



United States Department of the Interior

FISH AND WILDLIFE SERVICE



Western Washington Fish and Wildlife Office
510 Desmond Dr. SE, Suite 102
Lacey, Washington 98503

In Reply Refer To:
13410-2007-I-0291

Dale Hom
Forest Supervisor
Olympic National Forest
1835 Black Lake Blvd. SW
Olympia, Washington 98512

Dear Mr. Hom:

This letter responds to your request for consultation under section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) on the proposed Invasive Plant Treatment Project. Your letter, dated January 19, 2007, was received in the U.S. Fish and Wildlife Service's (Service) Western Washington Fish and Wildlife Office on January 23, 2007. In this letter, you requested concurrence with the determination that the Invasive Plant Treatment Project "may affect, but is not likely to adversely affect" the northern spotted owl (*Strix occidentalis caurina*) (spotted owl), marbled murrelet (*Brachyramphus marmoratus*) (murrelet), and bald eagle (*Haliaeetus leucocephalus*). Your letter also requested formal consultation for bull trout (*Salvelinus confluentus*).

In addition to formal consultation, you have requested concurrence for a specific subset of invasive plant treatment sites that are determined "may affect, not likely to adversely affect" for bull trout.

Consultation History

In February 2007, an inter-agency team met and developed a set of draft criteria for screening invasive plants treatments for potential effects to aquatic species. Individual projects that meet the following criteria are considered to be "always not likely to adversely affect" (NLAA) for federally listed fish species:

- All herbicide treatments that occur at greater than 100 ft horizontal distance from waterbodies where listed fish are present and greater than 50 ft from dry intermittent channels or road ditches that may influence listed fish.
- All herbicide treatments that occur in or along flowing stream channels at greater than 300 ft upstream of the upper limit of listed fish distribution.



- All herbicide treatments that occur in or along dry intermittent stream channels or road ditches at greater than 660 ft from waterbodies containing listed fish.
- Manual, mechanical, and restoration treatments that occur outside the bankfull channel of waterbodies with listed fish.
- For bull trout only – all treatments that occur within “migratory only” watersheds.

On April 4, 2007, the interagency Level 1 team met and reviewed the above draft criteria. Based on the herbicide analysis presented in the Biological Assessment, the Level 1 team agreed that projects that meet these criteria are “always NLAA” for listed fish species. However, the Level 1 team agreed that these criteria would only be used to review the project sites listed in Table 1. The always NLAA criteria will be further refined by the Level 1 Team for the purpose of evaluating future projects under the “early detection, rapid response” program..

Based on the Level 1 team discussions on April 4, 2007, the Service agreed to issue a separate letter of concurrence for those portions of the proposed action that are not likely to adversely affect listed species. A programmatic Biological Opinion for those portions of the proposed action that are likely to adversely affect bull trout will be provided in a separate document.

Summary of the Proposed Action

The Olympic National Forest is proposing to use manual, mechanical, and herbicide treatment methods on approximately 3,830 acres to eradicate, control, or contain invasive plants and restore sites after treatment. A variety of invasive plant species would be treated, including but not limited to bull and Canada thistle, knapweed, hawkweed, knotweed, and reed canarygrass.

Manual techniques include hand pulling, clipping, or digging invasive plants with non-motorized hand tools such as axes, hoes, shovels, and hand clippers. Mechanical methods involve chainsaws, mowers, brush cutters, or other machinery with various kinds of blades to remove plants. Restoration treatments may include hand or machine mulching, seeding, or planting. The tools and methods used for restoration activities are the same as those used for manual and mechanical treatments.

Chemical treatments will be limited to formulations which include the following herbicide compounds: chlorsulfuron, clopyralid, glyphosate, imazapic, imazapyr, metsulfuron methyl, picloram, sethoxydim, sulfometuron methyl, and triclopyr. Herbicide application methods include broadcast, spot spray, and hand/selective. Broadcast methods distribute herbicide over broad areas covering both target plants and non-target plants. Broadcast treatments would typically be used to treat dense patches of target vegetation. Spot spray methods include spraying herbicide directly onto small patches or individual target plants while avoiding non-target plants. Hand/selective methods treat individual target plants. All treatments will follow the project design features listed in Attachment 1.

Early detection and rapid response (EDRR) is a component of invasive plant treatments that allows for treatment of future infestations or previously undetected invasive plants that are not included in the current inventory. Under the EDRR approach, new infestations would be treated using the same methods and project design features that are proposed for known sites.

Table 1. Treatment areas on the Olympic National Forest that are considered in this letter of concurrence.

Treatment Identification	Site Description		Treatment Identification	Site Description
9H-04	RoadPlus		9P-07	Trail_multi
9H-06b	RoadPlus		9P-08	Admin
9H-06c	RoadPlus		9P-09	RoadPlant
9H-07	RoadPlus		9P-10	RoadPlus
9H-08a	RoadPlus		9P-11	RoadPlus
9H-08b	RoadPlus		9P-12	RoadPlant
9H-10	RoadPlus		9P-13	RoadPlus
9H-12	Campground		9P-14	RoadPlus
9H-14	RoadPlus		9P-15	RoadPlant
9H-15	RoadPlus		9P-16	RoadPlus
9H-16a	RoadPlus		9P-17	GeneralForest
9H-16b	RoadPlus		9P-18	RoadPlus
9H-21	RoadPlus		9P-19	RoadForest
9H-24	RoadPlus		9P-19a	RoadPlus
9H-25	RoadPlus		9P-20	RoadPlus
9H-26	RoadPlus		9P-21	RoadPlus
9H-28	RoadPlus		9P-22	RoadPlus
9H-29 Buckhorn BA	Meadow		9P-25	RoadPlus
9H-31	Meadow		9P-29	RoadPlus
9H-32	CampDispersed		9P-30	RoadPlant
9H-Cranberry Bog Bot Area	Wetland		9P-31	RoadPlus
9H-Pats Prairie Bot. Area	Meadow		9P-35	RoadPlus
9H-Three O'Clock BA	Trail_multi		9P-37	RoadPlant
9H-Three Peaks Botanical Area	GeneralForest		9P-39	RoadPlus
9H-Tyler Peak Bot. Area	GeneralForest		9P-44	RoadPlus
9H-Wet Weather Ck Bot. Area	GeneralForest		9P-45	Trail_multi
9P-01	RoadPlus		9P-BillsBog BA	GeneralForest
9P-02	RoadPlus		9P-MthnyPr BA	GeneralForest
9P-03	RoadPlus		9P-MthnyRdg BA	GeneralForest
9P-04	RoadPlus		9P-NF Matheny Ponds BA	GeneralForest
9P-05	RoadPlus		9P-PineMt BA	GeneralForest
9P-06	RoadPlus		9P-SFkCal BA	GeneralForest
9P-06a	RoadPlus			

Concurrence

Bull Trout

The Service used the draft project screening criteria listed above to evaluate (using GIS) the list of project sites submitted for a letter of concurrence (Table 1). All of the treatment areas in Table 1 meet the criteria and the Service therefore concurs with the determination that these projects are “not likely to adversely affect” bull trout except for 9H-21. A portion of treatment area 9H-21 includes roadside treatments located within 350 ft of the South Fork of the

Skokomish River, which contains bull trout; and therefore, this treatment site is not consistent with the draft project screening criteria listed above. However, due to the size of the Skokomish River at this site (greater than 60 ft bankful width), and the fact that this area was not identified as a road with a high potential for herbicide delivery, the potential for herbicide concentrations to exceed levels of concern for fish at this site is considered discountable and therefore “not likely to adversely affect” bull trout..

Herbicide Treatments

National Marine Fisheries Service (NMFS) conducted an analysis of potential risks to aquatic invertebrates, algae, and aquatic macrophytes using data from the risk assessments¹ performed by the Syracuse Environmental Research Associates (SERA) for the Forest Service. The SERA risk assessments evaluated potential concentration of herbicide in a small stream due to mobilization of herbicides by rainfall through dissolution and percolation through soils.

NMFS used the hazard quotients (HQ) for three endpoints (aquatic invertebrates, algae, and aquatic macrophytes) as surrogates for effects to designated critical habitat and listed fish species. The HQ approach was initially employed by the Region 6 Pacific Northwest Region Final Environmental Impact Statement and ESA Biological Opinion to identify the level of risk to fish and its prey base. It is represented as a ratio of the estimated level of exposure of herbicide to an existing toxicity value. When HQ values exceed 1, the level of insignificant affects is exceeded.

Upon examination of the SERA data, NMFS found the highest HQ value exceedance was from the use of chlorsulfuron applied at the maximum rate (0.25 pounds/acre (lbs/ac)) under the highest water contamination rate at an annual rainfall rate of 150 inches/year. This exceedance of chlorsulfuron (HQ value of 1073 for aquatic macrophytes) represents 100 times the EC₅₀² for that endpoint from hand/select methods applied at bankfull. While the HQ value for chlorsulfuron is the greatest exceedance for the surrogate endpoints, other HQ value exceedances were found for glyphosate, metsulfuron methyl, sulfometuron methyl, and triclopyr under worst-case scenarios.

Buffers may limit the amount of herbicide that enters adjacent surface waters by addressing three mechanisms of herbicide delivery to water – drift, erosion, and percolation (i.e., sub-surface flow). The effectiveness of buffers in reducing delivery via drift and erosion is more readily apparent and easily measured than is delivery via percolation. Herbicide concentration in percolate is attenuated by buffers through dilution, soil adsorption, degradation, root uptake, and other processes, all of which are influenced by the properties of the specific herbicide.

No effective, systematic and reproducible methods for buffer width determination to address delivery via percolation appear to be available. Understanding is incomplete in terms of predicting the amount of herbicide that will reach the water and relating buffer width to entry amounts. This is largely due to the site-specific and herbicide-specific variables that drive the

¹ Syracuse Environmental Research Associates risk assessments are available at: <http://www.fs.fed.us/foresthealth/pesticide/risk.shtml>

² EC₅₀ is a concentration in air or in water that causes 50% inhibition of growth.

buffer-herbicide dynamic. Because the efficacy of buffers for trapping herbicides before it enters water is not quantitatively predictable, conservative buffer widths are required to ensure the amount of herbicide reaching water with listed fish is insignificant.

A buffer of 100 ft along perennial and wet intermittent streams containing bull trout is anticipated to prevent herbicides from reaching water in concentrations that would exceed effects thresholds (HQ of 1). A buffer of 50 ft along dry intermittent channels and ditches is also anticipated to prevent exposure levels from exceeding effects thresholds in perennial streams containing bull trout by both the surface and sub-surface mechanisms and through dilution within the ditch or intermittent channel.

A distance of 300 ft of perennial channel length is anticipated to allow substantial mixing of herbicides in streams and rivers so they will be diluted to concentrations below effects thresholds. A buffer of 300 ft upstream from bull trout perennial streams and treated tributary/ditch confluences is also anticipated to prevent herbicides from reaching water at exposure levels exceeding effects thresholds.

Rainstorms occurring soon after herbicide application to dry intermittent channels or road ditches can result in mobilizing substantial proportions of the applied herbicide. Providing an adequate buffer distance between dry intermittent channel or road ditch application and the confluence with streams containing bull trout is intended to allow dilution through mixing with additional runoff. Due to the probability of adverse effects to algae and aquatic macrophytes, as reflected in high HQ values, and efficient water movement following rainstorms down dry intermittent channels or road ditches, a substantial buffer distance is required to mitigate this risk. The Service anticipates that a distance of 660 ft (1/8 mile) is sufficient to allow dilution of herbicide concentrations in dry intermittent channel or road ditch runoff to concentrations that are anticipated to be insignificant.

Manual, Mechanical, and Restoration Treatments

The Service concurs with the determination of “not likely to adversely affect” for manual, mechanical, and restoration treatments for known and EDRR sites that occur outside the bankfull channel of waterbodies with listed fish. Treatment activities that incorporate substantial ground disturbing activities in riparian areas may lead to increased erosion and stream sedimentation. The amount of sediment created by non-herbicide treatments is anticipated to be insignificant because the methods of treatments do not include ground disturbing activities by heavy equipment. Ground disturbing activities by hand pulling, mowing, brushing, seeding, and planting will cover a relatively small area and will be outside the bankfull channel, thereby greatly reducing the amount of sediment that could potentially enter the water. The amount of sediment created by manual, mechanical, and restoration activities is not expected to have any significant impacts to bull trout spawning, foraging, or migratory behavior.

Manual and mechanical treatments of some invasive plant species may decrease riparian vegetative shading in some areas, and potentially increase the amount of solar radiation striking the water. Many factors influence water temperature including shade, size of stream, channel morphology, air temperature, topography, stream aspect, and interactions with groundwater. A

significant amount of vegetation e.g., along several thousand feet of channel, would need to be removed to change water temperature in the stream and shade would have to be provided only by the invasive plant removed. The only invasive plant species on the Olympic National Forest that could grow directly adjacent to bull trout streams and also grow tall enough to provide shade are Japanese knotweed and Himalayan blackberry. Eradication of Japanese knotweed and Himalayan blackberry along substantial lengths streams could result in a loss of riparian shade at treated sites. However, due to limited size of invasive plant infestations directly adjacent to streams, and because there will be no over-story removal, and the Service does not expect invasive plant treatments that include manual or mechanical methods to result in measurable increases in stream temperature.

Because treatments using the above criteria will be conducted outside the bankfull channel and not in the water, people will not be in the water stepping on reeds and/or fish, and therefore no direct mortality due to manual, mechanical, or restoration activities is anticipated.

Migratory Watersheds

Invasive plant treatment projects are assumed to always be “not likely to adversely affect” for bull trout if the project is located in a 5th-field watershed that only contains migrating bull trout. The fifth-field watersheds on the Olympic National Forest that only contain migratory bull trout include the East Fork Humptulips, West Fork Humptulips, Stevens Creek, East Fork Satsop, Middle Fork Satsop, West Fork Satsop, Upper Wishkah, Middle Wynoochee, and Lower Wynoochee.

Electrofishing, day snorkeling, and night snorkeling surveys conducted by the Olympic National Forest in 1997, 1999, 2000, and 2001 in the Satsop and Wynoochee basins all failed to detect bull trout. In addition, bull trout have never been observed above the confluence of the East Fork and West Forks of the Humptulips River. Due to the low likelihood of bull trout presence in these watersheds during project activities, effects resulting from invasive plant treatments are discountable and will not adversely affect bull trout in these watersheds.

Spotted Owl

The Service concurs with your determination of “may affect, not likely to adversely affect” the spotted owl for the proposed action. This concurrence is based on the timing and location of invasive plant treatment activities and on the results of the SERA risk assessments.

Manual, Mechanical, and Restoration Treatments

The Service completed a review of scientific literature in 2003 relative to the effects of sound exposure to the spotted owl. The results of that review concluded that the effects of sound from heavy equipment and motorized tools were insignificant at distances greater than 35 yards, and that the effects of sound from chainsaws were insignificant at distances greater than 65 yards for spotted owls in the early breeding season. The review also concluded that these activities would not be likely to disturb nesting spotted owls during the late breeding season.

Treatments will be conducted after July 15 and before March 1. Treatments may occur between March 1 and July 15 if they occur outside disturbance distances (greater than 65 yards for chainsaws and 35 yards for heavy equipment and motorized tools) or if the activities are within ambient levels of sound and human presence. By mid July, spotted owlets are no longer completely dependent upon the adults and are able to thermoregulate, fly, and forage on their own, thereby reducing their susceptibility to disturbance-related effects. No suitable spotted owl habitat will be removed by the proposed action.

Herbicide Treatments

The potential for the herbicides to adversely affect spotted owls was determined using quantitative estimates of exposure from worst-case scenarios from the SERA risk assessments conducted for the U.S. Forest Service. A worst-case exposure scenario for the spotted owl was conducted using consumption of prey that had been directly sprayed, and assuming 100 percent absorption of the herbicide. At typical application rates, the estimated doses from the exposure scenarios are all less than the reported “no observable adverse effect level” (NOAEL) for all herbicides and Nonylphenol Polyethoxylate-based (NPE) surfactants, and are therefore insignificant.

There will be no direct exposure to herbicides by treatments under the proposed action. Spotted owls will not be directly sprayed by herbicides because there will be no aerial application as part of the proposed action and no ground applications of herbicide would reach into the canopies of trees where spotted owls nest or roost.

Marbled Murrelet

The Service concurs with your determination of “may affect, not likely to adversely affect” the marbled murrelet for the proposed action. This concurrence is based on the timing and location of invasive plant treatment activities and on the results of the SERA risk assessments.

Manual, Mechanical, and Restoration Treatments

The Service completed a review of scientific literature in 2003 relative to the effects of sound exposure to the murrelet. The results of that review concluded that the effects of sound from heavy equipment and motorized tools were insignificant at distances greater than 35 yards, and that the effects of sound from chainsaws were insignificant at distances greater than 45 yards for murrelets in the early breeding season.

Treatments will be conducted after August 5 and before April 1. Treatments may occur between April 1 and August 5 if they occur outside disturbance distances (greater than 45 yards for chainsaws and 35 yards for heavy equipment and motorized tools) or if the activities are within ambient levels of sound and human presence. Activities within suitable habitat between August 5 and September 15 will take place between 2 hours after sunrise and 2 hours before sunset from August 6 to September 15. After August 5, approximately 70 percent of murrelet chicks on the Olympic National Forest have fledged and left the area and for those chicks remaining, the vast majority of meals are delivered early in the morning and at dusk. Therefore, the Service

considers that effects to murrelets from the proposed action are discountable because activities are extremely unlikely to overlap with murrelet feedings and will not significantly disrupt normal behaviors.

Herbicide Treatments

Murrelets feed on marine fish, which will not be exposed to herbicides or NPE from control of invasive plants on the Olympic National Forest. However, some murrelets have been reported to feed upon some freshwater fish (Carter and Sealy 1986). Therefore, in order to account for the possibility of exposure due to eating freshwater fish, a scenario involving the consumption of contaminated fish was analyzed. The potential for the herbicides to adversely affect murrelets was determined using quantitative estimates of exposure from worst-case scenarios from the SERA risk assessments conducted for the U.S. Forest Service. The dose estimates for fish-eating birds were calculated using herbicide or NPE concentrations in fish that have been contaminated by an accidental spill of 200 gallons into a small pond. For chronic exposures, the assessments used a scenario where the bird consumes fish from water contaminated by an accidental spill over a lifetime.

The results of these exposure scenarios indicate that herbicides and NPE surfactant do not pose a risk to birds from eating contaminated fish. All expected doses to fish-eating birds for all herbicides and NPE are well below any known NOAEL. According to the assessments, even if a murrelet fed for a lifetime upon fresh-water fish that had been contaminated by an accidental spill of herbicide, they would not receive a dose that exceeds any known NOAEL, and therefore effects to murrelets from exposure to herbicides are insignificant.

There will be no direct exposure to herbicides by treatments under the proposed action. Murrelets will not be directly sprayed by herbicides because there will be no aerial application as part of the proposed action and no ground applications of herbicide would reach into the canopies of trees where murrelets nest.

Bald Eagle

The Service concurs with your determination of “may affect, not likely to adversely affect” the bald eagle for the proposed action. This concurrence is based the timing and location of invasive plant treatment activities and on the results of the SERA risk assessments.

Manual, Mechanical, and Restoration Treatments

All invasive plant treatment activities within bald eagle use areas will take place outside of the wintering (October 31 to March 15) and breeding season (January 1 to August 15) or will remain at least 0.25 mile, or 0.50 mile line-of-sight, from known nests, winter roosts, and concentrated foraging areas. Treatments may occur within this distance if activity is within ambient levels of sound and human presence or if a nest site is not active that year. Human activities in close proximity to nests or winter concentration areas are known to disrupt bald eagle behavior patterns and in some cases cause reproductive failure and therefore regulation of human activity

is a critical part of bald eagle management. The timing windows and disturbance distances will ensure that normal behavior is not significantly disrupted by invasive plant treatment activities.

Herbicide Treatments

The potential for the herbicides to adversely affect bald eagles was determined using quantitative estimates of exposure from worst-case scenarios from the SERA risk assessments conducted for the U.S. Forest Service. The dose estimates for fish-eating birds were calculated using herbicide or NPE concentrations in fish that have been contaminated by an accidental spill of 200 gallons into a small pond. For chronic exposures, the assessments used a scenario where the bird consumes fish from water contaminated by an accidental spill over a lifetime.

The results of these exposure scenarios indicate that herbicides and NPE surfactants do not pose a risk to birds from eating contaminated fish. All expected doses to fish-eating birds for all herbicides and NPE are well below any known NOAEL. According to the assessments, even if a bald eagle fed for a lifetime upon fresh-water fish that had been contaminated by an accidental spill of herbicide, they would not receive a dose that exceeds any known NOAEL, and therefore effects to bald eagles from exposure to herbicides are insignificant.

There will be no direct exposure to herbicides by treatments under the proposed action. Bald eagles will not be directly sprayed by herbicides because there will be no aerial application as part of the proposed action and no ground applications of herbicide would reach the upper canopies of trees where bald eagles nest or perch.

This concludes informal consultation in accordance with Section 7(a)(2) of the Endangered Species Act of 1973 (Act) (16 U.S.C. 1531 *et seq.*), as amended. This action should be re-analyzed if new information reveals effects of the action that may affect listed species or designated critical habitat in a manner or to an extent not considered in this consultation; if the action is subsequently modified in a manner that causes an effect to a listed species or designated critical habitat that was not considered in this consultation; and/or, if a new species or critical habitat is designated that may be affected by this project.

The Service appreciates your efforts to protect listed species and the habitats on which they depend while meeting your land management needs. If you have any questions regarding this letter or your responsibilities under the Act, please contact Vince Harke at (360) 753-9529 or Marc Whisler at (360) 753-4410, of my staff.

Sincerely,

Ken S. Berg, Manager
Western Washington Fish and Wildlife Office

Enclosure (1)

cc:

Gifford Pinchot National Forest, (D. Perez)
Olympic National Forest, (B. Metzger)

LITERATURE CITED

Carter, H.R. and S.G. Sealey. 1986. Year-round use of coastal lakes by marbled murrelets.
Condor 88: 473-477.