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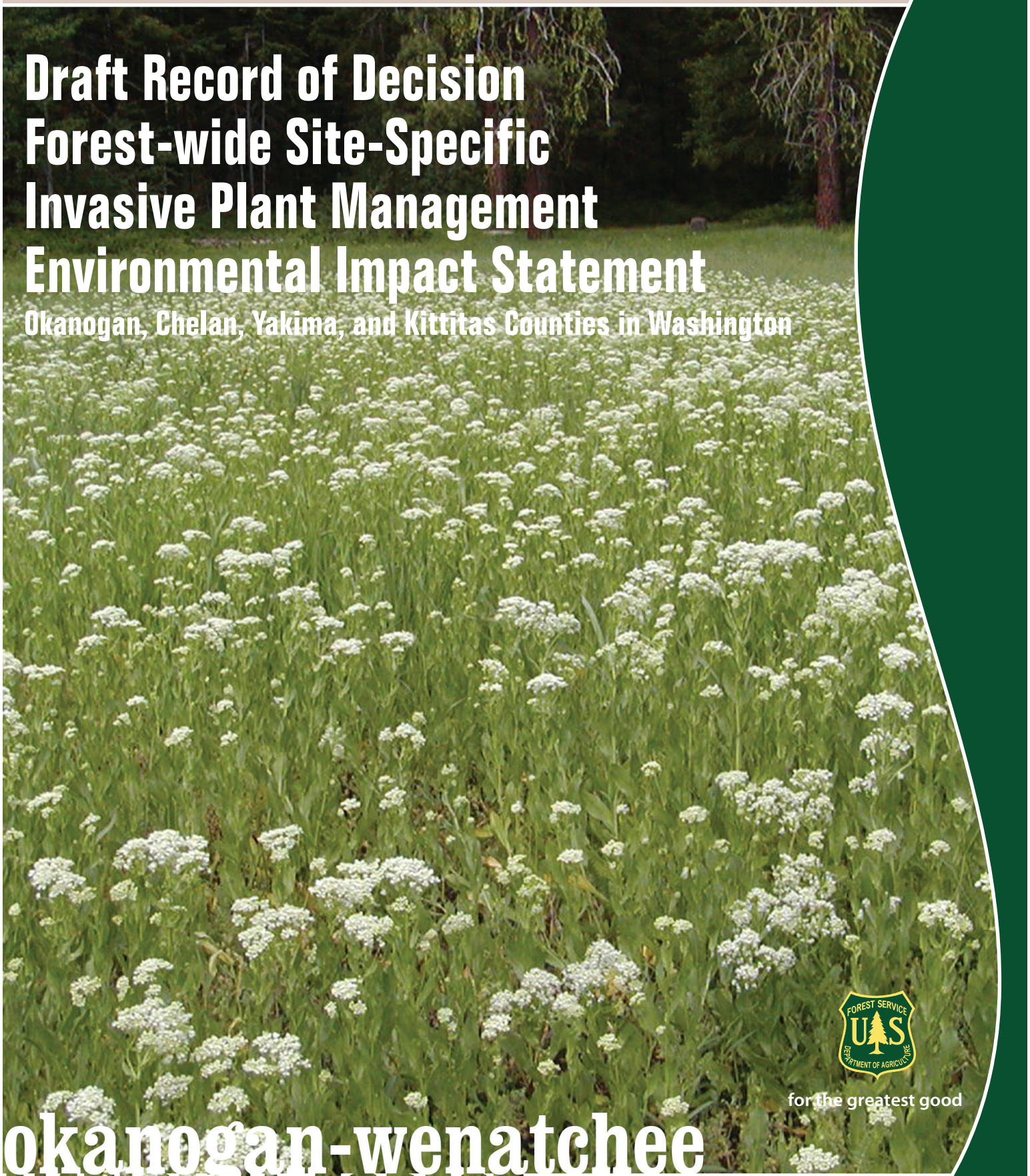
Draft Record of Decision Forest-wide Site-Specific Invasive Plant Management Environmental Impact Statement

Okanogan, Chelan, Yakima, and Kittitas Counties in Washington



FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

for the greatest good

okanogan-wenatchee NATIONAL FOREST

August 2016

Cover photo: Field of whitetop.

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DRAFT Record of Decision

Okanogan-Wenatchee National Forest Forest-wide Site-Specific Invasive Plant Management Environmental Impact Statement

Okanogan, Chelan, Yakima, and Kittitas Counties in Washington

Introduction

This Record of Decision (ROD) documents my decision and rationale for selecting Alternative 2 of the Okanogan-Wenatchee National Forest Forest-wide Site-specific Invasive Plant Management Project. Alternative 2 is the environmentally preferred alternative. My decision authorizes a range of integrated invasive plant treatment and restoration methods that will be implemented across the Okanogan-Wenatchee National Forest for the next 5 to 15 years or longer.

My decision includes a non-significant amendment to both the Okanogan-Wenatchee National Forest Land and Resource Management Plans (Forest Plans), adding aminopyralid to the list of herbicides for use as part of the integrated treatment toolbox for invasive plants on the Okanogan-Wenatchee National Forest (OKAWEN).

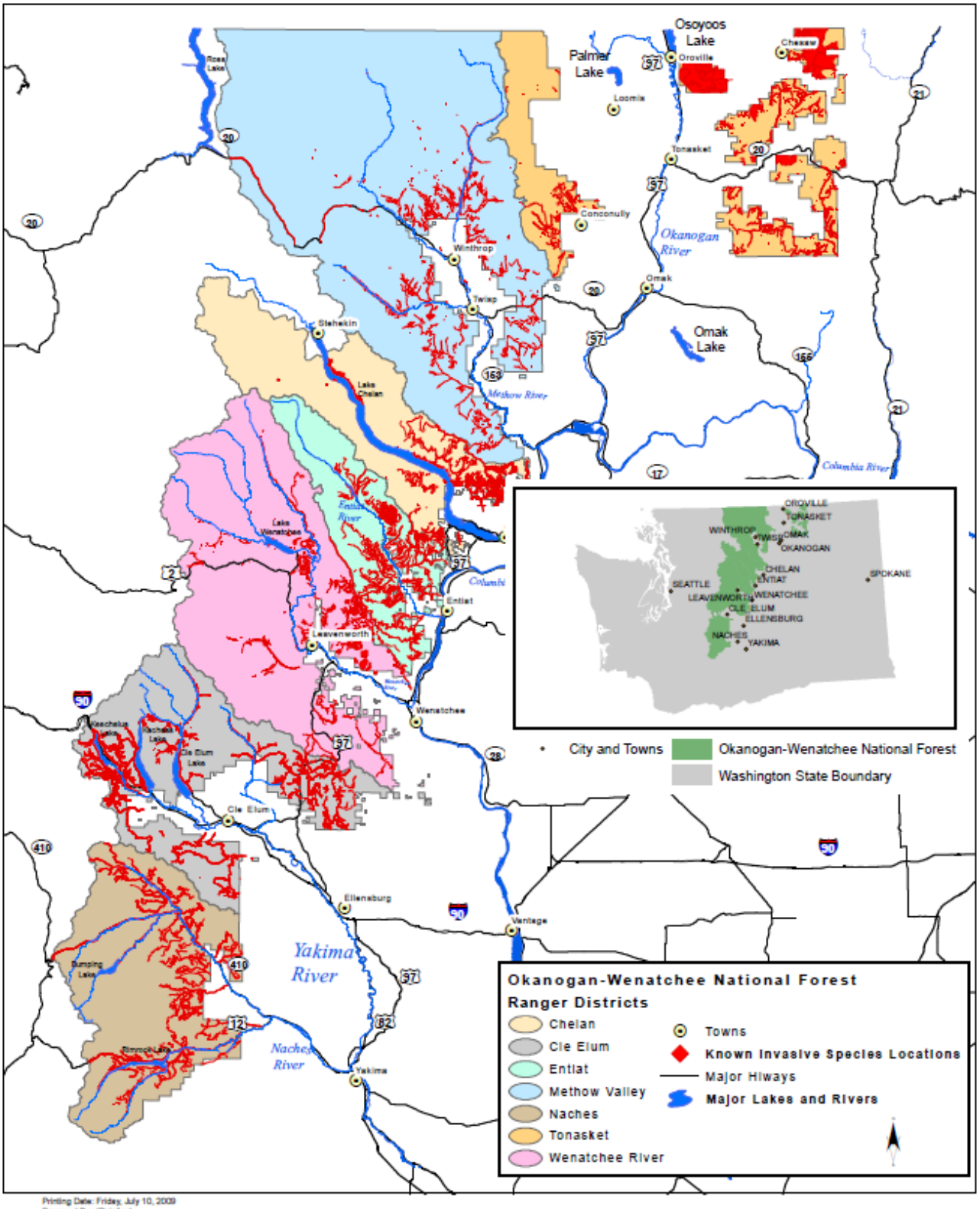
In arriving at my decision, I have considered the analysis that is documented in the *Okanogan-Wenatchee National Forest Forest-wide Site-specific Invasive Plant Management Final Environmental Impact Statement* (FEIS) (USDA Forest Service 2016), information in the project file, and input received from the public during the course of the analysis of this project as required by the National Environmental Policy Act (NEPA) of 1969.

This ROD was developed according to requirements of the National Environmental Policy Act of 1969 (42 USC §§ 4321-4370), the Council of Environmental Quality's implementing regulations (40 CFR §§ 1500-1508), Forest Service NEPA regulations (36 CFR Part 220), and Forest Service policy in Forest Service Manual 1900, Chapter 1950, and Forest Service Handbook 1909.15.

Location and Area

The project area includes the entire 4.1 million acre Okanogan-Wenatchee National Forest (see Vicinity Map) within Okanogan, Chelan, Kittitas and Yakima Counties and a small portion of Skagit County (Okanogan-Wenatchee National Forest lands west of the Cascade crest are included in the project area including the area along Highway 20 west of the Cascade crest and east of Ross Lake that is administered by the Okanogan-Wenatchee National Forest and located in Skagit County). In addition, this project also includes acreage east of the Cascade crest within Yakima County that are administered by the Mount-Baker Snoqualmie National Forest.

Vicinity Map – Okanogan-Wenatchee National Forests
Known Invasive Species Locations



Background

Invasive plants are “non-native plants whose introduction does or is likely to cause economic or environmental harm or harm to human health” (Executive Order 13112). Invasive plants are distinguished from other non-native plants by their ability to spread (invade) into native ecosystems. Invasive plants include but are not limited to noxious weeds identified on state lists.

On the Okanogan-Wenatchee National Forest (OKAWEN or the Forest), about 50 species of invasive plants have been mapped within 5,528 sites, totaling approximately 16,281 infested acres. The project area includes the entire Okanogan-Wenatchee National Forest, totaling about 4.1 million acres. Currently, we are treating invasive plants as approved in several different decision notices (see FEIS Chapter 2.2, no action, for a full listing). Across the OKAWEN as a whole, we lack a consistent treatment approach that uses up to date integrated methods and available tools.

Tribal Consultation and Public Involvement

Tribal and public scoping on this Proposed Action was initiated in summer, 2009. The Notice of Intent to prepare an EIS was published in the Federal Register on August 13, 2009.

The scoping record (available on file) includes government-to-government consultation with American Indian tribes. Prior to the initiation of public scoping, government-to-government consultation letters were sent to the Yakama Nation and Confederated Tribes of the Colville Reservation on August 10, 2009. Neither government raised any concerns relating to the project during scoping or the DEIS comment period.

During the 2009 scoping period, approximately 1,700 postpaid postcards were mailed out asking if the recipient wished to be included on the e-mail or hard copy mailing list for the project. Approximately 800 people responded and indicated an interest in the project. The Proposed Action was posted on the Forest website and a scoping letter, dated August 12, 2009, was sent to 798 individuals and organizations who responded to the original postcard inquiry. We received 17 comment letters about the proposed action. Scoping outreach and responses are in the Project Record. An alternative that minimized herbicide use was developed for detailed study as a result on some of the scoping input.

The Okanogan Wenatchee invasive plant treatment DEIS was circulated for comment in April 2016. We received 15 letters containing about 120 comments regarding the project and its impacts. The greatest number of comments expressed opposition to the use of herbicides, specifically glyphosate. However, several comments expressed support for the project. Appendix G contains the specific comments and our responses.

In response to the comments, we prepared a newsletter addressing common questions and concerns and sent it to those who commented on the DEIS. We also met with some people from the Carlton community to hear their concerns. The Forest Service agreed to keep them informed about upcoming treatments and coordinate volunteer efforts in the Libby Creek watershed to help minimize herbicide use there.

We made a few changes to the Final EIS in response to the comments. We added some information about monitoring; clarified the way the annual cap was developed and used in the analysis; and adjusted the prescription on 2.3 acres of knotweed to avoid use of glyphosate as a first choice herbicide.

Purpose and Need

The Okanogan-Wenatchee National Forest needs to expand treatment options and expand the treatment area to the entire National Forest to effectively suppress, contain, control and/or eradicate invasive plant species. The purpose of the project is to cost-effectively treat invasive plants, while minimizing risks from treatment.

Current treatment projects are expiring and are not necessarily consistent with current management direction, and do not provide an adequate range of tools to effectively control invasive plants, while minimizing treatment risks. There is a need to amend the Forest Plans to allow use of a new herbicide that reduces risk and increases effectiveness of herbicide treatment.

In addition, there is a need to provide for a Forest-wide system for the early detection and rapid response (EDRR) for finding and treating new invaders and new infestations. There is currently no Forest-wide mechanism to effectively address new infestations.

Invasive plant treatment is intended to help meet the following Desired Future Condition (2005 R6 PNW ROD):

> *In National Forest lands across Region Six, healthy native plant communities remain diverse and resilient and damaged ecosystems are being restored. High quality habitat is provided for native organisms throughout the region. Invasive plants do not jeopardize the ability of the National Forests to provide goods and services communities expect. The need for invasive plant treatment is reduced due to the effectiveness and habitual nature of preventive actions and the success of restoration efforts.*

Currently, invasive plants on the Forest are displacing native plants, reducing forage and habitat for wildlife and livestock, threatening native plant communities; contributing to increased soil erosion and reduced water quality; altering the physical and biological properties of soil, affecting the intensity and frequency of fires, and degrading the quality of recreational experiences.

Fifty different invasive plant species are known to occur within the boundaries of the Okanogan-Wenatchee National Forest. Existing infestations vary in size and extent across the Forest; some infestations occupy small areas of less than an acre while others involve hundreds of acres. Currently, 5,528 invasive plant sites have been mapped, covering 16,281 acres (or 0.4% of the total Forest acres). The target species of greatest concern include (in no particular order): Dalmatian toadflax, common crupina, yellow starthistle, whitetop, St. John's wort, Japanese and Bohemian knotweed, hawkweeds, houndstongue, hoary alyssum and spotted and diffuse knapweed. A full listing of invasive plant species mapped on the Okanogan-Wenatchee National Forest can be found in Chapter 3.2, Invasive Plant Management and Treatment Effectiveness.

Additional infestations have likely not yet been discovered, and these, as well as known sites, will continue to expand and spread every year without effective treatment. New infestations can be discovered at any time; new infestations are high priority for treatment. R6 PNW ROD Standard 16 lists 10 herbicides approved for use on the Forest (see 1.7 below). Standard 16 also allows consideration of new herbicides as needed to meet program goals.

On the Forest, there is a need to consider use of aminopyralid to better meet R6 PNW ROD Goal 3 to protect the health of people (and to)…..identify, avoid, or mitigate potential human health effects from invasive plants and treatment, and Goal 4 to implement invasive plant treatment strategies that protect sensitive ecosystem components….while minimizing adverse effects from

treatment projects. An Herbicide Risk Assessment was prepared by an independent contractor "Syracuse Environmental Research Associates, Inc." (SERA). The Risk Assessment for aminopyralid (SERA 2007) indicates that use of this herbicide would reduce risks associated with some of the other herbicides approved in the R6 PNW ROD.

Reasons for my Decision

Based on the analysis disclosed in the FEIS and project record, I have decided to select Alternative 2, the proposed action, for the Okanogan-Wenatchee National Forest Forest-wide Site-specific Invasive Plant Management Project. This alternative is the most cost-effective approach to invasive plant treatment while minimizing the potential adverse effects of treatment according to the Okanogan and Wenatchee National Forest Plans as amended by the R6 2005 ROD.

Under Alternative 2, invasive plant treatments will be completed according to integrated treatment prescriptions (see Attachment 1, table 1-1) and Project Design Features (PDFs, see Attachment 1, table 1-2). Treatments would be adapted to changing conditions over time following an Early Detection and Rapid Response (EDRR) and implementation planning process. My decision includes monitoring to ensure that the treatments are implemented properly and adverse effects are minimized. See FEIS Chapter 2.2 for a detailed description of the Proposed Action/Selected Alternative.[1]

Alternative 2 would be the most effective in containing, controlling, or eradicating invasive plants. It would best meet the purpose and need for action because under Alternative 2, the treatment objectives of control and eradication would be possible. The availability of all treatment methods and herbicide choices would increase the ability to match treatments to the species and conditions at a site, and improve the ability to effectively control invasive plants (FEIS Chapter 3.2.4).

Alternative 2 also has flexibility to take advantage of special projects or funding opportunities, and respond to changing conditions. For example, all sites in/near an area burned by a recent wildfire could be treated with the most effective method to prevent spread into any newly created high-risk (disturbed) habitat (ibid.).

Alternative 2 will allow use most of the new herbicides programmatically approved by the R6 PNW ROD, plus one additional herbicide with a completed risk assessment (aminopyralid). The herbicides vary in selectivity, residual soil activity, and their effectiveness in controlling broad-leaved invasive plants at low concentrations. Each herbicide would be used where it would provide the most effective treatment (and is allowed by label or alternative design restrictions) with the least potential environmental effects, depending on the invasive species and environmental conditions present at the site. Using the most effective herbicide would reduce the number of repeat treatments needed, and minimize the total cost of treatment (ibid.).

Multiple years of herbicide treatment, or herbicide treatment in combination with other methods, would likely be needed to accomplish a control or eradicate management objective. Given current budgets, Alternative 2 would take at least 6 years or longer to achieve treatment objectives. Only a portion of the existing infestations would likely be treated each year and treatment of new

[1]This decision includes National Forest system acreage east of the Cascade crest within Yakima County that are administered by the Mount-Baker Snoqualmie National Forest.

infestations would often take priority. However, over the life of the project, the objectives for invasive plant treatment could be met. Given the 15-year (or longer) timeframe of this project and the high mobility of invasive plants, having maximum flexibility to make adjustments and adapt to changes adds to the effectiveness of Alternative 2 (ibid.).

I recognize that some individual non-target plants may be killed or harmed during implementation of this project. An individual rare plant may be damaged or die. Effects on non-vascular plants and fungi are particularly uncertain. The potential exists for non-target plants to be inadvertently damaged or killed, especially adjacent to broadcast operations. However, the Project Design Features minimize the potential for native plants to be adversely affected (FEIS Chapter 3.3.4).

Alternative 2 allows for the greatest treatment effectiveness and includes the ability to use herbicides throughout all soil types. This alternative would provide the greatest potential benefit to long-term soil site productivity by restoring native vegetation to more acres and improving soil conditions. Herbicides would be used according to the PDFs. Risks from herbicide use are abated by the PDFs, and serious adverse effects to soils are not expected from treatments in either alternative.

I acknowledge that soil restrictions have been identified on about 679 acres where certain herbicides might otherwise be used. These restrictions would apply to about 1,400 acres within treatment analysis areas where invasive species are not currently mapped but are likely to be found. However, effective treatments may still be completed in these areas. Effects of the proposed herbicide treatments on soils would not be measurable at the Forest scale due to the low percent of area impacted. Impacts are restricted to localized and short-term effects on soil microorganisms and soil productivity, which are addressed by PDFs and therefore unlikely to be serious or lingering (FEIS Chapter 3.4.4).

Some of the treatments may occur in riparian areas. The Project Design Features limit the potential for herbicides to enter water in the action alternatives. The 2013 Aquatic Restoration Biological Opinion (ARBO2) design features for invasive plant treatments that may affect critical riparian and aquatic habitats for species listed under the Endangered Species Act are incorporated in full in the project PDFs. These include design features to minimize drifting and leaching, and herbicide use buffers for perennial and intermittent water bodies. In addition to the ARBO2 design features PDF H-6 restricts the amount of herbicide treatment allowed around a lake or pond within a 30 day period, PDF H-7 provides a timing restriction and treatment limitation near wetlands, and PDF H-8 limits herbicide use near domestic wells and spring developments. The PDFs and herbicide use buffers have a high degree of effectiveness and likely eliminate risk of the project having serious adverse effects on water resources or beneficial uses of water. Treatments under EDRR would be also completed in a manner that follows Water Quality BMPs and protects water resources. The Forest Plan amendment allowing for use of aminopyralid would help reduce use of glyphosate and picloram and thus minimize risks to fish and other beneficial uses. Alternative 2 includes the most flexibility in terms of herbicide use, including near streams and other water bodies. This alternative has the greatest potential treatment benefit, compared to the other alternatives. Beneficial uses of water are not expected to be adversely affected (FEIS Chapter 3.5.4).

I recognize that Alternative 2 “May Impact” sensitive aquatic species, but would not affect the viability of any species or cause any sensitive species to be listed under the Endangered Species Act (FEIS Chapter 3.6.4). Alternative 2 would result in long-term restoration where natural plant

communities and disturbance regimes have been altered by invasive plants. Alternative 2 has the greatest potential to benefit aquatic resources by effectively treating invasive plants (ibid.).

Project Design Features, which include all design features from ARBO2, would minimize the potential for adverse effects on fish and habitat. None of the chemicals proposed for use would result in long-term adverse alteration of aquatic habitat. The impacts of invasive plants on the environment can last decades, while the impacts of treatment tend to be short term (weeks or less). Active restoration at selected sites would accelerate native vegetative recovery in treated areas (ibid). Herbicide use buffers in the alternative would substantially limit the amount of herbicide potentially coming in contact with water. The potential amount of herbicide coming in contact with water after application of herbicide use buffers would be minimized to near non-detectable levels (ibid).

I acknowledge that wildlife may be exposed to herbicides, however the risk from this project to free-ranging wildlife is very low, because 1) the invasive plant sites are relatively small and scattered across many watersheds and habitat areas; 2) invasive plants are concentrated on roads and other disturbed areas that do not provide optimum wildlife habitat value; and 3) the intensity of change to habitat features of value to these species is low. The herbicides proposed for use are not likely to adverse effect or impact any wildlife species. In contrast, no treatment, or ineffective treatment of invasive plants could result in adverse effects to habitats if current infestations continue to spread into riparian areas, late-successional forests, meadows and other valuable habitat areas. (FEIS Chapter 3.7.4).

Treatments on grazing allotments would help maintain and restore forage on treated sites and adjacent lands. I acknowledge that my decision may result in short term effects to allotment management such as adjustments to pasture rotations.

I acknowledge that herbicide applicators and other people may be exposed to the herbicides used to treat invasive plants under Alternative 2. The nature of the project and the type of treatments proposed; the PDFs; the Forest Plan/R6 PNW standards; and the Forest Service pesticide use policy together minimize potential for worker and public exposure.

Triclopyr poses a greater level of risk than the other herbicides proposed, given comparative risk assessments, if people were to consume sprayed vegetation. The R6 PNW ROD limited triclopyr to selective/spot treatment (no broadcasting with triclopyr). This herbicide ingredient is necessary for effective treatment of some woody plants.

In both action alternatives, triclopyr is the first choice herbicide for about 90 acres of scotch broom, scattered across 30 sites. Treatment of scotch broom using triclopyr would pose a low level of risk to the public. There is little chance that the public would eat sprayed scotch broom. Public notification of planned treatments, including extra posting of notices at recreation and other developed sites, would allow the public to completely avoid areas treated with triclopyr (posting would occur for all herbicides as per PDF K-1).

The addition of aminopyralid would likely be a positive factor relative to human health. Aminopyralid is not associated with any worker or public exposures over the threshold of concern (for aminopyralid, all calculated Hazard Quotient (HQ) values, even for upper estimates and maximum rates, are below 1).

With the exception of consuming vegetation sprayed with triclopyr, there are no plausible acute or chronic exposure scenarios where people might be exposed to harmful levels of herbicide from

this project, where via direct contact; swimming in contaminated water; or consuming contaminated water, fish, fruit or vegetation (FEIS Chapter 3.8.4).

Some comments to the Draft EIS expressed concern about the herbicide glyphosate. Many people express concerns about glyphosate use on food crops around the world. My decision will not affect this use, which is outside the scope of this project.

The use of glyphosate on this project would be limited. We can avoid use of glyphosate in most situations, but it is a necessary ingredient in our toolbox. I have instructed my staff to avoid use of glyphosate, remove it as a first choice for current infestations, and to use it sparingly if other herbicides are ineffective. Glyphosate may increase the effectiveness of a tank mix partner such as imazapyr; I authorize this use if needed in specific situations (for the 2.3 acres of knotweed, we will try imazapyr first, however we may follow up with glyphosate or a tank mix).

Eradication of invasive plants would allow vegetation within wilderness areas to evolve in a more natural way, which would promote the untrammeled character of wilderness. I understand that the use of herbicides in wilderness areas may reduce the wilderness experience for some users in the short term, but active treatment provides the best protection of wilderness character and values (FEIS Chapter 3.10.4). Adverse effects to outstandingly remarkable values on Wild and Scenic Rivers would be minimal given the PDFs and herbicide use buffers. In the long run, treatment of invasive plant and restoration of treated areas would enhance wilderness and Wild and Scenic River values. Alternative 2 would be more favorable to wilderness and Wild and Scenic River values because of the increased effectiveness and selectivity associated with use of aminopyralid.

Invasive plant treatments are unlikely to adversely affect heritage sites (FEIS Chapter 3.11.4).

Alternative 2 would treat all existing acres of invasive plants using the widest range of methods and herbicide ingredients. Under an unlimited budget, assuming an average annual cost of $100 per treatment acre and an average annual effectiveness of 80 percent per year, total cost of fully meeting all treatment objectives over a five year period is estimated at $2,055,500. This amounts to a total cost per effectively treated/restored acre over a five year period of about $126 per acre

Alternative 2 could provide up to 39 seasonal jobs for any given 130 day year, assuming an unlimited budget.

Alternative 2 would not likely be acceptable to those who disagree with herbicide use. Glyphosate would be used in Alternative 2, but would not be the first choice herbicide for any known infestation. Alternative 2 is my selected alternative given the low likelihood of serious adverse effects. Alternative 2 has the greatest potential for positive benefits from treatment.

Compliance with Policies and Management Direction Related to Invasive Plant Management

Forest Service policies and management direction related to invasive plant treatment clearly supports taking action to contain or reduce density of invasive plants on National Forests. Prevention, early detection and rapid response, invasive plant control measures, restoration and organizational collaboration are all addressed in the Forest Service 2900 Manual.

The R6 PNW ROD also provides management direction for this project. The R6 PNW ROD lays out several objectives for invasive plant management including:

Objective 1.3: Detect new infestations of invasive plants promptly by creating and maintaining complete, up-to-date inventories of infested areas, and proactively identifying and inspecting susceptible areas not infested with invasive plants.

Objective 1.4: Use an integrated approach to treating areas infested with invasive plants. Utilize a combination of available tools including manual, cultural, mechanical, herbicides, biological control.

Objective 1.5: Control new invasive plant infestations promptly, suppress or contain expansion of infestations where control is not practical, conduct follow up inspection of treated sites to prevent reestablishment.

Objective 3.1: Avoid or minimize public exposure to herbicides, fertilizer, and smoke.

Objective 3.2: Reduce reliance on herbicide use over time in Region Six

Objective 4.1: Maintain water quality while implementing invasive plant treatments.

Objective 4.2: Protect non-target plants and animals from negative effects of both invasive plants and applied herbicides. Where herbicide treatment of invasive plants is necessary within the riparian zone, select treatment methods and chemicals so that herbicide application is consistent with riparian management direction.

Objective 4.3 - Protect threatened, endangered, and sensitive species habitat threatened by invasive plants. Design treatment projects to protect threatened, endangered, and sensitive species and maintain species viability.

Recently, the Forest Service published a National Strategic Framework for Invasive Species Management (FS-1017, August 2013). The framework is intended to increase the effectiveness of Forest Service invasive species management and improve the health and productivity of forests and grasslands. The framework acknowledges that invasive species are among the most important environmental and economic threats facing public lands. The framework notes that estimated economic damage from invasive species has totaled more than $1.4 trillion worldwide, about 5 percent of the world's economy. Early detection and rapid response to new detections, effective control of invasive species, and restoration of treated sites are important objectives of the framework.

I find that the design of Alternative 2 will help us meet these objectives. The objective of reducing herbicide use over time is best met by implementing effective, integrated treatments that may include chemical use, as has been proposed in Alternative 2. Alternative 2 is by definition the most cost-effective alternative because it allows for the widest range of treatment tools.

Other Alternatives Considered

In addition to the selected alternative, we analyzed two other alternatives: no action (Alternative 1) and one action alternative (Alternative 3). Table 1 summarizes the activities included in each alternative analyzed in detail compared to the selected alternative.

Table 1. Activities Included in Alternatives

Element/Indicator (where to find more information on this topic)	Alternative 2 (Selected Alternative)	Alternative 1 (No Action)	Alternative 3
Invasive Plant Treatment Methods	All treatment methods would be included: manual, mechanical, biological, cultural, chemical. Herbicide use would be allowed in most situations as part of an integrated prescription on 15,602 acres. Currently, about 679 acres would likely be treated using non-herbicide methods; otherwise, herbicide may be used in combination with other treatment methods.	No new actions; Forest would complete current projects including about 6,000 acres of integrated projects. All treatment methods are included: manual, mechanical, biological, cultural, chemical. Limited suite of herbicides are currently approved.	All treatment methods. About 4,946 acres would include herbicide use. 10,785 acres of current infestations would not meet include herbicide use; these areas would be treated using non-herbicide methods.
Annual Treatment Cap	16,281 acres	None	16,281 acres
Early Detection Rapid Response	Yes, future infestations treated according to PDFs	No	Yes, future infestations treated according to PDFs, herbicide use restricted to criteria;
Forest Plan Amendment to Add Aminopyralid to List of Approved Herbicide Ingredients	Yes	No	Yes

Alternative 1 – No Action

Invasive plant treatments are currently occurring from several Forest-wide and individual invasive plant treatment NEPA decisions. Under the No-Action Alternative, some invasive plant treatments would continue to occur under existing documents. The Forest-wide treatment projects would be phased out and within a couple years, existing individual projects and connected actions would be completed. Invasive plant treatments would not otherwise be conducted except as authorized under future NEPA decisions.

On the Okanogan National Forest, invasive plant treatment has occurred via three Forest-wide decisions (1997, 1999 and 2000) approving use of picloram and glyphosate on specific sites. On the Wenatchee National Forest, invasive plant treatment has occurred via one Forest-wide decision approving dicamba, picloram, triclopyr, glyphosate on specific sites. The use of dicamba was discontinued when the R6 PNW ROD was signed in 2005.

Why Alternative 1 was not selected

I did not select Alternative 1 because our ability to meet objectives to eradicate, control or contain invasive plants would be severely limited on the majority of sites due to the limitations in the existing NEPA documents and the lack of adequate coverage of known sites (FEIS Chapter 3.2.4). Threats to native vegetation would have been greatest in this alternative. Those native plant communities most vulnerable to invasive plants (dry forest and shrub steppe) and those near very

aggressive invasive plants (such as whitetop) would be most adversely affected through direct competition for water and resources, changes in microhabitat, and direct suppression and mortality (FEIS Chapter 3.3.4). The No Action alternative could result in a substantial loss of habitat over time for several wildlife species (FEIS Chapter 3.7.4.). As habitats become more and more dominated by invasive plants, they would not be used, or used less, by native and rare wildlife species.

Under Alternative 1 many high priority riparian sites would continue to be occupied by invasive plants, degrading the riparian condition. No EDRR would be authorized, jeopardizing timely and effective treatment on new sites, potentially in riparian areas (FEIS Chapter 3.5.4). Lack of response to current and expanding invasive plant populations would lead to increasing risk from invasive plants to important aquatic habitats (FEIS Chapter 3.6.4).

Alternative 1 would allow about 6,000 acres to be treated as authorized under current NEPA. The majority of infested acres of invasive plants would not be treated and would likely continue to spread. Many of the acres treated under existing decisions are within grazing allotments and as invasive species continue to spread via common dispersal methods, rangeland resources could become more degraded (FEIS Chapter 3.6.4).

Many of the known invasive plant populations are located in areas where recreation is concentrated and the ground is disturbed. If invasive plants spread throughout these heavily used recreational areas, they would replace native plants with invasive species. Thus, many areas would not meet the Visual Quality Objectives set in the Forest Plans (FEIS Chapter 3.10.4). Because of the current infestations of invasive species along roads and at wilderness trailheads, it is likely that new populations and species would be introduced in to wilderness, similarly degrading wilderness character, scenery and recreational experience.

After 5 years of treatment under Alternative 1 about 12,960 acres are predicted to remain (FEIS Chapter 3.12.4). The Forest Service would not meet objectives and policies regarding invasive plant management (ibid.).

I acknowledge that Alternative 1 involves the least potential extent of herbicide use since no additional treatments would occur. However, the risks associated with herbicide use remain low in the action alternatives. And, herbicides with lower potential for environmental effects than those allowed under Alternative 1 are available under the action alternatives.

Alternative 3 – Reduced Herbicide Use

Alternative 3 is described in detail in Chapter 2.2.2 of the FEIS. Alternative 3 was developed to evaluate the tradeoffs involved with restricting the use of herbicides based on invasive plant biology, availability of biocontrols, and infestation size.

All of the PDFs, herbicide use rates, and herbicide-use buffers associated with Alternative 2 would have been applied.

Why Alternative 3 was not selected

Alternative 3 would increase treatment options on a portion of the current inventory, but herbicide would not be used for the majority of current infestations. This would increase the relative cost of treatment and allow for fewer acres to be treated assuming a constant budget. While Alternative 3 allows for EDRR, the restrictions in herbicide use would increase cost of treatment and reduce potential EDRR effectiveness. Given current budgets, Alternative 3 could take 20

years or longer to achieve treatment objectives. Without additional funding, the objectives for invasive plant treatment would not have been met over the life of the project (FEIS Chapter 3.2.4). If sufficient funding is not available, Alternative 3 would be more similar to No Action than Alternative 2, with the majority of infested acres untreated.

If treatments are not effective, habitat occupied by invasive plants would continue to reduce the amount of habitat available to natives, and invasive plants growing next to native plants would be directly competing for resources. If less effective treatments would be used because herbicides are not allowed, a reduction of habitat, direct competition for resources leading to reduction in health, vigor and reproduction, changes in habitat (shading reduction, soil temperature increase, reduced moisture availability, allelopathy) and possible mortality to botanical species of concern could occur (FEIS Chapter 3.3.4). Ineffective treatment could mean that the adverse effects of invasive plants would continue over most infested riparian areas. Many high priority riparian sites would continue to be occupied by invasive plants, degrading the riparian condition (Chapter 3.5.4). This could eventually degrade fish habitat (Chapter 3.6.4).

I am not selecting Alternative 3 because it would have been more costly and less effective, and would not meaningfully reduce risk to people and the environment from herbicides. Alternative 3 would deviate from integrated weed management concepts by eliminating some necessary tools for effective treatment. I acknowledge that compared to Alternative 2, less acres would be subject to herbicide application. However, over time, I believe the higher treatment costs associated with Alterantive 3 will result in more acres going untreated, which could lead to increased invasive plant spread and greater treatment needs, including herbicide, in the future. I believe that treating with the most effective method that minimizes risk of adverse effect (Alternative 2) is the most prudent course of action.

The following table compares the alternatives in terms of response to the public issues identified from scoping and shows where in the EIS more information on this topic is available.

Table 1.1: Alternative Comparison Table

Issue ID	Element/ Indicator (where in EIS to find more information on this topic)	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3
1A	Exposure scenarios that result in hazard quotient values greater than 1 for worker and public health (Chapter 3.9.4)	None, limited use of triclopyr	HQ > 1 for public based on consumption of vegetation contaminated with triclopyr. This is very unlikely to occur, triclopyr is the first choice herbicide for about 90 acres of scotch broom, scattered across 30 sites. People are unlikely to consume contaminated scotch broom.	Same as Alternative 2
1A	Measures to reduce public and worker exposure to herbicides (Chapter 2.2.2)	Existing herbicide use follows applicable laws, policies and plans; limited herbicide use, older chemistry	Limited herbicide use rates; herbicide use buffers near streams, wells and springs; and public notification. Use of aminopyralid poses very low risk, comparable or less relative risk to human health when compared to herbicides used under No Action	Same as Alternative 2, less use of herbicides overall (about one-third of infestations meet criteria).

Issue ID	Element/ Indicator (where in EIS to find more information on this topic)	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3
1A	Human Health Risk Ranking (Chapter 3.9.4)	Very Low Risk – low acreage treated using herbicides and no additional herbicide use	Low Risk – risk abated by project design, adherence to policy, Forest Plan standards	Very Low Risk – low acreage treated using herbicides and risk would be further abated by project design, adherence to policy, Forest Plan standards.
1B	Extent of herbicide use associated with hazard quotient values greater than 1 for Wildlife (Chapter 3.7.4) (Table 2.3) .	HQ > 1 for plausible exposure scenarios for birds and mammals exposed to triclopyr and glyphosate. Limited use of herbicides on small, scattered sites over 6,000 acres.	HQ > 1 for plausible exposure scenarios for birds and mammals exposed to triclopyr and glyphosate. Triclopyr is the first choice herbicide for about 90 acres of scotch broom, scattered across 30 sites. This small amount of selective treatment (no broadcast) is unlikely to result in adverse wildlife exposure. Glyphosate is not the first choice for any acres, and any future use is unlikely to result in adverse wildlife exposure.	Same as Alternative 2, criteria to reduce potential herbicide use by only using herbicide on larger infestations and specific target species.
1B	Measures to reduce wildlife exposure to herbicides (Chapter 2.2.2)	Existing herbicide use follows applicable laws, policies and plans; limited herbicide use, older chemistry	Project design features for riparian protection (ARBO II); limited herbicide use rates; managing chemical persistence in the soil; maintaining refugia in lake and wetland habitats; herbicide use buffers near streams, wells and springs; protection of non-target plants; minimizing disturbance to wildlife	Same as Alternative 2, criteria to reduce potential herbicide use by only using herbicide on larger infestations and specific target species.
1B	Wildlife Risk Ranking (Chapter 3.7.4)	Very Low Risk, Lowest Benefit (low acreage treated, highest potential for spread)	Low Risk, Greatest Benefit (PDFs protect wildlife, most cost-effective treatment)	Low Risk, Moderate to Low Benefit (PDFs protect wildlife, less cost-effective treatment)
1B	Effects on special status species (Chapter 3.7.5)	No new effects, no new consultation	This project may affect (but is not likely to adversely affect) the following federally listed species: wolf, lynx, bear, owl and murrelet. This project may impact (but not jeopardize viability of) several special status invertebrate species.	Same as Alternative 2

Issue ID	Element/ Indicator (where in EIS to find more information on this topic)	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3
1C	Measures to reduce risk to non-target plants (Chapter 2.2.2)	All existing projects include measures to protect non-target plant species.	Project Design Features I-2 and I-3 protect non-target plants, particularly species of botanical concern.	Same as Alternative 2
1C	Botanical Resource Risk Ranking (Chapter 3.2.4) (Chapter 3.3.4)	Risk to native plants and plant communities greater from invasive plants than treatment, thus no action with least effective treatment poses greatest risk to botanical resources.	Greatest potential benefit to native plants and plant communities via effective treatment of invasive plants. Low risk of harm from treatment methods.	Moderate potential benefit to native plants and plant communities where treatments are effective; however less than Alternative 2 because it is less likely to be cost-effective and fewer acres would be treated assuming a limited budget.
1D	Measures to prevent herbicides from building up in soil (Chapter 2.2.2)	No issues with herbicide build up in soil observed as a result of implementing existing treatments.	PDF's provide guidance on treatment frequency to reduce potential for herbicide to build up in soil.	Same as Alternative 2, less herbicide use overall
1D	Relative risk to soils biology (Chapter 3.5.4)	No impact to soil biology observed as a result of implementing existing treatments.	Low risk to soil biology due to methods and herbicide ingredients approved and PDFs; likely no impact.	Same as Alternative 2
1D, E	Measures to prevent herbicide from entering water and affecting beneficial uses and aquatic organisms (Chapter 2.2.2)	Herbicide use buffers are associated with treatment of existing infestations	Alternative incorporates herbicide use buffers and other design features associated with ARBO II, limiting broadcast and use of herbicides posing higher risk to the riparian/aquatic environment near streams. In addition, PDFs protect wetlands, lakes, ponds springs and wells.	Same as Alternative 2, less herbicide use in riparian and other areas
1D	Relative risk to beneficial uses of water (Chapter 3.6.4)	Current treatments have not resulted in adverse effects to beneficial uses.	Low to no risk to beneficial uses; drinking water, aesthetic value and fisheries protected	Same as Alternative 2, less herbicide use in riparian and other areas

Issue ID	Element/ Indicator (where in EIS to find more information on this topic)	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3
1E	Relative Risk to Fish (Chapter 3.7.4)	Glyphosate, picloram and triclopyr are all associated with greater risk to fish. These herbicides are approved in current NEPA documents. Current treatments have not resulted in adverse effects to fish or the aquatic environment. Completing current projects is unlikely to adversely affect the aquatic environment.	Low to no risk to the aquatic environment. Following ARBO II terms and conditions would minimize risk of adverse effects to fish. Glyphosate, picloram and triclopyr are all associated with greater risk to fish. These would be used less frequently compared to other herbicides. Invasive plant treatments within the range of federally listed fish species fall under a class of actions that may affect and are likely to adversely affect the listed species (LAA). The ARBO II covers expected take and all activities in this project would be conducted consistent with ARBO II terms and conditions. Effects to critical habitat of listed fish species is expected to be negligible.	Same as Alternative 2, less herbicide use in riparian and other areas
2A	Known Acres that may not be effectively treated given limitations on herbicide use or NEPA coverage (Chapter 3.2.4)	16,281	679	10,785
2A	Known Acres where All Tools are Available	6,000	15,602	4,946
2A, B	Acres Remaining after Five Years with Unlimited Funding (Chapter 3.2.4) (Chapter 3.12.4)	12,960	27	337 Please note that this alternative costs over 3 times as much as Alternative 2. Assuming current funding levels, this alternative would take 20 years to accomplish.

Issue ID	Element/ Indicator (where in EIS to find more information on this topic)	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3
2A, B	Years to Meet Treatment Objectives (Known Sites) Assuming Current Funding (Chapter 3.2.4) (Chapter 3.12.4)	Treatment objectives would not be met on the majority of known sites.	Given current budgets, the Proposed Action would take at least 6 years or longer to achieve all goals. The initial years of implementation, only a portion of the existing infestations would likely be treated, especially if treatment of new infestations takes priority. However, over the life of the project, the objectives for invasive plant treatment could be met.	Given current budgets, Alternative 3 could take 20 years or longer to achieve treatment objectives. Without additional funding, the objectives for invasive plant treatment would not likely be met over the life of the project. The project effectiveness would be commensurate with no action if treatments are not affordable.
2B	Estimated cost of fully treating existing infestations assuming unlimited funding (Chapter 3.2.4) (Chapter 3.12.4)	$1,199,900 for 6,000 acres covered under current NEPA. 10,281acres would be left untreated.	$2,055,500 for all 16,281 acres	$7,115,400 for all 16,281 acres
2B	Estimated Average Cost Per Fully Treated Acre (includes re-treatment) (Chapter 3.2.4) (Chapter 3.12.4)	$200	$126	$437
3	Number of seasonal jobs to treat all acres in a single year (unlimited funding) (3.12.4)	14	39	86

Issue ID	Element/ Indicator (where in EIS to find more information on this topic)	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3
4	Ranking of alternatives relative to scenic value (3.11.4)	Short term, least browning of target plants visible along roads and in special areas. Long term, most risk of degradation of scenic quality from spread of invasives.	Short term, most likely to result in browned target plants visible along roads and in special areas. Long term, best chance of restoration of native vegetation and maintenance of scenic quality.	Similar to Alternative 1 under a limited budget, Similar to Alternative 2 under an unlimited budget.

Findings Required by Laws and Regulations

This decision to implement the Okanogan-Wenatchee National Forest Forest-wide Site-specific Invasive Plant Management Project is consistent with the intent of the forest plans' long term goals and objectives listed in the Wenatchee Forest Plan and the Okanogan Forest Plan, and in amendments to the Forest Plans since 1990:

- Final Supplemental Environmental Impact Statement on Management of Habitat for Late Successional and Old-growth Forest Related Species Within the Range of the Northern Spotted Owl, as adopted and modified by the April 1994 Record of Decision, which provides additional standards and guidelines (USDA FS, USDI BLM 1994), and commonly known as the ROD, or the Northwest Forest Plan (NWFP).
- Record of Decision for the Pacific Northwest Region Invasive Plant Program: Preventing and Managing Invasive Plants (R6 2005 ROD).

National Forest Management Act

A Forest Plan amendment would be implemented with this decision. The 2012 Planning Rule (36 CFR Part 219) allows plan amendments to be made using the procedures from the 1982 planning regulations during the 3-year transition period (36 CFR § 219.14 (b)(2)). Under the 1982 planning regulations, four factors are to be used when determining whether a proposed change to a Forest Plan is a significant amendment. The four factors are:

1. Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management.
2. Adjustments of management area boundaries or management prescriptions resulting from further on-site analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management.
3. Minor changes in standards and guidelines.
4. Opportunities for additional projects or activities that will contribute to achievement of the management prescription.

This Forest Plan amendment enhances the agency's ability to address invasive species management objectives but does not alter multiple-use goals and objectives on the OKAWEN National Forest to any extent. This Forest Plan amendment does not change any Forest Plan management area boundaries or management prescriptions on the OKAWEN National Forest. The Forest Plan amendment authorizes the use of a registered herbicide, aminopyralid. This herbicide is not currently listed among the ten herbicides approved by the Regional Forester in 2005 (R6 2005 ROD). The Risk Assessment for aminopyralid (SERA 2007) was completed subsequently and demonstrates that use of this herbicide will not pose new or significant risks compared to the ten already approved. Aminopyralid is generally a lower risk herbicide and the proposed use will not pose additional risks to human health or the environment. This Forest Plan amendment allows more effective and efficient treatment of invasive plants by adding aminopyralid to the list of approved herbicides on the OKAWEN National Forest. Aminopyralid is an herbicide that is very effective for many of the invasive plant species found within the OKAWEN National Forest. It was developed specifically for wildland use and is effective at low rates. Authorizing the use of aminopyralid will not foreclose on opportunities for additional projects or activities that will contribute to achievement of the management prescription. It will make those projects more effective in controlling invasive plants.

Endangered Species Act of 1973

My decision is consistent with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544, 87 Stat. 884). Consultation has been completed with the NMFS and is nearing completion with USFWS.

Plants

The Botanist found that the proposed action "May Affect but is Not Likely to Adversely Affect" Hackelia venusta, Sidalcea oregana ssp. oregana var. calva, and Spiranthes diluvialis. The botanist found "No Adverse Effects" to critical habitat for Sidalcea oregana ssp. oregana var. calva and "No Effect" to Howelia aquatilis. The proposed action is "Not Likely to Jeopardize the continued existence" of Pinus albicaulis.

Fish

Consultation with the US Fish and Wildlife Service and National Marine Fisheries is under the 2013 Aquatic Restoration Biological Opinion (ARBO2 II). Invasive plant treatments within the range of federally listed fish species fall under a class of actions that may affect and are likely to adversely affect the listed species (LAA). ARBO II notes that the best available indicators for the extent of take due to the proposed invasive plant control is the extent of treated areas, i.e., less than, or equal to, 10% of the acres with a Riparian Reserve or RHCA within a 6th-field HUC/year (pg 172). ARBO II findings about take assume we will follow the design features and monitoring protocols described in the FEIS.

Wildlife

In consideration of the direct, indirect, and cumulative effects, the proposed activities, the wildlife biologist found that the project "May Affect, but are not Likely to Adversely Affect " the northern spotted owl, Canada lynx, marbled murrelet, grizzly bear, and gray wolf. The project has a low likelihood of herbicide exposure to wildlife and low level of disturbance from human activities. The wildlife biologist found "No Effect" to designated critical habitat for the northern spotted owl and Canada lynx. There will be no jeopardy to the North American wolverine.

Wilderness Act of 1964

My decision is consistent with the Wilderness Act of 1964 (16 U.S.C. 1131-1136; 78 Stat. 890).

Roadless Area Conservation Rule

My decision is consistent with the Forest Service's Roadless Area Conservation Rule (36 CFR Part 294, Subpart B, 66 FR 9, pp. 3244-3273, 1/12/2001). By utilizing the appropriate project design feature and treatment methods, it is anticipated invasive species infestations in inventoried roadless areas will be eliminated, reduced, and the rate of spread retarded.

Wild and Scenic Rivers Act

My decision is consistent with the Wild and Scenic Rivers Act (16 USC 1271-1287; 82 Stat. 906).

National Historic Preservation Act of 1966

My decision is consistent with the National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.; 80 Stat. 915) because it will have no potential to affect historic resources.

Migratory Bird Treaty Act of 1918 and Executive Order 13186

My decision is consistent with the Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; 40 Stat. 755) and Executive Order 13186. There will be no reduction in native vegetation, and all alternatives will help to reduce invasive plants and maintain migratory bird habitat.

Irreversible or Irretrievable Impacts

No irreversible or irretrievable uses of resources are associated with this project. This project restores native vegetation in areas where non-native plants have been introduced. Herbicide treatments in accordance with the alternatives will have relatively short-lived impacts; effects on non-target species will be minimized; such effects will not be permanent. No adverse impacts on roadless areas or degradation of roadless area quality will occur.

Long-term Productivity

Soils will be protected in this project and no loss of long-term productivity is predicted. The no-action alternative could have negative impacts on long-term productivity if invasive plants become dense enough to change soil characteristics, and capacity for restoration to desirable plant communities is lost.

The natural resources issues associated with this project have been resolved through adherence to project design feature (PDFs) that reduce or eliminate the potential for adverse effects. However, some adverse effects are inherent to invasive plant treatments and cannot be avoided. These include:

- Taxpayers will likely be responsible for the costs of some if not all of the treatments.
- Herbicide toxicity exceeding thresholds of concern are unlikely, but possible in the event of a large herbicide spill. The PDFsmake the potential for a large spill extremely unlikely.
- Minor to moderate physical injuries during forestry work are possible.

- There may be temporary local effects on some groups of soil micro-organisms that are sensitive to certain herbicides. However, the PDFs address the potential for long-term impact to soil organisms or productivity.
- Some common non-target plants are likely to be killed by their close proximity to treatments. This is most likely with broadcast herbicide treatments and less likely (but possible) for all other treatment methods. The adverse effects of the invasive plants themselves far outweigh the potential for adverse effects of treatment.

Energy Requirements and Conservation Potential

No unusual energy requirements are associated with this project. No unusual equipment will be used.

Prime Farmlands

No prime farmlands will be adversely affected by this project. There could be a beneficial impact to the extent that the alternatives reduce the potential for invasive plant spread from the Mt. Baker-Snoqualmie National Forest to prime farmlands.

Executive Orders 11988 and 11990: Floodplains and Wetlands

Floodplains and wetlands will not be adversely affected by this project. As discussed in Chapter 3.4 of the FEIS, adverse effects to water quality and the beneficial uses of water will be negligible. The extent of treatment and potential for water contamination is low, and all alternatives are designed to protect water resources on the Mt. Baker-Snoqualmie National Forest.

Executive Order 13112: Invasive Species

This project specifically addresses the duties of federal agencies to manage invasive plants. Specifically:

> Sec. 2 (a)(2) (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them; and (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

Executive Order 12898: Environmental Justice

Executive Order #12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, directs federal agencies to address effects accruing in a

disproportionate way to minority and low income populations. FEIS, Chapter 3.2.3 discusses the potential impacts of this project on these groups. The R6 2005 FEIS noted that some minority groups may be disproportionately exposed to herbicides, either because they are disproportionately represented in the pool of likely forest workers, or in the pool of special forest product or subsistence gatherers. The R6 2005 FEIS suggested that Hispanic/Latino forest workers and American Indians are minority groups that could be disproportionately affected by herbicide use. On the Mt. Baker-Snoqualmie National Forest, Asian matsutake mushroom pickers and others who collect or use special forest products may also be disproportionately affected.

The potential exposures and effects to minority groups who apply herbicides or gather or use forest products are the same as those evaluated above under the worker and public herbicide exposure analysis sections of the FEIS (Chapter 3.2). Even given plausible inadvertent acute or chronic exposures, minority forest workers, special forest product harvesters, and subsistence gatherers are not likely to be exposed to a dose that exceeds a threshold of concern. MR/MM requiring public and tribal notification, use of dye in spray mixes, on-the-ground signing, and restrictions on herbicide and surfactant use will further reduce the potential for exposure.

Executive Order 13443: Facilitation of Hunting Heritage and Wildlife Conservation

This order was signed on August 16, 2007 and directs Federal agencies that have programs and activities that have a measurable effect on public land management, outdoor recreation, and wildlife management, including the Department of the Interior and the Department of Agriculture, to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat. The project is consistent with this order by improving wildlife habitat through the reduction of invasive plant infestations and the maintenance of native 2rowse.

Environmentally Preferred Alternative

Alternative 2 is the environmentally preferred alternative in accordance with Council on Environmental Quality (CEQ) regulations (40 CFR Part 1505.2 (b)). Alternative 2 is preferable because it will most effectively reduce the presence and influence of invasive plants on National Forest System lands. It will also do the most to protect and allow for re-establishment of native plant ecosystems that have been or are in danger of displacement by invasive plant populations. The FEIS acknowledges that this alternative most aggressively uses herbicides and herbicide application methods to accomplish the project purpose and need. This FEIS also prescribes PDFs, herbicide use buffers and other limitations necessary to ensure protection of the natural and human environment.

Pre-Decisional Administrative Review or Objection Opportunities

My decision selects a project or activity implementing a land management plan that is not authorized under the Healthy Forests Restoration Act of 2003 (Pub. L. 108-148, 117 Stat 1887). Therefore, my decision is subject to pre-decisional administrative review and objection pursuant to 36 CFR Part 218, subparts A and B. My decision includes a Forest Plan Amendment.

The Okanogan-Wenatchee National Forest Forest-wide Site-specific Invasive Plant Management Project was originally scoped under the provisions of 36 CFR Part 215. For this project, individuals or organizations who submitted specific, written comments in response to scoping conducted under 36 CFR Part 215 or provided comments to the draft environmental impact statement will be considered to have standing to object under 36 CFR Part 218, Subparts A and B.

Issues raised in objections must be based on previously submitted timely, specific written comments regarding the proposed project unless the issue is based on new information arising after the designated comment opportunities.

The following address should be used for objections sent by regular mail: Objection Reviewing Officer, USDA Forest Service, Pacific Northwest Region, Pacific Northwest Region, USDA Forest Service, Attn: 1570 Appeals and Objections, PO Box 3623, Portland, OR 97208-3623. Objections delivered by mail must be received before the close of the fifth business day after the objection filing period.

Objections sent by private carrier or hand delivery must go to: Objection Reviewing Officer, USDA Forest Service, Pacific Northwest Region, 1220 SW 3rd Avenue, Portland, OR 97204. Hand deliveries can occur between 8:00 AM and 4:30 PM, Monday through Friday except legal holidays.

Objections can be faxed to the Objection Reviewing Officer, Attn: 1570 Objections at (503)-808-2339. The fax coversheet must include a subject line with "Okanogan-Wenatchee National Forest Forest-wide Site-specific Invasive Plant Management Project" and should specify the number of pages being submitted.

Electronic objections must be submitted to the Objection Reviewing Officer via email to objections-pnw-regional-office@fs.fed.us. with "Okanogan-Wenatchee National Forest Forest-wide Site-specific Invasive Plant Management Project" in the subject line. Electronic submissions must be submitted in a format that is readable with optical character recognition software (e.g., MS Word, PDF, Rich Text Format) and be searchable. An automated response should confirm your electronic objection has been received.

The objection must meet the content requirements of 36 CFR § 218.8(d), and include the following information: 1) the objector's name and address, with a telephone number or email address, if available; 2) a signature or other verification of authorship upon request (a scanned signature for email may be filed with the objection); 3) when multiple names are listed on an objection, identification of the lead objector as defined in 36 CFR § 218.2 (verification of the identity of the lead objector shall be provided upon request); 4) the name of the project being objected to, the name and title of the responsible official, and the name of the National Forest and Ranger District on which the project will be implemented; 5) a description of those aspects of the project addressed by the objection, including specific issues related to the project and, if applicable, how the objector believes the environmental analysis or decision specifically violates law, regulation, or policy; suggested remedies that would resolve the objection; and supporting reasons for the reviewing officer to consider; and 6) a statement that demonstrates the connection between prior specific written comments on the particular project or activity and the content of the objection, unless the objection concerns an issue that arose after the designated opportunity for formal comment. With certain exceptions (36 CFR § 218.8(b)), all documents referenced in the objection must be included with the objection.

Objections, including attachments, must be filed within 45 days from the publication date of a "Legal Notice of the Opportunity to Object" for this project in the *Wenatchee World*, the newspaper of record (78 FR 241, p. 76101, 12/16/2013). Attachments received after the 45-day objection period will not be considered. The publication date in the newspaper of record is the exclusive means for calculating the time to file an objection. Those wishing to object this project should not rely upon dates or timeframe information provided by any other source.

It is the objector's responsibility to ensure timely filing of a written objection with the reviewing officer pursuant to 36 CFR § 218.9. All objections are available for public inspection during and after the objection process. Responses that do not adhere to these requirements make review of an objection difficult and are conditions under which the reviewing officer may set aside an objection pursuant to 36 CFR § 218.10.

Implementation

The Okanogan-Wenatchee National Forest Forest-wide Site-specific Invasive Plant Management Project may be implemented after the completion of the objection process and immediately upon my issuance of a signed Record of Decision. I will notify interested or affected parties of the availability of this ROD as soon as practicable after signing (36 CFR § 220.5(g)).

Contact Person

For additional information concerning this decision, the Forest Service pre-decisional administrative review and objection process, or to request additional copies of the FEIS or ROD, contact Brigitte Ranne, Project Coordinator by e-mail at invasiveplants@fs.fed.us or by telephone at 509-682-4941.

MICHAEL WILLIAMS
Forest Supervisor
Okanogan-Wenatchee National Forest

[DATE]

ATTACHMENT 1

Current Range of Treatment Method Options For Known Species

The Treatment Methods table (Table 1-1) displays the acreages and number of sites infested with each priority species, the range of effective treatment options, the preferred selected method or combination of methods and site-specific considerations important to the final prescription. The Treatment Methods table is based on "Common Control Methods" Appendix B, R6 PNW FEIS; information in Pacific Northwest Weed Management Handbook, Extension Services of Oregon State University, Washington State University, and the University of Idaho, 2008; and Nature Serve (www.natureserve.org).

Of the 9 herbicides proposed for use in this project, imazapic is not listed in the Treatment Methods table (Table 2.5) because currently, the Forest does not have an invasive plant species where imazapic would be the preferred herbicide. Imazapic would still be approved should a species which requires its use (such as leafy spurge) be located in the future. Other herbicides are not expected to be needed for current target species or likely new invaders.

Prior to treatment, a treatment prescription would be developed considering the target species and location. The appropriate integrated treatment methods, including herbicide ingredient and application methods, would be determined and appropriate design features would be incorporated into the prescription.

Table 1-1: Treatment Methods – Range of Effective Treatment Options and Site Specific Considerations by Target Species

Target Species Common Name (USDA PLANTS database code)	Acres and Number of Sites	Range of Effective Treatment Options
Baby's Breath (GYPA) *Gysophila paniculata* *Perennial*	All effective (IWM) methods available. Herbicide treatment is the preferred method: .2 acres 2 sites	Manual/Mechanical treatment can be effective on small populations by severing the crown from the roots by cultivation or hand-cutting to several inches below the soil. No biocontrols are available. Herbicide treatment is most effective with following priority: 1. Triclopyr TEA and Clopyralid 2. Glyphosate (aquatic formulation) **Riparian acres: 0** Effective herbicides within the aquatic influence zone: Aquatic Glyphosate
Bull Thistle (CIVU) *Cirsium vulgare* *Biennial*	All effective IWM methods available. Herbicide is the preferred method	Manual, mechanical and herbicide control are effective. Eliminating seed production is the most effective manual/mechanical control technique. Close mowing or cutting twice during the growing season or cutting plants with a sharp shovel at 1" to 2" below the soil surface before flowering is effective.

Target Species Common Name (USDA PLANTS database code)	Acres and Number of Sites	Range of Effective Treatment Options
	491 acres 413 sites	Biological controls exist but are very limited in Washington. Not expected to be available. Herbicide treatment is most effective. 1. Aminopyralid 2. Picloram or Clopyralid 3. Metsulfuron methyl **Riparian areas:** 30 acres within 234 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Aminopyralid, Aquatic Glyphosate
Canada Thistle (CIAR4) *Cirsium arvense* *Perennial*	All effective IWM methods available. Herbicide is the preferred method: 960 acres 425 sites	The only effective manual technique is hand cutting of flower heads, which only suppresses seed production. Covering with a plastic tarp may also work for small infestations. Biocontrols are available but with limited effectiveness. Herbicide treatment is most effective. 1. Aminopyralid 2. Clopyralid **Riparian areas:** 73 acres within 275 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Aminopyralid, Aquatic Glyphosate
Common burdock (ARLA3) (ARMI2) *Arctium minus* *Biennial*	All effective IWM methods available. Herbicide is the preferred method: 3 acres 23 sites	Seedlings may be dug when the taproot is small. Seeds must be bagged or burned. No biocontrols are currently available. 1. Metsulfron methyl 2. Picloram **Riparian areas:** 1.1 acres within 14 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Metsulfron methyl, Aquatic Glyphosate
Common Crupina (CRVU2) *Crupina vulgaris* *Annual*	All effective IWM methods available. Herbicide is the preferred method:	Manual/Mechanical – hand-pulling is effective on small infestations prior to seed set. No biocontrols are available. Herbicide treatment is preferred for dense infestations. 1. Aminopyralid

Target Species Common Name (USDA PLANTS database code)	Acres and Number of Sites	Range of Effective Treatment Options
	93 acres 15 sites	2. Clopyralid 3. Picloram **Herbicide Treatment in Riparian areas:** 3.1 acres within 4 sites. Effective herbicides within the aquatic influence zone: Aminopyralid, Aquatic Glyphosate
Common Tansy (TAVU) *Tanacetum vulgare* *Perennial*	All effective IWM methods available. Herbicide is the preferred method: 76 acres 84 sites	Repeated tillage or digging can be effective, but must be done frequently. . Effective manual control requires complete removal of the roots when soil is loose or moist. No biocontrols are available at this time. Herbicide treatment is most effective. 1. Metsulfuron methyl 2. Aminopyralid **Riparian areas:** 7.1 acres within 43 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Metsulfuron methyl, Aminopyralid.
Dalmatian/ Yellow Toadflax (LIDA) (LIVU2) *Linaria dalmatica, Linaria vulgaria* *Perennial*	All effective IWM methods available. Herbicide is the preferred method: Biocontrols may be used on larger sites in combination with herbicide use on the perimeters. 1589 acres 337 sites	Hand-pulling or digging can be effective. Cutting stems in spring or early summer would eliminate plant reproduction through seed, but not the infestation. To be effective non-herbicide treatments require long term persistence and are only feasible on relatively small infestations. Biocontrols are available. Herbicide treatment is most effective. 1. Picloram 2. Chlorsulfuron
Hairy cat's ear (HYRA3) *Hypochaeris radicata* L.	All effective IWM methods available. Herbicide is the preferred method:	Hand-pulling or digging is difficult as this plant has a deep taproot with several fibrous roots. No known biological controls currently available. Herbicide treatment is most effective. 1. Aminopyralid 2. Clopyralid

Target Species Common Name (USDA PLANTS database code)	Acres and Number of Sites	Range of Effective Treatment Options
Perennial	448 acres 57 sites	3. Glyphosate (aquatic formulation) **Riparian areas:** 30 acres within 38 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Aminopyralid, Aquatic Glyphosate
Hoary alyssum (BEIN2) *Berteroa incana* *annual, winter annual, biennial, or a short-lived perennial*	All effective IWM methods available. Herbicide is the preferred method: 135 acres 13 sites	Hand-pulling or digging prior to flowering may be effective for small infestations. No known biological controls currently available. Herbicide treatment is most effective. 1. Chlorsulfuron 2. Metsulfuron methyl 3. Imazapyr **Riparian areas:** 5.8 acres within 9 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Metsulfuron methyl, Aquatic Glyphosate
Hounds tongue (CYOF) *Cynoglossum officinale* *Biennial*	All effective IWM methods available. Herbicide is the preferred method: 2,588 acres 87 sites	Digging root crown 1-2 inches below soil surface can be effective. Cutting stems prevents seed production. No biocontrols are currently available in the United States. Herbicide treatment is most effective. 1. Metsulfuron methyl 2. Chlorsulfuron 3. Picloram 4. Glyphosate (aquatic formulation) **Riparian areas:** 132 acres within 60 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Metsulfuron methyl, Aquatic Glyphosate
Japanese knotweed (POCU6) **Cultivated knotweed (POPO5)** **Bohemian knotweed** *Polygonum cuspidatum* *Perennial*	All effective IWM methods available. Herbicide treatment part of initial method on all sites. 2.3 acres 3 sites	Cutting in combination with herbicide, or herbicide stem injection is most effective. No biocontrols are available. 1. Imazapyr 2. Glyphosate (aquatic formulation) **Riparian areas:** 0.1 acres within 1 site are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Imazapyr, Aquatic Glyphosate
Knapweeds	All effective IWM	Hand pulling/digging before seed production may be effective for small populations, however the entire root

Target Species Common Name (USDA PLANTS database code)	Acres and Number of Sites	Range of Effective Treatment Options
Spotted knapweed (CEBI2, CEMA4) *Centaurea biebersteinii* **Diffuse knapweed** (CEDI) *Centaurea diffusa* **Meadow knapweed** (CEPR2, CEDE5, CENI3) *Centaurea debeauxii* *Tap rooted Biennials, or Perennials*	methods available. Herbicide is the preferred method, may be used in combination with biocontrols on larger sites. CEBI2, CEMA4: 963 acres 285 sites CEDI: 4835 acres 1295 sites CEPR2, CEDE5, CENI3: 137 acres 35 sites	crown or the taproot must be removed. Digging rosettes in the spring can be effective. Biocontrols available for some knapweed species (R6 PNW FEIS Appendix H and White Paper-Spiegel, 2006) Herbicide with manual and mechanical treatment. Revegetate with desirable species, at high priority sites when possible. 1. Aminopyralid 2. Clopyralid, or Picloram 3. Glyphosate (aquatic formulation) **Riparian areas:** 543 acres within 1051 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Aminopyralid, Aquatic Glyphosate
Kochia (KOSC) (BASC5) *Kochia scoparia* *Annual*	All effective IWM methods available. Herbicide is the preferred method: 1 acre 1 sites	Pull or hoe prior to seed set. Mowing may be effective on smaller plants if all the above ground tissue is removed. No biocontrols are available. Herbicide treatment is most effective. 1. Chlorsulfuron 2. Metsulfuron methyl **Riparian acres: 0** Effective herbicides within the aquatic influence zone: Metsulfuron methyl, Aquatic Glyphosate
Leafy Spurge (EUES) *Euphorbia esula* *Rhizomatous perennial*	All effective IWM methods available. Herbicide treatment is the preferred method on all sites. 0 acre	Hand pulling is usually ineffective even for small isolated infestations. Repeated mowing or hand cutting may be used as a control of seed production, but it must be used in conjunction with herbicides for adequate control of stand expansion. Grazing by domestic goats or sheep may help control leafy spurge when long term grazing is a possibility. Biocontrols are available. Herbicide treatment is most effective. It is possible to eradicate small early detected populations with herbicides. Larger well established populations would require a long-

Target Species Common Name (USDA PLANTS database code)	Acres and Number of Sites	Range of Effective Treatment Options
	0 sites	term integrated management program requiring a combination of chemical, cultural, and biocontrol. Multiple treatments per year are required. 1. Picloram (initial treatment) 2. Glyphosate or Imazapic (follow up treatments) **Riparian acres: 0** Effective herbicides within the aquatic influence zone: Aquatic Glyphosate
Orange Hawkweed (HIAU) (HIPR) *(Hieracium pratense)* **Meadow Hawkweed** (HICA10) *Hieracium caespitosum* *Perennial*	All effective IWM methods available. Herbicide treatment on all sites: HIAU 161 acres 62 sites HICA 102 acres 53 sites	Manual control is ineffective. Hand seed with native species. No biocontrols are available. Herbicide treatment is most effective. 1. Aminopyralid 2. Clopyralid 3. Glyphosate **Riparian areas:** 8 acres within 27 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Aminopyralid, Aquatic Glyphosate
Oxeye Daisy (LEVU) *Leucanthemum vulgare* *Perennial*	All effective IWM methods available. Herbicide treatment on all sites: 901 acres 341 sites	Repeated hand pulling, digging, or mowing is effective to prevent seed production. Mowing must be repeated in the same growing season. Herbicide treatment or a combination of manual and herbicide treatment can be effective. No biocontrols are available. 1. Aminopyralid 2. Clopyralid **Riparian areas:** 80 acres within 199 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Aminopyralid, Aquatic Glyphosate
Puncture vine (TRTE) *Tribulus terrestris* *Annual*	All effective IWM methods available. Herbicide is preferred method: 0 acres 0 sites	Manual, mechanical or herbicide application can be effective. Biocontrol available. 1. Chlorsulfuron 2 Imazapic 3. Glyphosate **Riparian areas:** 0 Effective herbicides within the aquatic influence zone: Aquatic Glyphosate

Target Species Common Name (USDA PLANTS database code)	Acres and Number of Sites	Range of Effective Treatment Options
	Bio-control on larger sites. 0 acres 0 sites	
Purple loosestrife (LYSA2) *Lythrum salicaria* **Yellow loosestrife (LYSIM)** *Lysimachia* sp. *Perennial*	All effective IWM methods available. Herbicide treatment on all sites, in combination with bio-control on larger sites: 6 acres 1 site	Hand-removal is only recommended for small populations or isolated stems as the entire rootstock must be pulled out. A combination of manual/mechanical and herbicide treatments is most effective. Biocontrols available. 1. Imazapyr 2. Glyphosate (aquatic formulation) **Riparian acres: 6** Effective herbicides within the aquatic influence zone: Aquatic Imazapyr, Aquatic Glyphosate
Rush Skeletonweed (CHJU) *Chondrilla juncea* *Perennial*	All effective IWM methods available. Herbicide treatment on all sites. 0 acres 0 sites	Mechanical damage to plants stimulates new growth resulting in satellite plants. Manual, methods are not recommended. Rush skeletonweed is a deep rooted, rhizomatous perennial considered tolerant to herbicides. Therefore, an aggressive follow up program with repeated applications would be necessary. Difficult to apply herbicides because of small leaves. Biocontrols available. 1. Aminopyralid 2. Clopyralid **Riparian areas: 0** Effective herbicides within the aquatic influence zone: Aminopyralid, Aquatic Glyphosate
Russian Knapweed (CERE6) (ACRE3) *Acroptilon repens* *Perennial with adventitious shoots*	All effective IWM methods available. Herbicide in combination with mechanical, manual, and competitive planting is	Hand pulling is very difficult due to the extensive root system, but can be effective for small infestations during the establishment year only when the soil is wet and before seeds have formed. Lasting control requires an integration of techniques: mechanical, manual, herbicide and competitive plantings. No biocontrols are currently available. 1. Aminopyralid 2. Picloram 3. Clopyralid

Target Species Common Name (USDA PLANTS database code)	Acres and Number of Sites	Range of Effective Treatment Options
	preferred method: 4 acres 10 sites	**Riparian areas:** 0.2 acres within 3 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Aminopyralid, Aquatic Glyphosate
Russian thistle (SATR12 or SAIB) *Salsola tragus* *Annual*	All effective IWM methods available. Herbicide is the preferred method: 4 acres 1 site	Manual or mechanical removal of plant prior to seed set can be effective in small populations. Repeat visits to areas previously infested likely required. Herbicides are the most effective treatment. No effective biocontrols are available. 1. Chlorsulfuron 2. Metsulfuron methyl **Riparian acres: 0** Effective herbicides within the aquatic influence zone: Metsulfuron methyl, Aquatic Glyphosate
Scotch Broom (CYSC4) *Cytisus scoparius* *Perennial woody shrub*	All effective IWM methods available. Herbicide is the preferred method, with bio-control on larger sites 89 acres 28 sites	Hand pulling may be used to destroy seedlings or plants up to 1.5 meters tall after a rain when the soil is loose when the root system can be removed in its entirety. Where herbicides are used, manual treatments could be used for follow-up. Re-vegetate with desirable species. Biocontrols available. 1. Hand application of Triclopyr TEA 2. Picloram **Riparian areas:** 3.5 acres within 10 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Aquatic Glyphosate
Scotch/Musk Thistle (ONAC)/(CANU4) *Onopordum acanthium* *Biennial*	All effective IWM methods available. Herbicide is the preferred method: 143 acres 237 sites	Mowing can be effective when combined with revegetation of native species. Repeated mowing, in combination with other management methods, often is necessary for long-term control. Manual removal is effective when entire above ground plant growth is removed. No biocontrols are currently available in United States. Herbicide treatment is the most effective control. 1. Aminopyralid 2. Clopyralid **Riparian areas:** 7.8 acres within 34 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Aminopyralid, Aquatic Glyphosate
St John's Wort (HYPE)	All effective IWM	Hand pulling or digging of young plants in small, isolated infestations may be effective. Repeated treatments would

Target Species Common Name (USDA PLANTS database code)	Acres and Number of Sites	Range of Effective Treatment Options
Hypericum perforatum *Perennial*	methods available. Herbicide is the preferred method, used with bio-control on larger sites 1334 acres 347 sites	be necessary because lateral roots can give rise to new plants. Pulled or dug plants must be removed from the area and burned to prevent vegetative re-growth. Mowing is ineffective, but may discourage the spread of the plant if done before seeds form. Biocontrols available. Herbicide treatment is the most effective control. 1. Metsulfuron methyl 2. Aminopyralid 3. Picloram **Riparian areas:** 113 acres within 183 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Metsulfuron methyl, Aminopyralid
Sulphur cinquefoil (PORE5) *Potentilla recta* *Perennial*	All effective IWM methods available. Herbicide treatment is the preferred method on all sites: 501 acres 224 sites	Hand-pulling and mowing are not effective. No biocontrols are available. Herbicide treatment is the only effective control. 1. Aminopyralid 2. Picloram **Riparian areas:** 36 acres within 114 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Aminopyralid, Aquatic Glyphosate
Tansy ragwort (SEJA) *Senecio jacobaea* and other *Senecio* spp. *Tansy: Biennial or short-lived perennial* *Woodland: Annual*	All effective IWM methods available. Herbicide treatment on all sites, used in combination with bio-control on larger sites 18 acres 19 sites	Hand pulling is effective if done when soils are moist and the hole left behind is mulched. Mowing can prevent flowering, but may also increase rosette density Biocontrols available. Herbicide treatment is most effective. 1. Aminopyralid 2. Clopyralid **Riparian areas:** 0.6 acres within 9 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Aminopyralid, Aquatic Glyphosate
Whitetop (CADR) *Cardaria draba* *Perennia*l	All effective IWM methods available. Herbicide treatment is the preferred	Hand pulling of above ground plant parts is ineffective. No biocontrols are available. Herbicide treatment is most effective. Revegetate with desirable species.

Target Species Common Name (USDA PLANTS database code)	Acres and Number of Sites	Range of Effective Treatment Options
	method on all sites: 16 acres 56 sites	1. Chlorsulfuron 2. Metsulfuron methyl 3. Imazapyr (aquatic formulation) **Riparian areas:** 1.8 acres within 28 sites are proposed for chemical treatment in riparian areas. Effective herbicides within the aquatic influence zone: Metsulfuron methyl, Aquatic Glyphosate
Yellow starthistle (CESO3) *Centaurea solstitialis* *Annual*	All effective IWM methods available. Herbicide is the preferred method. 1.5 acres 3 sites	Manual removal is only effective in small patches or in maintenance programs where plants are sporadically located. All above ground stem material must be detached. The best time for manual removal is after plants have bolted but before they produce viable seed (early flowering). Mowing can be useful but timing is critical. Biocontrol available. Revegetate high priority sites if needed with desirable species. Herbicide treatment is most effective. 1. Aminopyralid 2. Clopyralid or picloram **Riparian acres: 0** Effective herbicides within the aquatic influence zone: Aminopyralid, Aquatic Glyphosate

Changes to treatment methods within known invasive plant sites are expected over time. Different combinations of treatment may be appropriate depending on the site conditions and treatment strategy at the time of treatment. Some sites may grow in size or density if treatment is deferred or is ineffective; other sites presumably would be reduced in size or density due to effective treatment. Field conditions at the time of treatment influences the choice of integrated treatment method. As long as the treatment method has been described in this EIS and the project design features, herbicide use buffers, and annual treatment caps are properly applied, treatments within or outside currently infested areas anywhere on the Forest may be treated. Treatment caps would include treatment of existing and new sites.

New species of invasive plants may be located in the project area in the future. As long as treatment methods described above are effective, and the project design features are appropriately applied, new species (within existing or new sites) may be treated.

Widespread species such as cheatgrass would not be prioritized for treatment and are not included in the acreage estimates. However, these species would not be considered non-target species and may be treated as long as all other project design features are followed and annual caps are observed. This would likely occur in special areas such as wilderness, or in conjunction with adjacent invasive plant treatments for higher priority target species.

Project Design Features (Mitigation Measures)

The Project Design Features (PDFs) were developed to minimize the potential adverse impacts of invasive plant treatments, and provide a framework for the EDRR strategy.

PDFs define a set of conditions or requirements that an activity must meet to avoid or minimize potential effects on sensitive resources. The PDFs were designed to mitigate impacts as a result of site-specific resource conditions within currently infested areas. PDFs are an integral component of the alternative, except where specifically noted, and therefore, when conditions dictate, implementation would be mandatory. Under the EDRR strategy, the applicable PDFs would also be applied to newly discovered infestations that are treated. The PDFs provide sideboards to ensure that the effects of treating new sites are similar to the effects of treating existing sites. The Okanogan-Wenatchee National Forest Herbicide Safety Plan (2005) would continue to be followed for all treatments.

Chemical label requirements and common best management practices for herbicide applicators are assumed to be followed and are not repeated herein.

ARBO II Design Features

The Aquatic Restoration Biological Opinion (II) was issued in 2013 (ARBO II, USFWS, NMFS); this document includes specific direction for invasive plant treatments that may affect critical riparian and aquatic habitats for species listed under the Endangered Species Act. This project incorporates ARBO II in full, although not all of the project design criteria and reporting requirements are repeated in this section. Unless otherwise indicated, these design features apply to the entire project area (as indicated below)

Project design features that are covered within the ARBO II include:

1. Use herbicides only in an integrated weed or vegetation management context where all treatments are considered and various methods are used individually or in concert to maximize the benefits while reducing undesirable effects. Non-native invasive plant control projects will not exceed 10% of acres within a Riparian Reserve under the Northwest Forest Plan (USDA and USDI 1994a) or RHCA under PACFISH/INFISH (USDA and USDI 1994b) within a 6th field watershed annually.

2. Carefully consider herbicide impacts to fish, wildlife, non-target native plants, and other resources when making herbicide choices.

3. Treat only the minimum area necessary for effective control. Herbicides may be applied by selective, hand-held, backpack, or broadcast equipment in accordance with state and federal law and only by certified and licensed applicators to specifically target invasive plant species.

4. Herbicide application rates will follow label direction, unless site- specific analysis determines a lower maximum rate is needed to reduce non-target impacts.

5. An herbicide safety/spill response plan is required for all projects to reduce the likelihood of spills, misapplication, reduce potential for unsafe practices, and to take remedial actions in the event of spills. Spill plan contents will follow agency direction.[2]

6. Pesticide applicator reports must be completed within 24 hours of application.

7. Herbicide adjuvants – When recommended by the label, an approved aquatic surfactant would be used to improve uptake. When aquatic herbicides are required, the only surfactants and adjuvants permitted are those allowed for use on aquatic sites, as listed by the Washington State Department of Ecology: http://www.ecy.wa.gov/programs/wq/pesticides/regpesticides.html. (Oregon Department of Agriculture also often recommends this list for aquatic site applications). The surfactants R-11, Polyethoxylated tallow amine (POEA), and herbicides that contain POEA (e.g., Roundup) will not be used. More information about adjuvants is in Chapter 3.1.[3]

8. Herbicide carriers – Herbicide carriers (solvents) are limited to water or specifically labeled vegetable oil.

9. Herbicide mixing – Herbicides will be mixed more than 150 feet from any natural waterbody to minimize the risk of an accidental discharge. Impervious material will be placed beneath mixing areas in such a manner as to contain any spills associated with mixing/refilling. Spray tanks shall be washed further than 300 feet away from surface water. All hauling and application equipment shall be free from leaks and operating as intended.

10. Herbicide application methods – Liquid forms of herbicides will be applied as follows:

    a) Broadcast spraying using booms mounted on ground-based vehicles.

    b) Spot spraying with hand held nozzles attached to back pack tanks or vehicles and hand-pumped sprayers to apply herbicide directly onto small patches or individual plants.

    c) Hand/selective through wicking and wiping, basal bark, frill (“hack and squirt”), stem injection, or cut-stump.

    d) Dyes or colorants, (e.g., Hi-Light, Dynamark) will be used to assist in treatment assurance and minimize over-spraying within 100 feet of live water.

11. Minimization of herbicide drift and leaching – Herbicide drift and leaching will be minimized as follows:

    a) Do not spray when wind speeds exceed 10 miles per hour to reduce the likelihood of spray/dust drift. Winds of 2 mph or less are indicative of air

[2] See the 2004 Forestwide Okanogan and Wenatchee Forest Herbicide Application Safety Plan in the project record.

[3] Please note that R-11 is a surfactant that contains NPE. NPE is not proposed for use anywhere within the project area. POEA is also not proposed for use anywhere within the project area. Additional surfactants beyond those approved for aquatic use on the Washington state list may be used in upland areas.

inversions. The applicator must confirm the absence of an inversion before proceeding with the application whenever the wind speed is 2 mph or less.

b) Be aware of wind directions and potential for herbicides to affect aquatic habitat area downwind.

c) Keep boom or spray as low as possible to reduce wind effects.

d) Avoid or minimize drift by utilizing appropriate equipment and settings (e.g., nozzle selection, adjusting pressure, drift reduction agents). Select proper application equipment (e.g., spray equipment that produces 200-800 micron diameter droplets [Spray droplets of 100 microns or less are most prone to drift]).

e) Follow herbicide label directions for maximum daytime temperature permitted (some types of herbicides volatilize in hot temperatures).

f) Do not spray during periods of adverse weather conditions (snow or rain imminent, fog, etc.). Wind and other weather data will be monitored and reported for all pesticide applicator reports.

g) Herbicides shall not be applied when the soil is saturated or when a precipitation event likely to produce direct runoff to fish-bearing waters from a treated site is forecasted by NOAA National Weather Service or other similar forecasting service within 48 hours following application. Soil-activated herbicides can be applied as long as label is followed. Do not conduct any applications during periods of heavy rainfall.

12. Herbicide buffer distances – The following no-application buffers— which are measured in feet and are based on herbicide formula, stream type, and application method—will be observed during herbicide applications (Table 1-2). Herbicide applications based on a combination of approved herbicides will use the most conservative buffer for any herbicide included. Buffer widths are measured as map distance perpendicular to the bank full for streams, the upland boundary for wetlands, or the upper bank for roadside ditches. A buffer of 0 means that there is no buffer.

Table 1-2: Herbicide Use Buffers from ARBO II

Herbicide	Perennial Streams and Wetlands, and Intermittent Streams and Roadside Ditches with flowing or standing water present			Dry Intermittent Streams, Dry Intermittent Wetlands, Dry Roadside Ditches		
	Broadcast Spraying	Spot Spraying	Hand Selective	Broadcast Spraying	Spot Spraying	Hand Selective
	Distance from surface water in feet					
Labeled for Aquatic Use						

Herbicide	Perennial Streams and Wetlands, and Intermittent Streams and Roadside Ditches with flowing or standing water present			Dry Intermittent Streams, Dry Intermittent Wetlands, Dry Roadside Ditches		
	Broadcast Spraying	Spot Spraying	Hand Selective	Broadcast Spraying	Spot Spraying	Hand Selective
	Distance from surface water in feet					
Aquatic	100	*waterline*	*waterline*	50	0	0
Aquatic Imazapyr	100	*waterline*	*waterline*	50	0	0
Aquatic Triclopyr-TEA	***Not allowed***	15	*waterline*	***Not Allowed***	0	0
Low Risk to Aquatic Organisms						
Aminopyralid	100	waterline	waterline	50	0	0
Imazapic	100	15	*bankfull elevation*	50	0	0
Clopyralid	100	15	*bankfull elevation*	50	0	0
Metsulfuron-methyl	100	15	*bankfull elevation*	50	0	0
Moderate Risk to Aquatic Organisms						
Imazapyr	100	50	*bankfull elevation*	50	15	*bankfull elevation*
Chlorsulfuron	100	50	*bankfull elevation*	50	15	*bankfull elevation*
High Risk to Aquatic Organisms						
Picloram	100	50	50	100	50	50

Additional Project Design Features

Project design features have been in development for several years and have been refined over the years based on learning from other projects and incorporation of the 2013 ARBO II. However, the intent of the design features remains consistent and focused on meeting the R6 PNW ROD standards associated with invasive plant treatment.

The numbering conventions have been retained where possible for ease of tracking earlier iterations. Gaps in numbering have occurred where previous PDFs have been removed (generally because they are redundant with ARBO II or have been combined/refined based on regional experience).

B-1. Coordination with Others

To ensure that neighbors are fully informed about nearby treatments (particularly herbicide use) and to increase the effectiveness of treatments being undertaken on adjacent ownerships, work

[4] Lower risk formulations of glyphosate that do not contain POEA need not be labeled for aquatic use for infestations further than 100 feet of streams or other water bodies as defined in this table.

with owners and managers of neighboring lands to respond to invasive plants that occur across multiple ownerships. Coordinate treatments within appropriate distances based on invasive plant species reproductive characteristics, and current use of area. Enlist cooperation of permittees and discuss treatment plans on active allotments before treatment.

C-1. Invasive Plant Prevention

Clean vehicles and equipment that will leave the road prism before entering National Forest. Ensure that invasive plant materials are not transported between treatment areas.

E-2. Mechanical Equipment

Fueling of gas-powered equipment with tanks would not occur inside the RHCAs or Riparian Reserves (RRs) unless there is no other alternative.

F-4. Herbicide Use Rates

Table 1-3 lists the maximum rates of herbicide active ingredient that may be used. This provides the upper limit for the analysis in Chapter 3. The amount of herbicide applied to any given acre is likely to be less than this maximum depending on the size and density of the target species in the area. Local knowledge will be used to determine appropriate rates for each situation.

Table 1-3: Maximum Rate per Acre for Each Herbicide Active Ingredient

Active Ingredient	Pounds per Acre Maximum (per year)
Aminopyralid	0.09
Chlorsulfuron	0.09
Clopyralid	0.50
Glyphosate	4.00
Imazapic	0.13
Imazapyr	1.25
Metsulfuron methyl	0.075
Picloram	1.00
Triclopyr	2.00

H-5. Manage Herbicide Persistence in Soil

Do not use more than one application of imazapyr, metsulfuron methyl, or picloram on a given area in any two calendar years, except to treat areas missed during the initial application. Aminopyralid would not be broadcast in any area more than once per year. This would ensure that more persistent herbicides will not build up in the soil.

H-6. Lakes and Ponds

No more than half the perimeter or 50 percent of the vegetative cover or 10 contiguous acres around a lake or pond would be treated with herbicides in any 30-day period. This provides some untreated areas for some organisms to use as refugia.

H-7. Wetlands

Wetlands would be treated when soils are driest. If herbicide treatment is necessary when soils are wet, use aquatic labeled herbicides. Favor wicking or wiping treatment methods where effective and practical. No more than 10 contiguous acres or fifty percent of individual wetland areas would be treated in any 30-day period. This provides some untreated areas for some organisms to use as refugia.

H-8. Wells and Springs

Herbicide use would not occur within 100 feet of domestic wells or 200 feet of domestic spring developments. Use wicking, wiping or spot treatments within 100 feet of the water source for stock tanks. This protects water quality and grazing animals.

I-2. Surveys for Botanical Species of Concern

The Regional Forester's Special Status Species (RFSSS) list (2011) includes federally listed, federally proposed, sensitive and strategic species. In addition, many Northwest Forest Plan Survey and Manage species occur on the Forest. Together, RFSSS and Survey and Manage species are sometimes referred to as botanical species of concern, or special status species. Surveys would be conducted prior to treatment within suitable habitat for botanical species of concern. If surveys are not conducted, suitable habitat would be managed assuming the species of concern was present.

This is intended to meet policy for protecting native plants as per Forest Service Manual 2670 and applicable federally listed recovery plans; and the Northwest Forest Plan as amended.

I-3. Buffers for Botanical Species of Concern

Precautions would be taken to avoid any contact with botanical species of concern. Minimize trampling of native vegetation, especially within habitat for botanical species of concern. Herbicide would not be applied using the broadcast method within 100 feet of botanical species of concern. No spot treatment would be permitted within 10 feet of botanical species of concern (limited hand application may be approved). This is intended to meet Forest Service Manual 2670; recovery plans for federally listed species; and the Northwest Forest Plan, as amended.

These buffers are expected to fully protect botanical species of concern. The buffers will be monitored and increased if damage to special status species is observed. See monitoring section below.

I-4. Picloram Use within 50 Feet of Botanical Species of Concern

Picloram would not be used within 50 feet of botanical species of concern to ensure protection of emerging seedlings and potential non-target plant root uptake due to herbicide soil persistence.

J-1. Wolves, Lynx and Grizzly Bears

Treatments within 1 mile of active wolf and lynx dens would be timed to occur outside the season of occupancy (wolf-April 1 through June 30; lynx-May 1 through August 30). Treatments within 0.50 mile of occupied wolf rendezvous sites would be timed to occur outside the season of occupancy (April 1 through August 31) unless treatment activity is within acceptable ambient noise levels and human presence would not cause wolves to abandon the site (as determined by a local specialist). In grizzly bear core area, motorized vehicle (including ATVs) use will only be

permitted on open system roads. This PDF would minimize disturbance/impacts to wolves, lynx and bears.

J-2 Northern Spotted Owl

Project activity that creates noise above ambient levels (i.e. weed-eaters, mowers, etc.) would not take place within ¼ mile of a northern spotted owl nest site or an activity center whose status is unknown or un-surveyed nesting habitat within ¼ mile of maintenance level 1 roads between March 1 and July 31. Local knowledge may be used to adjust dates to site-specific conditions. This condition may be waived in a particular year if nesting or reproductive success surveys reveal that spotted owls are not nesting or no young are present that year (as determined by a local specialist). Waivers are valid only until March 1 of the following year. This would minimize disturbance to nesting spotted owls and protect eggs and nestlings.

J-3 Marbled Murrelet

Project activity that creates noise above ambient levels (i.e. weed-whackers, mowers, etc.) would not take place within ¼ mile of a marbled murrelet nest site or an activity center whose status is unknown or un-surveyed nesting habitat within ¼ mile of maintenance level 1 roads between April 1 and September 15. Local knowledge may be used to adjust dates to site-specific conditions. This condition may be waived in a particular year if nesting or reproductive success surveys reveal that marbled murrelets are not nesting or no young are present that year. Waivers are valid only until April 1 of the following year.

J-4 Bald Eagle

Treatment of areas generally within 450 meters of bald eagle nests would be timed to occur outside the nesting/fledgling season, which is generally January 1 to August 15. Local knowledge may be used to adjust dates, size and shape of distance buffers, to site-specific conditions. This only applies to treatment activity that creates noise above ambient levels and human presence that would cause eagles to abandon the nest (as determined by a local specialist). Occupancy of nest sites would be determined each year prior to treatment. This would minimize disturbance to nesting bald eagles and protect eggs and nestlings

Noise-producing activity above ambient levels would not occur between October 31 and March 31 during early morning or late afternoon within 450 meters of known bald eagle winter roosts and concentrated foraging areas. Disturbance to daytime winter foraging areas would be prohibited. This would minimize disturbance and reduce energy demands during stressful winter season.

J-5 Peregrine Falcon

Within 1.5 miles of nest sites, clopyralid and picloram use would be limited to once per year and once every other year respectively. This is intended to minimize risk of exposure to hexachlorobenzene (HCB).

Treatment of areas generally within 0.5 mile of peregrine nest would be timed to occur outside the nesting/fledgling period, which is generally March 1 through June 30. Local knowledge may be used to adjust dates, size and shape of distance buffers, to site-specific conditions. This only applies to treatment activity that creates noise above ambient levels and human presence that would cause peregrines to abandon the nest (as determined by a local specialist). Occupancy of

nest sites would be determined each year prior to treatment. This would minimize disturbance to nesting peregrine falcons and protect eggs and nestlings.

J-7 Larch Mountain Salamander (Plethodon larselli), Puget Oregonian (Cryptomastix devia), Shiny Tightcoil (Pristiloma wascoense) Chelan Mountain snail (Oreohelix n. sp.) Grand Coulee Mountain snail (Orehelix juni).

Within mapped high potential suitable habitat for Larch Mountain salamanders, Puget Oregonians, Shiny tightcoils, Chelan Mountain snails and Grand Coulee Mountain snails, do not broadcast spray herbicide; rather, utilize wiping, wicking and spot spraying methods. No broadcasting within ¼ mile of suitable un-surveyed habitat, rocky outcrops and talus.

Do not apply herbicides within occupied habitat for Larch Mountain salamanders, Puget Oregonians, Shiny tightcoils, Chelan Mountain snails and Grand Coulee Mountain snails (USDA Forest Service and USDI Bureau of Land Management 2008 and Burke 1999a and b).

These criteria are intended to reduce herbicide exposure to amphibians and mollusks.

Limit time of year invasive plant treatment occurs in occupied and un-surveyed habitat for Larch Mountain salamanders, Puget Oregonians, Shiny tightcoils, Chelan Mountain snails and Grand Coulee Mountain snails to when species are subterranean (restrict season to cold and dry times). This is intended to avoid trampling and applies to all treatment methods.

J-8 Masked Duskysnail (Lyogyrus n. sp. 2) Zigzag Darner (Aeshna sitchensis) and Subarctic Darner (Aeshna subarctica)

Do not broadcast spray herbicides within 100 feet of Fish Lake on the Wenatchee River Ranger District. Coordinate treatment method, timing annually with local biologist prior to invasive plant treatment in occupied habitat. This is intended to minimize herbicide exposure and trampling.

J-10 Mardon Skipper, Peck's Skipper, Tawny-edge Skipper, Meadow Fritillary, and Great Basin Fritillary

Do not use of ester formulations of herbicide and do not broadcast any herbicide in known Mardon, Peck's and tawny-edge Skippers, and meadow and Great Basin fritillary habitat. Use herbicides on no more than 50% of known sites in any one year. Coordinate treatment method, timing, locations, amount of habitat treated annually with local biologists. This is intended to minimize exposure to herbicides, surfactants, and trampling while effectively protecting and improving habitat.

J-11 Raptors

Active raptor nest sites should be protected from disturbance above ambient noise levels during the dates specified. Local biologists would determine appropriate distances for planned operations prior to implementation. This is intended to prevent disturbance to nesting raptors during the following periods:

Golden eagle	February 15 – September 1
Osprey	April 1 – August 31
Red-tailed hawk	March 1 – August 31

Northern goshawk	March 1 – September 31
Cooper's hawk	April 1 – August 31
Sharp-shinned hawk	April 1 – August 31
Prairie falcon	March 1 – June 30
Great gray owl	March 1 – July 31
Long-eared owl	April 1 – July 15
Great horned owl	February 15 – July 15

K-1 Public Notification

Notify the public about upcoming herbicide treatments via one or more of the following techniques: newspaper; Forest Service website, individual contact with sensitive individuals on the state list as requested; and signs posted in picnic areas, roadsides and campgrounds near treatment sites. Extra postings would occur when triclopyr is being applied in areas suspected to be special forest product or wild food gathering areas. This is intended to meet public notification requirements regarding herbicide use on National Forest and to specifically minimize inadvertent (and unlikely) public exposure to triclopyr (see Chapter 3.8).

L-1 Heritage Resources

A Forest Heritage Resource Specialist would assess whether manual or mechanical treatments have the potential to affect heritage resources on a site basis. Unless previously surveyed or in an area of previous ground disturbance, field inventories would be conducted in accordance with the Forest's heritage resource probability model and/or where heritage resources have been documented. Manual or mechanical treatments within the boundary of a heritage resource site would be monitored and documentation of each project would be in accordance with the Forest's 1997 Section 106 programmatic agreement. This is intended to avoid adverse impacts to heritage resources from manual and mechanical treatments.

Early Detection and Rapid Response Approach

New sites would be treated using integrated methods, anywhere within the project area, over the life of the project, according to the project design features and herbicide use buffers described in Chapter 2.2.2.Invasive plants are expected to spread at a rate that would theoretically result in an additional 17,566 acres of invasive plant infestations on the Forest over the next 15 years, for a cumulative total of 33,847 acres (when added to the existing mapped inventory).

Most spread is expected to occur near known infestations; however invasive species may spread to other locations on the Forest. The location of new sites is not predictable, however, the effects of treatment are predictable because similar treatments on similar sites would be expected to have similar effects, and the project design features, herbicide use buffers, and annual caps provide sideboards on the extent and intensity of treatment.

Combined treatment of known sites and sites added through EDRR would not exceed 16,281 infested acres per year, which are the current known acres of infestation. Defining this acreage "cap" allows the analysis in the EIS to proceed within well-defined parameters.

New infestations would be recorded and documented as discovered. Treatment methods for new infestations would be the same as those described for known infestations. Newly discovered infestations or sites would receive a high priority for treatment for eradication while the infestation is small and treated most effectively.

New invasive species that are not currently found may be detected within or outside currently infested areas. Treatment of new species may occur as long as the treatment method is similar to those described in this EIS for known species and PDFs/buffers are followed.

Treatments of new sites or species would be within scope of this project as long as the type of treatment has been analyzed and PDFs can be effectively applied.

Forest Plan Amendment

The first sentence of treatment and restoration standard 16 from the R6 PNW ROD would be amended to add aminopyralid to the list of allowed herbicides on the Okanogan-Wenatchee National Forest only, thereby amending both the Okanogan-Wenatchee National Forest's Forest Plans to allow use of aminopyralid under this decision.

Adding aminopyralid through a non-significant forest plan amendment is consistent with the goals of the R6 PNW ROD and was anticipated by standard #16, which states that "Additional herbicides and herbicide mixtures may be added in the future at either the Forest Plan or project level through appropriate risk analysis and NEPA/ESA procedures."

An herbicide risk assessment was completed in 2007 for aminopyralid (SERA 2007). Aminopyralid is one of the most effective herbicide on many target plants in the composite family, and has a lower potential for environmental and human health effects than the other broadleaf selective herbicides approved in the R6 PNW ROD (Bautista and Bulkin 2011).

Monitoring and Adaptive Management

The inventory and monitoring framework included in the R6 PNW ROD will be used. This framework describes the monitoring needed to assure that desired future conditions and treatment strategies are achieved. The framework includes implementation/compliance and effectiveness monitoring components. In addition, water quality best management practices for chemical uses near streams would be monitored according to national protocols. Monitoring would include the effectiveness of the treatments and their potential adverse effects. Various methods and combinations of methods may be tried over time until invasive plants are effectively treated and treatment sites are appropriately restored. Treatment prescriptions would be adjusted if unexpected adverse impacts are observed.

Implementation Planning

The following outlines the process that will be used to ensure that the selected alternative is properly implemented. It applies to invasive plant sites known and identified for treatment in the EIS as well as new sites found during inventory (Early Detection/Rapid Response). An invasive plant assessment review team will be assembled on each Ranger District as needed to ensure consistent and effective treatment is applied, appropriate Project Design Features are implemented, and necessary monitoring and reporting are completed. Team members and a team

leader will be assigned by the District Rangers, and will include fish and wildlife biologists, range conservationists and botanists as needed.

In order to find new invaders and new infestations each District will annually inventory road, trails, and vulnerable and disturbed areas. Employees would be trained to identify invasive plants and asked to report them to the invasive plant managers. Invasive plant surveys would be conducted project areas with planned ground disturbance, and in burned areas. New infestations would be recorded in the USFS NRIS database. Creation of volunteer weed watcher programs would be encouraged. Information about invasive plant infestations would be requested and collected from all Forest users including grazing permittees, recreationists, and hunters. Invasive plant managers would work closely with county weed boards to be kept apprised of infestations on private lands that could spread onto the forest.

For new sites to be treated under EDRR, describe density, type and number of species, and their extent using NRIS data forms. Ensure new invasive plant sites are entered into the NRIS database. Ensure that treatment prescriptions and site conditions are similar to those analyzed in this EIS.

For all treatment sites, identify and implement pre-treatment surveys as needed (e.g. survey and manage or TES plants). Develop prescriptions based on: Criteria associated with the selected alternative including limitations on herbicide use, Size of infestation, treatment history and response to past treatments; Proximity to sensitive species or habitats; Proximity to streams, lakes, or wetlands; Soil conditions; Domestic water intakes or position in municipal watershed; Recreation or special forest product uses, and Mineral Material source (in use or planned for use).

Early on, consider if active restoration (seeding of native species) will be required. The need for active restoration will be re-assessed during post-treatment monitoring. For active restoration sites, ensure acceptable plant are available before implementation.

Implementation/Compliance Monitoring

Implementation/compliance monitoring answers the question, “Did we do what we said we would do?” At the forest level, this would entail tracking of compliance with R6 PNW ROD treatment and restoration standards, compliance with the PDFs in this document, and implementation of the EDRR screening process. Monitoring steps include:

- Maintain and update the Forest inventory in the NRIS (or replacement) database.

- Document the EDRR evaluation and review process for new sites.

- Prepare a project work plan and pesticide use proposal (Form FS2100-2) as described in FSH 2109.14.

- Ensure contracts and agreements include appropriate prescriptions, herbicide ingredients and application rates label requirements, R6 PNW ROD standards 16 and 18, and PDFs.

- Obtain National Pollution Discharge Elimination System (NPDES) permits as needed to comply with the Clean Water Act.

- Document acres treated in riparian areas (total and as a percent of each 6th field watershed) and total acres treated each year on the Forest.

- Document invasive plant treatment accomplishments, implementation monitoring and herbicide use and certified applicator information in the National Pesticide Use Database, via the FACTS (or replacement) database.

Compliance monitoring would occur before implementation to ensure that prescriptions, contracts and agreements integrate appropriate Project Design Features. This would be done via a pre-work review.

Implementation monitoring would occur to ensure Project Design Features are implemented as planned. Contract administration mechanisms would be used to correct deficiencies. Pesticide use reports would be filed as required.

Effectiveness Monitoring and Adaptive Response

Effectiveness monitoring answers the question, "Were treatment and restoration activities effective?" At the Forest level, post treatment reviews would be used to determine whether invasive plant site objectives (eradicate, control, contain, or suppress) are being met, and whether passive or active restoration has occurred as expected.

At the Regional level, sample monitoring would evaluate the effectiveness of various measures, including R6 PNW ROD standards and PDFs designed to reduce potential adverse effects that pose a high risk to federally listed species. High risk projects are defined as those using aerial application of herbicide and the use of heavy equipment or broadcast application in riparian areas containing, or connected to, habitat for listed fish species, or in proximity to listed plants or butterfly habitat. No aerial treatment, heavy equipment use, or broadcast within 100 feet of streams is proposed in this project, therefore treatments meeting the high risk criteria would not occur. Limitations on annual extent of treatment and the scattered nature of the infestations further reduce risk as defined in the R6 PNW ROD Monitoring Framework and subsequent Monitoring Plan (USFS 2012).

The target for post-treatment monitoring is 50% of the acres treated. Treatments and treatment effectiveness would be recorded in the FACTS database. Forest-level monitoring also includes maintaining and updating the Forest inventory in the NRIS database, which would help track if infestations are spreading and if new infestations are found.

Retreatment and active restoration would be implemented based on post-treatment results. Changes in herbicide or non-herbicide methods would occur based on results. For instance, an invasive plant population treated with a broadcast herbicide may be retreated with a spot spray, or later manually pulled, once the size of the infestation is sufficiently reduced following the initial treatment.

Effectiveness monitoring would occur to ensure treatments have been effective and non-target vegetation was not impacted. Monitoring would occur before, during and after treatment to determine whether invasive plants are being effectively controlled and to ensure non-target vegetation, especially botanical species of concern are adequately protected. Treatment buffers would be expanded for the monitored site and all future treatment sites if damage or mortality is found.

Additional monitoring may be done as part of the R6 effectiveness monitoring program, Okanogan-Wenatchee National Forest annual monitoring plan, or other ongoing programs such as state water quality monitoring.

United States Department of Agriculture

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