

13.0 Effect Determination Guidance

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13.0 Effect Determination Guidance

This chapter provides guidance for making overall effect determinations based on the effect determinations and rationale provided in the following documents. Other information may be found on the WSDOT website.

- *Programmatic Biological Opinion for the Washington State Department of Transportation Preservation, Improvement, and Maintenance Activities: January 2, 2013 (NMFS Consultation Number 2012/00293)*
- *Statewide Programmatic Consultation for Washington State Department of Transportation: July 2, 2015 (USFWS Reference: 01EWF00-2014-F-0286, 01EWF00-2014-FC-0287)*

The above-mentioned documents are programmatic BOs that can only be used by their respective agencies (WSDOT and Olympic National Forest.) However, the effect determinations included in these documents can be used as guidance for making effect determinations in similar situations. Remember that effect determinations in programmatic BOs tend to be more conservative (i.e., more restrictive or protective) than effect determinations made on a project-by-project basis. Thus, for a given project it may be possible to reach a less conservative effect determination than the one given in the programmatic document, depending on the situation.

The first section of this chapter provides guidance for integrating multiple effect determinations for specific project elements into a single overall effect determination for each species addressed in the BA.

The second section of this chapter provides guidance for making effect determinations for species and critical habitats based on general standards and disturbance thresholds. This guidance is based on the definitions and criteria for *no effect* (NE), *not likely to adversely affect* (NLTA), and *likely to adversely affect* (LTA) determinations and the disturbance thresholds for species and critical habitat presented in the two documents listed above. The disturbance thresholds are based upon recent information regarding noise and visual disturbance. These thresholds can also serve as standards for making effect determinations.

It is important to note that the examples provided here apply to a specific suite of projects, species, and habitat types and do not necessarily apply to other WSDOT projects. The rationale and effect determinations provided here have been provided to help identify the parameters or characteristics that should be taken into consideration when making an effect determination.

13.1 Making Overall Effect Determinations

The biological assessment must provide a single effect determination, reflecting the impacts of the project as a whole, for each species and critical habitat. To do so, the project biologist must

systematically consider all of the potential effects associated with various project elements in combination.

To facilitate the effects analysis, each of these project elements may first be evaluated individually, and effect determinations for each element may be developed. However, all of these elements and their associated effect determinations must subsequently be considered in combination to develop an overall effect determination for the project for each species or critical habitat. For a given species, the most stringent effect determination for any of the project elements (i.e. LTAA vs. NLTAA) will be the overall project effect determination for the species. For example, if a project will have no effect on gray wolves for stormwater, in-water work and clearing and grading but will have a NLTAA for pile-driving, the overall project effect determination for that species would be NLTAA. In addition, the synergistic effects of an action must also be considered. For example, effects on temperature and dissolved oxygen when viewed separately might be considered minimal, but when viewed in concert, their synergistic effect on the physiological response of a fish may lead to a different overall conclusion.

One technique that can facilitate this process of determining overall project impacts is developing a worksheet that lists all affected species and all project elements, and the effect determinations associated with each. Although the worksheet should not be included in the BA, it can be a useful tool for ensuring that all anticipated project impacts are considered when making the overall effect determination for each species and critical habitat. An example of this type of worksheet is presented in Table 13-1.

Table 13-1. Worksheet for determining overall effect determination for each affected species and critical habitat.

Regulatory Jurisdiction	Federal Status ^a	Common Name	Effect Determination for Stormwater Runoff	Effect Determination for In-Water Work	Effect Determination for Pile Driving	Effect Determination for Clearing and Grading	Overall Effect Determination for Project
USFWS	E	Gray wolf	NE	NE	NLTAA	NE	NLTAA
	E	Marsh sandwort	NE	NE	NLTAA	NLTAA	NLTAA
	T	Canada lynx	NE	NE	NLTAA	NE	NLTAA
	T	Grizzly bear	NE	NE	NLTAA	NE	NLTAA
	T	Marbled murrelet	NE	NE	LTAA	NLTAA	LTAA
	T	Northern spotted owl	NE	NE	LTAA	NLTAA	LTAA
	T	Coastal/Puget Sound bull trout (DPS)	NLTAA	LTAA	NLTAA	NLTAA	LTAA
	T	Water howellia	NLTAA	NE	NE	NE	NLTAA
	T	Golden paintbrush	NE	NLTAA	NLTAA	NLTAA	NLTAA
NOAA Fisheries	E	Humpback whale	NE	NE	NE	NE	NE
	E	Leatherback sea turtle	NE	NE	NE	NE	NE
	T	Puget Sound Chinook salmon (ESU)	NLTAA	LTAA	NLTAA	NLTAA	LTAA
	T	Hood Canal summer chum salmon (ESU)	NLTAA	LTAA	NLTAA	NLTAA	LTAA
	E	Southern resident killer whale (DPS)	NLTAA	NLTAA	NLTAA	NLTAA	LTAA

T = threatened; E = endangered; NE = no effect; LTAA = likely to adversely affect; NLTAA = not likely to adversely affect; DPS = distinct population segment; ESU = evolutionarily significant unit.

13.2 Effect Determinations for Species

13.2.1 Effect Determinations for Listed Species

The following sections provide effect determination guidance for listed fish species under NOAA Fisheries and USFWS jurisdiction, followed by guidance tailored to fish, bird, mammal, and plant species under USFWS jurisdiction.

13.2.1.1 Fish Species

NOAA Fisheries Listed Fish Species

Many project types may warrant a determination of *no effect* on listed fish species. Examples of such projects include the following:

- Projects occurring in watersheds or water resource inventory areas (WRIAs) with no listed fish species
- Projects or maintenance activities that: 1) are conducted entirely within the developed transportation system right-of-way, 2) do not remove or modify vegetation in any way, 3) do not alter existing hydrology through modified discharges, and 4) do not discharge materials (such as water, asphalt grindings, or fill material) from the developed portion of the roadway
- Bridges undergoing seismic retrofit, bridge deck repair, or overlay and replacement, provided that they include no in-water work and create no additional impervious surface area.
- Projects where there are no listed species-bearing waters within the action area.

Many project types may warrant a determination of *may affect but is not likely to adversely affect* listed fish species. Examples of such projects include the following:

- Projects for which BMPs are implemented to prevent sediments or runoff from entering surface water, and that do not permanently remove riparian vegetation greater than 6 inches in diameter at breast height (dbh) from a riparian area of a stream or river system containing listed salmonids.
- Projects in which slide material that has entered a listed fish-bearing water body will be removed within the appropriate work window when listed fish species are not likely to be present in the action area.
- Projects that require work below the OHWM to replace or extend culverts, provided that no ESA-listed salmonid species are present in the system during the approved work window, and that the work does not disturb spawning habitat. (Road crossing replacement culverts are to be designed in accordance with *Design of Road Culverts for Fish Passage* [WDFW 2003]. Tide gate replacement should use guidance in the *Programmatic Biological Opinion: Phase II Fish Passage Restoration, Department of Army Permits* [November 19, 2001].)
- Projects that relocate streams farther from the roadway or separate ditch or stream systems, provided that 1) listed salmonid species are not present in the system during construction, and 2) the activity restores or improves habitat functions that were provided by the original channel, through creation of meanders or vegetated stream banks, or installation of habitat structures.

- Projects that replace existing riprap structures with no expansion of the original footprint, based on the as-built plans, or projects that remove an equivalent amount of riprap within the project area during a period when listed fish species are not likely to be present.

USFWS Listed Fish Species

Bull trout is currently the only fish species listed by USFWS and covered in the statewide WSDOT programmatic BA. Conditions for NE, NLTAA, and LTAA effect determinations for bull trout depend upon bull trout presence, proximity of project activity to surface waters, bull trout use of the water body (spawning, rearing, or foraging, migration, and overwintering [FMO]), level of disturbance, ability to contain activity within previously developed areas, use of appropriate BMPs, extent of riparian vegetation removal, and work within appropriate work windows. Projects located in bull trout spawning watersheds, which are very small headwater systems, are likely to have greater adverse effects and require more conservative effect determinations than projects located in watersheds used only for migration.

Examples of projects that may warrant a determination of *no effect* on bull trout include the following:

- Projects located in WRIsAs that do not contain bull trout
- Projects that 1) are conducted entirely within the developed portion of the roadway, 2) do not remove or modify vegetation in any way, 3) do not alter existing hydrology through modified discharges, and 4) do not discharge materials (such as water or asphalt grinds) from the developed portion of the roadway.

Example of projects that may warrant a determination of *may affect but is not likely to adversely affect* bull trout include the following:

- Culvert and bridge widening, extension, repair, and replacement activities that 1) occur in waters where bull trout are unlikely to be present, 2) do not eliminate spawning habitat, 3) avoid constricting the system, 4) place less than 100 cubic yards of riprap, 5) are performed within the appropriate work window for bull trout as agreed upon by USFWS and WDFW, 6) remove less than 300 square feet of riparian vegetation, 7) use appropriate BMPs to control sedimentation, 8) revegetate disturbed vegetation, and 9) do not affect bull trout migration.
- Projects that discharge runoff from new pollution generating impervious surface (PGIS) to FMO habitat.
- Projects that generate elevated levels of suspended sediments in FMO habitat.

- Temporary shading from barges and work platforms.

Example of projects that may warrant a determination of *may adversely affect* bull trout include the following:

- Culvert replacement projects in bull trout habitat that may result in increased turbidity, require in-water work, and fish moving. In-water work activities in water bodies where listed fishes are present, especially if dewatering or fish-moving activities are likely to occur.

13.2.1.2 *Marbled Murrelet*

Marbled murrelets are sensitive to human disturbance, especially during the nesting season. Loss of suitable nesting habitat is one of the primary threats to marbled murrelet survival. Effect determinations are highly dependent upon the proximity of project activity to potential nesting areas and foraging habitat, removal of suitable nesting habitat, and project timing in relation to the nesting season.

Marbled murrelets utilize two distinct types of habitat: foraging habitat and nesting habitat. Foraging takes place in the marine environment, typically within 1.25 miles of the shoreline (Speich and Wahl 1989), and is not known to include brackish waters, estuaries, or wetlands in Washington State. Nesting takes place in forests with characteristics of old growth. Suitable marbled murrelet nesting habitat is characterized as conifer-dominated stands with suitable nesting structure. Potential nest trees are conifer trees located within a minimum 5-acre coniferous-dominated stand within 70 miles of marine waters that support at least one 4-inch wide platform located at least 33 feet above the ground, with horizontal and vertical cover. A platform may be a wide, bare branch, a branch covered with moss or lichen, and may also possess mistletoe, witch's brooms, or other deformities.

Disturbance Thresholds

In a previous biological opinion for the Olympic National Forest (USDI 2003), the USFWS estimated the noise-only harassment/injury threshold for murrelets and owls was approximately 92 dBA at nest sites. The analysis determined noise levels at a distance by using a 7.5 dBA doubling distance reduction from noise-generating activities. This threshold is no longer being used in that manner.

In 2015, the USFWS issued a BO for WSDOT activities (USFWS 2015). The BO establishes harassment/injury distances for noise-generating activities specific to marbled murrelets (Table 13-2). It changes the thresholds from a noise-based measurement to a distance threshold.

It is important to note that the BO is only applicable for use in certain situations because it was developed for a specific program of activities. The thresholds and effect distances were determined after factoring a suite of activities and minimization measures specific to the project.

Table 13-2. Disturbance, disruption (harass) and/or physical injury (harm) distance thresholds for murrelet during the nesting season (April 1 to September 23). Distances are to a known occupied marbled murrelet nest tree or suitable nest trees in unsurveyed nesting habitat (USFWS 2015).

Project Activity	No Effect	NLAA “may affect” disturbance distance	LAA-Harass disruption distance	LAA-Harm Direct injury and/or mortality
Light maintenance (e.g., road brushing and grading) at administrative facilities, and heavily-used roads	>0.25 mile	≤0.25 mile	NA	NA
Chainsaws (includes felling hazard/danger trees)	>0.25 mile	328 feet to 0.25 mile	<328 feet	Potential for mortality if trees felled contain platforms
Heavy equipment for road construction, road repairs, bridge construction, culvert replacements, etc.	>0.25 mile	328 feet to 0.25 mile	<328 feet	NA
Pile-driving (steel H piles, pipe piles) Rock Crushing and Screening Equipment	>0.25 mile	363 feet to 0.25 mile	<363 feet	≤15 feet (injury)
Blasting	>1 mile	0.25 to 1 mile	≤0.25 mile	≤300 feet (injury)
Short duration activities		Certain activities* that are within or adjacent to suitable murrelet habitat may qualify for informal effects regardless of distance to activity from suitable habitat		

*The following activities may qualify for informal coverage under the programmatic BO if they take less than 3 days from start to finish, use the murrelet timing restriction (no work until 2 hours after sunrise, and stop work 2 hours before sunset), and if approved by USFWS during Early Coordination

- Geotechnical investigations
- Sign/guardrail installation with no pile driving
- Vegetation maintenance, non-chainsaw, non-habitat removal
- Striping/delineation
- Oil distribution truck or trailer
- Projects conducted after September 4.

Effect Determination Guidance for Habitat Impacts

WSDOT impacts to suitable nesting habitat would typically occur next to permanent openings (existing roads) or temporary openings (harvested plantations). Most of these removals are linear and within the right-of-way. Occasionally removal of suitable nesting habitat will create a new canopy gap in a forest stand when a detour route is required.

In 2015, the USFWS issued a statewide programmatic for WSDOT projects that includes effect determination guidance for impacts to marbled murrelet habitat. Table 13-3 summarizes this effect determination guidance for projects **outside designated critical habitat** that will result in tree removal within suitable habitat. It is important to note that the guidance provided here applies to a specific suite of projects and do not necessarily apply to other WSDOT projects.

Table 13-3. Marbled murrelet suitable habitat (not critical habitat) effect determination guidance for projects requiring vegetation removal.

Project Activity	No Effect	May Affect, Not Likely to Adversely Affect	Likely to Adversely Affect
Upland Vegetation Removal and Management	Marbled murrelet is not on County list; or	In suitable habitat, any vegetation removal creating new canopy gaps less than 0.25 acre and that does not remove trees with suitable habitat nesting structure.	In suitable habitat, any vegetation removal creating new canopy gaps equal to or greater than 0.25 acre; or
Riparian and Wetland Vegetation Removal and Management	Marbled murrelet is on County list but the stand does not contain suitable murrelet nesting structure and is not within the project analysis area.	Project removes suitable habitat including trees with platforms within mapped city municipal boundary (except for Port Angeles) in Western Washington.	Removal of trees within suitable habitat that have 4" wide platforms > 33 feet high

13.2.1.3 Northern Spotted Owl

Projects that involve clearing of mature coniferous forest could adversely affect spotted owl habitat. Loss of suitable nesting habitat is one of the primary threats to spotted owl survival. Conditions for NE and NLTA effect determinations depend upon proximity of the project activity to nesting habitat, modification of suitable habitat, and timing of activity in relation to the nesting season.

Habitat Definitions

Northern spotted owl habitat includes nesting, roosting, and foraging (NRF) habitat, and dispersal habitat. Stands for nesting and roosting are generally greater than five acres in size and characterized by moderate to high canopy closure (60 to over 80 percent), multilayered, multispecies canopies with large (20 to 30 inches dbh or greater) overstory trees, high diversity of different diameters of trees, high incidence of large live trees with various deformities (e.g., large cavities, broken tops, mistletoe infections, and other evidence of decadence), large snags and large accumulations of fallen trees and other woody debris on the ground. Spotted owls use the same habitat for both nesting and roosting; the characteristics of roosting habitat differ from those of nesting habitat only in that roosting habitat need not contain the specific structural features used for nesting (77 FR 14092 [March 8, 2012]).

Forest habitat that provides for nesting and roosting also provides for foraging, although spotted owls have greater flexibility in utilizing a variety of habitats for foraging than they do for nesting. Younger forests with some structural characteristics (legacy features) of old forests, hardwood forest patches, and edges between old forest and hardwoods; moderate to high canopy closure (60 to over 80 percent), a diversity of tree diameters and heights; increasing density of trees greater than 20 to 31 inches dbh increases foraging habitat quality (especially above 24 trees per acre), and density of snags greater than 20 inches dbh all contribute to increasing foraging habitat quality, especially above 4 snags per acre, and large accumulations of fallen trees and other woody debris on the ground (77 FR 14092 [March 8, 2012]).

Dispersal habitat used by dispersing spotted owls does not contain suitable NRF habitat. These stands provide protection from avian predators and at least minimal foraging opportunities during dispersal. At a minimum, dispersal habitat is comprised of conifer and mixed mature conifer-hardwood habitats with a canopy cover greater than or equal to 40 percent and conifer trees greater than or equal to 11 inches average dbh but less than the habitat characteristics described for suitable habitat (77 FR 14093 [March 8, 2012]).

Disturbance Thresholds

The USFWS BO for WSDOT activities (USFWS 2015) provides distance thresholds at which incidental take of spotted owls in NRF habitat is expected to occur due to harassment from noise-generating activities. The BO establishes harassment/injury distances for noise-generating activities specific to spotted owls (Table 13-4).

It is important to note that the BO is only applicable for use in certain situations because it was developed for a specific program of activities. The thresholds and effect distances were determined after factoring a suite of activities and conservation measures specific to the project.

Table 13-4. Disturbance, disruption (harass) and/or physical injury (harm) distance thresholds for spotted owls. Distances are to a known occupied spotted owl nest tree or suitable nest trees in unsurveyed nesting habitat* (USFWS 2015).

Project Activity	No Effect (March 1 – Sept 30)	NLAA “may affect” disturbance distance (March 1 – Sep 30)	LAA-Harass Early nesting season disruption distance (March 1 – July 15)	LAA-Harass Late nesting season disruption distance (July 16 – Sep 30)	LAA-Harm Direct injury and/or mortality (March 1 – Sep 30)
Installing and Repairing Signs, Monitoring Devices, and Utilities	>0.25 mile	≤0.25 mile	NA	NA***	NA
Heavy Equipment Operation (including chainsaws)	>0.25 mile	>195 feet to 0.25 mile	≤195 feet	NA***	
Pile-driving	>0.25 mile	360 feet to 0.25 mile	≤360 feet	NA***	≤15 feet (injury)
Blasting	>1 mile	0.25 to 1 mile	≤0.25 mile	NA***	≤300 feet (injury)
Short duration activities		Certain activities** that are within or adjacent to suitable spotted owl habitat may qualify for informal effects regardless of distance to activity from suitable habitat			

* This disturbance guidance applies to NRF habitat, disturbance to dispersal habitat is a NLTAA.

**The following activities may qualify for informal coverage under the programmatic BO if they take less than 3 days from start to finish, and if approved by USFWS during Early Coordination:

- Geotechnical investigations
- Sign/guardrail installation with no pile driving
- Vegetation maintenance, non-chainsaw, non-habitat removal
- Striping/delineation
- Oil distribution truck or trailer

***During the late nesting season, disturbance effects are considered discountable; therefore, they qualify for informal coverage.

Effect Determination Guidance for Habitat Impacts

In 2015, the USFWS issued a statewide programmatic for WSDOT projects that includes effect determination guidance for impacts to spotted owl habitat. Table 13-5 summarizes this effect determination guidance for projects **outside designated critical habitat** that will result in habitat impacts or vegetation removal within suitable habitat. It is important to note that the guidance provided here applies to a specific suite of projects and do not necessarily apply to other WSDOT projects. The rationale and effect determinations provided identify the parameters or characteristics that might be taken into consideration when making an effect determination for spotted owls.

Removal of upland and riparian vegetation may affect NRF habitat, and/or dispersal habitat. The guidance (Table 13-5) will help the biologist in making the **habitat** portion of effect determinations, but final overall determinations will be made based on both disturbance and habitat effects, project specific factors and specific minimization measures. Note that for habitat effects, you must determine if the project is on federal or non-federal land, and if non-federal, if the activity is within an owl circle located within an owl special emphasis area (SOSEA¹). All project activities must be considered to make the correct effect determination.

¹ Spotted Owl Special Emphasis Areas: From 1992-1996, the [State Forest Practices Board](#) entered into a stakeholder process with tribes, environmentalists, and landowners to develop a cooperative strategy for non-federal forestland to protect the spotted owl. In order to complement the federal recovery and conservation strategy, the Board identified more than 2 million acres of forest called SOSEAs. Most of this land, about 1.2 million acres, overlaps with state, private, and federal lands already managed under habitat conservation or federal management plans. Of the remaining 825,000 acres, the Board identified the primary function of these forests as dispersal, nesting or roosting habitat for the owl. The State finalized its owl rule in 1996, which identified ten SOSEAs to complement the protection provided by the Northwest Forest Plan.

Table 13-5. Northern Spotted Owl Habitat Effect Determination Guidance for Projects Requiring Vegetation Removal

Location	Project Activity	No Effect	May Affect, Not Likely to Adversely Affect	Likely to Adversely Affect
Federal Lands	Upland Vegetation Removal and Management Riparian and Wetland Vegetation Removal and Management	Spotted owl is not on County list; or Spotted owl is on County list and NRF and Dispersal habitat are not impacted.	NRF habitat is present and habitat impact is \leq 0.25 acre; or NRF habitat impact is $>$ 0.25 acre but does not reduce habitat functions and is approved by USFWS during early coordination*; and/or Dispersal habitat is present and habitat impact is \leq 0.50 acre; or Dispersal habitat impact is $>$ 0.50 acre but does not reduce habitat function and is approved by USFWS during early coordination.	NRF habitat impact is $>$ 0.25 acre, and impact reduces habitat functions; or Dispersal habitat impact is $>$ 0.50 acre, and dispersal function is reduced.
Non-Federal Lands within Owl Circle and within SOSEA	Upland Vegetation Removal and Management Riparian and Wetland Vegetation Removal and Management	Spotted owl is not on County list; or Spotted owl is on County list and NRF and Dispersal habitat are not impacted.	NRF habitat is present and habitat impact is \leq 1 acre; or NRF habitat impact is $>$ 1 acre but does not reduce habitat functions and is approved by USFWS during early coordination*; and/or Removal of Dispersal habitat regardless of size.	NRF habitat impact is $>$ 0.25 acre, and impact reduces habitat functions
Non-Federal Lands outside Owl Circle and/or SOSEA	Upland Vegetation Removal and Management Riparian and Wetland Vegetation Removal and Management	Spotted owl is not on County list; or Spotted owl is on County list and NRF and Dispersal habitat are not impacted.	Removal of NRF or Dispersal habitat is NLAA, regardless of project size	NA

*Note: Examples of vegetation removal that exceed the acreage amounts that may qualify as a NLTAA include removal of non-native riparian invasive species (blackberry, reed canary grass, Japanese knotweed, etc.); narrow, linear vegetation removal along existing state highways that exceed guidance acreage may also warrant a NLTAA for the effects to habitat portion of the effect determination. Removal of coniferous trees 11" DBH or greater that exceed the acreage amounts may warrant a LTAA.

13.2.1.4 *Gray Wolf*

Wolves are considered most sensitive to disturbance at their den and rendezvous sites. Effect determinations depend upon the proximity of project activities to den and rendezvous sites, activity noise level, modification of suitable habitat, and timing of the activity in relation to critical time periods (e.g., the calving period).

Examples of project types that may warrant a determination of *no effect* on gray wolves include the following:

- All projects located outside of potentially suitable gray wolf habitat.
- All activities within the Northern Rocky Mountain gray wolf DPS (this DPS is delisted)
- Those projects that occur within potentially suitable gray wolf habitat, but that do not involve clearing of native vegetation and will not produce noise above background levels.
- All projects located within the developed limits of a city or town.

Examples of project types that may warrant a determination of *may affect but is not likely to adversely affect* gray wolves include the following:

- Activities within suitable habitat that do not create a noise disturbance at known den or rendezvous sites during the sensitive time period (between July 1 and March 14).
- Activities conducted within suitable habitat that do not affect prey on wintering or ungulate calving, fawning, or kidding grounds..

13.2.1.5 *Woodland Caribou*

Habitat loss and fragmentation, mortality associated with human activities, and natural predation are the greatest threats to woodland caribou in Washington. Effect determinations are dependent upon proximity of project activity to the known range of caribou, suitable habitat, or documented habitat.

Examples of project types that may warrant a determination of *no effect* on woodland caribou include the following:

- Projects located outside Pend Oreille and Stevens counties.
- Projects located in Pend Oreille and Stevens counties within the developed limits of a city or town.

- Projects located outside suitable woodland caribou habitat.

Project types may warrant a determination of *may affect but is not likely to adversely affect* the woodland caribou. An example follows:

- Projects located above 5,000 feet elevation in Pend Oreille and Stevens counties within suitable habitat.

13.2.1.6 Pygmy Rabbit

The primary cause of decline of the pygmy rabbit is loss of thick sagebrush habitat. The rabbit's dependency on a long-lived, slow-recovering food source (i.e., sagebrush) limits the potential for its rapid recovery. Effect determinations depend upon proximity of project activity to the known range of the pygmy rabbit and removal of suitable habitat.

Examples of project types that may warrant a determination of *no effect* on the pygmy rabbit include the following:

- Projects occurring outside the current range of pygmy rabbit.
- Projects occurring within the developed portion of the WSDOT right-of-way.
- Projects that do not involve removal of sagebrush or ground-disturbing activities within native shrub-steppe habitat.

Many project types may warrant a determination of *may affect but is not likely to adversely affect* the pygmy rabbit. An example follows:

- Projects occurring within the WSDOT right-of-way that remove sagebrush potentially suitable for pygmy rabbit and/or conduct ground-disturbing activities within native shrub-step habitat within the historic range of the species.

13.2.1.7 Grizzly Bear

Projects located in the North Cascades, Okanogan Highlands, and Selkirk Mountains are most likely to encounter grizzly bears. Along existing developed transportation corridors, which are not considered high-quality grizzly bear habitat, project impacts on habitat typically are negligible. Effect determinations depend upon proximity of project activity to the known potential range of grizzly bear, activity noise levels, removal of native vegetation, and proximity of the activity to developed transportation corridors.

Examples of project types that may warrant a determination of *no effect* on grizzly bears include the following:

- Projects located outside the montane portions of the Okanogan Highlands, Selkirks, or Cascade Range.
- Projects located in the montane portions of the Okanogan Highlands, Selkirks, or Cascade Range, but that do not involve clearing of native vegetation and will not produce noise above background levels.
- Projects located within the developed city limits of a town in the montane portions of the Okanogan Highlands, Selkirks, or Cascade Range.

Many project types may warrant a determination of *may affect but is not likely to adversely affect* grizzly bears. An example follows:

- Projects located within 0.25 mile of an active, developed transportation corridor within the montane portions of the Okanogan Highlands, Selkirks, or Cascade Range.

13.2.1.8 Oregon Spotted Frog

Projects that involve ground-disturbing activities in wetland, aquatic, and riparian areas could affect the Oregon spotted frog. Effect determinations depend upon proximity of project activity to the known range of the Oregon spotted frog and to wetlands, aquatic, riparian areas, and suitable habitat.

As of January 2015, the USFWS considers the following watersheds in western Washington to be occupied or potentially occupied by the Oregon spotted frog. The watersheds are mapped as 5th or 6th level HUCs and include the following:

Baker River	Lower Trout Lake Creek
Black River-Chehalis River	Outlet Creek
Chambers Creek-Frontal Puget Sound	Quilceda Creek-Frontal Possession Sound
Chapman Creek	Samish River
Finney Creek-Skagit River	Skagit River-Frontal Skagit Bay
Fraiser Creek	South Fork Nooksack River
Green River Kent	Sumas River
Lacamas Creek	Wallace River-Skykomish River
Lower Nisqually River-Frontal Puget Sound	Woods Creek-Skykomish River
Lower Snoqualmie River	

Many project types may warrant a determination of *no effect* on Oregon spotted frog. Examples of such projects include the following:

- Projects not located within occupied or potentially occupied watersheds.

- Projects located in occupied or potentially occupied watersheds that occur over 200 feet from Oregon spotted frog habitat as identified by the project biologist.

Many project types may warrant a determination of *may affect but is not likely to adversely affect* Oregon spotted frog. Examples of such projects include the following:

- Projects located in occupied or potentially occupied watersheds that occur within 200 feet of Oregon spotted frog habitat as identified by the project biologist, but do not impact wetland or riparian habitat.

13.2.1.9 Wenatchee Mountains Checker-Mallow

Projects that involve ground-disturbing activities in wetland and riparian areas located in the Wenatchee Mountains could affect the Wenatchee Mountains checker-mallow. Effect determinations depend upon proximity of project activity to the known range of the Wenatchee Mountains checker-mallow and to wetlands, riparian areas, and suitable habitat.

Many project types may warrant a determination of *no effect* on Wenatchee Mountains checker-mallow. Examples of such projects include the following:

- Projects located outside Chelan County.
- Projects located in Chelan County that involve no ground-disturbing activities or are confined within the developed portion of the roadway.
- Projects located in Chelan County but not in the Wenatchee Mountains and not between 1,600 and 3,300 feet elevation.
- Projects that do not remove or modify vegetation within 100 feet of wetlands, riparian areas, or areas of saturated soils in open coniferous forest and along the edge of shrub and hardwood thickets and that do not alter wetland hydrology.
- Project areas that do not contain suitable Wenatchee Mountains checker-mallow habitat, as determined by a survey conducted by a qualified biologist between June 15 and July 31.

Many project types may warrant a determination of *may affect but is not likely to adversely affect* Wenatchee Mountains checker-mallow. Examples of such projects include the following:

- Projects located in the Wenatchee Mountains between 1,600 and 3,300 feet elevation that alter vegetation within 100 feet of unsurveyed, potentially suitable Wenatchee Mountains checker-mallow habitat, but do not alter wetland or riparian vegetation or hydrology.

- Projects located in the Wenatchee Mountains between 1,600 and 3,300 feet elevation that alter potentially suitable Wenatchee Mountains checker-mallow habitat not containing Wenatchee Mountain checker-mallow, as documented by a survey conducted by a qualified biologist between June 15 and July 31.

13.2.1.10 Ute Ladies'-Tresses

Projects that involve ground-disturbing activities in wetland and riparian areas located in transition zones could affect Ute ladies'-tresses (*Spiranthes diluvialis*). Effect determinations depend upon proximity of project activity to wetlands, riparian areas, and suitable habitat.

Many project types may warrant a determination of *no effect* on Ute ladies'-tresses. Examples of such projects include the following:

- Projects that do not involve ground-disturbing activities.
- Projects that do not remove or modify vegetation or alter wetland hydrology within habitat suitable for supporting Ute ladies'-tresses, as identified by the project biologist.

Many project types may warrant a determination of *may affect but is not likely to adversely affect* Ute ladies'-tresses. Examples of such projects include the following:

- Project areas with potentially suitable habitat that do not contain Ute ladies'-tresses as determined by a survey conducted by a qualified biologist between July 15 and September 15.
- Project areas that do not contain *Spiranthes* ssp, as determined by a survey conducted by a qualified biologist between July 1 and September 15.
- Projects located between 700 and 7,000 feet elevation that alter vegetation of unoccupied (verified by survey) but potentially suitable Ute ladies'-tresses habitat, but do not alter wetland or riparian vegetation or hydrology.

13.2.1.11 Water Howellia

The most significant threats to water howellia (*Howellia aquatilis*) include changes in wetland hydrology, increases in weedy species, livestock grazing, and timber harvest on adjacent uplands (WDNR and USDI BLM 1999). Effect determinations depend upon proximity of project activity to the known range of water howellia and suitable wetland habitat.

Many project types may warrant a determination of *no effect* on water howellia. Examples of such projects include the following:

- Projects located outside of Spokane, Clark, Pierce, and Thurston counties .
- Projects within Spokane, Clark, Pierce, and Thurston counties that do not involve any ground-disturbing activities.
- Projects within Spokane, Clark, Pierce, and Thurston counties that do not modify vegetation or hydrology in adjacent wetlands
- Projects located within Spokane, Clark, Pierce, and Thurston counties above 2,300 feet elevation.
- Projects or activities in Spokane, Clark, Pierce, and Thurston counties involving the alteration of habitat not suitable to water howellia, as identified by the project biologist.

Many project types may warrant a determination of *may affect but is not likely to adversely affect* water howellia. An example follows:

- Projects within Spokane, Clark, Pierce, and Thurston counties that impact suitable habitat that does not contain water howellia as determined by a survey conducted between May 25 and July 15 by a qualified biologist.

13.2.1.12 Spalding's Catchfly

Projects that involve ground-disturbing activities in native grasslands could affect Spalding's catchfly (*Silene spaldingii*). Effect determinations depend upon proximity of project activity to the known range of Spalding's catchfly and its suitable habitat.

Many project types may warrant a determination of *no effect* on Spalding's catchfly. Examples of such projects include the following:

- Projects that occur outside Adams, Asotin, Lincoln, Spokane, and Whitman counties.
- Projects located within Adams, Asotin, Lincoln, Spokane, and Whitman counties that do not involve ground-disturbing activities.
- Projects that do not remove or modify native grassland habitat located in Adams, Asotin, Lincoln, Spokane, and Whitman counties.
- Project areas that do not contain Spalding's catchfly, as determined by a survey conducted by a qualified biologist between July 15 and August 31.

13.2.2 Effect Determinations for Proposed Species

Effect determinations for proposed species are addressed briefly in Chapter 12.

13.3 Effect Determinations for Critical Habitat

The following sections provide guidance for making effect determinations for critical habitat of NOAA Fisheries listed fish species and critical habitat of USFWS-listed Wenatchee Mountain checker-mallow, marbled murrelet, and northern spotted owl.

Effect determinations for critical habitat should provide information on the primary constituent elements (PCEs) affected, briefly describe how they will be affected, and explain how these impacts influence the overall effect determination for critical habitat.

13.3.1 NOAA Fisheries Listed Fish Species Critical Habitat

Conditions for effect determinations depend upon numerous factors, including presence of critical habitat, presence of listed fish species, proximity of project activity to surface waters, level of disturbance, ability to contain project activity within previously developed areas, use of appropriate BMPs, extent of riparian vegetation removal, restriction of work to appropriate work windows, and compliance with established guidelines, agreements, and permits. Below are some examples.

Many project types may warrant a determination of *no effect* on critical habitat. Examples of such projects include the following:

- Projects with action areas located outside critical habitat.
- Projects located within critical habitat that 1) are conducted entirely within the developed portion of the roadway, 2) do not remove or modify vegetation in any way, 3) do not alter existing hydrology through modified discharges, and 4) do not discharge materials (such as water, asphalt grindings, or fill material) from the developed portion of the roadway.
- Bridges undergoing seismic retrofit, bridge deck repair, overlays, or replacements, provided that they involve no in-water work and create no additional impervious surface area.

Many project types may warrant a determination of *may affect but is not likely to adversely affect* critical habitat. Examples of such projects include the following:

- Projects located within 300 feet of the ordinary high water mark (OHWM) of a listed fish-bearing water that do not remove or alter riparian habitat.

- Projects in which slide material has entered a listed fish-bearing water body and, if removal is necessary, will be conducted within the appropriate work window when listed fishes are not likely to be present in the action area.
- Activities that involve work below the OHWM to replace or extend culverts, provided that there are no ESA-listed salmonid species present in the system during the approved work window. (Road crossing replacement culverts will be designed in accordance with *Water Crossing Design Guidelines* (Barnard, et al. 2013). Tide gate replacement projects should follow the guidance in the programmatic biological opinion: *Phase II Fish Passage Restoration, Department of Army Permits* [11/19/01]).
- Projects that relocate streams farther away from the roadway or separate ditch/stream systems, provided that listed salmonid species are not present in the system during construction, and the activity restores or improves habitat functions provided by the original channel through creation of meanders, vegetated stream banks, or installation of habitat structures.
- Projects that replace existing riprap structures with no expansion of the original footprint based on the as-built plans, or projects that remove an equivalent amount of riprap within the project area during a period when listed fish species are not likely to be present.
- Projects that use blasting as a method of removing slide materials, with the blast and the fallout of materials occurring outside the aquatic system, provided that the blasting occurs within the designated work windows if listed fishes are known to be present in the immediate vicinity (one-quarter mile) upstream and downstream.
- Floating bridge maintenance projects consisting of the repair or replacement of floating bridge cables or the removal of derelict fishing nets.

13.3.2 Wenatchee Mountains Checker-Mallow

Many project types may warrant a determination of *no effect* on designated critical habitat for the Wenatchee Mountains checker-mallow (*Sidalcea oregana* var. *calva*). Examples of such projects include the following:

- Projects located entirely within WSDOT right-of-way that do not alter the hydrology of critical habitat for the Wenatchee Mountains checker-mallow.

- Projects located outside WSDOT right-of-way and critical habitat that do not alter the hydrology of critical habitat for the Wenatchee Mountains checker-mallow.

Many project types may warrant a determination of *may affect but is not likely to adversely affect* designated critical habitat for the Wenatchee Mountains checker-mallow. Examples of such projects include the following:

- Projects that may alter the hydrology of critical habitat for the Wenatchee Mountains checker-mallow but will not adversely affect primary constituent elements.

13.3.3 Marbled Murrelet Critical Habitat

Proposed projects that occur within or adjacent to designated critical habitat and result in removal (clearing and/or grubbing) of vegetation may affect a critical habitat unit. However, most WSDOT projects involve removal (clearing and/or grubbing) of vegetation located adjacent to an existing transportation corridor and will not likely alter the PCEs. Projects that do not alter the PCEs will not adversely affect the critical habitat unit.

Presence of nesting habitat within a critical habitat unit should be evaluated by a biologist. A biologist will also evaluate conifer-dominated forest stands with trees ≥ 15 inches dbh and the presence of 4" wide platforms 33 feet above the ground to determine nesting tree suitability.

Table 13-6 summarizes effect determinations for projects **inside designated critical habitat** that will result in habitat impacts or tree removal.

13.3.4 Northern Spotted Owl Critical Habitat

Proposed projects that occur within designated critical habitat and result in removal of vegetation may affect a critical habitat unit. However, most projects involve removal (clearing and/or grubbing) of vegetation located adjacent to an existing transportation corridor and will not likely alter the critical habitat PCEs. Projects that do not alter the PCEs will not adversely affect the critical habitat unit.

Presence of NRF or dispersal habitat within a critical habitat unit should be evaluated by a biologist. A biologist will also evaluate trees 20 inches dbh and greater that are identified as removals to determine if they are potential nesting trees. Table 13-7 summarizes spotted owl critical habitat effect determination guidance that may be applicable to WSDOT projects.

Table 13-6. Marbled Murrelet Critical Habitat Effect Determination Guidance for Projects Requiring Tree Removal

Project Activity	No Effect	May Affect, Not Likely to Adversely Affect	Likely to Adversely Affect
Upland Vegetation removal and Management Riparian and Wetland Vegetation Removal and Management	Marbled murrelet is not on County list; or Project does not occur in critical habitat Note: any type of habitat removal within critical habitat (suitable or non-suitable habitat removal) will have a not likely to adversely affect or an adverse effect determination.	If stand is in critical habitat and is within 0.5 mile of suitable habitat that is also within critical habitat, any vegetation removal creating new canopy gaps less than 0.25 acre and does not remove trees with suitable nest structure; or Removal of suitable habitat adjacent to a permanent opening (e.g., existing roads) if approved by the USFWS	If stand is in critical habitat and is within 0.5 mile of suitable nesting habitat that is also located within critical habitat, and projects that remove conifer trees that are ½ of the site potential tree height or taller and creates a new canopy gap ≥ 0.25 acre. If trees with suitable nesting structure are removed.

Table 13-7. Northern Spotted Owl Critical Habitat Effect Determination Guidance for Projects Requiring Vegetation Removal

Project Activity	No Effect	May Affect, Not Likely to Adversely Affect	Likely to Adversely Affect
Upland Vegetation Removal and Management Riparian and Wetland Vegetation Removal and Management	Activities that do not remove vegetation within critical habitat or trees > 14 inches dbh adjacent to critical habitat if suitable nesting habitat (PCE 2) is present. Adjacent is defined as ½ the height of the maximum site potential tree	NRF habitat (PCEs 2 and 3) is present and habitat impact ≤ 0.25 acre within critical habitat; or NRF habitat (PCEs 2 and 3) impact is > 0.25 acre within critical habitat but does not reduce habitat functions and is approved by USFWS during early coordination; and/or Dispersal habitat (PCE 4) is present within critical habitat and habitat impact is ≤ 0.50 acre; or Dispersal habitat (PCE 4) impact is > 0.50 acre within critical habitat but does not reduce habitat function and is approved by USFWS during early coordination. Removal of non-NRF or dispersal habitat. Single hazard tree removal of non-potential nest trees 19 inches dbh and greater from critical habitat.	NRF habitat (PCEs 2 and 3) impact is > 0.25 acre within critical habitat, and impact reduces habitat functions; or Dispersal habitat (PCE 4) impact is > 0.50 acre within critical habitat, and dispersal function is reduced. Removal and permanent conversion of non-NRF or dispersal habitat to non-habitat – e.g. pavement.