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Record of Decision

Wallowa-Whitman National Forest Invasive Plants Treatment Project

Wallowa, Union, Baker, Malheur, Umatilla, and Grant Counties in Oregon
Adams and Nez Perce Counties in Idaho

Record of Decision

Invasive Plants Treatment Project

USDA Forest Service
Wallowa-Whitman National Forest
Baker, Umatilla, Union, Malheur, Wallowa, and Grant Counties in Oregon; and Adams and Nez Perce Counties in Idaho

Summary

Based on the Environmental Impact Statement (EIS) and project record, the decision is to implement Alternative B, which uses integrated manual, mechanical, herbicide, and cultural treatments on approximately 22,840 acres of mapped infestations, as well as on sites that may be detected in the future. Treatments will be completed following steps outlined in the Annual Implementation Planning process and Common Control Measures, according to Project Design Features and Herbicide Use Buffers that limit the extent and method of treatment appropriate to site conditions. In addition to these steps, the Early Detection, Rapid Response Decision Process will be followed for sites that may be detected in the future.

In 2005, the Pacific Northwest Regional Forester amended all Forest Plans in Region 6, adding new management direction, including an emphasis on early detection, and effective integrated treatment of invasive plants. This EIS has been prepared to allow the Wallowa-Whitman National Forest (Forest) to control invasive plant species using the amended Forest Plan direction. The purpose of the project is to bring the treatment program into compliance with the new standards, and allow for effective treatments on all sites currently mapped and those that may be detected in the future. Initial treatments will rely more heavily on herbicides; but the goal of this project as invasive plant objectives are met, is to reduce the use of herbicides over time.

Background

There is a need to arrest and reverse the spread of invasive plants to help restore ecological integrity on National Forest System lands. Invasive plant control is needed to maintain or improve the diversity, function, and sustainability of desired native plant communities and other natural resources that can be adversely impacted by invasive plant species. This is particularly warranted in the Hells Canyon National Recreation Area (HCNRA), which was established by an act of Congress to preserve and enhance the area's recreational and ecologic values. The native plant communities and biological integrity of the Forest and HCRNA are at risk from the impacts caused by invasive species. The purpose of this project is to: (1) implement treatment actions and site restoration to contain, control and eradicate the extent of invasive plants at existing inventoried sites, and (2) rapidly respond to new or expanded invasive plant sites as they are detected in the future, a strategy known as Early Detection, Rapid Response (EDRR). Left untreated, invasive plant populations will become increasingly difficult and costly to control, further degrading forest and grassland ecosystems, and could spread to neighboring lands.

Invasive species have been declared as one the four main threats to ecosystem health (USDA Forest Service 2003). Invasive plants are defined as *"non-native plants whose introduction do or are likely to cause economic or environmental harm or harm to human health"* (Executive Order 13112). Invasive plants displace or alter native plant communities and cause long-lasting economic and ecological problems within and outside the National Forests. Invasive plants increase fire hazard, degrade fish and wildlife habitat, eliminate rare and endangered plants, impair water quality and watershed health, and

adversely affect a wide variety of other resource values such as scenic beauty and recreational opportunities. With their strong reproductive and competitive abilities, invasive plants have spread rapidly across the land, unimpeded by ownership or administrative boundaries. For example, in 1988 on the Nature Conservancy's Garden Creek Preserve in Idaho, a few small patches of yellow star-thistle were noted in the low bench lands of the Salmon River. By 1994 star-thistle had infested about 2,000 acres of the 12,000-acre wilderness preserve (Asher 2009). Similarly, thirty miles east of Hells Canyon National Recreation Area the lower section of the Salmon River is infested with so much rush skeleton-weed that it is no longer practical to attempt control. Rush skeleton-weed is now moving into Baker County, and the HCNRA and other watersheds are at risk of becoming overrun.

At present, 40 invasive plant species are mapped on 1,740 sites encompassing approximately 22,840 acres across the Forest. Species of greatest concern include common bugloss, medusahead, knapweeds, yellow star-thistle, Dalmatian toadflax, common cuprina, Mediterranean sage, leafy spurge, meadow hawkweed, and rush skeleton-weed. These exotic plants pose a threat to important forest resources. Botanical species of local interest are threatened by invasive plants on approximately 80 sites. Fish habitat quality is being degraded by invasive plants in over 6,340 acres of riparian areas. Rangeland quality is being degraded. Tribal resources and subsistence gathering sites can be ruined by invasive plants. Wildlife habitat quality can be adversely affected as invasive plants out compete native plant species. Roadless areas, wilderness areas, wild and scenic rivers, and research natural areas are all high priority areas for treatment due to the importance of the resources at risk. Many current infestations occupy small areas less than one acre. For this reason, there is a need to control or eradicate these sites quickly before they grow too large, costly or impractical to manage. These infestations will likely continue to spread every year that an effective treatment is not applied.

In April 2005 the Pacific Northwest Region published the programmatic *Pacific Northwest Region Invasive Plant Program: Preventing and Managing Invasive Plants* FEIS (USDA Forest Service 2005a). The accompanying *Record of Decision for Invasive Plant Program Management* (USDA Forest Service 2005b) was published October 2005 (R6 2005 ROD). This decision amended all Forest Plans in the Region, adding new direction for containing, controlling or eradicating invasive plant species using prevention practices, various mechanical and hand treatments, and chemical treatments. The decision authorized the use of 10 herbicide active ingredients to effectively respond to invasive plant threats. The new herbicides offer many advantages over the more limited set of herbicides previously allowed, including greater target plant selectivity, less harm to desired vegetation, reduced application rates, and lower toxicity to animals and people.

The Wallowa-Whitman National Forest has been treating invasive plants according to direction in the *Wallowa-Whitman National Forest Environmental Assessment for the Management of Noxious Weeds* and Forest Plan Amendment 4 (USDA Forest Service 1992) and the *Wallowa-Whitman Management of Noxious Weeds Environmental Assessment* (USDA Forest Service 1994a), and the Forest Plan, as amended by the R6 2005 ROD. The two EAs identified approximately 5,000 acres for treatment of 21 invasive plant species. These decisions authorized the use of four herbicides; however, one, dicamba, has since been prohibited from use in the Pacific Northwest Region by the R6 2005 ROD. Neither EA decision authorized the treatment of newly detected infestations using herbicides. This management has not been effective because: 1) only about 20 percent of the current infested area is approved to be treated with herbicides, and 2) the three authorized herbicides do not effectively contain, control or eradicate the entire suite of invasive plants inhabiting the Forest.

Monitoring has shown substantial increases in invasive plant populations (USDA Forest Service 2002). The Forest treated approximately 7,200 acres between 1997 and 2001 (USDA Forest Service 2004a). Though some of the initial invasive plant sites identified in the 1992 and 1994 EAs have been successfully contained or controlled, many new sites have been discovered and some existing sites have grown. For example, in 1994 there were 773 invasive plant sites forest-wide compared to 1,740 sites at

present. Under the 1992 and 1994 EA decisions, newly detected sites could be treated using only manual or mechanical methods. These labor intensive methods sometimes have required multiple site visits each year. For some species these methods have not been effective, and because of the high costs of manual and mechanical methods, the Forest has not been able to treat every newly detected infestation, even where effective. Since 1994, the number of invasive plant sites has more than doubled, and the number of infested acres has nearly quadrupled. This documented expansion of invasive plants has established the overall ineffectiveness of the program direction provided with the decisions from the 1992 and 1994 EAs.

The purpose and need for action deliberately focuses on direct containment, control or eradication of invasive plants. Current prevention practices are guided by the *Wallowa-Whitman National Forest Weed Prevention Practices and Analysis Guidelines* (FEIS Appendix B). Additional prevention strategies identified in the R6 2005 FEIS and ROD have been adopted into the Forest Plan. These prevention strategies have been, and will continue to be, routinely applied during project planning and implementation. Portions of these strategies may be referenced in the FEIS; however, the analysis of these practices has not been duplicated with this project. Therefore, the purpose and need is directed toward treatment to contain, control or eradicate invasive plants.

Decision

Based on the Environmental Impact Statement and project record, I have decided to implement Alternative B, which will treat approximately 22,840 acres of inventoried invasive plant sites, and allow treatment of sites that may be detected in the future following a process known as Early Detection, Rapid Response (EDRR). This alternative includes all portions described in Chapter 2, including the Common Control Measures, Project Design Features (PDFs), Herbicide Use Buffers, EDRR Herbicide Use Decision Process, and the Annual Implementation Planning and Monitoring steps (ROD Appendix 1). Alternative B will apply an initial prescription, based on the Common Control Measures guide, along with follow-up treatment in subsequent years, until a site meets desired conditions. Individual treatments will be applied following the steps outlined in the Annual Implementation Planning and Monitoring process. This process includes incorporating all applicable PDFs and Herbicide Use Buffers into individual treatments. For most sites, herbicide treatments will be part of the initial prescription; but the goal is to reduce the reliance on herbicides over time as control objectives are met or populations become small enough to treat manually or mechanically. Alternative B incorporates all practicable measures to minimize environmental harm while effectively treating invasive plants.

Known invasive plant sites have been mapped; these maps can be viewed at the Wallowa-Whitman Forest Website (www.fs.fed.us/r6/w-w/projects/invasive-plants/maps/locator-map.shtml).

Table 1 below summarizes the key features of Alternative B. Details of Alternative B are located in this ROD -Appendix 1, and Chapter 2 of the FEIS.

Table 1. Summary of Alternative B

Activity	Approximate Value
Acres identified for treatment	22,842
Percent of total forest land base affected by inventoried sites	0.9%
Average maximum percent of total forest land base treated annually	0.33%
Percentage of sites where effective treatments are available	100%
Number of herbicides available for use	10
Acres of proposed herbicide treatments for known sites	20,776
Acres identified for aerial spraying of herbicides	875
Approximate total acres of ground based (hand or boom) broadcast treatments proposed for known sites*	16,660
Acres of hand or non-aerial broadcast treatments within riparian/wetland areas	3,104
Approximate total acres of non-broadcast (wicking, wiping, stem injection) herbicide application on known riparian/wetland areas	3,241
Acres of known invasive sites where treatment methods do not include herbicides	2,066
EDRR includes chemical methods other than aerial	Yes
Cost estimate per effectively treated acre of known sites	$307

*Most ground-based treatments will use backpack sprayers.

Invasive plant treatments will be capped at 8,000 acres annually and 40,000 acres for the life of the project. These caps include the sum of EDRR sites as well as known sites.

This decision responds to public concern expressing the need for timely containment, control, or eradication of invasive plants, including sites currently inventoried and sites that may be detected in the future. Project design features (PDFs) will be applied to new infestations that occur within treatment areas, and in similar sites outside known treatment areas, to ensure that treatments are within the scope of this EIS. Initial treatments may rely primarily on herbicides, but the goal of this project, as invasive plant objectives are met, is to reduce the use of herbicides over time.

Rationale for the Decision

When compared to the other alternatives, Alternative B best meets the purpose and need of this project to contain, control or eradicate invasive plants currently inventoried and those that may be discovered in the future. As pointed out in Table 1 above, Alternative B provides an effective treatment for 100 percent of inventoried sites. Specifically, Alternative B allows aerial herbicide treatment of 875 acres prohibited under Alternative D. Alternative B further allows the broadcast herbicide application treatment of about 3,000 acres in riparian areas prohibited under Alternative C. Both aerial application and riparian broadcast treatments are necessary to fully accomplish the project purpose and need.

Aerial application is needed because some inventoried sites are remote and foot travel in these areas is unsafe because of steep topography. If aerial application was not an available method, this analysis shows that we would not be able to treat 33 acres of Scotch thistle, and 842 acres of yellow star-thistle would instead have to be treated using ground based application methods or biological control. Leaving 33 acres of Scotch thistle untreated would likely facilitate the growth and infestation of adjacent areas by this noxious weed. To treat 842 acres of yellow star-thistle effectively in this area, people, herbicides and water would be transported long distances — some in wilderness areas — which would prove costly and potentially hazardous. Or, these sites, where safely accessible by foot, would instead be treated using biological control, a less effective method because of the time required to build up populations of the control agent (invertebrate plant feeders) to levels where damage or control is achieved. Most of the aerial application sites are in the Hells Canyon Wilderness (526 acres). The wilderness values in Hells Canyon

are very important to maintain and preserve; therefore, treating invasive plants in this wilderness area is a priority. To protect wilderness values, the most effective treatment method available is needed, which aerial application provides.

With aerial application comes a greater risk of herbicides drifting to water bodies or onto threatened, endangered and sensitive plants, including Hells Canyon endemic plants (SOLI – Species of Local Interest). To address these concerns this project will use 300-foot buffers to protect streams, wetlands and SOLI. In addition, 15 separate Project Design Features were developed to reduce the effects that may result from the aerial application of herbicides.

Broadcast application in riparian areas, whether by hand or boom, was proposed because this method of application is expedient, and with the use of herbicides that have residual properties, the control of invasive plants can be achieved with fewer follow-up treatments. Without broadcast application these sites would have to be treated with herbicides via spot application directly to invasive plants. Plants emerging from the untreated soil seed bank would require retreatment. Repeated treatments over multiple years would be needed to treat riparian areas, and effective control, containment or eradication may not be achieved at some sites. This project will use larger riparian buffers for broadcast application (100 feet) than for spot application (15-50 feet, depending on the herbicide) to reduce the potential of herbicide spray drifting to water bodies. The potential for drift is reduced further by prohibiting application when wind speed exceeds 8 miles per hour. The project FEIS shows no significant difference between action alternatives in the potential for herbicides to leach through soil to groundwater.

One of the greatest concerns is the use of herbicides near water bodies and in riparian areas. Recognizing that care is needed in these ecologically important areas, we have included a series of buffers, in addition to the project design features and common control measures, to further protect riparian areas and aquatic resources. These buffers (ROD Appendix 1, pp. 25-28) restrict the use of certain chemicals and application methods near perennial and intermittent streams, lakes and ponds. These precautions ensure that implementation of the selected alternative will meet all applicable laws, regulations and policies.

Table 2 compares the alternatives as they relate to the significant issues. Information in this table represents a summary of the analysis documented in detail in the FEIS and specialist reports.

Table 2. Alternative Comparison Relative to Significant Issues

Issue Component	Unit of Measurement	(No Action) Alternative A	(Proposed Action) Alternative B	Alternative C	Alternative D
1. Human Health					
1- There is concern by members of the public that exposure to herbicides may have serious human health consequences. Of particular concern is toxic chemical exposure and chemical contamination of drinking water.	Character of PDFs that apply to Human Health	Does not follow PDFs. Application of 3 chemicals allowed; limited by label instructions	Forest Plan standards and project design features eliminate plausible harmful exposure scenarios in all alternatives. The R6 2005 FEIS displayed herbicide exposure scenarios that could result in human health impacts (such as nausea, skin rash, breathing trouble) based on risk assessments. Worst case exposure scenarios for workers and the public were studied. This project does not involve any exposure scenarios of concern for people. Rates of herbicide and surfactant application are limited in the PDFs, which eliminate the worst-case scenarios that could hurt people. The only scenario of concern remaining is drinking out of a pond contaminated pond by a direct spill of large proportions. This is not likely to occur given all of the safeguards associated with the project. In addition, there are many PDFs related to coordination with landowners, tribal members, forest products gatherers,		

Issue Component	Unit of Measurement	(No Action) Alternative A	(Proposed Action) Alternative B	Alternative C	Alternative D
			and others to make sure inadvertent exposures do not occur. Public notification and sign posting would occur (see implementation plan).		
2 – Treatment Effectiveness					
2 - Limitations on the availability of treatment methods and herbicide options reduce the potential for invasive plants to be effectively treated.	Number of herbicide options	3	10	10	10
	Percentage of known sites where all effective treatments are available	0 (does not include new herbicides)	100	86	96
	Degree of limitation on integrated treatment options	5,172 acres treated chemically only after other methods shown to be ineffective. Very limited.	Least limited, allows for aerial and broadcast treatment where needed according to PDFs and buffers.	Second most limited, allows for aerial treatment of 875 acres. No broadcast herbicide applications allowed in Riparian, which decreases cost-effectiveness compared to Alternative B.	Second least limited, does not allow effective aerial treatment on 875 acres. This reduces the cost-effective of this alternative compared to Alternative B.
	Does not allow EDRR treatments	Allows EDRR treatments	Same as Alternative B	Same as Alternative B	Treatment of new infestations, including new invasive plant species found in the future (EDRR)
	Degree to which threats to botanical species of local interest are abated	Least likely to abate risks – treatment approved in 11 of 80 sites where invasives threaten species of concern.	Most likely to abate risks – treatment would be approved in all 80 sites where invasives threatened species of concern.	Same as Alternative B	Same as Alternative B
3. - Economic					
3 - Cost of each treatment acre influences the number of acres that can be treated with the same total budget.	Undiscounted Cost to Treat All Acres Proposed for Treatment One Time	$1,485,190	$5,601,390	$5,693,200	$5,863,880
	Cost per Effectively Treated Acre (Currently Inventoried Infestations)	$820	$307	$312	$334

Issue Component	Unit of Measurement	(No Action) Alternative A	(Proposed Action) Alternative B	Alternative C	Alternative D
4 – Non-Target Species					
4 - There is a concern that herbicide exposure, particularly when applied through aerial or broadcast spraying, may harm terrestrial wildlife species and non target plants.	Character of PDFs that apply to wildlife and plants	Herbicide exposure limited because herbicide treatment limited by only being used if non-herbicide treatments are ineffective; PDFs not specifically applied to this alternative	PDF Groups H, I and J are all intended to minimize exposure to wildlife and non-target plant impacts.	In addition to alternative B, herbicide exposure further minimized by eliminating broadcast applications methods in riparian areas	In addition to alternative B, herbicide exposure further minimized by eliminating aerial application of herbicides and the potential for associated drift
	Acres of broadcast spraying	5,172	17,535	14,431(no riparian broadcast spraying	16,660 acres potential maximum of ground-based broadcast methods
	Acres of Aerial Spraying	0	875	875	0
5 – Soil, Water Quality, Aquatic Biota					
5a-There is a concern that there may be potential adverse effects of herbicide treatment on soils and the potential for leaching into ground water.	PDFs that apply to soils to minimize or prevent these impacts	Herbicide options and treatments are limited.	PDF group H-4 through H-7 restrict use of clopyralid, chlorsulfuron, picloram and sulfometuron methyl due to their potential to impact soil biology and/or leaching	Same as Alternative B	Same as Alternative B
5b- There is concern of potential adverse effects of herbicide treatment on riparian areas; adversely impacting water quality and aquatic ecosystems.	Acres of broadcast herbicide application within riparian areas	1,932 acres of treatment in riparian areas.	3,104 acres of treatment in riparian areas. PDF group H and buffers (Tables 7-10) protect water and aquatic ecosystems	0	Same as Alternative B
	Acre of aerial treatment	0	875	875	0

Public Involvement

Public involvement has occurred throughout this NEPA process. Scoping began officially on April 13, 2006 when the Notice of Intent (NOI) to Prepare an Environmental Impact Statement was published in the Federal Register (71 FR 19162-19163) April 13, 2006. The scoping proposal was also posted on the Forest website at the following address: http://www.fs.fed.us/r6/w-w/projects/invasive-plants/index.shtml. A scoping letter dated April 17, 2006 was mailed to 426 individuals and organizations.

Using the comments provided by the public, other agencies and tribes, the interdisciplinary team identified five significant issues regarding the effects of the proposed action. Significant issues of concern include:

- **Human Health**: Some people have expressed concern that exposure to herbicides may have serious consequences for human health. People wonder if they could be sickened by brushing up against contaminated vegetation or by eating berries, mushrooms, fish or game that may have been exposed to herbicides. They worry that they might drink water contaminated by herbicides. People are concerned about the health and safety of forest workers who are more likely to be exposed to herbicides. Some believe that the potential cost to human health is too high and other methods should be used to treat invasive plants.
- **Treatment Effectiveness**: Some comments noted that limitations on the availability of treatment methods and herbicide options reduce the potential for effectively treating invasive plants. Fully integrated strategies are needed to effectively treat invasive weeds while minimizing effects to humans and the environment. Not using herbicides could result in the continued spread of invasive plants, resulting in the loss of ecosystem function and wildlife habitat loss.
- **Social and Economic**: Some expressed concern that the cost of each treatment acre influences the number of acres that can be treated with the same total budget. There are also concerns that the surrounding community should be informed of activities and economic costs of the project.
- **Non-target Botanical Species and Wildlife**: There is a concern that herbicide exposure, particularly when applied through aerial or broadcast spraying, may harm terrestrial wildlife species and non target plants. Specifically, herbicide drift, primarily from broadcast and aerial applications of herbicides could cause harm to non-target plants and animals.
- **Soil, Water Quality, Aquatic Biota**: There is a concern that there may be potential adverse effects of herbicide treatment on soils and the potential for leaching into ground water.

These and other issues are discussed in detail in Section 1.9 of the FEIS. To address these concerns, the Forest Service developed two action alternatives, in addition to the proposed action, that respond to the issues while meeting the purpose and need for action (described below in the “Other Alternatives Considered” section). The DEIS was prepared and described these alternatives, including the No Action alternative, and their impact to the environment. The Notice of Availability for the DEIS was published in the Federal Register March 6, 2009 (74 FR 9817-9818). The comment period extended 45 days following this date, to April 20, 2009.

The Forest documented and responded to public comments to the DEIS, and recorded these in Chapter 5 of the FEIS. Of the 25 letters or emails that were received, 19 express support for Alternative B. State agencies, County governments, local non-profit organizations, and cooperative weed management areas all express support for Alternative B:

> *Being a proactive weed treatment entity within Union County, our weed board strongly supports the treatment objectives proposed within Alternative B.* (Nancy Dake, Union County Weed Board).

> *We fully support the Proposed Action, Alternative B, as the only logical choice given the four alternatives. … Early Detection Rapid Response (EDRR) for new sites is a particularly important tool; without EDRR, new sites may go untreated and expand exponentially.* (Wallowa County Board of Commissioners)

> *Maximizing the effective treated acres is critical to getting in front of the invasive plant increase in acres. … Alternative B, the proposed alternative, is the only one that shows a chance of perhaps decreasing the amount of infested acreage.* (Dan Sharratt, Oregon Department of Agriculture)

> *Oregon Department of Fish and Wildlife (ODFW) supports Proposed Action – Alternative B. … ODFW believes that Alternative B will substantially improve the control and eradication of invasive plants, thus improving fish and wildlife habitats and overall forest health.*

> *The availability of the tools provided through Alternative B . . . are not only critical with regard to the Forest, but are also extremely important to noxious weed control throughout northeast Oregon.* (Greg Winans, Tri-County Cooperative Weed Management Area)

> *Alternative B, the proposed action (is) the only alternative that has a real chance of accomplishing the objectives you have set out to accomplish. … With proper planning, aerial treatments are the most effective and efficient treatments I have employed over time and they are also the cheapest by acre. … We are all shooting for the same goal of protecting the environment and our communities from the impact of weeds and from the impact of herbicides.* (Mark Porter, Wallowa Resources)

These and similar statements from other respondents indicate a broad majority support Alternative B.

Karen Coulter, Blue Mountain Biodiversity Project Director, opposes the proposed action. Ms. Coulter expressed a desire that the project focus on prevention and non-chemical means to control weeds:

> *There should be more emphasis on non-chemical control and passive restoration; (including revegetation with native plants, decommissioning roads, and public education)…many small and first detected invasive plant populations can be controlled by methods other than herbicides without losing effectiveness.*

This decision includes the use of non-chemical, manual methods; these methods will be used as needed and where effective. However, our ability to contain, control or eradicate invasive plants is most effective when the broadest range of tools is available so that the optimum combination of methods can be used. Many target species cannot be effectively controlled using manual methods alone (see Common Control Measures in Chapter 2 of the FEIS). Where non-chemical control methods are determined to be efficient and effective they will be used. The risk assessments done on the herbicides allowed under this FEIS make it clear that herbicides can be safe and non-toxic when applied following the herbicide label instructions. The FEIS analysis affirms our ability to safely and effectively apply herbicides, particularly because of the project design features (PDFs) that have been developed specifically to ensure adequate protection for people and the natural environment.

Four letters offered suggestions without stating support or opposition, and one letter acknowledged the DEIS but had no comment. Placing a greater emphasis on prevention, like this comment from Doug Heiken of Oregon Wild, is characteristic of suggestions offered:

> *As a central part of the integrated weed management program, we urge the Forest Service to explicitly consider avoiding and/or limiting activities that increase the risk of invasive species including: (a) activities that disturb soil (e.g. logging, OHVs, livestock grazing, road activities,*

> *etc.); (b) activities that open the canopy and increase the availability of light, water, and nutrients for the growth of invasive species (e.g. logging, fuel reduction, brush control); and (c) activities that provide vectors for the spread of weed seeds (e.g. roads, OHVs, logging, grazing).* (D. Heiken, April 17, 2009)

As a result of such comments, the *Wallowa-Whitman National Forest Weed Prevention Practices and Analysis Guidelines* has been included in Appendix B of the FEIS so readers may better understand the measures currently being applied to thwart the introduction and spread of invasive plants on the Forest. With these extensive and well defined practices already in place, this project concentrates on invasive plant treatment and does not reiterate prevention.

Suggestions also included a request for additional analysis of herbicide use in riparian areas. The Environmental Protection Agency (EPA) letter, authored by Dr. Theo Mbabaliye, suggested the Forest Service conduct further testing or assessment of herbicides allowed under the FEIS. This was considered, but the testing by the EPA itself, in labeling these herbicides for public use, and the risk assessments prepared for the USDA Forest Service Region 6 invasive plant treatment program, were determined to be sufficiently rigorous. Risk assessments were done by Syracuse Environmental Research Associates, Inc. using peer-reviewed articles from the open scientific literature and current EPA documents, including Confidential Business Information. Information from laboratory and field studies of herbicide toxicity, exposure, and environmental fate was used to estimate the risk of adverse effects to people and non-target organisms.

Some respondents, including the Eastern Oregon Mining Association (EOMA), suggested the consideration of new herbicides. The EOMA observed:

> *No herbicides approved after 2004 are considered – the EIS should consider new herbicides such as Cimarron Max by DuPont. The EIS should include the possibility it may be amended to use new herbicides to respond to climate change.*

The R6 2005 ROD allows for consideration of new herbicides; however, Cimarron Max was specifically not approved in 2005. This analysis may be supplemented to include new herbicides; appropriate risk analysis and NEPA procedures would have to be completed to adopt the use Cimarron Max or other herbicides not approved in 2005.

Adjustments have been made to the DEIS in response to public comment. These adjustments (in some cases edits) improved the content or readability of the FEIS without changing the proposed action substantially or requiring additional effects analysis including cumulative effects analysis.

The following summarizes the adjustments and edits:

- Added more detail about the function and importance of native plant ecosystems to Section 1.1 Background Information.
- Updated the Common Control Measures (Section 2.2.3) based on advice by the Oregon Department of Agriculture.
- Emphasized that adding new herbicides during the life of this project would require separate NEPA analysis to analyze affects of the chemical.
- Detailed further the limited opportunity for effective manual treatment methods.
- Clarified further the emphasis of this project toward invasive plant treatment.
- Reinforced the Forest's ongoing emphasis on invasive plant prevention by adding Wallowa-Whitman Prevention Guidelines to Appendix B.

Other Alternatives Considered

Nine other alternatives were considered. In addition to the selected alternative, three alternatives were analyzed in detail and are briefly described below. Alternative B is the environmentally preferred alternative. A more detailed comparison of these alternatives can be found in Chapter 2 of the FEIS.

Alternative A - No Action

Under the No Action alternative current management plans would continue to guide implementation of existing treatments in areas identified by the 1992 and 1994 EA decisions, plus other areas covered by separate NEPA analyses. The two EA decisions authorized the use of four herbicides: glyphosate, dicamba, picloram (with restrictions), and triclopyr. Dicamba has since been prohibited from use by the R6 2005 FEIS and ROD, and will not be used in the future by the Forest. An Early Detection Rapid Response process would not be available. Approximately 5,000 acres of invasive plant sites have been approved for treatment under this alternative.

Alternative C - No Broadcast Spraying in Riparian Areas

Alternative C prohibits the broadcast application of herbicides in riparian areas; however, spot spraying or hand applications, such as wiping or wicking of herbicides, would be allowed. Alternative C includes all the PDFs and buffers associated with Alternative B; however, it does not permit broadcast treatments in riparian and wetland areas. These areas could still be treated using herbicides, but fewer acres would likely be treated because of the higher average cost of spot spraying or selective application methods. Except for this limitation imposed on broadcast spraying, the features of this alternative are the same as Alternative B. This alternative responds to concerns that detrimental effects could occur from broadcast spraying herbicide in riparian areas, and addresses human health issues associated with contamination of drinking water supplies from herbicide drift, as well as potential impacts to non-target wildlife, plant species, soils, aquatic biota and riparian ecosystems. Alternative C would reduce potential herbicide impacts, but would increase treatment costs and decrease treatment effectiveness in riparian and wetland habitats.

Alternative D - No Aerial Application

Alternative D would eliminate the option to aerially apply herbicides. This alternative addresses the issues raised regarding the potential effects of herbicide drift to human health through drinking water supplies, and to non-target wildlife and plant species, soils, aquatic biota and riparian ecosystems, both in the area being treated and areas adjacent to it. Treatment of some sites would not occur due to inaccessibility or because access to the site is determined unacceptably hazardous. Alternative D includes all of the PDFs and buffers associated with Alternative B, but would further prohibit aerial herbicide application. Except for this limitation imposed on aerial application, the features of this alternative are the same as Alternative B. Alternative D would minimize herbicide impacts associated with aerial application, but would increase treatment costs and decrease treatment effectiveness.

Alternatives Not Analyzed in Detail

Besides the alternatives described above, six alternatives were developed to address issues raised by the public. These alternatives were dismissed from detailed analysis because they would not reasonably meet the purpose and need for action. The themes of these alternatives included:

- Treat only high potential spread areas of priority 1 and 2 species with herbicides;
- Manage invasive plants through natural processes;
- No herbicide Use;
- Apply 1994 EA Guidelines forest-wide;

- Prohibit herbicide use in riparian habitats and special areas;
- Add new EPA approved herbicides not available or not analyzed under the 2005 FEIS for Preventing and Managing Invasive Plants.

Why Alternative A Was Not Selected

Alternative A – No Action represents the current management direction for the treatment of invasive plants: 5,172 acres approved for treatment and is limited to three herbicides available for use. Alternative A does not allow a process for treating new infestations discovered on the Forest. This strategy has proved to be unsuccessful in meeting desired conditions and has allowed invasive species to spread.

The methods available under Alternative A would be the least effective in treating invasive plants because no new herbicides are included under Alternative A. Therefore, effective treatments at all inventoried sites would not be achieved. Alternative A would have allowed for 5,172 acres to be treated chemically by broadcast spraying only after other methods were determined to be ineffective in meeting management objectives. Alternative B would allow up to 20,776 acres to be treated chemically by broadcast and aerial spraying. Alternative A would have allowed limited use of three herbicide options, as compared to 10 in Alternative B. The limited number of herbicides has comparatively less effectiveness and may have resulted in herbicide resistance (R6 2005 FEIS Chapter 4.2). Alternative A would have been the least likely alternative to abate risks to botanical species of local interest (SOLI). Of the 80 sites where invasive plants threaten SOLI, 11 sites would have been approved for treatment under Alternative A compared to 80 sites under Alternative B.

Although Alternative A would have been the least expensive alternative to implement ($1,485,190 compared to Alternative B at $5,601,390), it would have carried the highest costs per effectively treated acre ($820/acre compared to Alternative B, $307/acre). The relative lower costs overall to implement Alternative A is because far fewer acres would be treated. However, implementing Alternative A would have resulted in fewer acres being treated at far higher costs per acre.

Although Alternative A would minimize potential herbicide exposure to non-target plants and animals, due largely to the few acres of invasive plants that would be treated, Alternative B would be less limited on herbicide treatments and herbicide options, but nevertheless would minimize potential herbicide exposure through application of PDF Groups F, H, I and J.

Alternative A would reduce the potential adverse effects of herbicide treatment on soils and the potential for leaching into groundwater due largely to the few acres of invasive plants that would have been treated. Alternative B would be less limited in terms of herbicide treatments and herbicide options, and the potential adverse effects would be reduced through application of PDF groups H-4 through H-7, which restrict use of clopyralid, chlorsulfuron, picloram and sulfometuron methyl due to their potential to impact soil biology or leach to ground water. With regard to herbicide treatment in riparian areas adversely impacting water quality and aquatic ecosystems, Alternative A would allow for 1,932 acres of treatment in riparian areas. Alternative B would allow for more acres in riparian areas to be treated (3,104 acres) but would reduce the potential effects to water and aquatic ecosystems through the application of PDF groups F, H, I and J and buffers, which Alternative A would not incorporate.

Alternative A would provide few options to manage invasive plants. With few effective control methods and the small acreage of sites that would have been approved for treatment under Alternative A, invasive species would continue their spread across the Forest. Alternative A does not meet the purpose and need to contain, control or eradicate invasive plants.

Why Alternative C Was Not Selected

Alternative C was not selected because it would have been less effective than Alternative B in controlling invasive plants over time. Alternative C would have prohibited broadcast herbicide application (3,104 acres) in riparian areas. Instead, invasive plants sites would have to be treated by spot spraying individual plants, which may result in less effective control and which we anticipate would require more follow-up treatment. Our analysis shows that Alternative C would have a higher cost per effectively treated acre ($312/acre) compared to Alternative B ($307/acre). Within a finite budget, fewer acres would likely be treated because of the higher average cost associated with spot spraying and selective treatments. Similar to Alternative B, Alternative C would have reduced potential herbicide exposure to non-target plants and animals by applying PDF Groups F, H, I and J. However, Alternative C would have further reduced exposure by prohibiting broadcast applications in riparian areas. Even though Alternative C would have resulted in fewer impacts to non-target riparian vegetation, spot spraying sites otherwise prescribed for a broadcast application under Alternative B would have resulted in less effective control, thereby increasing the need for follow-up treatments.

Alternative C is similar to Alternative B in terms of reducing the potential adverse effects of herbicide treatment to soils and the potential for leaching into groundwater.

Although Alternative C would have been likely more effective at preventing the potential adverse effects to water quality and aquatic ecosystems by prohibiting broadcast herbicide application in riparian areas, it would be more costly and would have resulted in a lower degree of control to invasive plant populations.

Why Alternative D Was Not Selected

Alternative D was not selected because it would have been less effective than Alternative B in controlling invasive plants over time. Alternative D would have prohibited aerial application of herbicides. Lacking this method, some invasive plant sites would not have been treated or not been treated as effectively, due to their remote location and inaccessibility. Left untreated, invasive plants at these sites would spread, impacting native plant communities and brokering additional treatment costs in the future. Second, most sites proposed for aerial applications are located in wilderness areas. Native vegetation as well as other wilderness values would be at risk from invasive plants. It is necessary to maintain the values for which these wilderness areas were established. Furthermore, because of the associated higher costs by using land-based methods to treat these remote sites, Alternative D would have been more costly, on average, than Alternative B ($334 versus $307 per effectively treated acre).

Although Alternative D would have reduced potential impacts related to the aerial application of herbicides, fewer invasive plant sites would have likely been treated. Alternative D would also have been less cost-effective than Alternative B because more expensive ground-based treatment would have been required on sites prohibited from aerial treatment. In summary, Alternative D does not meet the purpose and need as well as Alternative B.

Findings Required by Other Laws and Regulations

This decision is consistent with all other current laws, regulations and policies guiding invasive plant programs and other management activities on National Forest System lands including, but not limited to: the National Forest Management Act; the Wallowa-Whitman National Forest Plan; the Clean Water Act and Safe Drinking Water Act; the Wilderness Act; the National Historic Preservation Act; and Executive Orders 11988, 11990 and 12898.

Specific findings and rationales required by law follow.

National Forest Management Act and Forest Plan

The project complies with the Wallowa-Whitman National Forest Plan (see Chapter 1 and Appendix A of the FEIS for discussion).

Consistency with Forest Service Policies and Plans

The decision is consistent with all Forest Service policies and existing plans. No conflicts with existing plans have been noted. The conclusions and findings in this analysis are supported by the best scientific information available. The FEIS (and the broader scale R6 2005 FEIS to which it is tiered) identifies methods used, discusses responsible opposing views, and discloses incomplete or unavailable information, scientific uncertainty, and risk (See 40 CFR, 1502.9 (b), 1502.22, 1502.24).

Invasive plant treatments are no longer subject to the requirements of the 1989 Mediated Agreement that affected removal of unwanted vegetation in Region Six. The R6 2005 ROD vacated the mediated agreement, replacing it with management direction for invasive plant prevention, treatment, restoration and monitoring. In April 2007, Northwest Coalition for Alternatives to Pesticides, the lead signatory in the 1989 Mediated Agreement, agreed it was willing to dissolve the Mediated Agreement for purposes of controlling invasive plants in Region 6. The Portland Audubon Society (July 2, 2007) and the Oregon Environmental Council (October 15, 2007) have also agreed in writing to dissolve the Mediated Agreement for invasive plant control.

Clean Water Act and Safe Drinking Water Act

The selected alternative will meet and conform to the Clean Water Act as amended in 1982 and Safe Drinking Water Act as amended in 1996 (FEIS, Chapter 3, Sections 3.4.2 and 3.5.3).

The Wilderness Act

The selected alternative includes treatment of approximately 870 of the 979 acres of invasive plants mapped within three congressionally designated wilderness areas or trailheads near wilderness boundaries. Approximately 530 acres may be treated with aerial herbicide applications. The balance will be treated using ground-based applications or hand methods. Backpack pumps may be used to spot treat some invasive plants on wilderness trails. A Minimum Requirements Decision analysis was completed for invasive plants treatment in the Hells Canyon Wilderness, Eagle Cap Wilderness and Monument Rock Wilderness; it is included in the FEIS Appendix A. Aerial application of herbicides by helicopter was identified as the minimum tool necessary to treat 526 acres of yellow star-thistle (*Centaurea solstitialis* L. – CESO3) on 10 different sites. (A complete discussion of wilderness treatments can be found in the FEIS Section 3.6 and the Minimum Requirements Decision analysis). For EDRR in wilderness, invasive plants could be treated using non-mechanical hand methods or herbicides. Herbicide treatments may use application methods such as wicking, stem injection, spray bottle, hand pressurized pumps, battery or solar powered pumps and propellant based systems such as those that use pressurized carbon dioxide (also see PDF D-1 in Section 2.2.3 of the FEIS).

The National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to consider the potential effects their undertakings may have on historic properties. The definition of undertaking encompasses all agency decision-making actions including the *Wallowa-Whitman National Forest Invasive Plants Treatment Project.* The NHPA also compels agencies to consult with Tribes in determining whether the undertaking has potential to pose an effect on historic properties. Government-to-government tribal consultation has been initiated for the Invasive Plant Treatment Plan and we will continue to inform tribal staff during project implementation (see Section 1.7 of the FEIS for further details on Tribal Consultation). Tribal concerns have been addressed in all alternatives through the use of

Project Design Features (Chapter 2) that minimize the potential for herbicide exposure. PDFs require the Forest Service to notify the Tribes of areas proposed for treatment each year. The Public Notification Plan requires areas proposed for treatment to be mapped, information shared and posted, and warning signs posted at the locations treated with herbicides. Water quality and fisheries habitat, a tribal concern, is also protected through the use of PDFs that restrict herbicide use in riparian and near stream areas. Under the June 2004 Programmatic Agreement (between the USDA Forest Service Pacific Northwest Region, the Advisory Council on Historic Preservation, and the Oregon State Historical Preservation Officer Regarding Cultural Resources Management), a "no potential to cause effects" determination has been made per Appendix C.1 and Appendix C.2 of the agreement. Section 106 review of any proposed treatments other than application of herbicide or hand removal will take place to determine if any protection measures are necessary. Any mechanized ground disturbing procedures will also receive Section 106 review. Documentation to this affect will be forwarded to the Oregon SHPO, in compliance with the National Historic Preservation Act of 1966 (as amended), and the Oregon Programmatic Agreement.

Executive Orders 11988 and 11990: Flood Plains and Wetlands

Proposed invasive plant treatments within riparian areas are discussed in FEIS Chapter 3.4 and 3.5. The project is intended to restore native plant communities and habitats within riparian and upland areas. No serious adverse effects are anticipated to occur to wetlands and floodplains from treatment in the Selected Alternative B. PDFs H-1 through H-13, and buffers detailed in Table 7-9 (see Section 2.2.3 of the FEIS) further protect water bodies, riparian areas and aquatic ecosystems. The project is consistent with the 2005 Invasive Plant Program ROD Standards and other applicable guidance in the Wallowa-Whitman National Forest Plan (see FEIS Chapter 1.5 and Appendix E for a listing of the specific PACFISH/INFISH aquatic conservation strategies adopted into the Wallowa-Whitman Forest Plan).

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, Section 3.9.4 discusses the potential impacts of this project on these groups. With the implementation of any action alternative, there is the potential for some impact to Hispanic, Asian and American Indian communities. Harvesters of non-timber forest products tend to come from Asian, Hispanic and American Indian communities. These groups may be at higher risk for exposure to herbicide treatments in areas for harvesting their products. The potential for harmful exposure of herbicide to these groups will be reduced by PDFs that require public notification including posting treatment areas, notifying gatherers when herbicide treatments would occur in their permitted area, newspaper or individual notification (see PDFs K-1 and L-2 in Section 2.2.3). Triclopyr would not be sprayed in food gathering areas (PDF L-1). Tribes would be specifically notified about treatment schedules (PDF M-1). These groups may benefit as the project objectives to improve native plant communities and ecosystems are achieved.

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 browse.

Secretary of Agriculture Memorandum of 1827: Prime Farmland, Rangeland, Forestland and Parkland

No prime farmlands, rangelands, forestlands or parklands are within the project area, thus there will be no direct, indirect or cumulative effects on these lands.

Endangered Species Act

Consultation with the Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS, also referred to as NOAA Fisheries) has been completed for this project. The Forest Service consulted with these agencies during the planning process. The Biological Assessment (BA) evaluating the Proposed Action was sent to the FWS and NMFS in September 2008. The BA identified actions that were determined both "not likely" and "likely" to adversely affect species listed or proposed for listing under the Endangered Species Act. In response to the BA, FWS and NMFS each prepared a letter of concurrence on the portions of the project they considered "not likely" to adversely affect the species and a Biological Opinion (BIOP) for portions of the project they considered "likely" to affect such species (FWS March 2009 and NMFS March 2009). The FWS concurred: *the proposed action may affect, but (is) not likely to adversely affect Gray wolf*[1]. The FWS BIOP concluded: *the project is likely to adversely affect Bull Trout and designated Bull Trout critical habitat, MacFarlane's four-o'clock and Spalding's catchfly,* and added:

> *The project is not expected to appreciably reduce either the survival or recovery of bull trout. ... Long-term effects on instream critical habitat (enhancement of native riparian vegetation) from invasive plant treatment activities (reducing noxious weed populations) are anticipated to be beneficial. …*
>
> *The possible loss of scattered individuals or small groups due to unintended herbicide exposure will not significantly affect MacFarlane's four-o'clock at the population level. …*
>
> *The possible loss of scattered individuals or small groups due to unintended herbicide exposure will not significantly affect Spalding's catchfly at the population level.*

On January 14, 2010 the United States Fish and Wildlife Service proposed revising the designation of critical habitat for bull trout in the coterminous United States (75 FR 2270-2433). The proposed rule includes habitat on the Wallowa-Whitman National Forest within the project area for this FEIS. An addendum to the Fisheries Biological Evaluation, was prepared March 1, 2010, to assess whether this critical habitat proposal would result in any changes to the previous bull trout effects analysis and to meet the Forest's interagency cooperation responsibilities under Section 7 of the ESA. The report concluded that the Invasive Plants Treatment Project "will not destroy or adversely modify proposed critical habitat for bull trout." This conclusion is based on the following:

- The Action Area for the Proposed Action encompasses the entirety of the Wallowa-Whitman National Forest and the proposed critical habitat for bull trout, so all areas were analyzed in the original Biological Evaluation and Biological Assessment.
- Project Design Features were designed at a Forest Level (FWS BIOP, p. 10) and will minimize the impacts of invasive plant treatments, including Early Detection and Rapid Response treatments. These include protective buffers and restricted application methods.
- Project Design Features are mandatory and will be implemented across the Wallowa-Whitman National Forest.

[1] The Northern Rocky Mountains distinct population segment of the gray wolf was removed from threatened or endangered status effective May 4, 2009, 74 FR 15123-15188.)

- Adverse effects to bull trout and their habitat have been analyzed, and are expected to be brief, limited geographically, non-lethal and non-quantifiable (BIOP, p. 82).
- Effects to habitat are limited to disturbance from walking or standing in streams during the in-water work window, minor and infrequent transport of herbicides to fish bearing streams, ground disturbance from hand-pulling invasive plants adjacent to streams and the potential for soil erosion or loss of shade, and resulting loss of natural cover from increases in substrate embeddedness. There are caps on the numbers of acres treated in riparian areas per 6th field watershed, thereby limiting the magnitude for adverse effects.

The NMFS BIOP concluded: *the proposed action is not likely to jeopardize the continued existence of Snake River Spring/ Summer (SR) Chinook salmon, Snake River Fall Chinook Salmon, SR sockeye salmon, Snake River Basin (SRB) steelhead, or Middle Columbia River (MCR) steelhead, or result in the destruction or adverse modification of designated critical habitat for critical habitats for these listed species* (USDC National Oceanic and Atmospheric Administration, March 31, 2009, page 1). The BIOP further states:

> *"the proposed action will slightly degrade the environmental baseline at the site scale in treated areas, the effects will not persist beyond a few years, and the removal of invasive plants and restoration of native species are likely to improve riparian functions at many of these sites over the long term."* (ibid. page 53).

FWS and NMFS have authorized incidental take on the inventoried sites as well as the EDRR approach for future detections. Conservation recommendations, reasonable and prudent measures, including terms and conditions of the incidental take permit, necessary to minimize the taking of federally listed fish are documented in the BIOPs. The conservation recommendations, reasonable and prudent measures, and terms and conditions of the incidental take statement are reflected in the project design features and herbicide use buffers.

The National Marine Fisheries Service also completed an essential fish habitat (EFH) consultation, prepared in accordance with section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801, et seq.) and implementing regulations at 50 CFR 600 (BIOP page 58). The NMFS found the conservation recommendations, plus terms and conditions 1-3 of the BIOP, are applicable to EFH conservation and recommended they be adopted as EFH conservation measures. As noted above, these measures, including the terms and conditions, have been incorporated in the project design.

Environmentally Preferred Alternative

Alternative B is the environmentally preferred alternative in accordance with Council on Environmental Quality (CEQ) regulations (40 CFR Part 1505.2 (b)). Alternative B is preferable because it would most effectively reduce the presence and influence of invasive plants on National Forest System lands. It would also do the most to protect and allow for re-establishment of native plant ecosystems that have been or are in danger of being displaced by invasive plant populations. The FEIS acknowledges that this alternative most aggressively utilizes herbicides and herbicide application methods to accomplish the project purpose and need. This FEIS also prescribes the project design features and common control measures necessary to insure protection of the natural and human environment during herbicide and other invasive plant control method applications.

Alternative A is not the environmentally preferred alternative because the documented ineffectiveness of the current program (Alternative A) to accomplish the project purpose and need, would allow invasive plants to continue to spread. Alternative A would likely be preferable to those who are concerned that herbicide applications could potentially cause lingering toxic chemical residues because it most limits the number of chemicals and the locations where chemicals would be used. The FEIS also acknowledges that

the treatment approach taken under this alternative has not resulted in effective invasive plant control, including retreatment of persistent populations over a span of years. This spread of invasive plants would likely continue without a more integrated approach to invasive plant management throughout the Forest.

Alternatives C and D are not environmentally preferred because both are more limited in effectively controlling invasive plants threatening environmental quality. The relatively greater cost-effectiveness in restoring native plant communities associated with Alternative B outweighs the low level of risk. By prohibiting broadcast herbicide treatments on 3,104 acres (of mapped sites) in riparian areas, and aerial treatment on 875 acres of the project area, Alternatives C and D would be more costly and less likely to be effective than Alternative B.

Implementation

Implementation Date

If no appeals are filed within the 45-day time period, implementation of the decision may occur on, but not before, five business days from the close of the appeal filing period. When appeals are filed, implementation may occur on, but not before, the 15th business day following the date of the last appeal disposition.

Administrative Review or Appeal Opportunities

This decision is subject to appeal pursuant to Forest Service regulations at 36 CFR 215. Any individual or organization who submitted comments during the comment period specified may appeal (36 CFR.6). Written notice of appeal must be postmarked or received by the Appeal Deciding Officer, Regional Forester Mary Wagner, ATTN: Appeals, USDA Forest Service, PO Box 3623, Portland, OR 97208-3623 within 45 days of the date of publication of notice regarding this decision in The Baker City Herald (Baker City, OR). The appeal must state that the document is an appeal pursuant to 36 CFR 215, and at a minimum must meet the content requirements of 36 CFR 215.14, and include the name and address of the appellant, and must identify the decision by title, subject, date of decision, and name of the Responsible Official. The appeal narrative must be sufficient to identify the specific change(s) to the decision sought by the appellant or portions of the decision to which the appellant objects, and must state how the Responsible Official's decision fails to consider comment previously provided. If applicable, the appeal should state how the appellant believes this decision violates law, regulation, or policy.

Appeals (including attachments) may be filed by regular mail, fax, e-mail, hand delivery, express delivery, or messenger service. The publication date of the notice regarding this decision in the newspaper of record is the sole means of calculating the appeal filing deadline, and those wishing to appeal should not rely on dates or timelines from any other source. E-mail appeals must be submitted to: appeals-pacificnorthwest-regional-office@fs.fed.us, and must be in one of the following three formats: Microsoft Word, rich text format (rtf) or Adobe Portable Document Format (pdf). FAX appeals must be submitted to: 503-808-2255. Appeals may be hand-delivered to the Resource Planning and Monitoring Office, 333 SW First Ave., Portland, between 8:00 AM and 4:30 PM Monday-Friday.

It is the responsibility of all individuals and organizations to ensure their appeals are received in a timely manner. For electronically mailed appeals, the sender should normally receive an automated electronic acknowledgement from the agency as confirmation of receipt. If the sender does not receive an automated acknowledgement of the receipt of the appeal, it is the sender's responsibility to ensure timely receipt by other means.

Contact Person

For additional information concerning this decision or the Forest Service appeal process, contact:

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Steven A Ellis 4/2/10

STEVEN A. ELLIS **DATE**
Forest Supervisor
Wallowa-Whitman National Forest

Appendix 1. Record of Decision Wallowa-Whitman National Forest Invasive Plants Treatment Project

The information for this appendix has been taken from the FEIS for this project and repeated here for emphasis. Table numbers, figure numbers and other indication to areas of information have been retained for ease of cross referencing.

Common Control Measures

Table 5, Common Control Measures Summary, shows species-specific integrated control measures that will be applied to known invasive species on the Wallowa-Whitman National Forest. The table shows known acreages infested with each species, the range of effective treatment options, and site-specific considerations important to the final prescription. The priority and intensity of treatment needed varies widely based on site conditions, values at risk from invasion, and the range and aggressiveness of individual target species.

The Common Control Measures summary table is a distillation of detailed work shown in Appendix B prepared by Linda Mazzu (R6 2005 FEIS), and updated by Vicky Erickson (Invasive Weed Specialist), Julie Laufmann (TEAMS Botanist), Gene Yates (Forest Botanist), with incorporated comments from Mark Porter (Wallowa Resources, Enterprise, OR) Dan Sharratt (Oregon Department of Agriculture), *Pacific Northwest's Least Wanted List: Invasive Weed Identification and Management*, Oregon State University Extension Service, EC1563, 2003), and Nature Serve (www.natureserve.org).

Table 5. Common Control Measures Summary - Range of Effective Treatment Options and Site-Specific Considerations by Target Species

Target Species - Common Name	Acres and Number of Sites	Range of Effective Treatment Options	Site Specific Considerations
Bugloss (ANOF) *Anchusa officinalis*) *Perennial*	5813 ac 1 site	Herbicide in combination with manual and mechanical. Manual/mechanical alone will not eradicate. Use surfactants for herbicide use to penetrate the hairy leaves on the plant 1.Metsulfuron methyl 2. Picloram 3.Clopyralid 4.Chlorsulfuron + Metsulfuron	Cannot aerially spray sulfonylurea herbicides(as per Standard 16), picloram and clopyralid have mobility and soils restrictions Large site that will not be treated aerially due to lack of acceptable, effective herbicide
Canada Thistle (CIAR) *Cirsium arvense*	3395 ac 154 sites	Herbicide treatment is most effective. The only manual technique would be hand cutting of flower heads, which only suppresses seed production. Manual Disposal: bag and remove flower heads form site. Mowing may be effective in rare cases if done monthly (this intensity would damage native species). Covering with a plastic tarp may also work for small infestations, but smothers all plants covered. Yearly revisits would be necessary; the number of which is dependent on the chemical used and the seedbank. Revegetate with desirable species in accordance with the Restoration Plan.	Cannot aerially spray sulfonylurea herbicides (as per Standard 16). Picloram and clopyralid have mobility and soils restrictions. Many sites have well drained or shallow soils where alternative herbicides or methods may be necessary (see Appendix D).

Target Species - Common Name	Acres and Number of Sites	Range of Effective Treatment Options	Site Specific Considerations
		1. Clopyralid 2. Picloram 3. Chlorsulfuron 4. Aquatic labeled Glyphosate (best in fall) Biocontrols proposed for some sites.	
Clary Sage (SASC2) **and Mediterranean sage** (SAAE) *Salvia aethiopis* *Biennial*	22 acres 1 site	Manual or mechanical removal of individual plants can be effective. Mowing several times during the growing season will prevent seed production, but the rosettes are low enough to the ground to escape most damage. Biocontrol available and somewhat effective. 1 Metsulfuron methyl 2. Chlorsulfuron 3. Picloram 4. Glyphosate	Cannot aerially spray sulfonylureas, (as per Standard 16). No known shallow or well drained soil sites.
Common Crupina	284 ac 1 site	Manual/Mechanical - handpulling is effective on small infestations prior to seed set (WA DNR) 1.Clopyralid (0.13 lb ae/A) Sequential fall and spring applications provide >95 % control1 2.Triclopyr (.25 lb ae/A) Sequential fall and spring applications provide >95 % control[1] 3. Spring application of picloram	Biological – none[1]
Dalmatian Toadflax (LIDA) *Linaria dalmatica* **And other Linaria sp.**	783 ac 141 sites	Hand-pull or dig if populations are small Manual Disposal: Plants can be left on site, but may reduce germination of desirable species due to mulching effect. If plants have flower heads with seeds (immature as well), bag and remove them from site. -Cutting stems in spring or early summer would eliminate plant reproduction, but not the infestation. - These treatments may take up to ten years due to long term seed viability. - Revegetate with desirable species in accordance with the Restoration Plan. Plant communities in good condition may recover without replanting. Biocontrols available. 1. Metsulfuron methyl (forested sites) 2. Imazapic (in native grasses) 3. Aquatic labeled Glyphosate 4. Picloram	Biocontrols proposed for some sites. Aquatic Glyphosate may be only option for sites near streams (some riparian sites exist). Picloram may be restricted in well drained, clayey and/or shallow soils at some sites.
Dodder *Cuscuta sp.*	10 acres 2 sites	Mechanical control by roughing out host sagebrush	
Field bindweed (COAR) *Convolvulus arvensis*	3 acres 1 sites	Manual/mechanical –is not effective 1. Picloram apply early bud to full bloom for best control[2] 2. Glyphosate,full bloom – early seed[2] 3. Metsulfuron actively growing plants in bloom stage [2]	**B**iocontrol available[1]
Himalayan blackberry (RUDI) *Rubus discolor*	15 acres 3 sites	Manual or mechanical removal is effective only in combination with herbicides and is best used as a first step to reduce above ground biomass before root crown removal. Fall herbicide treatments alone or on regrowth follwing cane removal is effective. Glyphosate, Picloram, Imazapyr or Triclopyr	

Target Species - Common Name	Acres and Number of Sites	Range of Effective Treatment Options	Site Specific Considerations
Hounds tongue (CYOF) (*Cynoglossum officinale*) *Biennial*	980 ac 64 sites	Herbicide in combination with manual treatments. Re-vegetate with desirable species. 1. Metsulfuron methyl 2. Chlorsulfuron 3. Picloram 4. Imazapic or Glyphosate	Some known sites are in riparian areas. Several areas of well drained soils where herbicide selection may be restricted (see Appendix D). Six known sites are proposed for manual only.
Japanese knotweed (POCU6) *Polygonum cuspidatum* *Perennial*	78 acres 2 sites	Mechanical treatment is ineffective alone. Cutting in combination with herbicide is most effective since the manual/mechanical treatments will encourage the plant to send up new shoots. The more shoots per linear foot of root, the more likely you will be able to physically pull them out, exhaust their reserves or kill them with herbicide. Manual treatments alone are not effective. Stem injection is labor intensive and less effective than a canopy foliar spray Glyphosate, Triclopyr, or Imazapyr	Not in treatment database.
Leafy Spurge (EUES) *Euphorbia esula* *Rhizomatous perennial*	102 ac 12 sites	Herbicide treatments are most effective. Manual and mechanical methods must be used in combination with herbicides for successful control. Repeat treatments are usually required. 1. Picloram 2. Glyphosate or Imazapic Biocontrols available	All but one known site is riparian. Several well drained, excessively well drained, and shallow water table sites. Use of picloram may be limited in some areas.
Medusahead (TACA8) (*Taeniatherum caputmedusae*) *Annual grass*	921 ac 22 sites	Repeated cutting/mowing with herbicide treatment is effective. Manual removal can be effective with small populations. A combination of herbicide application and reseeding with native or desirable non-native grasses is considered highly effective. Follow-up seeding of a competitive desirable non-native perennial grass may be necessary prior to returning the site to native perennial grasses Herbicide treatment should be done before seed formation or during the fall through early winter. Repeated treatments may be needed. 1. Imazapic 2. Sulfometuron methyl +Chlorsulfuron 3. Sulfometuron methyl 4. Sethoxydim 5. Glyphosate	No known riparian sites. Several sites are well drained.
Musk thistle (CANU4) (*Carduus nutans*) Biennial **Bull Thistle (**CIVU) *Cirsium vulgare*	27 acres 6 sites	Use manual, mechanical or herbicide control or a combination. Biological controls may be helpful to suppress populations in combination with other methods (see Appendix E). 1. Picloram or Clopyralid 2. Metsulfuron methyl 3. Glyphosate 4. Chlorsulfuron	Biocontrols proposed for some sites. No known riparian sites proposed for herbicide use. No sites are known to be well drained or shallow to ground water.

Target Species - Common Name	Acres and Number of Sites	Range of Effective Treatment Options	Site Specific Considerations
Pepper weed (LELA2) *(Lepedium latifolium)* Perennial	1 acre 1 site	1. Chlorsulfuron, 2. Metsulfuron, 3. Glyphosate 4. Imazapic 5. Triclopyr may only kill top plant and capable of resprouting use after mowing to increase efficacy	Not a riparian site or known to be well drained or shallow to ground water.
Poison Hemlock	7 acres 3 sites	Manual/Mechanical: Handpulling when soils are wet can be effective on small infestations. Mowing at flowering stage can provide some control.[3] Biocontrol available. 1.Glyphosate 0.75 ae/acre at pre-bolt stage2; 2.Metsulfuron 0.6 oz ai/acre to actively growing plants2;;	Biological: None[3]
Puncture vine (TRTE) (*Tribulus terrestris*) *Annual*	12 acres 1 site	Manual and Mechanical control effective if collected prior to seed set. Biocontrol available 1. Chlorsulfuron 2. Sulfometuron methyl 3. Metsulfuron methyl 4. Glyphosate or Picloram	Not on known shallow or well drained soils.
Purple loosestrife (LYSA2) (*Lythrum salicaria*) *Perennial*	3 acres 3 sites	Biocontrols available. Otherwise, combination of herbicide and manual/mechanical treatments. Glyphosate	
Rush Skeletonweed (CHJU) (*Chondrilla juncea*) *Perennial*	390 ac 36 sites	Since any mechanical damage to plants stimulates new growth resulting in satellite plants, such 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 will be necessary. Difficult to apply because of small leaves. Biocontrols proposed for two sites. 1. Clopyralid 2. Picloram	No known riparian sites. No known shallow or well drained soil sites
Russian Knapweed (ACRE3) (*Acroptilon repens*) *Perennial with adventitious shoots*	26 acres 4 sites	Lasting control requires an integration of techniques: mechanical, manual, herbicide and competitive plantings. 1. Chlorsulfuron 2. Clopyralid 3. Clopyralid + Triclopyr (Redeem) 4. Glyphosate, Imazapic, or Metsulfuron Methyl	No known riparian sites.
Russian thistle (SATR12 or SAIB) (*Salsola tragus*) *Annual*	10 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. Spot or hand broadcast with backpack sprayer whenever possible. Boom spray larger areas of	No known riparian sites. No known shallow or well drained soil sites.

Target Species - Common Name	Acres and Number of Sites	Range of Effective Treatment Options	Site Specific Considerations
		dense cover, where dominant plant community is non-native invasives 1. Chlorsulfuron 2. Metsulfuron methyl 3. Glyphosate	
Scotch Broom (CYSC4) (*Cytisus scoparius*) *Perennial woody shrub*	115 ac 4 sites	Manual treatments can be effective but are labor intensive. -If herbicides are used, manual treatments could be used for follow-up. -Re-vegetate with desirable species. 1. Hand application of Triclopyr 2. Picloram 3. Glyphosate	No known riparian sites. No known shallow or well drained soil sites Biocontrols are untested in eastern Oregon.
Scotch Thistle (ONAC) *Onopordum acanthium* *Biennial*	1844 ac 157 sites	Cutting and 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 aboveground plant growth is removed. Herbicide treatment is the most effective control. 1. Picloram or Clopyralid 2. Chlorsulfuron 3. Metsulfuron	Some riparian sites and sites with shallow water table or well drained soils. Buffers and PDFs may reduce the herbicides and/or methods available. Manual treatment proposed for some sites
Slender meadow foxtail (ALMY) (*Alopercurus myosuroides*) *Annual*	.3 acres 1 site	Combination of manual, mechanical and herbicide. Glyphosate or Sethoxydim	
Silverleaf nightshade (SOEL) (*Solanum elaeagnifolium*) *Perennial*	11 acres 2 sites	Manual control can be effective in small areas. Shade from crop canopies (60-90% cover) or mulching may also be an effective control tool. Revisits will be necessary; the number of which is dependent on the herbicide used and the seed bank. Usually required multiple applications. 1. Picloram 2. Triclopyr or Glyphosate	
Spotted knapweed (CEBI2, CEMA4) (*Centaurea biebersteinii*) **Diffuse knapweed** (CEDI) (*Centaurea diffusa*) **Meadow knapweed** (CEPR2, CEDE5, CENI3) (*Centaurea debeauxii)*	907 qc 169 sites 4150 ac 384 sites 0 acres 1 site	Biocontrols available for some knapweed species (see Appendix H R6 2005 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. Clopyralid, or Picloram 2. Glyphosate	Several sites are within riparian areas or areas that have shallow or well drained soils. This influences the herbicide and method available. Biocontrols proposed for several sites.

Target Species - Common Name	Acres and Number of Sites	Range of Effective Treatment Options	Site Specific Considerations
Squarrose knapweed (CEVIS2) (*Centaurea virgata*) **Knapweed species** (CENTA) *Tap rooted Biennials, or Perennials*	7 acres 2 sites 119 ac 25 sites		
St John's Wort (HYPE) *Hypericum perforatum*	603 ac 56 sites	Hand pulling or digging of young plants in small, isolated infestations may be effective. Repeated treatments will 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 regrowth. Mowing is ineffective, but may discourage the spread of the plant if done before seeds form. Burning may increase the density and vigor of this species. Biocontrols available. 1. Metsulfuron methyl 2. Picloram 3. Glyphosate	Biocontrols proposed for some sites. Some sites are within riparian areas or areas that have shallow or well drained soils. This influences the herbicide and method available.
Sulphur cinquefoil (PORE5) (*Potentilla recta*) *Perennial*	187 ac 34 sites	Hand-pulling is effective on small infested provided the entire root is removed. Repeated applications are needed for the first couple of years to ensure re-establishment does not occur. 1. Picloram 2. Metsulfuron methyl (by itself not a particularly effective treatment)	Several sites are within riparian areas or areas that have well drained soils. This influences the herbicide and method available. Manual treatment proposed for some sites.
Tansy ragwort (SEJA) (*Senecio jacobaea*) And other *Senecio* spp. *Biennial or short-lived perennial*	78 acres 49 sites	Hand pulling usually results in numerous new rosettes forming from the root fragments. Hand pulling is most effective after the population has been brought under control. Mowing is the most common technique and is effective if done prior to flowering. These treatments may take up to ten years due to long term seed viability. Biocontrols available (Appendix E). Ensure biological controls are present nearby or request their introduction. Revisits will be necessary; the number of which is dependent on the herbicide used and the seed bank. 1. Clopyralid 2. Chlorsulfuron 3. Picloram 4. Glyphosate	Biocontrols are available in Western Oregon. ODA has made releases of a Swiss strain of the ragwort flea beetle on private land infestations in Umatilla and Union County in the last two years. Results of those releases are not yet known. Some riparian sites. No sites are known to be in sensitive soil areas.

Target Species - Common Name	Acres and Number of Sites	Range of Effective Treatment Options	Site Specific Considerations
Teasel (DIFU2 or DISY) (Dipsascus fullonum) *Biennial*	30 acres 2 sites	Manual and Mechanical can be effective alone and in combination with herbicides. 1. Metsulfuron methyl 2. Chlorsulfuron 3. Clopyralid or Triclopyr	All sites are riparian, No known sites in areas with sensitive soils.
Whitetop (CADR) (*Cardaria draba)* *Perennia*l	1489 ac 179 sites	Herbicide with manual treatment as a follow up. Revegetate with desirable species. 1. Chlorsulfuron 2. Imazapic or Metsulfuron methyl Also: Sulfometuron methyl (not ranked)	Several sites are within riparian areas or areas that have well drained soils. This influences the herbicide and method available.
Meadow Hawkweed (HIPR) *(Hieracium caespitosum)*	16 acres 29 sites	Herbicide treatment is most effective. - Some manual removal possible for small infestations. - Manual Disposal: All plant parts should be removed, as new plants can bud from root, stolon, and rhizome fragments. -Covering with a plastic tarp may also work for small infestations but smothers all plants covered. - Nitrogen fertilization after treatment would encourage native plant growth if done in the spring. - Revegetate with desirable species in accordance with the Restoration Plan 1. Clopyralid 2. Picloram 3. Aquatic labeled Glyphosate	All sites are riparian, Aquatic. No known sites in areas with sensitive soils.
Yellow starthistle (CESO3) *(Centaurea solstitialis)* *Annual*	1966 ac 181 sites	Hand-pull small patches or maintenance programs where plants are sporadically located. Otherwise, mechanical treatment to contain and herbicides in combination with other methods to control or eradicate. -Biocontrol available (see Appendix E). - Revegetate high priority sites if needed with desirable species. Aerial proposed for large, remote sites. 1. Clopyralid or Picloram 2. Glyphosate	Some riparian sites. , No known sites in areas with sensitive soils. Biocontrols prescribed for many sites.

Chemical Methods

Chemical methods are the use of herbicide formulations approved under the R-6 2005 ROD with the following active ingredients: chlorsulfuron, clopyralid, glyphosate, imazapic, imazapyr, metsulfuron methyl, picloram, sethoxydim, sulfometuron methyl, and triclopyr.

Ground-based or aerial application of herbicides will be used based on accessibility, topography, size of the treatment area, and the expected efficiency and effectiveness of the method selected. The following methods of application may be used depending on the site, applicable PDFs and buffers:

> **Spot spraying –** This method targets individual plants and is usually applied with a backpack sprayer. Spot Spraying can also be applied using a hose off a truck-mounted or ATV-mounted tank, or tanks mounted on pack animals.

Wicking – This hand method involves wiping a sponge or cloth that is saturated with chemical over the plant. This is used in sensitive areas, such as near water, to avoid getting any chemical on the soil or in contact with non-target vegetation.

Stem injection – A hand application technique currently is being used on Japanese knotweed in western OR & WA.

Approximately 9,000 inventoried acres are subject to be treated with spot or selective methods.

Hand broadcast – Herbicide applied by hand using a backpack or hand spreader to cover an area of ground rather than individual plants.

Boom broadcast – Application of herbicide using a hose and nozzle from a tank mounted on a truck, or ATV. Herbicide is applied to cover an area of ground rather than individual plants. This method is used in areas where invasive plants occupy a large percentage of cover on the site and the area to be treated makes spot spraying impractical.

Approximately 16,600 inventoried acres are subject to be treated by ground-based broadcast applications. Most of this acreage is expected to be treated using hand broadcast application.

Aerial applications – Broadcast application of herbicide using aircraft, such as a helicopter. Aerial application of the herbicides would occur in the HCNRA and La Grande District covering 875 acres (see Figure 9). Appendix B includes maps detailing aerial application sites.

Herbicide application will be done in accordance with USDA Forest Service policies, regulations, Forest Plan Standards, product label requirements, PDFs, and Herbicide Use Buffers. Project Design Features are listed in the following section of this appendix.

The application rates and method depend on the presence of the target species, condition of non-target vegetation, soil type, depth to the water table, the distance to open water sources, riparian areas, special status plants, and requirements of the herbicide label. Applications will be scheduled and designed to minimize the potential impacts to non-target plants and animals (R6 2005 FEIS, Appendix 1-5, 1-6) by applying Project Design Features. Monitoring of treated sites will determine if follow-up treatments will be needed and whether treatment methods should be changed.

Table 4 displays 10 herbicides approved for use. The range of application rates for each chemical was derived from the SERA Risk Assessments, which are the basis for the herbicides analyzed in the R6 2005 FEIS. Most of the time application rates will not exceed the typical rate; however, the actual effective rate may vary depending on application method, target species, and PDFs (site-specific measures of protection). Broadcast applications will not exceed typical label rates shown in Table 4. Non-broadcast methods such as spot spraying, wicking, wiping or stem injection may be applied at rates greater than typical, but that is expected to happen infrequently and only where necessary to be effective.

Table 4. High, Typical, and Low Application Rates for Herbicides

Herbicide	Highest Application Rate Lbs. a.i./acre	Typical Application Rate Lbs. a.i./acre	Lowest Application Rate Lbs. a.i./acre
Chlorsulfuron	0.25	0.056	0.0059
Clopyralid	0.50	0.35	0.10
Glyphosate	7.00	2.00	0.50
Imazapic	0.19	0.130	0.031
Imazapyr	1.25	0.45	0.03
Metsulfuron Methyl	0.15	0.03	0.013
Picloram	1.00	0.35	0.10
Sethoxydim	0.38	0.30	0.094
Sulfometuron Methyl	0.38	0.045	0.03
Triclopyr	6.00	1.00	0.10

Maximum rates reflect the annual cumulative maximum application rate per acre. Some formulations have one-time maximum application rates which can be substantially lower than the annual maximum rate.

Manual Control Methods

These include non-mechanized approaches, such as hand pulling or using hand tools (e.g., grubbing), to remove plants or cut off seed heads. Manual treatments are effective for only relatively small, accessible sites, and often need to be repeated several times, depending on the species, throughout the growing season. Manual treatments can be effective for annual and tap-rooted weeds, but are not effective against perennial weeds with deep underground stems, roots or rhizomes that cannot be entirely removed.

Manual treatments are typically used to treat selected plants, small infestations, and sensitive areas to avoid potential toxic impacts to non-target species or water quality. Where sites are small or there are few individual target species, handsaws, axes, shovel, rakes, machetes, grubbing hoes, mattocks, brush hooks, and hand clippers may all be used to remove invasive plant species. Axes, shovels, grubbing hoes, and mattocks are also used to dig up and cut below the surface to remove the main root of plants. To meet control objectives or reduce the risk of activities spreading invasive plants, seed heads and flowers are removed and disposed of properly. Other manual methods could include solarization techniques such as using black plastic to cover invasive plants to shade out and kill pieces of roots (i.e. rhizomes). These techniques may be used where minimizing herbicide use is desirable such as areas with an abundance of sensitive wildlife or plant species.

Mechanical Control Methods

This method uses power tools and includes such actions as mowing, weed whipping, road brushing, root tilling methods, or foaming, steaming, infrared and other techniques using heat to reduce plant cover and root vigor. Choosing the appropriate treatment depends on the characteristics of undesired species present (for example, density, stem size, brittleness, and sprouting ability); the size of the treatment area, seedbed preparation and revegetation; the site location (inside or outside a riparian area); and soil or topographic considerations. These activities would typically occur along roadsides, rock sources, or other confined disturbed areas and dispersed use areas.

Mowing and cutting would be used to reduce or remove above ground biomass. Seed heads and cut fragments of species capable of re-sprouting from stem or root segments would be collected and properly disposed of to prevent them from spreading into non-infested areas.

Biological Methods

Animal and Plant Health Inspection Service (APHIS) and State approved insects or plant pathogens that are proven natural control agents of specific weed species will be released to selectively suppress, inhibit, or control herbaceous and woody target species. Biological controls will be used on remote sites where the target species occupies extensive portions of the landscape, and other methods of control are

prohibitive based on cost and location. In some situations, a suite of biological control agents may be needed to reduce weed density to a desirable level. As an example, a mixture of five or more biological control agents may be needed to attack flower or seed heads, foliage, stems, crowns and roots all at the same time or during the plant's life cycle. Typically 5 to 20 years are needed to bring about an economic control level.

Biological control activities include collection of beetles/insects, development of colonies for collection, transporting, and transplanting parasitic beetles/insects, and supplemental stocking of populations.

The treated areas will continue to be inventoried and monitored to determine the success of the treatments and when the released bio-control agents have reached equilibrium with the target species. Repeat visits may need to be made several times a season, and over a series of years to determine if additional releases are needed or if a different agent needs to be released.

Cultural Treatment Methods/Restoration

Cultural controls are defined in the R6 2005 FEIS as: "The establishment or maintenance of competitive vegetation, use of fertilizing, mulching, prescribed burning, or grazing animals to control or eliminate invasive plants" (page 10). Any of these methods except prescribed burning and grazing animals may be used under this project.

Cultural treatment methods would be used in the context of encouraging native vegetation to out-compete invasive plants. Some infestations can be treated once and some require multiple treatments to be effective. Mulching, seeding, planting and fertilizing the cultural treatments may be integrated with chemical, physical or biological methods to encourage native plant growth and spread. Native seed would be used to help native species re-establish, enhance competition over invasive plants, and provide erosion protection. In other areas, where 30 percent or more of the desirable vegetation exists, it may naturally replace target invasive plant species that have been removed.

Typical circumstances for applying cultural/restoration treatments include:

- Seeding will likely apply where herbicide treatments cause openings in native vegetation greater than:
    - 0.1 acres in uplands
    - 0.01 acres in riparian areas
- Approved mulch may be applied where concerns exist over seed predation or soil moisture retention.
- Fertilization would typically accompany seeding unless a concern exists that fertilization will stimulate invasive plants growth and dominance of a site.

Project Design Features (Group P) address restoration for areas that are highly disturbed within the dry grassland habitat in Hells Canyon National Recreation Area, and for areas where potential re-infestation by new or nearby invasive plants threatens the introduction of, or existing, native vegetation as well as soils. Treatment Restoration Standards from the R6 2005 FEIS and guidelines and techniques outlined in *Guidelines for Revegetation for Invasive Weed Sites on National Forests and Grasslands in the Pacific Northwest* (Erickson et al. 2003) are addressed.

Project Design Features

The following Project Design Features (PDFs) reduce the potential adverse impacts of invasive plants treatment and provide sideboards for EDRR. The PDFs have been developed to respond to the site-specific resource conditions within the treatment areas, including (but not limited to) the current invasive plant inventory, the presence of special interest species and their habitats, potential for herbicide delivery

to water, and the social environment. Implementation of the PDFs is mandatory. The purpose and source of each PDF is provided in the list below.

These PDFs were developed for application to new detections, as well as known sites, to ensure that the effects of treating new sites are similar to the effects of treating existing sites.

A-Pre-Project Planning

A-1: Prior to treatment, confirm species/habitats of local interest, sensitive areas (e.g. streams, lakes, roadside treatment areas with higher potential to deliver herbicide to water, municipal watersheds, domestic water sources, shallow water table), recreation and administrative sites, and range allotments. Apply appropriate PDFs described in the following text and all that apply from the Regional EIS/Forest Plan.

For EDRR sites follow the decision process (see figure 12) to determine the type and method of treatment and apply applicable PDFs.

- Purpose: Ensure project is implemented appropriately.
- Source: This approach follows several previous NEPA documents. Pre-project planning also discussed in the previous section.

B-Coordination with Other Landowners and Agencies

B-1: Work with owners and managers of neighboring lands to respond to invasive plants that straddle multiple ownerships. Coordinate treatments within appropriate distances based on invasive plant species reproductive characteristics, and current use of area.

- Purpose: To ensure that neighbors are fully informed about nearby herbicide use and to increase the effectiveness of treatments on multiple ownerships
- Source: A variable distance based on site and species specific characteristics was chosen because it adjusts for various conditions that exist in these areas. All PDFs related to riparian areas and buffer distances will be followed.

C-To Prevent the Spread of Invasive Plants during Treatment Activities

C-1: Ensure vehicles and equipment (including personal protective clothing) do not transport invasive plant materials.

- Purpose: To meet Standards
- Source: Wallowa-Whitman LRMP as amended by the R6 2005 ROD Standard #1

D-Wilderness Areas[2]

D-1: For EDRR in wilderness and Research Natural Areas (RNAs), invasive plants could be treated using non-mechanical hand methods or herbicides. Herbicide treatments may use application methods such as wicking, stem injection, spray bottle, hand pressurized pumps, battery or solar powered pumps and propellant based systems such as those that use pressurized carbon dioxide.

- Purpose: To reduce the effects of invasive plant treatments on the untrammeled quality of wilderness character

[2] Invasive plant eradication within Wilderness meets the “no impact” intent of the Wilderness Act and associated land use policies

E-Non-herbicide Treatment Methods

E-1: Limit the numbers of workers on any one site at any one time while treating areas within 150 feet of creeks.

- Purpose: To minimize trampling, protect riparian and aquatic habitats, and prevent potential invasive plant spread via waterway dispersal
- Source: The distance of 150 feet was selected because it incorporates the Aquatic Influence Zone for fish bearing streams

E-2: Fueling of gas-powered equipment with tanks larger than 5 gallons will not occur inside the RHCA unless there is no other alternative.

- Purpose: To protect riparian and aquatic habitats
- Source: The distance of 150 feet was selected because it incorporates the Aquatic Influence Zone for fish bearing streams

F-Herbicide Application

F-1: Herbicides will be used in accordance with label instructions, except where more restrictive measures are required as described below. Herbicide applications will treat only the minimum area necessary to meet site objectives. Herbicide formulations will be limited to those containing one or more of the following 10 active ingredients: chlorsulfuron, clopyralid, glyphosate, imazapic, imazapyr, metsulfuron methyl, picloram, sethoxydim, sulfometuron methyl, and triclopyr. Additional chemical formulations may be added only when a formal risk assessment shows them to be less hazardous than existing chemicals that would otherwise be used on the same site. Furthermore, an analysis supplemental to this EIS will be completed to show predicted effects of adding the formulation considered. Herbicide application methods include wicking, wiping, injection, spot, and broadcast, as permitted by the product label and these Project Design Features. The use of triclopyr is limited to spot and hand/selective methods. R-6 2005 ROD Standard 18 permits only the use of adjuvants reviewed in Forest Service risk assessment documents.

- Purpose: To limit potential adverse effects on people and the environment
- Source: W-W LRMP as amended by the R6 2005 ROD Standard 16, Pesticide Use Handbook 2109.14

F-2: Herbicide use will comply with standards in the Forest Plan as amended by the R6 2005 ROD, including standards on herbicide selection, restrictions on broadcast use, tank mixing, licensed applicators, and use of adjuvants, surfactants and other additives.

- Purpose: To limit potential adverse effects on people and the environment
- Source: W-W LRMP as amended by the R6 2005 ROD Treatment Standards (see Chapter 1)

F-3: POEA surfactants, urea ammonium nitrate or ammonium sulfate will not be used in applications within 150 feet of surface water, wetlands or on roadside treatment areas having high potential to deliver herbicide.

- Purpose: To protect aquatic ecosystems
- Source: The distance of 150 feet was selected because it is wider than the largest buffer and incorporates the Aquatic Influence Zone for fish bearing streams. This distance is sufficient to avoid harm to the aquatic environment, based on risk assessments, previous monitoring, and studies related to chemical behavior in the environment (see Chapter 3).

F4: Lowest effective label rates will be used. No broadcast applications of herbicide or surfactant will exceed typical label rates. NPE surfactant will not be ground-based broadcast at a rate greater than 0.5 lbs. a.i./ac (pounds of active ingredient per acre). Favor other classes of surfactants wherever they are expected to be effective.

- Purpose: To eliminate possible herbicide or surfactant exposures of concern to human health, wildlife, and aquatic organisms
- Source: Based on SERA Risk Assessment for imazapyr there would be no exposure concerns

F-5: Herbicide applications will occur when wind velocity is between two and eight miles per hour to reduce the chance of drift. (Appendix F) During application, weather conditions will be monitored periodically by trained personnel.

- Purpose: To ensure proper application of herbicide and reduce drift
- Source: These restrictions are typical so that herbicide use is avoided during inversions or windy conditions

F-6: To minimize herbicide application drift during broadcast operations, use low nozzle pressure; apply as a coarse spray, and use nozzles designed for herbicide application that do not produce a fine droplet spray, e.g., nozzle diameter to produce a median droplet diameter of 500-800 microns.

- Purpose: To ensure proper application of herbicide and reduce drift
- Source: These are typical measures to reduce drift. The minimum droplet size of 500 microns was selected because this size is modeled to eliminate adverse effects to non-target vegetation 100 feet or further from broadcast sites (see Chapter 3 for details).

F-7: Use of sulfonylurea herbicides (Chlorsulfuron, Sulfometuron methyl and Metsulfuron methyl), will require soils on site to be evaluated prior to treatment. Treatment of powdery, ashy dry soil, or light sandy soil can be treated only if rainfall is expected within 24 hours of treatment.

- Purpose: To avoid herbicide drift caused by wind erosion of dry soils containing sulfonylurea chemical residue
- Source: Label advisory

F-8 - Additional design features specific to aerial application corresponding to Appendix F-Aerial Spray Guidelines:

F-8a: Aerial application of herbicide will not be used for treatment of EDRR sites.

- Purpose: To reduce potential adverse effects to non-target species

F-8b: Chlorsulfuron, metsulfuron methyl, sulfometuron methyl and triclopyr will not be applied aerially.

- Purpose: To reduce potential adverse effects to non-target species
- Source: W-W LRMP as amended by the R6 2005 ROD

F-8c: Provide a minimum buffer of 300 feet for aerial application of herbicides near developed campgrounds, recreation residences and private land (unless otherwise authorized by adjacent private landowners).

- Purpose: To minimize impacts to human health
- Source: W-W LRMP as amended by the R6 2005 ROD

F-8d: Prohibit aerial application of herbicides within congressionally designated municipal watersheds. See B2 for other developed water sources.

- Purpose: To protect water supplies
- Source: W-W LRMP as amended by the R6 2005 ROD

F-8e: Effectiveness monitoring is required for "a representative sample" of treatments involving aerial application of herbicide.

- Purpose: To insure impacts to non-target species are within tolerance
- Source: Appendix I, R6 2005 FEIS

F-8f: Herbicide buffers have been established for perennial and wet intermittent streams, dry streams and lakes and wetlands. These buffers are shown in the tables below.

- Purpose: To reduce the likelihood that herbicides could enter surface water in levels of concern
- Source: Buffers based on SERA risk assessments, label advice., and Berg's 2004 study of broadcast drift and run off to streams; monitoring data from other herbicide application project

F-8g: Buffer distances for federally listed SOLIs will follow Recovery Plan recommendations. No aerial application will occur within 300 feet of non-federally listed SOLIs. Spray cards to monitor drift can be used in conjunction with monitoring and adaptive management to adjust buffers if needed.

- Purpose: To protect SOLIs and reduce non-target effects. To comply with W-W LRMP as amended by the R6 2005 ROD Standards 19 & 20
- Source: Forest Service Manual 2670 and applicable federally listed recovery plans

F-8h: Aerial spraying of invasive species will not occur in areas with 30 percent or more live tree canopy cover. For live tree canopy cover between 10-29 percent an on-site decision whether or not to aerial spray will be based on factors such as target invasive species, herbicides (specificity) proposed for treatment, and potential impacts to non-target tree species.

- Purpose: To reduce potential adverse effects to non-target species
- Source: Common measure

F-8i: Aerial spray units (and perennial seeps, ponds, springs, and wetlands in proposed aerial units) will be ground-checked, flagged and marked using GPS prior to spraying to ensure only appropriate portions of the unit are aerially treated. A GPS system will be used in spray helicopters and each treatment unit mapped before the flight to ensure that only areas marked for treatment are treated. Plastic spray cards will be placed out to 350 feet from and perpendicular to perennial creeks to monitor herbicide presence.

- Purpose: To reduce potential adverse effects to non-target species
- Source: Common measure

F-8j: Press releases will be submitted to local newspapers indicating potential windows of treatment for specific areas. Signing and on-site layout will be performed one to two weeks prior to actual aerial treatment.

- Purpose: To meet Standard #23
- Source: W-W LRMP as amended by the R6 2005 ROD Standard #23

F-8k: Grazing permittees will be notified at annual permittee meeting that aerial application will be conducted. The permittee will also be notified of specific time frames in which treatment would occur to ensure grazing animals are removed from the area.

- Purpose: To ensure grazing animals are not exposed to aerial herbicide applications

F-8l: Enforceable temporary area, trail, and road closures will be used to ensure public safety during aerial spray operations.

- Purpose: To meet Standard #23
- Source: W-W LRMP as amended by the R6 2005 ROD Standard #23

F-8m: Constant communications will be maintained between the helicopter and the project leader during spraying operations. Ground observers will have communication with the project leader. Observers will be located at various locations adjacent to the treatment area to monitor wind direction and speed as well as to visually monitor drift and deposition of herbicide.

- Purpose: To prevent effects to non-target species

F-8n: Aerial swath displacement buffers will be applied as needed as described in Table 10 below

- Purpose: To protect resources in the worst case scenario

F-8o: Aerial application rates for picloram will not exceed (0.25lb/ai/acre), and for clopyralid will not exceed typical application rates (0.35lb ai/acre)

- Purpose: To prevent effects to non-target species
- Source: SERA Risk Assessments, aerial drift modeling (See Appendix B)

G-Herbicide Transportation and Handling Safety/Spill Prevention and Containment

Design Features for G: An Herbicide Transportation and Handling Safety/Spill Response Plan will be the responsibility of the herbicide applicator. At a minimum the plan will:

-Address spill prevention and containment.

-Estimate and limit the daily quantity of herbicides to be transported to treatment sites.

-Require that impervious material be placed beneath mixing areas in such a manner as to contain small spills associated with mixing/refilling.

-Require a spill cleanup kit be readily available for herbicide transportation, storage and application (minimum FOSS Spill Tote Universal or equivalent).

-Outline reporting procedures, including reporting spills to the appropriate regulatory agency.

-Ensure applicators are trained in safe handling and transportation procedures and spill cleanup.

-Require that equipment used in herbicide storage, transportation and handling are maintained in a leak proof condition.

-Select transportation routes to minimize exposure to traffic, domestic water sources, and adjacent water sources

-Specify conditions under which guide vehicles would be required.

-Specify mixing and loading locations away from water bodies so that accidental spills do not contaminate surface waters.

-Require that spray tanks be mixed or washed further than 150 feet of surface water.

-Ensure safe disposal of herbicide containers.

-Identify sites that may only be reached by water travel and limit the amount of herbicide that may be transported by watercraft (see H12).

- Purpose: To reduce likelihood of spills and contain any spills.
- Source: FSH 2109.14

H- Soils, Water and Aquatic Ecosystems

H-1: Herbicide use buffers have been established for perennial and wet intermittent steams; dry streams; and lakes and wetlands. These buffers are depicted in Table 7, Table 8, and Table 9 below. Buffers vary by herbicide ingredient and application method. Tank mixtures will apply the largest buffer as indicated for any of the herbicides in the mixture.

- Purpose: To reduce likelihood that herbicides could enter surface waters in concentrations of concern
- Source: Treatments within RHCAs are allowed if they meet Riparian Management Objectives (RMOs) including minimizing adverse effects to listed fish; therefore, buffers are based on label advisories, SERA risk assessments and Berg's 2004 study of broadcast drift and run off to streams. Buffers are intended to demonstrate compliance with WAW LRMP as amended by the R6 2005 ROD Standards 19 and 20.

H-2: No broadcast of high aquatic risk herbicides on roads that have a high risk of delivery to water (generally roads in RHCAs). These herbicides are picloram or non-aquatic triclopyr (Garlon 4), non-aquatic glyphosate, and sethoxidim.

- Purpose: To ensure high risk herbicides are not delivered to streams in concentrations that exceed levels of concern
- Source: SERA Risk Assessments, R6 2005 FEIS Fisheries Biological Assessment

H-3: In riparian and aquatic settings, vehicles (including all terrain vehicles) used to access invasive plant sites for invasive plants treatment, apply foam, or for broadcast spraying will remain on roadways, trails, parking areas to prevent damage to riparian vegetation, soil, water quality and aquatic habitat.

- Purpose: To protect riparian and aquatic habitats
- Source: Common measure

H-4: Avoid use of clopyralid on high-porosity soils (coarser than loamy sand).

- Purpose: To avoid leaching/ground water contamination
- Source: Label advisory

H-5: Avoid use of chlorsulfuron on soils with high clay content (finer than loam).

- Purpose: To avoid excessive herbicide runoff
- Source: Label advisory

H-6: Avoid use of picloram on shallow or coarse soils (coarser than loam.) according to herbicide labels. No more than one application of picloram will be made within a two-year period.

- Purpose: To reduce the potential for picloram to enter surface and/or ground water and/or accumulate in the soil. Picloram has the highest potential to impact organisms in soil and water, and tends to be more persistent than the other herbicides.
- Source: SERA Risk Assessment. Based on quantitative estimate of risk from worst-case scenario and uncertainty

H-7: Avoid use of sulfometuron methyl on shallow or coarse soils (coarser than loam.) No more than one application of sulfometuron methyl will be made within a one-year period.

- Purpose: To reduce the potential for sulfometuron methyl accumulation in the soil; sulfometuron methyl has some potential to impact soil and water organisms and is second most persistent.
- Source: SERA Risk Assessments: Based on quantitative estimate of risk from worst-case scenario and uncertainty

H-8: Lakes and Ponds – No more than half the perimeter or 50 percent of the vegetative cover within established buffers or 10 contiguous acres around a lake or pond will be treated with herbicides in any 30-day period. This limits area treated within riparian areas to keep refugia habitat for reptiles and amphibians.

- Purpose: To reduce exposure to herbicides by providing some untreated areas for some organisms to use
- Source: SERA Risk Assessments: Based on quantitative estimate of risk from worst-case scenario and uncertainty regarding effects to reptiles and amphibians

H-9: Wetlands – Wetlands will be treated when soils are driest. If herbicide treatment is necessary when soils are wet, use aquatic labeled herbicides. Favor hand/selective treatment methods where effective and practical. No more than 10 contiguous acres or fifty percent individual wetland areas will be treated in any 30-day period.

- Purpose: To reduce exposure to herbicides by providing some untreated areas for some organisms to use
- Source: SERA Risk Assessments. Based on quantitative estimate of risk from worst-case scenario, uncertainty in effects to some organisms, and label advisories

H-10: Foaming will only be used on invasive plants that are further than 150 feet from streams and other water bodies.

- Purpose: To limit the amount of foam that may be delivered to streams and other water bodies
- Source: No label regulations are associated with this naturally occurring organic compound. The distance of 150 feet was selected because it incorporates the Aquatic Influence Zone for fish bearing streams

H-11: Herbicide use will not occur within 100 feet of wells or 200 feet of spring developments. For stock tanks located outside of riparian areas, use wicking, wiping or spot treatments within 100 feet of the watering source.

- Purpose: Safe drinking water. Also to reduce the potential chance of herbicide delivery to watering systems used for grazing animals
- Source: Label advisories and state drinking water regulations

H-12: When chemicals need to be carried over water by boat, raft or other watercraft, herbicides will be carried in water tight, floatable containers.

- Purpose: Lower the risk of herbicide being delivered to streams in concentrations that exceed levels of concern

H-13: In aquatic settings, herbicide applications from water's edge to bank-full width will be limited to 2 acres for every 1.6 miles of stream length per 6th field HUC. Treatments above bankfull, within the aquatic influence zone (riparian area), will not exceed 10 acres along any 1.6 mile of stream length per 6th field HUC.

- Purpose: Limits the extent of treatment from the water's edge through the aquatic influence zone so that adverse effects are within the scope of analysis
- Source: Analyses based on SERA risk assessment worksheets. Ten acres is based on GLEAM model factors.

I - Vascular and Non-Vascular Plant and Fungi Species of Local Interest (SOLI)

I-1: Botanical surveys may be necessary prior to treatment applications to identify vascular and non-vascular SOLI occurrence in or near areas proposed for invasive plant treatments. Lists of target SOLI to include in each treatment area will be developed by qualified botanical personnel based on the range and distribution of SOLI species and the presence of suitable SOLI habitat. If surveys are deemed necessary, they will be conducted within the proposed treatment area and immediately adjacent to the treatment area as follows: 300 to1000 feet of planned aerial treatments (see I-7), 100 feet of planned broadcast treatments, and 10 feet of planned spot treatments and/or 5 feet of planned hand herbicide treatments.

- Purpose: To ensure SOLI are protected and surveys are conducted when appropriate
- Source: Forest Service Manual 2670 and applicable federally listed recovery plans

I-2: If circumstances will not permit surveys prior to treatment then all suitable SOLI habitat identified to occur within and around the treatment area will be managed as if the habitat were occupied by SOLI species. In absence of botanical surveys: no aerial herbicide treatment will occur within 300 to 1000 feet of SOLI habitat (see section I6), and no ground based broadcast, spot, or hand treatments will occur within 100 feet of SOLI habitat.

- Purpose: To ensure SOLI are protected and surveys are conducted when appropriate
- Source: Forest Service Manual 2670 and applicable federally listed recovery plans

I-3: Modify treatments to protect SOLI occurrences based on their distance from the treatment area:

Greater than 100 feet: All ground based treatments are permitted (see I-6 and aerial section for additional buffer restrictions) 100 to 10 feet: Manual and mechanical methods permitted. Broadcast herbicide methods permitted if SOLIs can be completely protected using a protective cover, otherwise use other protective measures such as low-pressure spot-spray, directed spray applications or hand application methods to eliminate any potential for drift.

Less than 10 feet: No broadcast spraying is permitted. Spot treatment using hand application methods is permitted. For saturated or wet soils see I-6. Manual treatment methods are permitted. Precautions must be taken to avoid any contact with individual SOLI.

- Purpose: To ensure SOLI are protected and surveys are conducted when appropriate
- Source: Forest Service Manual 2670 and applicable federally listed recovery plans

I-4: Picloram will not be used within 50 feet of the threatened plant species *Silene spaldingii* and *Mirabilis macfarlanei.*

- Purpose: To ensure protection of emerging seedlings and potential non-target plant root uptake due to herbicide soil persistence
- Source: US FWS Conservation Strategy (2004).

I-5: In the vicinity of *S. spaldingii, M. mirabilis* and all other SOLI, restoration and cultural treatments, including seeding and/or use of fertilizer, will be under the direct supervision of the district or forest botanist to ensure that plant communities are restored to their desired condition without negative impacts to existing SOLI populations or individuals. The vicinity areas will be evaluated on a case by case basis.

- Purpose: To ensure soil chemistry/biology is not negatively impacted which can potentially alter the subsequent establishment of resident seedbank species.
- Source: Professional judgment

I-6: When vascular or non-vascular SOLI plant species are within 10 feet of saturated or wet soils at the time of herbicide application, only hand methods (wiping, stem injection, etc.) will be used. Avoid the use of picloram and imazapyr in this situation, and use aquatic triclopyr with caution as typical application rates can result in concentrations greater than estimated or measured "no observable effect concentration" to aquatic plants (R6 2005 FEIS, Table 4-47).

- Purpose: To ensure SOLI are protected and surveys are conducted when appropriate
- Source: Forest Service Manual 2670 and applicable federally listed recovery plans. Aerial drift buffers were derived from various scientific publications (See aerial application methods)

I-7: Aerial herbicide applications will follow Recovery Plan recommendations for listed species (FWS). Presently, two federally listed species (*Silene spaldingii and Mirabilis macfarlanei*) are documented on the forest. Recovery plan recommend no aerial herbicide within 1000 feet of occurrence for S. spaldingii and not adjacent to M. macfarlanei. A 1000 foot buffer for aerial application will be used for both species. For non-federally listed SOLI, no aerial herbicide applications will occur within 300 feet of known location of SOLI and spray cards to monitor drift will be used to monitor drift and adjust buffers if needed (See I-8 and section F8-Aerial PDFs).

- Purpose: To ensure SOLI are protected and surveys are conducted when appropriate
- Source: Forest Service Manual 2670 and applicable federally listed recovery plans. Aerial drift buffers were derived from various scientific publications (See aerial application methods Appendix F)

I-8: A USDA Forest Service botanist will use monitoring results to refine buffers in order to adequately protect vascular and nonvascular plant species of local interest.

- Purpose: To prevent any repeated effects to SOLI populations, thereby mitigating any long term effects
- Source: Broadcast buffer sizes are based on Marrs, 1989 based on tests on vascular plants. Spot and hand/select buffer distances are based on reports from experienced applicators. Uncertainty about effects on non vascular plants will be addressed through monitoring (See I-9)

I-9: The impacts of herbicide use on plant Species of Local Interest (SOLI) are uncertain, especially regarding lichen and bryophytes. The potential for variances in aerial drift due to uncontrolled weather conditions during treatment may also be uncertain. To manage this uncertainty, representative samples of herbicide treatment sites adjacent to vascular and non-vascular plant SOLIs will be monitored. Non-target vegetation within 1000 feet of aerial treatment sites, 500 feet of herbicide broadcast treatment sites and 20 feet of herbicide spot and hand treatment sites will be evaluated before treatment, immediately after treatment, and two to three months later as appropriate. Treatment buffers will be expanded if damage is

found as indicated by: (1) Decrease in the size of the SOLI plant population, or (2) Leaf discoloration or chlorophyll change

- Purpose: To prevent any repeated effects to SOLI populations, thereby mitigating any long term effects

I-10: Compliance monitoring will occur before implementation to ensure that prescriptions, contracts and agreements integrate appropriate Project Design Features. This will be done via a pre-work review.

I-11: Implementation monitoring will occur during implementation to ensure Project Design Features are implemented as planned. An implementation monitoring form will be used to document daily field conditions, activities, accomplishments and/or difficulties. Contract administration mechanisms will be used to correct deficiencies. Herbicide use will be reported as required by the Forest Service Health Pesticide Use Handbook (FSH 2109.14)

I-12: Effectiveness monitoring will occur before, during and after treatment to determine whether invasive plants are being effectively controlled and to ensure non-target vegetation, especially native vascular and non-vascular species of local interest are adequately protected.

- Source: PNW 2005 ROD and FEIS Appendix M: Inventory and Monitoring Plan Framework

J - Wildlife Species of Local Interest

J-1: Bald Eagle

J-1a: Treatment of areas within 0.25 mile, or 0.50 mile line-of-sight, of bald eagle nests will be timed to occur outside the nesting/fledging season of January 1 to August 31, unless treatment activity is within ambient levels of noise and human presence (as determined by a local specialist). Occupancy of nest sites (i.e. whether it is active or not) will be determined each year prior to treatments.

- Purpose: To minimize disturbance to nesting bald eagles and protect eggs and nestlings
- Source: Bald Eagle Management Guidelines for OR-WA (Anonymous); U.S. Fish and Wildlife Service 2003, p. 9

J-1b: Noise-producing activity above ambient levels will not occur between October 31 and March 31 during early morning or late afternoon near known winter roosts and concentrated foraging areas. Disturbance to daytime winter foraging areas will be avoided.

- Purpose: To minimize disturbance and reduce energy demands during stressful winter season
- Source: Bald Eagle Management Guidelines for OR-WA (Anonymous); t Programmatic BO (U.S. Fish and Wildlife Service 2003, p. 9)

J-2: Grey Wolf

J-2a: Treatments within 1 mile of active wolf dens will be timed to occur outside the season of occupancy (April 1 through June 30)

- Purpose: To minimize disturbance and reduce energy demands on denning wolves
- Source: Federal Register, Vol, 68, No, 62 4(d)

J-2b: Treatments within 0.50 mile or 0.50 mile line-of-sight of occupied rendezvous sites will be timed to occur outside the season of occupancy unless treatment activity is within acceptable ambient noise levels and human presence will not cause wolves to abandon the site (as determine by a local specialist)

- Purpose: To minimize disturbance/impacts to wolves at rendezvous sights.
- Source: Buffer is based on expected range of disturbance

J-2c: Consultation with FWS will be reinitiated (unless determined otherwise by FWS) if/when wolf dens or rendezvous sites are discovered in the vicinity of treatment sites.

J-3 Peregrine Falcon

J-3a: Seasonal restrictions (J3-c to g) will be applied based on the spatial and temporal factors listed in J3-b. Restrictions will apply to all known peregrine falcon nest sites for the periods listed below based on the following elevations:

Low elevation sites (1000-2000 ft 01 Jan - 01 July

Medium elevation sites (2001 - 4000 ft) 15 Jan - 31 July

Upper elevation sites (4001+ ft) 01 Feb - 15 Aug

- Purpose: To reduce disturbance to nesting falcons and protect eggs and nestlings. Agitated parents can damage the eggs with thin shells resulting in failed reproduction for that nest.
- Source: Pagel J. 2006. Peregrine falcon nest site data, 1983-2006.

J-3b: Seasonal restrictions will be waived if the site is unoccupied or if nesting efforts fail and monitoring indicates no further nesting behavior. Seasonal restrictions will be extended if monitoring indicates late season nesting, asynchronous hatching leading to late fledging, or recycle behavior which indicates that late nesting and fledging will occur. The nest zones associated with those nest sites are described below:

(1) Primary: average of 0.5-mile radius from the nest site. Site-specific primary nest zones will be determined and mapped by a local Biologist for each known nest site.

(2) Secondary: average of 1.5- mile radius from the nest site. Site-specific secondary nest zones will be determined and mapped for each known nest site.

(3) Tertiary: a three-mile radius from the nest site including all zones. The tertiary nest zones are not mapped; they apply to a circular area based on the three-mile radius.

- Purpose: To reduce disturbance to nesting falcons and protect eggs and nestlings. Agitated parents can damage the eggs with thin shells resulting in failed reproduction for that nest.
- Source: Pagel J. 2006. Peregrine falcon nest site data, 1983-2006

J-3c: Protection of nest sites will be provided until at least two weeks after all young have fledged.

- Purpose: To reduce disturbance to nesting falcons and protect eggs and nestlings. Agitated parents can damage the eggs with thin shells resulting in failed reproduction for that nest
- Source: Pagel J. 2006. Peregrine falcon nest site data, 1983-2006

J-3d: Invasive plant activities within the secondary nest zone requiring the use of machinery will be seasonally restricted. This may include activities such as mulching, chainsaws, vehicles (with or without boom spray equipment) or other mechanically based invasive plant treatment.

- Purpose: To reduce disturbance to nesting falcons and protect eggs and nestlings. Agitated parents can damage the eggs with thin shells resulting in failed reproduction for that nest.
- Source: Pagel J. 2006. Peregrine falcon nest site data, 1983-2006

J-3e: Non-mechanized or low disturbance invasive plant activities (such as spot spray, hand pull, etc.) within the secondary nest zone will be coordinated with the wildlife biologist on a case-by-case basis to

determine potential disturbance to nesting falcons and identify mitigating measures, if necessary. Non-mechanized invasive plant activities such as back pack spray, burning, hand-pulling, lopping, and/or re-vegetation planting may be allowed within the secondary nest zone during the seasonal restriction period.

- Purpose: To reduce disturbance to nesting falcons and protect eggs and nestlings. Agitated parents can damage the eggs with thin shells resulting in failed reproduction for that nest.
- Source: Pagel J. 2006. Peregrine falcon nest site data, 1983-2006

J-3f: All foot and vehicle entries into Primary nest zones will be seasonally prohibited except for the following reasons:

1. (1) Biologists performing monitoring in association with the eyrie and coordinated with the District Biologist.
2. (2) Law enforcement specialists performing associated duties with notice to the District Ranger.
3. (3) Access for fire, search/rescue, and medical emergencies under appropriate authority (Forest Service line officer or designee).
4. (4) Trail access, when determined by a biologist to be non-disturbing.
5. (5) Other exceptions on a case-by-case basis as determined by the Deciding Official

- Purpose: To reduce disturbance to nesting falcons and protect eggs and nestlings. Agitated parents can damage the eggs with thin shells resulting in failed reproduction for that nest.
- Source: Pagel J. 2006. Peregrine falcon nest site data, 1983-2006

J-3g: Picloram and clopyralid will not be used within 1.5 miles of peregrine nest more than once per year.

- Purpose: To reduce exposure to hexachlorobenze, which has been found in peregrine falcon eggs
- Source: Pagel J. 2006. Peregrine falcon nest site data, 1983-2006

J-4 Painted Turtle

J-4a: The local Forest Service Biologist will review treatment locations, timing, and methods to minimize adverse impacts to painted turtles PDF H10 defines herbicide treatment limitations to protect amphibian habitat.

- Purpose: To minimize disturbance, trampling, and herbicide exposure to painted turtles
- Source: David Anderson, WA Dept. of Fish and Wildlife, personal communication, 2005

J-5 Greater Sage Grouse (If discovered and documented on the W-WNF)

J-5a: Do not use NPE-based surfactants in areas where sage grouse may forage.

- Purpose: To minimize exposure to disturbance, herbicides and surfactants that could pose a risk

J-5b: Human activities within 0.3 mile of leks will be prohibited from the period of one hour before sunrise until four hours after sunrise and one hour before sunset until one hour after sunset from February 15 – May 15.

- Purpose: To minimize exposure to disturbance, herbicides and surfactants that could pose a risk

J-5c: Do not conduct any vegetation treatments or improvement project in breeding habitats from February 15 – June 30.

- Purpose: To minimize exposure to disturbance, herbicides and surfactants that could pose a risk

K-Public Notification

K-1: The public will be notified about upcoming herbicide treatments via the local newspaper or individual notification, fliers, and posting signs. Forest Service and other websites may also be used for public notification.

- Purpose: To reduce the risk of inadvertent public contact with herbicide
- Source: W-W LRMP as amended by the R6 2005 ROD Standard 23

L-Special Forest Products

L-1: Triclopyr will not be applied to foliage in areas of known special forest products or other wild food collection areas.

- Purpose: To reduce the chance that people might be exposed to harmful doses of triclopyr
- Source: Appendix Q of the R6 2005 FEIS

L-2: Special forest product gatherers will be notified about herbicide treatment areas when applying for their permits. Flyers indicating treatment areas may be included with the permits.

- Purpose: To reduce the risk of inadvertent public contact with herbicide
- Source: W-W LRMP as amended by the R6 2005 ROD Standard 23

M- American Indian Tribal and Treaty Rights

M-1: American Indian tribes will be notified annually as treatments are scheduled so that tribal members may provide input and/or be notified prior to gathering cultural plants.

- Purpose: To ensure that no inadvertent public contact with herbicide occurs and that cultural plants are fully protected.
- Source: Government to government agreements between American Indian tribes and the Wallowa-Whitman National Forest

M-2: The Forest Archaeologist will annually assess areas where mechanical treatment that could cause damage to cultural resources is proposed. Weed wrenching and grubbing techniques will not be used in known archaeological sites. Instead, treatment methods that have no potential to affect cultural resources will be used.

- Purpose: To avoid adverse impacts to cultural resources
- Source: Common practice

N-Rangeland Resources

N-1: Use available administrative mechanisms to incorporate invasive plant prevention practices into rangeland management. Examples of administrative mechanisms include, but are not limited to, revising permits and grazing allotment plans, providing annual operating instructions, and adaptive management. Plan and implement practices in cooperation with grazing permit holder.

- Purpose: To ensure proactive adaptive measures are taken to eliminate future spread of invasive plants
- Source: R6 2005 FEIS Standard 6

N-2: Permittees will be notified of annual treatment actions at the annual permittee operating plan meeting, and/or notified within two weeks of planned treatments of infestations greater than one acre in size. See PDF section K.

- Purpose: To ensure permittee has knowledge of activities occurring within the allotment
- Source: Common practice

N-3: Follow most current EPA herbicide label for grazing restrictions

- Purpose: To ensure grazing animals are not exposed to chemicals
- Source: EPA labeling requirements

O-Human Health (See R6 2005 FEIS, Appendix Q for more information)

O-1: Backpack application rate for Sulfometuron methyl will not exceed 0.2 lb a.i./ac., and for NPE surfactant it will not exceed 1.67 lb a.i./ac

- Purpose: To reduce the potential of adverse effects to human health

O-2: Spot spray application rate for Picloram will not exceed 0.35 lb a.i./ac., and for Sulfometuron methyl it will not exceed 0.12 lb a.i./ac

- Purpose: To reduce the potential of adverse effects to human health

O-3: Triclopyr application rate will not exceed 1.0 lbs a.i./ac. Use spot spraying techniques to further reduce dermal exposure. Favor other herbicides wherever they are expected to be effective

- Purpose: To reduce the potential for adverse effects to human health from dermal contact or consumption of contaminated vegetation

P-Restoration

P-1: Long-term site strategy for highly disturbed areas that have high potential for weed invasion such as old fields or old homesteads, follow guidelines and techniques outlined in *Guidelines for Revegetation for Invasive Weed Sites on National Forests and Grasslands in the Pacific Northwest* (Erickson et al.2003)

- Purpose: To ensure highly invisible/disturbed sites are successfully restored or revegetated with desirable vegetation
- Source: Treatment Restoration Standard 12 (RFEIS)

P-2: On dry grassland habitat below 3000 feet in the Hells Canyon National Recreation Area and other highly disturbed areas where live vegetative groundcover will be reduced by 70 percent of existing vegetation by herbicide treatment, restoration and/or revegetation will occur following *Guidelines for Revegetation for Invasive Weed Sites on National Forests and Grasslands in the Pacific Northwest* (Erickson et al.2003) and R6 2005 FEIS standards

- Purpose: To ensure highly invasible/disturbed sites are successfully restored or revegetated with desirable vegetation
- Source: Treatment Restoration Standard 3, 12 (RFEIS), *Guidelines for Revegetation for Invasive Weed Sites on National Forests and Grasslands in the Pacific Northwest* (Erickson et al. 2003), Water Erosion Prediction Project (WEPP) erosion data, and Goodwin et al. 2002

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P-3: In areas where broadcast herbicide is used to treat highly infested areas, evaluation of potential re-infestation by new or nearby invasives will be considered and restoration and/or revegetation measures will be implemented to ensure protection of native vegetation and soils. Also see Treatment Restoration Standard #12 in the R6 2005 FEIS and ROD.

- Purpose: To ensure those sites are successfully restored with desirable vegetation

- Source: Treatment Restoration Standard 3, 12 (RFEIS), and *Guidelines for Revegetation for Invasive Weed Sites on National Forests and Grasslands in the Pacific Northwest* (Erickson et al. 2003)

Herbicide Use Buffers

Herbicide treatments are more restrictive nearer water bodies. PDFs and herbicide use buffers within the aquatic influence zone were developed based on label restrictions; SERA risk assessments, and various studies of drift and runoff to streams, such as Berg 2004. The scientific basis for establishing no treatment buffer widths is based on research on the inherent risk of chemical contamination due to herbicide application (Moore 1975, Norris, Lorz and Gregory 1991, Bissin, Ice, Perrin and Bilby 1992). Research has demonstrated that the risk of aquatic organism exposure to chemical herbicides is dependent on three key factors: chemical behavior, the rate and methods of application, and site characteristics.

Tables 7, 8 and 9 prescribe buffer widths according to treatment methods, herbicides used, risk, and type of aquatic environment. Table 10 addresses buffer widths used for aerial application. Buffers identify distances from various water bodies where treatment activities are not allowed.

Ephemeral streams exist in the project area. Label direction and PDFs will be followed for treatments along ephemeral streams. These areas flow rarely during very high water events when herbicide use is not likely occur.

Table 7-Herbicide Use Buffers in Feet -Perennial and Wet Intermittent Streams -Proposed Action

Herbicide	Perennial and Wet Intermittent Stream			
	Aerial	Broadcast	Spot	Hand/Select
Aquatic Labeled Herbicides				
Aquatic Glyphosate	Not proposed	100	Water's edge	Water's edge
Aquatic Triclopyr-TEA	None Allowed	None Allowed	15	Water's edge
Aquatic Imazapyr*	Not proposed	100	Water's edge	Water's edge
Low Risk to Aquatic Organisms				
Imazapic	Not proposed	100	15	Bankfull
Clopyralid	300	100	15	Bankfull
Metsulfuron Methyl	None Allowed	100	15	Bankfull
Moderate Risk to Aquatic Organisms				
Imazapyr	Not proposed	100	50	Bankfull
Sulfometuron Methyl	Not proposed	100	50	5
Chlorsulfuron	Not proposed	100	50	Bankfull
High Risk to Aquatic Organisms				
Triclopyr-BEE	None Allowed	None Allowed	150	150
Picloram	300	100	50	50
Sethoxydim	Not proposed	100	50	50
Glyphosate	Not proposed	100	50	50

Table 8-Herbicide Use Buffers in Feet -Dry Intermittent Streams -Proposed Action

Herbicide	Dry Intermittent Stream			
	Aerial	Broadcast	Spot	Hand/ Select
Aquatic Labeled Herbicides				
Aquatic Glyphosate	Not proposed	50	0	0
Aquatic Triclopyr-TEA	None Allowed	None Allowed	0	0
Aquatic Imazapyr*	Not proposed	50	0	0
Low Risk to Aquatic Organisms				
Imazapic	Not proposed	50	0	0
Clopyralid	100	50	0	0
Metsulfuron Methyl	None Allowed	50	0	0
Moderate Risk to Aquatic Organisms				
Imazapyr	Not proposed	50	15	Bankfull
Sulfometuron Methyl	None Allowed	50	15	Bankfull
Chlorsulfuron	None Allowed	50	15	Bankfull
High Risk to Aquatic Organisms				
Triclopyr-BEE	None Allowed	None Allowed	150	150
Picloram	100	100	50	50
Sethoxydim	Not proposed	100	50	50
Glyphosate	Not proposed	100	50	50

Table 9-Herbicide Use Buffers in Feet – Lakes and Wetlands

Herbicide	Wetlands			
	Aerial	Broadcast	Spot	Hand/ Select
Aquatic Labeled Herbicides				
Aquatic Glyphosate	Not proposed	100**	Water's edge	Water's edge
Aquatic Triclopyr-TEA	None Allowed	None Allowed	15	Water's edge
Aquatic Imazapyr*	Not proposed	100**	Water's edge	Water's edge
Low Aquatic Hazard Rating				
Imazapic	Not proposed	100	15	High water mark
Clopyralid	300	100	15	High water mark
Metsulfuron Methyl	Not proposed	100	15	High water mark
Moderate Aquatic Hazard Rating				
Imazapyr	Not proposed	100	50	High water mark
Sulfometuron Methyl	None Allowed	100	50	5
Chlorsulfuron	None Allowed	100	50	High water mark
Greater Aquatic Hazard Rating				
Triclopyr-BEE	None Allowed	None Allowed	150	150
Picloram	300	100	50	50
Sethoxydim	Not proposed	100	50	50
Glyphosate	Not proposed	100	50	50

** If wetland, pond or lake is dry, there is no buffer.

Table 10-Buffer widths required for aerial applications

Buffer width for a 25 foot release height, 7-8 mph winds	Buffer width for a 35 foot release height, 7-8 mph winds	Buffer width for a 50 foot release height, 7-8 mph winds
Designated buffer	Add 1 swath width to buffer	Add 2 swath widths to buffer

Ensure little to no drift by applying these buffers and low drift technology (i.e. nozzle design and/or additives), as directed in PDFs

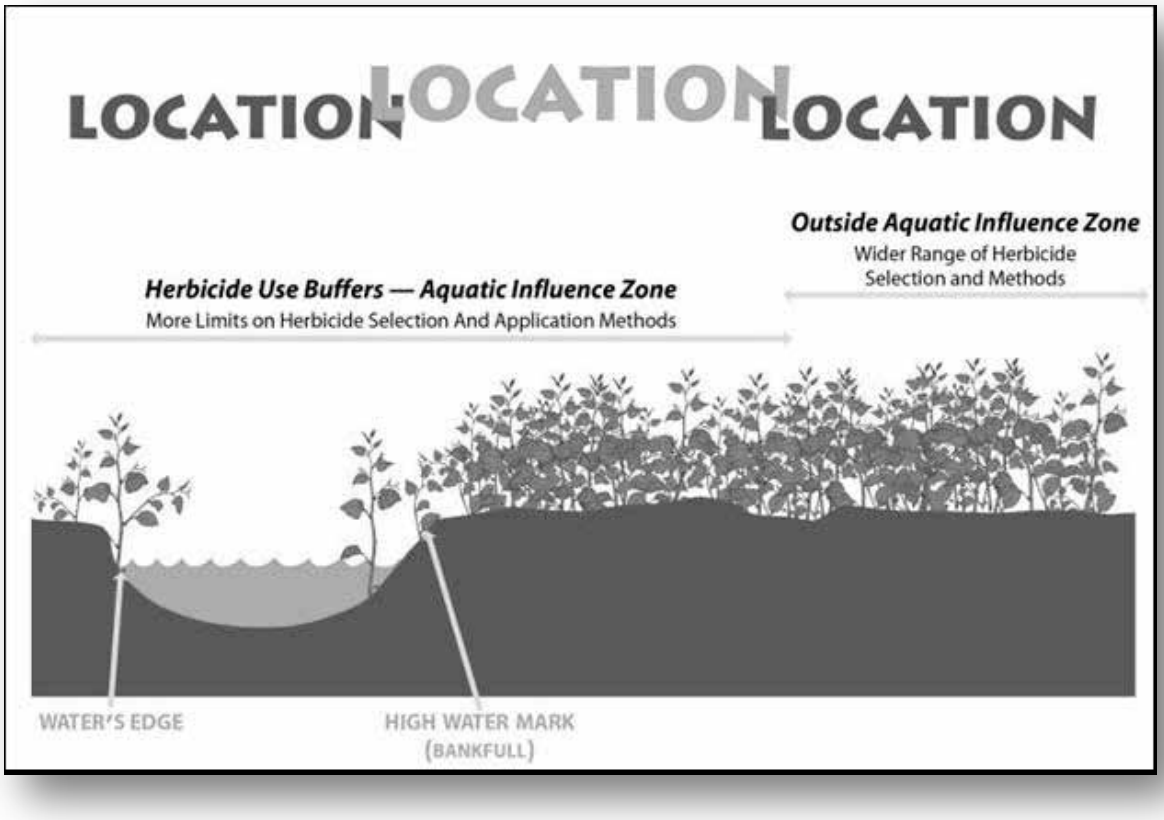

Figure 11 – Illustration of how herbicide selection and application methods in the established buffer widths are more limited in Aquatic Influence Zones

Figure 11 illustrates how the Aquatic Influence Zone restricts application methods and herbicides only to those approved for use in aquatic areas. "Aquatic Influence Zone" is not synonymous with "buffer widths" listed in the tables above. The Aquatic Influence Zone is defined by the innermost half of the Riparian Habitat Conservation Area (RHCA). For instance, a 300-foot RHCA will have an Aquatic Influence Zone of 150 feet. Establishing buffer widths reduces the potential for herbicides to come in contact with water via drift, leaching, and runoff at or near concentrations of concern.

Early Detection, Rapid Response Herbicide Use Decision Process

Early Detection, Rapid Response (EDRR) is aimed at controlling new infestations that are small in size, thus decreasing cost and the need for repeated applications. It is also advantageous because: 1) the precise location of individual target plants is subject to rapid or unpredictable change, and 2) presently known infestations may grow during the time it typically takes to complete the NEPA process. The selected alternative allows the treatment of new invasive plant detections, as long as the treatment method is

within the scope of this EIS. Project Design Features will apply to EDRR treatments. Invasive plant sites discovered subsequent to the current invasive plant inventory may be treated following the steps outlined below in the EDRR Decision Use Tree.

1. Is the target population associated with a size, phenology, density or distribution that warrants herbicide use (alone or in combination with other methods)? Consider whether or not herbicides are required for treatment effectiveness and/or whether or not the use of herbicides substantially increases cost-effectiveness of treatment? Consult common control measures. Consider whether volunteers may be available to reduce the cost of manual treatments.

Yes (use herbicides): List potential herbicide choices and integrated prescription. Review label directions and project design criteria. Consider non-target vegetation surrounding treatment sites and use selective herbicides as appropriate. Consider soil conditions at the treatment site. Consider previous treatments that have occurred on the site. Were they effective? Would another herbicide or combination of methods be more effective? Also note that triclopyr may not be used in areas of known special forest product or subsistence collection. Go to 2.
No: Use non-herbicide methods.

2. Do the size, density and/or distribution of invasive plants warrant the broadcast application method? Would another herbicide besides triclopyr be effective? (Please note that triclopyr may not be broadcast)

Yes: Is the treatment site within the aquatic influence zone and/or on a road that has high potential to deliver herbicide to surface waters? Is the site in a wildlife habitat that has specific restrictions to broadcasting? Go to 3a.
No: Go to 3b.

3a. Apply surface water buffers as appropriate. Is this site within an area where broadcasting is prohibited?

Yes: Do not broadcast. Go to 4.
No: Go to 3b.

3b. Are there botanical species of local interest/suitable habitat within 100 feet of the proposed broadcast site?

Yes: Survey as needed within suitable habitats. Apply botanical buffers as appropriate (see table 25). Broadcast may still be acceptable if botanical species of local interest are covered by barrier. Go to 4.
No: Broadcasting is an acceptable treatment method for herbicides except triclopyr. Use lowest effective label rates for each given situation. Do not exceed typical label rates. Favor other surfactants besides NPE and do not broadcast NPE at a rate exceeding 0.5 lbs. active ingredient per acre. Do not broadcast spray NPE in animal habitats (see table 35). Do not broadcast imazapyr at a rate greater than 0.7 lbs per acre. Consider wildlife habitats in the area and implement seasonal restrictions if required.

4. Will spot and/or selective methods be reasonably effective in this situation?

Yes: Apply spot/selective buffers and use aquatic labeled herbicides as appropriate.
No: Seek approval for treatment through additional decision process (NEPA Section 18 or a new NEPA process).

Figure 12 – EDRR Herbicide Use Decision Tree Process

Annual Implementation Planning and Monitoring

This section outlines the process for making sure the selected alternative is properly implemented. The method follows Integrated Weed Management principles (R6 2005 FEIS, 3-3) and satisfies pesticide planning requirements at FSH 2109.14. It applies to currently known and new sites found during ongoing monitoring (EDRR).

1. Characterize the invasive plant infestation to be treated. This includes:

- Map and describe the target species, density, extent, treatment strategy, and site conditions.
- List any resource of concerns and determine if additional surveys are needed. Coordinate with resource specialists to get additional information or new information about specific locations. Identify and perform pre-treatment surveys for species of local interest and/or their habitats.

2. Develop site prescriptions

- Use Integrated Weed Management principles to identify possible effective methods of treatment. Non-herbicide treatments should be considered when sites are small or target plant densities are low, particularly after several years of herbicide treatments. Prescribe herbicides as needed based on the biology of the target species and size of the infestation (for instance, manual treatment alone cannot effectively eradicate rhizomatous species). Determine that the prescribed treatment is within the scope of those analyzed in the EIS. If treatments would not be effective once Project Design Features are applied, further NEPA would also be required to authorize the effective treatment.
- Apply appropriate Project Design Features. Consider the soil texture and type and potential for ground water contamination to ensure that label guidance and PDFs related to soils are followed. Consider the presences of small unmapped small wetlands and ensure PDFs are appropriately applied.
- Determine that the prescribed treatment is consistent with the ESA consultation.
- Review compliance criteria for the Forest Plan and any other environmental standards indicated by the label or state regulations. Develop an Invasive Plant Prevention Plan, a public notification plan, and coordinate with local Tribes.
- Complete Form FS-2100-2, Pesticide Use Proposal. This form lists treatment objectives, specific herbicide(s) that will be used, the rate and method of application, and Project Design Features that apply. Apply for any herbicide application permits when needed for treatments in Riparian Areas.
- Confirm that acceptable plant or mulch materials are available for cultural treatments/restoration. If the prescription includes extensive site preparation, additional NEPA is required.
- Coordinate with adjacent landowners, water users, agencies, and partners.
- Apply annual caps Forest-wide, a cap for the life of the project, and an annual cap for riparian areas including individual watersheds. (Cap acreages refer to first-time treatment acres and do not count retreatment of those same acres). The Caps include:
    - A maximum of 8,000 acres per year Forest-wide
    - A maximum for the life of the project of 40,000 acres (combined treatment acreage of known, presently undetected, and future new infestations)
    - A maximum of 4,000 acres of riparian treatment per year

3. Accomplishment and Compliance Monitoring

- Develop a project work plan for herbicide use as described in FSH 2109.14.3. This plan presents organizational and operational details including treatment objectives, the equipment, materials, and supplies needed; the herbicide application method and rate; field crew organization and lines of responsibility, and a description of interagency coordination. The plan will also include a job hazard analysis to assure applicator safety.
- Ensure contracts and agreements include appropriate prescriptions and that herbicide ingredients and application rates meet label requirements, Standards 16 and 18, and site specific Project Design Features.
- Document and report herbicide use and certify applicator information in the National Pesticide Use Database, via the Forest Service Activity Tracking System (FACTS) to determine the amount, type and location of herbicide use annually, and also whether the goal of reducing herbicide use over time is achieved.
- Document the implementation of the public notification plan.

4. Post Treatment Monitoring

- Post-treatment reviews will occur on a sample basis or when required by a Project Design Feature to determine whether treatments were effective, if damage to non-target species occurred, or whether or not passive restoration occurred as expected.
- Post-treatment monitoring will also be used to detect whether Project Design Features were appropriately applied and effective. Contract administration and other existing mechanisms will be used to correct deficiencies.
- Additional monitoring may be done consistent with the R6 2005 ROD.