment equipment to minimize the effects of a fuel spill or hydraulic leak.

Plan for suitable equipment refueling and servicing sites during work activities.

Use suitable measures to avoid spilling fuels, lubricants, cleaners, and other chemicals during handling and transporting.

Ensure that hazardous spill kits are adequately stocked with necessary supplies and are maintained in accessible locations.

Clean up and dispose of spilled materials according to specified requirements in the appropriate guiding document.

Report spills and initiate suitable cleanup action in accordance with applicable state and federal laws, rules, and regulations.

1.1.1.8 Mechanical Site Treatment

Evaluate site factors, including soil conditions, slope, topography, and weather, to prescribe the most suitable mechanical treatment and equipment to avoid or minimize unacceptable impacts to soil while achieving treatment objectives.

- Consider the condition of the material and the site resulting from the treatment in comparison to desired conditions, goals, and objectives for the site when analyzing treatment options (e.g., a mastication treatment will result in a very different condition than a grapple pile and burn treatment, presence of invasive plant species may influence how work is conducted).
- Use land management plan direction, or other local guidance, to establish residual ground cover requirements and soil disturbance limits suitable to the site to minimize erosion.
- Consider offsite use options for the biomass material to reduce onsite treatment and disposal.
- Conduct mechanical activities when soil conditions are such that unacceptable soil disturbance, compaction, displacement and erosion would be avoided or minimized.
- Consider using low ground pressure equipment, booms or similar equipment to minimize soil disturbance.
- Operate mechanical equipment so that furrows and soil indentations are aligned on the contour.

1.1.1.9 Pesticide and Preservative -Treated Wood

Treated wood may not be used in a stream crossing structure that will be in or over water or permanently or seasonally flooded wetlands, except to maintain or repair an existing wood bridge. The following criteria below apply to the use of treated wood for maintenance or repair of existing wood bridges.

No part of the treated wood may be exposed to leaching by precipitation, overtopping waves, or submersion (e.g., no treated wood piles, and stringers or decking of a timber bridge can be made from treated wood only if they will be covered by a non-treated wood wearing surface that covers the entire roadway width), and all elements of the structure using the treated wood are designed to avoid or minimize impacts or abrasion that could create treated wood debris or dust.

Installation of treated wood:

- Treated wood shipped to the project area will be stored out of contact with standing water and wet soil and protected from precipitation.
- Each load and piece of treated wood will be visually inspected and rejected for use in or above aquatic environments if visible residue, bleeding of preservative, preservative-saturated sawdust, contaminated soil, or other matter is present.

- Prefabrication will be used whenever possible to minimize cutting, drilling and field preservative treatment.
- When field fabrication is necessary, all cutting, drilling, and field preservative treatment of exposed treated wood will be done above OHW to minimize discharge of sawdust, drill shavings, excess preservative and other debris.
- Tarps, plastic tubs or similar devices will be used to contain the bulk of any fabrication debris, and any excess field preservative will be removed from the treated wood by wiping and proper disposal.

Removal of treated wood:

- Evaluate all wood construction debris removed during a project, including pile, to ensure proper disposal of treated wood.
- Ensure that no treated wood debris falls into the water or, if debris does fall into the water, remove it immediately.
- After removal, place treated wood debris in an appropriate dry storage site until it can be removed from the project area.
- Do not leave any treated wood debris in the water or stacked on the streambank at or below OHW.

Project Design Criteria

1.1.1.1 ESA Listed Wildlife Project Design Criteria

PDCs Specific to California Condor

These PDC apply to all National Forest lands in Oregon – not to Washington.

PDC 1 - Utility operators will review activities within the nonessential experimental California condor population boundary to avoid impacts on this species where it is documented based on the measures below. If an activity will potentially impact condors, operators will notify the Forest Service and will minimize impacts by altering or moving the activity or rescheduling it where feasible.

PDC 2 – If an active nest is found to the extent practicable, avoid work within 0.25 mile of the nests during the fledging period, which extends from August 15 through December 31.

PDC 3 – No work generating sound levels > 90 decibels will occur within 0.25 mile of a known active nest site during the nesting season (unless there is a landscape feature that attenuates sound).

PDC 4 – Owner/operators will notify the Forest Service to report the sighting along with any identification information observed, such as wing tag number and color. The Forest Service will notify the Service.

PDC 5 - Helicopter operations will avoid all known active nests by a minimum of 1,000 feet, helicopter operators will transit to and from work sites at a minimum of 200 feet above ground level when near nests, unless carrying loads and otherwise consistent with FAA regulations; and will minimize hover time.

PDC 6 – To reduce powerline collisions consider:

- Providing 60’ minimum horizontal separation between energized conductors and/or energized conductors and grounded hardware; Insulate hardware or conductors against simultaneous contact if adequate spacing is not possible.
- Provide safe locations for perching.
- Increase the visibility of conductors or shield wires to prevent avian collisions.

PDCs Specific to Franklin’s Bumblebee

PDC 1 – When revegetating (e.g., seed, fertilizer, mulch, and/or plantings) disturbed areas, use the appropriate native seed mixes and a native shrubs and herbaceous flowering nectar plants preferred by pollinators.

PDCs Specific to NSO and MAMU in Oregon and Washington Forests

PDC 1 – A local Forest Service wildlife biologist shall be notified immediately if a spotted owl or murrelet active nest or individual is found, and measures to minimize or eliminate disruption to normal behaviors will be applied.

PDC 2 - The number of suitable nest trees and other large trees removed shall be minimized and occur outside the critical breeding periods (Table 1). Trees shall be felled in a manner to minimize impacts to surrounding trees, and away from suitable habitat if it is possible and safe to do so. If the site does not meet the requirements for large wood, felled trees shall be left on site.

PDC 3 - During the early nesting season of the spotted owl and the entire nesting season of the marbled murrelet, helicopters shall maintain an altitude and distance from suitable habitat as described in Table 1 except when they are on direct approach or departure from landing zones and during emergencies.

PDC 4 - To the extent feasible, number of overflights shall be minimized and use of the same flight paths shall be maximized over suitable habitat during nesting seasons.

PDC 5 - To the extent feasible, the smallest, quietest helicopters that can accomplish the task efficiently and safely shall be used.

PDC 6 - The removal of a known spotted owl nest trees shall be avoided. The programmatic ESA consultation does not cover removal of known NSO nest trees. A new, separate ESA consultation would need to be conducted. If a hazard tree is deemed an emergency, then a post-event "emergency" ESA consultation would need to be accomplished by the Forest.

PDC 7 - Projects shall be designed to occur at times of the year and locations that reduce the potential for disturbance to spotted owls (Table 1).

PDCs Specific to MAMU in Both Oregon and Washington

PDC 1 - Removal of platforms, trees with platforms, and trees providing cover to platforms shall be avoided during the breeding season.

PDC 2 - Project activities that generate noise or visual disturbance during any portion of the breeding season of murrelets (Table 1) within disruption distances potentially occupied murrelet habitat shall begin at least 2 hours after sunrise and shall end at least 2 hours before sunset to lessen disturbance to murrelets flying to and from the nest. Operations during the evening hours between two hours after sunset and two hours before sunrise are permitted.

PDC 3 - Known occupied murrelet nest stands shall not be exposed to project activities during the entire nesting season within the disruption distances defined in Table 1.

PDC 4 - To minimize the risk of attracting predators to activity areas, all garbage (especially food products) must be contained or removed daily from the vicinity of any activity that occurs in the range of the murrelet.

Table 1. Disturbance and disruption distances for spotted owls and murrelets.

Distances for all activities except drone use are measured from the edge of the nest patch, unless the current nest tree is known, in which case the distance is measured from that tree. Distances for drone use apply to the nest patch even if the current nest tree is known. For all activities (including drone use), distances for murrelets are measured from the edge of occupied suitable habitat or unsurveyed suitable habitat.

Disturbance Source	Disturbance Distance During the **Entire Breeding Season** NSO (March 1 – Sept. 30) MAMU OR (April 1 – Sept. 15) MAMU WA (April 1 – Sept. 23)	Disruption Distance During the **Critical Breeding Season** NSO (March 1 – July 15) MAMU OR (April 1 – Aug. 5) MAMU WA (April 1-Sept. 23)	Disruption Distance During the **Late Breeding Season*** NSO (July 16 – Sept. 30) MAMU OR (Aug. 6 – Sept. 15) MAMU WA (Apr. 1 – Sept. 23)
Light maintenance of roads	≤ 0.25 mile	NA[1]	NA[1]
Chainsaws (includes felling hazard/danger trees) and mowing	≤ 0.25 mile	≤ 65 yards (spotted owls), ≤ 110 yards (murrelets)[2]	OR - No distance restrictions, but time-of-day restrictions required for murrelets* WA – 110 yards (murrelets)[2]
Heavy equipment for road repairs, culvert replacements, etc.	≤ 0.25 mile	≤ 65 yards (spotted owls), ≤ 110 yards (murrelets)[2]	OR - No distance restrictions, but time-of-day restrictions required for murrelets* WA – 110 yards (murrelets)[2]
**Helicopter: Chinook 47d	0.5 mile	265 yards[3]	100 yards (hovering only)[4]
**Helicopters: K-MAX, Bell 206 L4, Hughes 500	≤ 0.25 mile	≤ 110 yards[5]	≤ 50 yards (hovering only)[4]
**Small fixed-wing aircraft (Cessna 185, etc.)	≤ 0.25 mile	≤ 110 yards	No distance restrictions, but time-of-day restrictions required for murrelets*
Drone Use	0.25 mile	65 yards (spotted owls), 110 yards (murrelets)	N/A (spotted owls, as long as spotted owls are not pursued), ≤ 110 yards (murrelets)

*Daily timing restrictions: If activities would affect unsurveyed suitable murrelet habitat or occupied murrelet habitat during the late breeding season, then they must begin at least two hours after sunrise and end at least two hours before sunset. Otherwise, activities must occur outside the disruption distances that apply during the critical breeding season.

**Aircraft normally use above ground level (AGL) as a unit of measure. For instance, to not cause a disruption by medium and small helicopters during the late breeding season, the AGL would be 350 feet. 350 feet AGL would account for 200-foot-tall trees that spotted owls or murrelets would be occupying plus the 50 yards disruption distance.

1. NA = not applicable - Based on information presented in Tempel and Gutiérrez (2003, p. 700), Delaney et al. (1999, p. 69), and Kerns and Allwardt (1992, p. 9), we anticipate that the few spotted owls that select nest sites in close proximity to open roads either are undisturbed by or habituate to the normal range of sounds and activities associated with these roads. We anticipate that the few marbled

murrelets that select nest sites in close proximity to open roads either are undisturbed by or habituate to the normal range of sounds and activities associated with these roads (Hamer and Nelson 1998, p. 21).

2 - Based on Delaney et al. (1999, p. 67) which indicates that spotted owl flush responses to above-ambient equipment sound levels and associated activities are most likely to occur at a distance of 65 yards (60 m) or less. Based on recommendations from murrelet researchers that advised buffers of greater than 100 meters to reduce potential noise and visual disturbance to murrelets (Hamer and Nelson 1998, p. 13, USFWS 2012c, pp. 6-9).

3 - Based on an estimated 92 dBA sound-contour from sound data for the Chinook 47d presented in Newman et al. (1984, Table D.1).

4 - Rotor-wash from large helicopters is expected to be disruptive at any time during the nesting season due the potential for flying debris and shaking of trees located directly under a hovering helicopter. We reduced the hovering helicopter rotor-wash zone to a 50-yard radius for all other helicopters based on the smaller rotor-span for all other ships. Because murrelet chicks are present at the nest until they fledge, they are vulnerable to direct injury or mortality from flying debris caused by intense rotor wash directly under a hovering helicopter.

5 - Based on Delaney et al. (1999, p. 74), which concluded that a buffer of 105 m (115) yards for helicopter overflights would eliminate flush responses from military helicopter overflights. The estimated 92 dBA sound contours for these helicopters is less than 110 yards (e.g., K-MAX (100 feet) (USFS 2008, chapters 5, 6), and Bell 206 (85-89 dbA at 100 m) (Grubb et al. 2010, p. 1277).

PDCs Specific to Grizzly Bear

PDC 1 – Do not create noise over ambient levels at known den sites.

PDC 2 - No projects should occur that last more than 1 day between March 31-July 31 in early season foraging areas and July 15-Nov 15 in late season foraging areas

PDC 3 - Apply grizzly bear sanitation measures.

PDC 4 - Activities should not result in net increase in motorized access.

PDC 5 - All personnel and contractors performing project-related work away from their vehicles will carry bear spray and be trained how to properly use it when within a recovery zone.

PDC 6 – Grizzly bear denning is not currently observed near powerline ROWs. If grizzly bears expand their range and dens become established near ROWs, then O&M activities that generate noise above ambient levels will not occur within 0.25 mile of known grizzly bear den sites (based on current information from state wildlife agencies and the USFWS) from October 15 through May 15. Activities within 0.25 mile of a known den site outside this time period will be reviewed by the appropriate Forest staff to ensure no other PDCs to minimize disturbance are required.

PDCs Specific to Canada Lynx

PDC 1 – Activities that would reduce snowshoe hare habitat (either quality or quantity) are prohibited in core and designated critical habitat for lynx.

PDC 2 – If a denning site becomes established near a powerline ROW (based on current information from WDFW and the USFWS), then forests will inform the owner/operator and prescribe the appropriate seasonal restrictions if O&M activities increases disturbance.

PDCs Specific to Coastal Marten

PDC 1 - To the greatest extent possible maintain existing snags and downed logs outside the ROW that do not pose a risk to powerlines.

PDCs Specific to Gray Wolf

PDC 1 – Restrict activities that create noise or visual disturbance(s) above ambient conditions within 1 mile of known active gray wolf dens or rendezvous sites from April 1 to July 15. The distance could be modified depending on topography and cover around the site.

PDC 2 – If a denning site becomes established near a powerline ROW (based on current information from WDFW and the USFWS), then forests will inform the owner/operator and prescribe the appropriate seasonal restrictions if O&M activities increases disturbance.

PDCs Specific to ESA Listed Plants

PDC 1 - Prior to conducting activities with potential impacts to listed plant species (e.g., ground-disturbing activity and vegetation removal) within the range of documented listed plant species, conduct a desktop assessment (e.g., analyzing public species databases - BISON, NRCS, FWS critical habitat, and FWS IPAC, etc. for occurrences) within and adjacent to the project area to determine habitat suitability for each species potentially present. If a desktop assessment is inconclusive, then contact a forest botanist to determine habitat suitability.

PDC 2 - If suitable habitat is present within or adjacent to a powerline corridor conduct field surveys to determine species presence. Surveys will occur when nearby reference populations are in bloom, using known blooming periods and local Forest blooming data as a guide. Management activities will be conducted in the same year following the survey, or prior to the next blooming season. If a nearby reference population is not available, a qualified botanist will conduct early, mid, and late-blooming period site surveys when the species is most likely to be found. The Forest Service may determine that additional surveys every year are not necessary for a certain amount of time if enough negative surveys are completed.

PDC 3 - Occurrences/sightings of a federally listed plant species found by Utility biologists/botanists (or their contractors) will be reported to the Forest Service to ensure ESA compliance. The reports will include GPS locations, geospatial data (e.g., shapefile or geodatabase), and an Element Occurrence

report. Following notification, the Forest Service will determine if sufficient avoidance measures can be implemented to avoid impacts on the species.

PDC 4 - Invasive Plant Species

One or more of the following measures will be implemented to prevent the introduction or spread of invasive plant species.

- Consult with the Forest or Ranger District annually and more often as necessary to discuss weed prevention and management needs.
- Clean all tools, construction equipment, and heavy-duty vehicles before entering NFS lands.
- Use weed-free sources for imported project materials (e.g., gravel, straw, and fill) to the extent practicable.
- Maintain facilities and infrastructure to limit the introduction and spread of weeds.

PDC 5 - Plant disease resistant whitebark pine seedlings if a project will negatively affect existing trees in the project.

PDCs Specific to ESA Listed Aquatic Species and Oregon spotted frog

PDC 1 - Complete all work within the wetted riparian areas and for use of low water fords follow dates listed in the most recent version the appropriate state (ODFW 2008 or WDFW 2019) guidelines for timing of in water work for routine O&M activities:

- ODFW (http://www.dfw.state.or.us/lands/inwater/Oregon_Guidelines_for_Timing_of_%20InWater_work2008.pdf)
- WDFW (https://wdfw.wa.gov/sites/default/files/2019-02/freshwater_incubation_avoidance_times.pdf)

Exceptions to in-water work windows must be requested and granted through Level I NMFS and/or FWS representatives as well as essential state agencies. For National Forests in the state of Washington, the FS will work with WDFW to determine in-water work periods, using the process contained in the 2011 MOU between the WDFW and USDA Forest Service, Pacific Northwest Region regarding hydrologic permits.

PDC 2 - Removal of hazard trees

a. Where practicable, felled hazard trees will be left when within recruitable distance to streams.
b. Consider retaining larger hazard trees for local habitat restoration and enhancement projects.

PDC 3 - Riparian understory vegetation (e.g., hawthorn, cherry, and willow trees and shrubs) will be avoided to the greatest extent possible.