WESTSIDE SALEM INTEGRATED NON-NATIVE PLANT MANAGEMENT PLAN ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

Environmental Assessment Number OR-080-06-09

January 16, 2008
United States Department of the Interior
Bureau of Land Management
Oregon State Office
Salem District
Marys Peak & Tillamook Resource Areas

BLM Salem District

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Abstract: This EA (environmental assessment) discloses the predicted environmental effects of one project on federal and non-federal lands located in the MP (Marys Peak) and Tillamook RAs (Resource Areas), of the Salem District of the BLM (Bureau of Land Management). The project proposes to implement a long term IWM (Integrated Weed Management) Plan to reduce and control NNP (non-native plant) species across the MP and Tillamook RAs. It includes cultural, physical, biological and chemical control of NNP species in a variety of habitats and land use allocations. The action would occur within all land use planning areas including but not limited to; LSR (Late-Successional Reserve), RR (Riparian Reserve), AMA (Adaptive Management Area) and Matrix LUAs (Land Use Allocations) and ACECs (Areas of Critical and Environmental Concern). The number of acres treated annually would be based on available funding, weather, and condition of the NNP sites. Physical treatments would occur on up to 1,500 acres per year (0.65% of Westside Salem BLM lands). Herbicide use would be limited to 100 acres per year (0.04% of the public lands in the project area) and restricted to whatever is less: 1) 10 acres per year, per 6th field watershed or 2) less than 10% of the total riparian area within each 6th field per year excluding the projects listed in Appendix 6. The 1,500 acre annual physical treatment limit and the 100 acre annual herbicide limit would be the sum of all treatments on BLM lands and all private lands utilizing Federal dollars, excluding those project areas listed in Appendix 6.

As the Nations principal conservation agency, the Department of Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering economic use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

FINDING OF NO SIGNIFICANT IMPACT

Introduction

The BLM (Bureau of Land Management) has conducted an environmental analysis (Environmental Assessment Number OR080-06-09) for a proposal to implement a long term IWM (Integrated Weed Management) Plan to reduce and control NNP (non-native plant) species across the MP (Marys Peak) and Tillamook RAs (Resource Areas). It includes cultural, physical, biological and chemical control of NNPs in a variety of habitats within LSR (Late-Successional Reserve), RR (Riparian Reserve), AMA (Adaptive Management Area) and Matrix LUAs (Land Use Allocations) and ACECs (Areas of Critical and Environmental Concern).

Implementation of the proposed action will conform to management actions and direction contained in the attached Integrated NNP Management Plan EA (*Westside Salem Integrated Non-Native Plant Management Plan Environmental Assessment*). The Integrated NNP Management Plan EA is attached to and incorporated by reference in this FONSI (Finding of No Significant Impact) determination. This EA (Environmental Assessment) is a programmatic analysis of the MP and Tillamook RAs and supplements analyses found in the *RMP/FEIS* (*Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*, September 1994) (EA p. 1). The Integrated NNP Management Plan project has been designed to conform to the ROD/RMP (*Salem District Record of Decision and Resource Management Plan*, May 1995) and related documents which direct and provide the legal framework for management of BLM lands within MP and Tillamook RAs (EA pp. 1-2). Consultation with U.S. Fish and Wildlife Service and NOAA (National Oceanic and Atmospheric Administration) NMFS (National Marine Fisheries Service) is described in Section 7.1 of the EA.

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The EA and FONSI will be made available for public review January 23, 2008. The notice for public comment will be published in a legal notice by the following newspapers: *Gazette Times*, located in Benton County; *Itemizer Observer* located in Polk County; *Headlight Herald* located in Tillamook County, *News Register* in Yamhill County, *South County Spotlight* in Columbia County, and the *Newport News Times* located in Lincoln County. Comments received by the Marys Peak Resource Area of the Salem District Office, 1717 Fabry Road SE, Salem, Oregon 97306, on or before February 21, 2008 will be considered in making the decisions for this project.

Finding of No Significant Impact

Based upon review of the Integrated NNP Management Plan EA and supporting documents, I have determined that the Proposed Action is not a major federal action and would not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No site specific environmental effects meet the definition of significance in context or intensity as defined in 40 CFR 1508.27. Therefore, supplemental or additional information to the analysis documented in the RMP/FEIS through a new environmental impact statement is not needed. This finding is based on the following information:

Context: Potential effects resulting from the implementation of the proposed action have been analyzed within the context of the project area boundaries. Physical treatments would occur on up to 1,500 acres per year (0.65% of westside Salem BLM lands). Herbicide use would be limited to 100 acres per year (0.04% of the public lands in the project area) and restricted to whatever is less: 1) 10 acres per year, per 6th field watershed or 2) less than 10% of the total riparian area within each 6th field per year. The 1,500 acre annual physical treatment limit and the 100 acre annual herbicide limit would be the sum of all treatments on BLM lands and all private lands utilizing Federal dollars, excluding

those project areas listed in Appendix 6. Treatments would occur on all land use allocations including but not limited to LSR (Late-Successional Reserve), RR (Riparian Reserve), AMA (Adaptive Management Area), Matrix and ACECs (Areas of Critical and Environmental Concern) [40 CFR 1508.27(a)].

Intensity:

1. The Integrated NNP Management Plan project is unlikely to a have any substantial adverse impacts on the affected elements of the environment (EA section 3.1) - vegetation, soils, water, fisheries/aquatic habitat, wildlife, fuels/air quality, recreation, rural interface and visual resources. The following is a summary of the design features that would reduce the risk of affecting the above resources. For a complete list see EA section 2.3.3.

    - Any soil or habitat disturbances would be minimized.
    - All projects on federal lands would be evaluated for the presence bureau special status wildlife, botanical and fungal species. Species would be protected according to bureau policies.
    - Activities in any sensitive areas for wildlife would be seasonally restricted if necessary.
    - Design features are incorporated to minimize any impacts from accidental chemical spills.
    - Herbicide treatments would generally be utilized after physical control methods or in areas where other control methods are not practicable. Physical treatments would generally reduce the biomass of noxious weed infestations and would reduce the amount of herbicides to be applied.
    - Of the four BLM herbicides approved for use in Western Oregon, only glyphosate would be approved by this EA. Only aquatic labeled glyphosate would be applied within riparian zones. Further restrictions on glyphosate use include hand applications only, backpack or handheld spot spraying (no terrestrial or aerial vehicle boom spraying or broadcast spraying).
    - Herbicide use would be applied at the lesser rate of; 1) recommended active ingredient application rate listed on the product, or 2) BLM application rate.
    - All herbicide would be applied by certified applicators or under the direct supervision of a certified applicator.
    - Burning within riparian reserves would be allowed only if no impacts to listed fish species would occur, as determined by the resource area fish biologist. Other slash burning design features are incorporated to minimize effects to the environment.
    - All riparian treatments would be reviewed by the resource area fisheries biologist, hydrologist and soils scientist.
    - Following successful NNP control, sowing or planting native vegetation would comply with bureau policies on native plants.
    - Fisheries design features are summarized below. (*See 6. Fish: below*.)

    With the implementation of the project design features described in EA section 2.3.3, potential effects to the affected elements of the environment are anticipated to be non-detectable and/or unmeasurable (i.e. undetectable over the watershed, downstream, and/or outside of the project area). The project is designed to meet RMP standard and guidelines, modified by subsequent direction (EA section 1.3); and the effects of this project would not exceed those effects described in the RMP/FEIS [40 CFR 1508.27(b) (1), EA section 3.2].

2. *The Proposed Action* would not affect:
   - Public health or safety [40 CFR 1508.27(b)(2)];
   - Unique characteristics of the geographic area [40 CFR 1508.27(b)(3)] because there are no historic or cultural resources, parklands, prime farmlands, wild and scenic rivers, wilderness, or ecologically critical areas located within the project area (EA sections 3.1);
   - Districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places, nor would the proposed action cause loss or destruction of significant scientific, cultural, or historical resources [40 CFR 1508.27(b)(8)] (EA section 3.1).

3. *The Project* is not unique or unusual. The BLM has experience implementing similar actions in similar areas without highly controversial [40 CFR 1508.27(b)(4)], highly uncertain, or unique or unknown risks [40 CFR 1508.27(b)(5)].

4. *The Project* does not set a precedent for future actions that may have significant effects, nor does it represent a decision in principle about a future consideration [40 CFR 1508.27(b)(6)]. The BLM has experience implementing similar actions in similar areas without setting a precedent for future actions.

5. The interdisciplinary team evaluated the project in context of past, present and reasonably foreseeable future actions [40 CFR 1508.27(b)(7)]. Potential cumulative effects are described in the attached EA. These effects are not likely to be significant because of the project's scope (effects are likely to be too small to be measurable), scale encompassing less than 0.65% of the MP and Tillamook RAs, and implementation of design features. Use of pesticides are further restricted by limiting use to glyphosate only, and allowing only hand application or spot spraying and limiting use up to 100 acres per year (0.04% of resource areas), exclusive of the projects listed in Appendix 6.

6. *Wildlife: The Project* is not likely to adversely affect endangered or threatened species and will have no effect on their critical habitat under the Endangered Species Act of 1973 (16 U.S. C. 1531 *et seq*.) as amended (ESA). Pursuant to Section 7(a)(2) of the ESA informal programmatic consultation was initiated on August 6, 2007 with the United States Fish and Wildlife Service for written concurrence on effects to the northern spotted owl and marbled murrelet from disturbance resulting from invasive plant control activities listed in this plan. The Service concurred with the Bureau's effects determinations for owls and murrelets. This proposed plan incorporates all appropriate design standards set forth in the BA (Biological Assessment) to ensure compliance with the Letter of Concurrence (ref. # 13420-207-I-0216 September 05, 2007).

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7. *Fish:* Consultation with NOAA NMFS is required for all actions which 'May Affect' ESA listed fish species and critical habitat. Given the programmatic nature of the proposed activities, and extensive geographic coverage, it is likely that circumstances will arise where treatment of invasive plant infestations would occur within perennial or intermittent streams with ESA listed fish and their designated critical habitat or within perennial, intermittent, or ephemeral channels tributary to streams with ESA listed fish and their designated critical habitat. Since instream herbicide concentrations are difficult to quantify in absence of site specific analysis potentially high runoff may occur in some situations, but cannot currently be calculated (due to unknown site conditions). For this reason a 'May Affect Likely to Adversely Affect' determination is warranted for ESA listed fish species and for the listed critical habitat. A following is a summary of project design features that would reduce the

risk of affecting fish resources. For a complete list of project design features see EA section 2.3.3.

- During project design, develop appropriate measures to ensure protection of aquatic and riparian habitats.
- The resource area fisheries biologist shall be involved in project design to ensure protection of aquatic and riparian habitats. In some instances a buffer may be applied to protect streams as determined by the resource area fisheries biologist.
- In riparian zones minimize soil disturbance to prevent adverse affects to stream channel or water quality conditions.
- Burning and piling restrictions are included to minimize effects to stream channel and water quality.
- Restrict the use of BLM approved herbicides to one, glyphosate. Aquatic labeled glyphosate would be required within riparian areas.
- No herbicides would be applied to submersed or floating vegetation.
- Only Oregon Certified Applicators or individuals under the direct supervision of Oregon Certified Applicators would apply herbicides in accordance with label instructions.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended, requires an assessment of proposed action effects to EFH (Essential Fish Habitat) and consultation with NOAA NMFS is necessary for projects which may 'Adversely Affect' EFH. For purposes of this analysis stream reaches with known populations of Chinook, coho, chum, or sockeye salmon present, or considered highly likely to be present, are considered Essential Fish habitat. An 'Adverse Affect' determination was made on EFH for similar reasons as presented in the ESA affects determination.

On April 28, 2007 NOAA National Marine Fisheries Service (NMFS) completed their Biological Opinion (BO) *Endangered Species Act Section 7 Formal Programmatic Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Fish Habitat Restoration Activities in Oregon and Washington, CH2007-CY2012* which included NNP treatments. Adverse affects to ESA listed species and EFH and application of design features to minimize affects are covered by the Programmatic BA and BO. Conformance with the design criteria established in the NOAA NMFS BO would result in no additional consultation needs to implement the proposed activities. Any activities not covered by the Programmatic BO which "may affect" listed species would need to be consulted on separately.

8. *The Project* does not violate any known Federal, State, or local law or requirement imposed for the protection of the environment [40 CFR 1508.27(b)(10)].

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Prepared by: _____ Jan 15, 2008
Ron Exeter, Team Lead Marys Peak — Date

Prepared by: _____ 1-10-2008
Kurt Heckeroth, Team Lead Tillamook — Date

Reviewed by: _____ 1/15/08
Gary Humbard, (NEPA) Marys Peak — Date

Reviewed by: _____ 1/10/08
Bob McDonald, (NEPA) Tillamook — Date

Approved by: _____ 1/16/08
Trish Wilson, Field Manager
Marys Peak Resource Area — Date

Approved by: _____ Jan 16/08
Brad Keller, Field Manager
Tillamook Resource Area — Date

Table of Contents

1.0 INTRODUCTION

1.1 Project Covered in this EA (Environmental Assessment)

The Integrated NNP (Non-Native Plant) Management Plan (Westside Salem Integrated Non-Native Plant Management Plan) proposed for the MP (Marys Peak) and Tillamook RAs (Resource Areas) will be covered in this EA. Implementation of the Integrated NNP Management Plan would provide for the control of NNP species across the MP and Tillamook RAs on federal and non-federal lands using federal funds. This plan includes cultural, physical, biological, and chemical control methods. Chemical use would be limited to the BLM (Bureau of Land Management) approved herbicide glyphosate. Herbicides would only be utilized for control of ODA (Oregon Department of Agriculture) NNP species designated as 'noxious' (see Appendix 5 for a list of ODA listed noxious weeds).

1.2 Project Area Location

The project area is located on federal lands (approximately 232,332 acres) managed by the MP and Tillamook RAs, Salem District of the BLM and private lands located within the boundaries of these resource areas located west of the Willamette Valley, Oregon in Benton, Clatsop, Columbia, Lane, Lincoln, Multnomah, Polk, Tillamook, Washington and Yamhill Counties (see EA Map p.24). The project area only includes private lands where federal dollars are providing funding for the treatment of NNPs and generally requires both parties to enter into a partnership or cost share agreement.

1.3 Conformance with Land Use Plans, Policies, and Programs

The Westside Salem Integrated NNP Management Plan project has been designed to conform to the following documents, which direct and provide the legal framework for management of BLM lands within the Salem District:

1/ *ROD/RMP* (*Salem District Record of Decision and Resource Management Plan)*, May 1995: The RMP has been reviewed and it has been determined that the Integrated NNP Management Plan project conforms to the land use plan terms and conditions (e.g. complies with management goals, objectives, direction, standards and guidelines) as required by 43 CFR 1610.5 (BLM Handbook H1790-1). Implementing the ROD/RMP is the reason for doing this project (*RMP* p.64);

2/ *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl,* April 1994 (the Northwest Forest Plan, or NWFP);

3/ *Record of Decision To Remove the Survey and Manage Mitigation Measure Standards and Guidelines from Bureau of Land Management Resource Management Plans Within the Range of the Northern Spotted Owl* (July 2007).

4/ Final EIS and ROD (*Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (September 2007), and Weed Control EIS/ROD (*BLM Northwest Area Noxious Weed Control Program EIS and*

ROD, December 1985) and the Weed Control FSEIS (*Supplement to the Northwest Area Noxious Weed Control Program, Final EIS*, March 1987).

The programmatic analysis of the Integrated NNP Management Plan EA (Westside Salem Integrated Non-Native Plant Management Plan EA) supplements analyses found in the *Salem District Proposed Resource Management Plan/Final (EIS) Environmental Impact Statement,* September 1994 (*RMP/FEIS*). The *RMP/FEIS* includes the analysis from the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl,* February 1994 (*NWFP/FSEIS*). The *RMP/FEIS* is amended by the *Final Supplement to the 2004 FSEIS to Remove or Modify The Survey and Manage Mitigation Measure Standards and Guidelines*, June 2007 and the *Final Supplemental Environmental Impact Statement, Clarification of Language in the 1994 Record of Decision for the Northwest Forest Plan National Forests and Bureau of Land Management Districts Within the Range of the Northern Spotted Owl,* October 2003 (*ACS/FSEIS*).

The proposed action is located within the coastal zone as defined by the Oregon Coastal Management Program. This proposal is consistent with the objectives of the program, and the State planning goals which form the foundation for compliance with the requirements of the Coastal Zone Act. Management actions/directions found in the RMP were determined to be consistent with the Oregon Coastal Management Program.

All of the above documents are available for review in the Salem District Office. Additional information about the proposed project is available in the Integrated NNP Management Plan Project EA Analysis File (NEPA file), also available at the Salem District Office.

Special Status Species Review

The MP and Tillamook RAs are aware of the August 1, 2005, U.S. District Court order in Northwest Ecosystem Alliance et al. v. Rey et al. which found portions of the *Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines* (January, 2004) (EIS) inadequate. The RAs are also aware of the recent January 9, 2006, Court order which:

- set aside the 2004 ROD (*Record of Decision To Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl*, March, 2004) and
- reinstated the 2001 ROD (*Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines*, January, 2001), including any amendments or modifications in effect as of March 21, 2004.

The BLM is also aware of the November 6, 2006, Ninth Circuit Court opinion in Klamath-Siskiyou Wildlands Center et al. v. Boody et al., No. 06-35214 (CV 03-3124, District of Oregon). The court held that the 2001 and 2003 Annual Species Reviews (ASRs) regarding the red tree vole are invalid under the FLPMA (Federal Land Policy and Management Act) and NEPA (National Environmental Policy Act) and concluded that the BLMs Cow Catcher and Cotton Snake timber sales violate federal law.

This court opinion is specifically directed toward the two sales challenged in this lawsuit. The BLM anticipates the case to be remanded to the District Court for an order granting relief in regard to those two sales. At this time, the ASR process itself has not been invalidated, nor have all the changes made by the 2001-2003 ASR processes been vacated or withdrawn, nor have species been reinstated to the Survey and Manage program, except for the red tree vole. The Court has not yet specified what relief, such as an injunction, will be ordered in regard to the Ninth Circuit Court opinion. Injunctions for NEPA violations are common but not automatic.

The order further directs "Defendants shall not authorize, allow, or permit to continue any logging or other ground-disturbing activities....unless such activities are in compliance with the provisions of the 2001 ROD (as amended or modified as of March 21, 2004)".

We do not expect that the litigation over the ASR process in Klamath-Siskiyou Wildlands Center et al. v. Boody et al will affect this project, because the development and design of this project complies with the Northwest Forest Plan prior to the ASR process. The project area would be surveyed for bureau special status wildlife, botanical and fungal species, as directed by the current management policy(s) prior to implementation. All known sites would be protected as required.

The decision is consistent with the Northwest Forest Plan, including all plan amendments in effect on the date of the decision. The Westside Salem Integrated Non-Native Plant Management project conforms with the 2007 Record of Decision To Remove the Survey and Manage Mitigation Measure Standards and Guidelines from Bureau of Land Management Resource Management Plans Within the Range of the Northern Spotted Owl. The EA analysis here tiers to that of the Northwest Forest Plan and supporting environmental impact statements in effect on the date of the decision.

1.4 Decision to be made

The decisions to be made by the MP and Tillamook Field Managers are:

- Whether to approve the Westside Salem Integrated NNP Management Plan project as proposed, in part, not at all, or to modify the proposal for future approval.

- Whether site specific impacts would require supplemental/additional information to the analysis documented in the RMP/FEIS through a new EIS.

1.5 Purpose and Need for Action

The increase in NNP and the impacts they are having on local lands and resources are creating concerns for land managers, counties, watershed councils etc. New invasions of NNP and the spread of established infestations are displacing native vegetation on public lands. Management of NNP is important for maintaining healthy ecosystems.

Additional control measures and emphasis are needed to limit the presence and impacts of certain NNPs on the MP and Tillamook RAs. Serious ecological impacts currently occur in a number of sites and large established infestations are expanding. Both the MP and Tillamook RAs do not have NEPA documents that would allow for the use of herbicides in the control of Oregon State Department of Agriculture listed noxious weeds. Chemical control is needed in many instances where other control methods are not feasible for long term control.

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The purpose of this management proposal is to implement a Westside Salem Integrated NNP Management Plan that would maintain healthy functioning ecosystems by restoring native plant communities through reduction, control and eradication of NNP species. The BLM needs to implement this plan to provide for early detection and rapid response of NNP species. The Integrated NNP Management Plan would utilize cultural, physical, biological and chemical control methods. The objectives of the proposed plan are; (1) Reduce or control NNP populations below the level that causes either undue and unnecessary environmental degradation or impairs the public lands' economic productivity, and (2) eradicate invading NNP before they become established on public lands.

The need for an Integrated NNP management plan is directed by the Salem District RMP (page 64) which states that NNP infestations should be contained and/or reduced on BLM administered lands using an integrated pest management approach that is in accordance with the Weed Control EIS/ROD (BLM Northwest Area Noxious Weed Control Program EIS and ROD, December 1985) and the Weed Control FSEIS (Supplement to the Northwest Area Noxious Weed Control Program, Final EIS, March 1987). For all land allocations, control methods would be used which do not retard or prevent attainment of ACS (Aquatic Conservation Strategy) objectives.

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1.6 Issues Considered but Eliminated from Detailed Analysis

Issues considered but eliminated from detailed analysis include; (1) effects of biological control on native species and (2) the effects to human health. These issues have already been analyzed in the Animal and Plant Inspection Service EA prepared for individual bio-control agents, the Weed Control EIS/ROD and Weed Control FSEIS.

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1.7 Issues to be Analyzed

Issues to be analyzed include: Vegetation, wildlife and their habitats; water; fish and their habitats; soils, recreation and fuels.

Vegetation: What effect would the treatments have on native vegetation? What effects would the treatments have on bureau special status botanical and fungal species? How would the treatments affect non-native plants and noxious listed weeds?

Wildlife and their Habitat: Could the implementation of this project using manual, mechanical, and/or burning techniques to control NNPs cause noise and/or smoke disturbance/disruption to adjacent nesting wildlife? Could the use of herbicides contaminate both terrestrial and aquatic species?

Water: Could water quality parameters (including sediment, water temperature, nutrients, dissolved oxygen, and chemical contamination) and channel stability and structural complexity be negatively affected from the proposed treatments?

Fish and their Habitat: Would the implementation of treating NNP species with chemicals result in contamination of aquatic habitat, impairing habitat quality and quantity and cause direct effects to fish? Could treatments result in the disturbance of banks and stream bottoms associated with instream activities which may affect aquatic habitat quality? Could treatments alter bank and riparian vegetation with indirect affects on water quality and habitat complexity?

Soils: Could the implementation of this project degrade soil quality? Specifically, could the proposed treatments reduce the growth of native plants (soil productivity), reduce water infiltration, increase soil erosion, reduce buffering of potential pollutants, or harm soil microorganisms?

Recreation: How would the proposed project affect the recreating public? How would it affect rural interface and other visual resources?

Fuels/Air Quality: What effects would burning of NNP debris have on the environment?

2.0 ALTERNATIVES

2.1 Alternative Development

Pursuant to Section 102 (2) (E) of NEPA (National Environmental Policy Act of 1969, as amended), Federal agencies shall "Study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." No unresolved conflicts were identified. Therefore, this EA will analyze the effects of the Alternative 1 (No Action Alternative) and Alternative 2 (Proposed Action).

2.2 Alternative 1 (No Action Alternative)

The No Action Alternative would allow continued implementation of current control measures to limit the spread and growth of NNPs within the Westside Salem BLM. Marys Peak RA currently operates their NNP program in compliance with NEPA document EA OR-080-03-10, June 2003 which includes cultural, physical, and biological control methods. The Tillamook RA NNP control is currently completed using a Categorical Exclusion (CX OR-086-04-04) which allows the use of physical or mechanical treatment methods only. The No Action Alternative would not allow the use of any chemicals on Oregon State listed noxious weed species.

2.3 Alternative 2 (Proposed Action)

The proposed action would implement a long term Integrated NNP Management Plan to reduce and control NNP species on federal and non-federal lands in the MP and Tillamook RAs within Benton, Clatsop, Columbia, Lane, Lincoln, Multnomah, Polk, Tillamook, Washington and Yamhill Counties. The Westside Salem BLM would support and enter into cooperative agreements proposed by federal and/or non-federal groups while utilizing federal dollars for the control of NNPs on both federal and non-federal lands. This plan would include cultural, physical, biological and chemical control of NNP species in a variety of habitats and occur in any LUA (Land Use Allocation) including but not limited to the following; ACEC (Areas of Critical and Environmental Concern), RR (Riparian Reserves), LSR (Late-Successional Reserves), AMA (Adaptive Management Areas), Matrix LUAs and private lands where funded by federal dollars. The project would be consistent with supporting public land objectives, cumulative benefits, and healthy watersheds.

Generally the proposed action would involve control of NNP species through the use of; 1) Cultural control methods such as education, prevention and grazing, 2) Physical treatments such as; pulling, mowing, slashing, lopping, chopping or burning, 3) Biological control would only be accomplished by releasing animals (insects, spiders, mites etc.) or pathogens approved by the ODA, and 4) Chemical treatments would entail the application of the herbicide glyphosate by

selective or spot application (hand treatments). Broadcast spraying of herbicides such as using vehicle mounted booms or helicopter for aerial spraying would not be allowed under this proposal.

Biological and chemical controls may be used where the application of physical treatments are not sufficient, practicable or economical. Herbicide treatments would only occur on NNPs designated by the ODA as 'noxious weeds' and generally would occur after physical control methods are utilized to reduce vegetative mass. See Appendix 5 for a current ODA list of noxious weeds.

After treating areas infested with NNP, native species would be established by one or both of the following methods depending on the size of the area to be treated: 1) Passive establishment - where native species within the treatment area can become re-establish without the aid of additional sowing or planting, and 2) Active Establishment- where native species are sown or planted within the treatment areas to aid in the re-establishment of native species.

All treatments would be implemented in accordance with the program design features provided in the Weed Control EIS/ROD, Weed Control FSEIS, RMP/FEIS, RMP and those listed in 2.3.3 Project Design Features of this EA.

2.3.1 Target Species

All NNP species occurring within the MP and Tillamook RAs would be targeted and chemical use would only occur on infestation of Oregon State designated noxious weeds.

2.3.2 Integrated NNP Management Plan

The proposed action would utilize four primary methods for NNP control: Cultural, Physical, Biological and Chemical methods. Selection of the appropriate control method would be based on such factors as how climate affects biological cycles, dispersal mechanisms and growth characteristics of the target NNP, size of the infestation, location of the infestation, accessibility of equipment, potential impacts to non-target species, use of the area by humans and wildlife, effectiveness of the treatment on target species and cost. A combination of treatments may be necessary to achieve effective control or eradication of an invasive plant species at many sites. Depending on a NNP response to treatment(s) and due to seed banking (germination of seeds from previous years) treatments may occur annually in the same locale for several years.

Treatment of an invasive plant site may include one or more of the following treatment methods listed below, summarized in Table 1 (Summary of Control Methods).

1. Use of Cultural Treatments

Cultural practices are land management decisions which incorporate preventative design features into a project to prevent or limit the spread of non-native species. These include: prevention, wildlife management, grazing, road closures and restrictions, development of rock source management plans, cleaning of vehicles, minimizing soil disturbances and re-planting with native vegetation.

2. Use of Physical Treatments

This is the preferred method of treatment for existing infestations of NNPs. Physical treatment would be utilized by itself or in combination with biological and chemical treatments. Following physical treatment the project area would be assessed for the need to reduce NNP debris through the use of fire. Physical treatments would occur on up to 1,500

acres per year (0.65% of Westside Salem BLM lands). Only 1,500 acres per year would be treated on both BLM lands and private lands utilizing Federal dollars. Physical treatments include manual, mechanical, and burning treatments.

3. Use of Biological Controls

Biological controls would be utilized when available and in accordance with the ODA guidelines. This method would be utilized on landscape scale infestations where control methods using physical, mechanical or chemical control are not feasible. These treatments include using known competitors, such as insects and pathogens from the native lands of the NNP that has become established in western Oregon.

4. Use of Herbicides

In general, herbicide use would be utilized after physical treatments or used as an initial treatment in areas where physical treatments are not feasible, effective, or in areas where physical treatments would disturb too much soil. Herbicide use would be limited to 100 acres per year (0.04% of the public lands in the project area) and restricted to whatever is less: 1) 10 acres per year, per 6th field watershed or 2) less than 10% of the total riparian area within each 6th field per year. The 100 acre annual herbicide limit would be the sum of all treatments on BLM lands and all private lands utilizing Federal dollars, excluding those project areas listed in Appendix 6.

Maximum application rate of glyphosate would be whichever is less, 1) BLM approved glyphosate rate per acre, or 2) rate of application as indicated on the label. See Appendix 3 for information regarding glyphosate. Proposed use of other herbicides would require additional separate NEPA documentation (EA or EIS). Chemical use would be restricted to NNP species designated by ODA as "noxious weeds." See Appendix 5 for a current list of ODA listed noxious weeds. Application of glyphosate would only be allowed by injection, wiping, wicking or (spot application) spraying. Aerial applications and vehicular spraying with booms would not be allowed under this EA. All herbicide application would be applied by Oregon certified applicators or by applicators under the direct supervision of an Oregon certified applicator. All herbicide applications would comply with label instructions and may be further restricted by design features listed in 2.3.3 below. In most cases, prior to the use of herbicides, the non-native vegetative volume would be reduced through physical treatments.

Table 1: Summary of Control Methods

Control Method	Treatment Type	Description
Cultural Treatments	Grazing	Non-native vegetation would be controlled through the use of grazing practices.
Physical Treatments	Education and Prevention	Promote NNP education and prevention. This may include; managing wildlife and/or grazing activities, preparing road management guidelines which may incorporate road closures, road restrictions, development of rock source management plans and education of minimizing transportation of noxious weeds through vehicle use. Prevention may include minimizing soil disturbances and re-plant with native vegetation according to BLM policies.
	Hand pulling	Uprooting is performed either by hand or using hand (non-motorized) tools. Generally appropriate for non-rhizomatous forming, tap-rooted species and/or species which reproduce only from seed. Treatment is preferred when plant growth stage and soil conditions allow, and prior to seed-set for annual species. Hand

Control Method	Treatment Type	Description
		pulling of emergent invasive plants is included.
	Seed Source Removal	Fruiting structures are cut, bagged, and removed from the area. The remainder of plant is left intact but may be treated with another method.
	Stabbing	Some plants can be severely weakened or killed by severing or injuring the carbohydrate storage structure (corm, rhizome, taproot etc.) at the base of the plant. This can generally be accomplished with a shovel or hoe.
	Girdling	A strip of bark (including the cambium) is removed around the base of woody species.
	Cutting/Mowing	Removal of the above-ground portion of a plant by cutting with; chainsaws, handsaw, pruning shears, string or blade trimmers, other hand tools, push tractor mounted mower.
	Solarization	Non-native vegetation may be covered with plastic, geotextile, cardboard, or other material to kill the plant or reduce plant vigor prior to treatment with another method.
	Burning	Non-native vegetation would be treated with a variety of ignition devices such as propane torches, other gas burning torches, or drip torches. A combination of piling or broadcast burning may occur.
Biological Control	Bio control	Biological control is the inoculation of an infestation site with insects, parasites, or pathogens that specifically target the invasive plant species of concern. Treatment of invasive plant infestations with biological controls is a gradual process requiring several years to reach full effectiveness. Subsequent treatment with other methods may also occur.
Herbicide Treatments	Stem Injection	Stems of actively growing species with a stem diameter larger than ½ inch are injected with herbicide usually near the base of the plant. Where stems are less than ½ inch stems may be severed and injected through the stem nodes.
	Cut-Stump	Herbicide is applied by spray, squirt, or wicking/wiping to the stump of a plant (usually a shrub or tree) shortly after the shoot or trunk is cut down.
	Wick & Wiping	Use a sponge or wick to wipe herbicide onto foliage, stems, or trunk. Use of wicking/wiping method reduces the possibility affecting non-target plants.
	Spot Application	Herbicide is directly sprayed onto target plants only, and spraying of desirable, non-target vegetation is avoided. Includes backpack and hand-pumped spray or squirt bottles, which can target very small plants or parts of plants (foliage, stems, or trunk).
	Hack & Squirt	Woody species are cut using a saw or axe or drilled; herbicide is then immediately applied to the cut with a backpack sprayer, squirt bottle, syringe, or similar equipment.
	Aerial and boom applications	Any herbicide application using aircraft, helicopters or other motorized vehicles using boom mounted sprayers. These application methods are restricted under this EA.

2.3.2.1 Priorities for Treatment

Inventories would be conducted within the MP and Tillamook RAs to identify new NNP infestations and to monitor the spread of known infestations. Inventories would identify NNP sites needing treatment. Control efforts can be prioritized into three categories.

1. Priority 1

Eradication of ODA classified 'A' noxious weeds which generally occur in small enough numbers to make eradication or containment possible and noxious weeds classified as 'T' (target) noxious weeds by ODA. Control of NNPs that are located within special management areas such as; recreation areas, ACECs, wild and scenic rivers, wetlands or areas designated as scenic by-ways and NNP locations where bureau special status plants, fungi or animals would be considered as a Priority 1. Any new invader species where a rapid response is needed for eradication would also be considered as a Priority 1 species. Herbicide treatments to noxious weed infestations previously treated with physical control methods would also be considered as Priority 1 treatment areas. See Appendix 6 for a list of sites currently proposed as Priority 1 for herbicide use.

2. Priority 2

Eradication of ODA classified 'B' noxious weeds which are regionally abundant, but may have limited distribution in some counties of Oregon and eradication of other NNP species that are of concern.

3. Priority 3

Eradication of NNP species which are not designated by the ODA (as noxious), and not occurring in special management areas.

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2.3.2.2 Area of Treatment

Although the number of acres treated annually would be based on available funding, weather, and condition of the NNP sites, physical treatments would occur on up to 1,500 acres per year (0.65% of Westside Salem BLM lands). Herbicide use would be limited to 100 acres per year (0.04% of the public lands in the project area) and restricted to whatever is less: 1) 10 acres per year, per 6th field watershed or 2) less than 10% of the total riparian area within each 6th field per year. The 1,500 acre annual physical treatment limit and the 100 acre annual herbicide limit would be the sum of all treatments on BLM lands and all private lands utilizing Federal dollars, excluding those project areas listed in Appendix 6.

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2.3.2.3 Monitoring

Treated sites would generally receive short and long-term monitoring to determine effectiveness of meeting treatment objectives, impacts on non-target species, and to determine the need for follow-up treatments. Monitoring would also allow for the early detection of new invader species.

2.3.3 Project Design Features

Table 2 Summary of methods and project design criteria, is a summary of the design features that reduce the risk of effects to the affected elements of the environment described in EA section 3.2.

Table 2: Summary of Methods and Project Design Criteria

Design Features	Description
Features common to all treatment methods-	¦ Special Management Areas and Areas of Critical and Environmental Concern treatment strategies would be in accordance with direction established in specific management plans. The Nestucca River in Tillamook is a State Designated Wild and Scenic River but has not been federally designated. ¦ On Federal lands; evaluate proposed treatment areas to determine if there are any bureau special status wildlife, botanical and fungal species present that could be affected by the proposed action. If any of these species are located in a proposed treatment area the known sites would be protected in compliance with bureau policy. The resource areas would consult or conference, as appropriate, with the U.S. Fish and Wildlife Service on any proposed action that may affect a listed or proposed. ¦ On non-Federal lands appropriate NEPA compliance such as a Determination of NEPA Adequacy (DNA) would be completed by BLM personnel. ¦ The project area would be evaluated for impacts to VRM quality prior to implementation and mitigation measures would be incorporated into the project design to protect VRM values. ¦ The Resource Area Biologist and/or Botanist would be notified if any bureau special status plant, animal or fungi species are found occupying sites proposed for treatment during project activities. All known sites would be protected according to bureau policies. ¦ Activities in any sensitive areas for wildlife would be seasonally restricted. ¦ Site management of bureau Special Status wildlife, botanical and fungal species would be accomplished in accordance with bureau policies. ¦ The resource area fisheries biologist, hydrologist and soil scientist shall be involved in all project designs located within riparian areas to ensure protection of aquatic and riparian habitats. In some instances a buffer may be applied to protect streams as determined by the resource area specialists. ¦ Survey techniques for cultural resources would be based on those described in the Protocol for Managing Cultural Resource on Lands Administered by the Bureau of Land Management in Oregon. A post-project survey would be conducted according to standards based in the Protocol Appendix A or Appendix. Ground disturbing work would be suspended if cultural material is discovered during project work until an archaeologist can assess the significance of the discovery. ¦ Use the least ground disturbing method that results in effective invasive plant treatment. Utilize manual control methods over mechanical methods to minimize soil disturbances where possible (e.g. shovel vs. rototiller). ¦ In riparian zones minimize soil disturbance to prevent adverse affects to stream channel or water quality conditions. ¦ Transport no more than a one day supply of fuel for mechanical tools (chainsaws, string-trimmers, mowers etc.). ¦ Any treatments using heavy equipment off road would be restricted to the 'dry' season as determined by the soils biologist or hydrologist. ¦ Fueling of chainsaws and string-trimmers would not occur within 100 feet of surface waters ¦ Treatments within Nelsons Checkermallow (*Sidalcea nelsoniana*) known sites would only be accomplished in compliance with the USFWS recovery plan.
Cultural Treatments- Grazing	¦ An experienced soils scientist and/or hydrologist and fisheries biologist shall be involved in designing any proposed grazing treatments. Design features would provide a minimum 25 feet buffer from all aquatic systems. Fisheries review/approval would be needed for ESA(Endangered Species Act) EFH (Essential Fish Habitat) compliance.

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Design Features	Description
Physical Treatments- General criteria common to all treatments.	¦ Minimize ground disturbance by treating only the area necessary for NNP eradication. ¦ Manual and/or mechanical methods of treatment would be implemented where possible to reduce NNP densities within the project area prior to initiating the use of herbicides or prescribed fire. ¦ Lopping and scattering or piling of NNP debris would be incorporated in areas with dense non-native vegetation. Pullback of fuels would be incorporated along roads and private property lines when the treatment area would be burned. ¦ Slash piles would be located away from stream channels as determined by the resource area hydrologist or fisheries biologist.
Physical Treatments- Mechanical	¦ Track mounted or rubber tired machinery would not be used outside the road prism within riparian areas. ¦ The proposed action would be expected to be implemented consistent with design standards found in the USFWS's biannual Biological Opinion and Letter of Concurrence for activities that may disturb listed terrestrial species. If it is not possible to effectively implement a particular NNP control project consistent with the Biological Opinion design standards, then a project specific consultation with the USFWS would occur. In no case would a NNP control project that has the potential to affect an ESA listed terrestrial species be implemented without appropriate ESA consultation coverage. As programmatic Biological Opinions are updated, the design standards found in the Biological Opinion would become design features for the NNP control project if it is to be covered by the programmatic consultation process. The current design standards for limiting disturbance to bald eagles, northern spotted owls and marbled murrelets are: a. Bald eagle: For activities that generate noise above the ambient level, or for burning - No activities January 1 to August 31 or November 15 to March 15, within 0.25 mile, or 0.5 mile line-of-sight of an occupied nest or winter roost respectively. b. Spotted owl/Marbled murrelet: 1. From March 1 to September 30 and when within 0.25 mile of unsurveyed suitable habitat make every effort to schedule activities which generate noise above the ambient level or use fire, outside the owl/murrelet critical breeding seasons (owl: March 1- July 7/ murrelet: April 1 – August 5). 2. If a NNP control project that generates noise above the ambient level or uses fire must be conducted between March 1 to August 5 and is within 300 feet of a known owl/murrelet site or unsurveyed suitable habitat, then restrict the number of projects allowed per resource area, to comply with the potential anticipated disturbance level reported in the Programmatic Biological Assessment that analyzed all projects which might disturb listed wildlife species on federal lands within the Northern Oregon Coast Range. 3. For NNP control activities that use fire or generate noise above the ambient level, done during any part of the murrelet breeding season and in, or within 0.25 mile of, occupied or unsurveyed suitable or potential murrelet habitat, restrict activities to the time period between two hours after sunrise and two hours before sunset, local time. 4. Spotted owl and marbled murrelet seasonal and daily restrictions would not apply to NNP control projects that would occur within campgrounds, picnic areas, trailheads, administrative sites and well-traveled roads ¦ A resource area wildlife biologist would be consulted whenever a NNP control project using fire or mechanical tools that generate noise above the ambient level is within 0.25 mile of mature forest (80+ years) habitat.

Design Features	Description
Physical Treatments- Prescribed fire- General criteria common to all treatments	¦ All projects would require fisheries review/approval for ESA-EFH compliance. ¦ An experienced fuels technician, soils scientist, and fisheries biologist shall be involved in designing prescribed burn treatments. ¦ Burn plans would be written according to bureau policy and would be in compliance with the Oregon State Implementation Plan and the Oregon Smoke Management Plan to lessen the impact on air quality in designated areas. ¦ Piled material would be allowed to dry thoroughly prior to ignition to promote rapid, clean burning with minimal smoke impacts. In some instances piled materials would be covered with plastic to protect from precipitation while drying. ¦ Slash removal or lop and scatter maybe required to reduce fuel loads required to implement a low to moderate severity burn. ¦ To reduce smoke conflicts in recreation sites and/or designated corridors, consider manual or mechanical means to reduce the amount of non-native vegetation in lieu of burning. ¦ Low severity burns shall constitute the dominant type of controlled burn, resulting in a mosaic pattern of burned and unburned landscape. Low severity burns, as defined in the National Fire Plan (2002), are characterized by the following: low soil heating, or light ground char, occurs where litter is scorched, charred, or consumed, but the duff is left largely intact, although it can be charred on the surface. Woody debris accumulation is partially consumed or charred. Mineral soil is not changed. Fire severity in forest ecosystems is low if the litter and duff layers are scorched but not altered over the entire depth. ¦ Moderate-severity burns are permitted in no more than 20% of the riparian area. Moderate-fire severity, as defined in the National Fire Plan (2002), is characterized by the following: moderate soil heating, or moderate ground char, occurs where the litter on forest sites is consumed and the duff is deeply charred or consumed, but the underlying mineral soil surface is not visibly altered. Light colored ash is present. Woody debris is mostly consumed, except for logs, which are deeply charred.
Physical Treatments- Prescribed fire- Riparian treatments	¦ Ignition can occur anywhere within the riparian area as long as project design criteria are met. ¦ Accumulations of treated non-native vegetation may be hand or machine piled or lopped and scattered to reduce fuel loads required to implement a low to moderate severity burn. ¦ Avoid creating hydrophobic soils when burning slash piles within the riparian areas adjacent to the stream. Slash piles should be far enough away from the stream channel so any sediment resulting from this action would be less likely to reach the stream. ¦ Chemical fire retardants would not be used within riparian areas.
Biological Control Animal Release	¦ All biological controls used would be U.S. Animal and Plant Health Inspection Service (APHIS) and state approved. ¦ Agents demonstrated to have direct negative effects on non-target organisms would not be released.
Herbicide Treatments- General criteria common to all treatments.	¦ Only BLM approved herbicide glyphosate would be used and only aquatic labeled glyphosate would be utilized in riparian zones. The rate of application would be whichever are less, 1) application rate according to label, or 2) BLM approved rate of active ingredient per acre. ¦ Pesticide Use Proposals (PUPs) would be filled out (and approved) and approved prior to glyphosate use. ¦ Only daily use quantities of herbicides would be transported to the project site. ¦ Herbicide applications would only occur during calm dry weather conditions to prevent drift and runoff; no treatments would occur during rain or high wind (defined as wind velocities greater than 10 mph, or as stated on the herbicide label) events, or if precipitation (including fog drip) has been forecasted within 24 hours of spraying. ¦ Only low to medium pressure sprayers producing droplet sizes between 200 and 800

Design Features	Description
	microns would be used to minimize drift potential. ¦ Nearby landowners would be notified prior to herbicide treatment. If treatments occur within recreational areas, warning signs would be posted to notify the public of herbicide use in the area.
Herbicide Treatments- Certification	¦ Only Oregon certified applicators or individuals under direct supervision of an Oregon certified applicator would apply herbicides in accordance with label instructions and bureau policies. ¦ For knotweed stem-injection, only individuals familiar with proper glyphosate stem-injection methodology would implement treatment. Only aquatic glyphosate formulations would be used.
Herbicide Treatments- Surfactants **Herbicide Treatments**- Riparian applications	¦ Only, LI 700 or Agri-Dex surfactants (both approved for riparian applications) would be approved for use. Application rate would be according to product label. ¦ When consistent with label instructions, use water when diluting herbicides prior to application. ¦ Spot spray application of aquatic labeled glyphosate would be allowed to the waters edge. However, application on plants growing in dry portions of a stream channel would be limited to the ODFW preferred in-water work period for each watershed. ¦ Only stem injection and wicking and wiping application with aquatic labeled glyphosate would be used on emergent vegetation. ¦ No herbicides would be applied to submersed or floating vegetation or open water. ¦ Aquatic glyphosate formulation can be used at up to 100% concentration for the stem injection method. The formulation would be diluted to 50% or less active ingredient when applied directly to fresh stem cuts using wicking/wiping and up to the percentage allowed by label instructions when applied to foliage using low pressure hand-held spot spray applicators.
Herbicide Treatments- Transported volumes	¦ Only daily use quantities of herbicides would be transported to the project site. ¦ For emergent noxious weed infestations which can only be reached by water travel, either by wading or inflatable raft (or kayak), the following measures would be used to reduce spills during water transport: a) No more than 2.5 gallons of glyphosate would be transported per person or raft; typically it would be one gallon or less. b) During transport by raft or boat, glyphosate would be transported in 1 gallon or smaller plastic containers. The containers would be wrapped in plastic bags and then sealed in a dry-bag and secured to the watercraft. ¦ Only experienced boaters would transport herbicides.
Herbicide Treatments- Spills, prevention, storage, and disposal **Restoration**-	¦ A spill cleanup kit would be available whenever herbicides are used, transported, or stored. ¦ Equipment cleaning and storage and disposal of rinsates and containers would follow all applicable state and Federal laws. ¦ Areas used for mixing herbicides would be placed where an accidental spill would not run into surface waters or result in groundwater contamination. Impervious material would be placed beneath mixing areas in such a manner as to contain any spills associated with mixing/refilling. ¦ Equipment cleaning and storage and disposal of rinsates and containers would follow all applicable state and Federal laws. ¦ Following successful non-native vegetation control comply with bureau native plant policy in restoration efforts. (see Appendix 7)

The following table is a summary of treatments.

Table 3: Summary of Treatments

Treatment Type	Restrictions	Acres Treated
Cultural-Grazing	Fisheries review/approval needed for ESA-EFH compliance. Twenty-five foot minimum buffer required.	Treatment amounts included toward annual 1,500 physical treatment acres.
Biological	Allowed throughout the project area.	Unlimited.
Physical	Allowed throughout the channel as determined by the resource area Fisheries Biologist or Hydrologist.	Up to 1,500 gross treatment acres per year would be treated. No restrictions on the number of treatment acres per 6th field watershed.
Herbicide-treatments	Spot application using aquatic labeled glyphosate would be allowed to waters edge. However, application on plants growing in dry portions of a stream channel would be limited to the ODFW preferred in-water work period for each watershed. No herbicides would be applied to submersed or floating vegetation or open water.	Glyphosate use would be limited to 100 acres per year within the Westside Salem project area and restricted to whatever is less: 1) 10 acres per year, per 6th field watershed, or 2) less than 10% of the total riparian area within each 6th field per year, excluding those project areas listed in Appendix 6.

2.4 Alternatives Considered but not Analyzed in Detail

2.4.1 No-chemical Herbicides Alternative

An alternative of no-chemical use was considered and not analyzed in detail because there are existing NEPA documents for both the MP and Tillamook RAs for the use of physical, biological and cultural control of NNPs. In addition, this alternative would not meet the purpose and need.

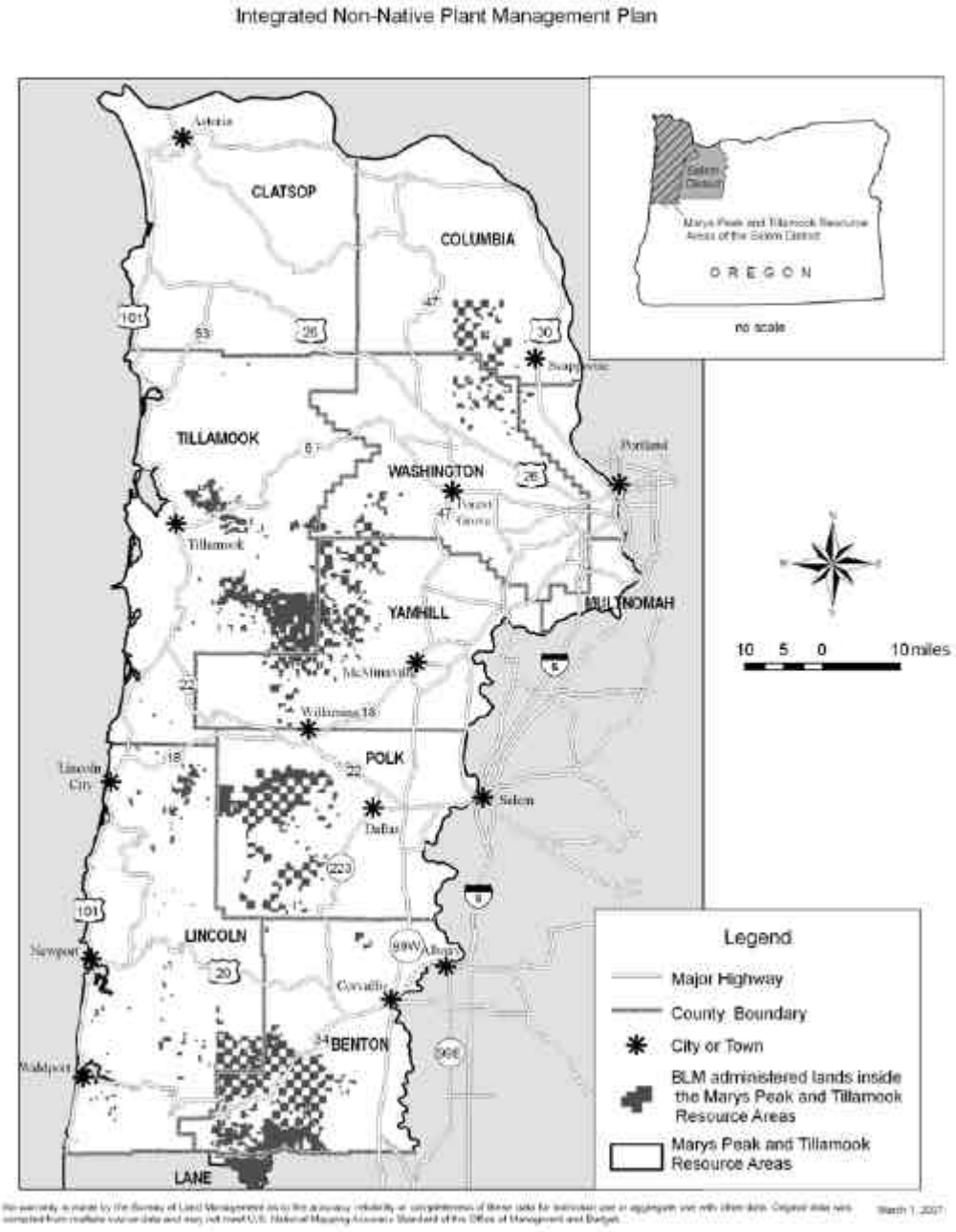
2.4.2 Picloram, 2-4 D, and Dicamba Alternative

Another alternative utilizing glyphosate and the additional three BLM approved chemicals, (Picloram, 2-4 D and Dicamba) was considered but not further analyzed due to concerns of toxicity, lack of specific locations identified for use and the additional design features that would have to be built into the EA to analyze for the use of the three additional chemicals.This alternative was needed to provide for 'rapid response' to newly discovered infestations. The IDT disagreed with the argument for the additional evaluation of these toxic chemicals, concluding 'rapid response' did not include initial spraying of picloram, 2-4 D or dicamba. Furthermore, rapid response involves evaluating NNP infestations, reviewing the life cycle of the species and formulating a plan that may or may not include chemical use for eradication of the Oregon State designated noxious weed species. In addition, if a new noxious weed infestation occurred outside of the parameters of this EA, (such as within required buffer distances in riparian areas for other chemicals) additional NEPA (EA or EIS) analysis would have to be completed. It was decided if picloram, 2-4 D or dicamba are needed for treatment of any Oregon State listed noxious weed, a site specific EA or EIS would be completed at that time.

2.4.3 Restricted Backpack Sprayer Alternative

An alternative to restrict the use of backpack sprayers within riparian areas to a distance whichever is greater, 1) within the bankfull channel, or 2) a 15 foot distance from surface water was considered, but dropped. The ID team felt backpack sprayers provide for a more constant pressure resulting in a more constant flow and/or droplet size and would require less re-filling vs. limiting the spray to hand held spray bottles which carry less volume, require constant re-filling and have a more fluctuating droplet size due to rapid loss of spray pressure. Most chemical spills or accidents occur when re-filling, mixing or pouring chemicals. In addition, many of the sites to be treated are in remote locations and the use of backpack sprayers would limit the need to transfer and pour chemicals. The ID team felt utilizing backpack sprayers as a type of spot spray to the waters edge provided for better application and reduced hazardous spills vs. the use of hand held sprayers.

Map 1: Map of the Action Alternative



3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS - COMMON TO ALL PROJECT AREAS

3.1 Identification of Affected Elements of the Environment

The interdisciplinary team reviewed the elements of the human environment, required by law, regulation, Executive Order and policy, to determine if they would be affected by the proposed action. Table 4 ("Critical Elements of the Human Environment") and Table 5 (Other Elements of the Environment) summarize the results of that review. Affected elements are **bold**. All entries apply to the action alternative, unless otherwise noted.

Table 4: Review of the "Critical Elements of the Human Environment" (BLM H-1790-1, Appendix 5)

"Critical Elements Of The Human Environment"	Status: (i.e., Not Present, Not Affected, or Affected)	Does this project contribute to cumulative effects? Yes/No	Remarks
Air Quality (Clean Air Act)	**Affected**	**No**	**All burning would be conducted in conformance with BLM policies and would be conducted in accordance with the *Oregon State Implementation Plan* and *Oregon Smoke Management Plan.* In general, the project areas would be considered small and the impact of smoke on air quality is predicted to be local and of short duration. As such, the proposed action would have no measurable adverse impact on air quality and would comply with the provisions of the Clean Air Act. Addressed in text (EA section 3.2.7)**
Areas of Critical Environmental Concern	**Affected**	**No**	**Any management of NNPs would be in conformance with individual ACEC management plans. Addressed in text (EA section 3.2.1)**
Cultural Resources	Not Affected	No	Cultural resource sites in the Coast Range, both historic and prehistoric, occur rarely. The probability of site occurrence is low because the majority of BLM managed Coast Range land is located on steep upland mountainous terrain that lack concentrated resources humans would use. Post-disturbance inventory would be completed on slopes less than 10%.
Energy (Executive Order 13212)	Not Affected	No	There is no known energy resources located in the project area. The proposed action would have no effect on energy development, production, supply and/or distribution.
Environmental Justice (Executive Order 12898)	Not Affected	No	The proposed action is not anticipated to have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.
Prime or Unique Farm Lands	Not Present	No	
Flood Plains (Executive Order 11988)	**Affected**	**No**	**Treatment of non-native species along rivers and within riparian areas would be beneficial to native vegetation. Addressed in text (EA section 3.2.3)**
Hazardous or Solid Wastes	Not Present	No	
Invasive, Nonnative Species (plants) (Executive Order 13112)	**Affected**	**No**	**Invasive, non-native and ODA noxious designated vascular plants would be targeted for removal and destroyed. Addressed in text (EA section 3.2.1)**

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"Critical Elements Of The Human Environment"		Status: (i.e., Not Present, Not Affected, or Affected)	Does this project contribute to cumulative effects? Yes/No	Remarks
Native American Religious Concerns		Not Affected	No	No Native American religious concerns were identified during the public scoping period.
Bureau Special Status Species; Threatened or Endangered (T/E) Species or Habitat	**Fish**	**Affected**	**No**	**Addressed in text (EA section 3.2.4 & Fisheries/Aquatic Habitat Report pp. 1-18)**
	Plants	**Affected**	**No**	**The Tillamook Resource Area manages a population of the federally threatened plant species, Nelsons Checker-mallow (*Sidalcea nelsoniana*). Removal of non-native species within Areas of Critical and Environmental Concern would maintain and protect the ACEC values for which the ACECs were originally established. Removal of non-native species and providing control measures of NNP would enhance/restore T&E habitat. Addressed in text (EA section 3.2.1)**
	Wildlife (including designated Critical Habitat)	**Affected**	**No**	**Short term negative affects possible consistent with USFWS BO. Long term (>5yrs) positive affects to species and habitat. Addressed in text (EA section 3.2.2)**
Water Quality (Surface and Ground)		Not Affected	No	Addressed in text (EA section 3.2.3).
Wetlands (Executive Order 11990)		**Affected**	**No**	**Some wetlands and riparian areas would be treated. Treatment should increase the values in the area in the long term by restoring the native vegetation. Addressed in text (EA section 3.2.3)**
Wild and Scenic Rivers		Not Present	No	The Nestucca River near Tillamook is a State Designated Scenic River but has not been federally designated. Removal of NNP species would allow for the re-establishment of native species and would have positive affects on the vegetation along the Nestucca River. There are no designated Wild and Scenic Rivers in the Marys Peak or Tillamook Resource Areas. Addressed in text (EA section 3.2.6)
Wilderness		**Affected**	**No**	**Little Sink, an instant study area may be treated according to current management plans. Treatment of NNP species would be beneficial to the native species that occur within the Little Sink area.**

Table 5: Review of Other Elements of the Environment

Other Elements of the Environment		Status: (i.e., Not Present , Not Affected, or Affected)	Does this project contribute to cumulative effects? Yes/No	Remarks
Fire Hazard/Risk		**Affected**	**No**	**Design features require accumulations of slash in the treatment areas to be assessed following treatment. Depending on the amount of accumulated slash in the treatment areas, lopping and scattering, machine and hand piling and pile burning, swamper burning, broadcast burning, or slash pullback may be conducted to reduce the accumulation of slash. With the small increase in fuel loading across most of the treatment areas, and the fuel reduction design features incorporated into the project it would not be expected that an increase in fire hazard would affect the environment on the project level scale, and the change would not be measurable on the watershed scale. Addressed in text (EA section 3.2.7)**
Other Fish Species with Bureau Status and Essential Fish Habitat		**Affected**	**No**	**Addressed in text (EA section 3.2.4 & Fisheries/Aquatic Habitat Report pp. 1-18)**
Land Uses (right-of-ways, permits, etc)		Not Affected	No	Agreements are in place and would not be changed by the proposed project.
Late Successional and Old Growth Habitat		**Affected**	**No**	**Weed treatments in Old Growth and Late Successional habitat would be beneficial. (EA section 3.2.2)**
Mineral Resources		**Affected**	**No**	**Control on NNP species would remove NNPs and seeds from the harvestable minerals.**
Recreation		**Affected**	**No**	**Any treatments in recreation areas would be beneficial. Addressed in text (EA section 3.2.6).**
Rural Interface Areas		**Affected**	**No**	**Any treatments on adjacent land areas would be beneficial. Addressed in text (EA section 3.2.6).**
Soils		**Affected**	**No**	**Addressed in text (EA section 3.2.5)**
Special Areas outside ACECs (Within or Adjacent) (RMP pp. 33-35)		**Affected**	**No**	**Removal of non-native species within Areas of Critical and Environmental Concern would help maintain and protect the ACEC values in which the individual ACECs were originally established. Addressed in text (EA section 3.2.1)**
Other Bureau Special Status Species and habitat	**Plants**	**Affected**	**No**	**Removal of non-native species and providing control measures would provide or enhance/restore habitat for special status species and restore potential habitat. Addressed in text (EA section 3.2.1)**
	Wildlife	**Affected**	**No**	**Possible negative affects to individuals. Overall long term (>5 yrs) positive affects to species and habitat. Addressed in text (EA section 3.2.2)**
Visual Resources		**Affected**	**No**	**Project is located within all VRM (Visual Resource Management) classes. Changes to the landscape character are expected to be low and comply with management guidelines. Addressed in text (EA section 3.2.6).**
Water Resources – Other (303d listed streams, ODEQ 319 assessment, Downstream Beneficial Uses; water quantity, Key watershed, Municipal and Domestic)		**Affected**	**No**	**Addressed in text (EA section 3.2.3)**

Other Elements of the Environment	Status: (i.e., Not Present , Not Affected, or Affected)	Does this project contribute to cumulative effects? Yes/No	Remarks
Wildlife Structural or Habitat Components - Other (Snags/CWD/ Special Habitats, road densities)	Not Affected	No	Addressed in text (EA section 3.2.2)

3.2 Affected Environment and Environmental Effects

Those elements of the human environment that were determined to be affected, either positively or negatively, are; *vegetation, wildlife habitat, water, fisheries/aquatic habitat, soils , recreation/rural interface/visual resources and fuels/air quality*. This section describes the current condition and trend of those affected elements, and the environmental effects of the alternatives on those elements.

3.2.1 Vegetation

Affected Environment

The majority of Westside Saelm BLM lands (223,321 acres) occur in the Oregon Coast Range Physiographic Province as described by Franklin and Dyrness (1973) with a small portion of the BLM administered lands occurring within the Willamette Valley Province. The Willamette Valley Province tends to be drier than the Coast Range Province.

Two main plant associations or zones have been described within the Coast Range Physiographic Province, the Sitka Spruce (*Picea sitchensis*) zone and the Western Hemlock (*Tsuga heterophylla*) zone. The Sitka Spruce zone occurs as a narrow band along the Pacific Ocean extending inland up to a few miles and often following the coastal fog belt. The Western Hemlock Zone extends from the Sitka Spruce zone east to the Willamette Valley and is the most extensive zone in Coast Range Province. This zone is mostly known for its seral Douglas fir (*Pseudotsuga menziesii*) forests. Other associations have been described but occupy few acres within the Marys Peak and Tillamook Resource Areas. These associations include; Silver-fir (*Abies amabilis*) zone known only from Saddlebag Mountain in Lincoln County, the Grand fir (*Abies grandis*), Douglas-fir and Oregon white oak (*Quercus garryana*) zones known from adjacent the Willamette Valley margins and the Noble fir (*Abies procera*) communities that are scattered in the Oregon Coastal Mountains in higher (ca. 3,000 feet) elevations, but are generally considered to be included in the western hemlock zones.

Approximately 223,321 acres or 96.12% of the gross acres within Marys Peak and Tillamook RAs are considered forested lands. Although these acres are considered coniferous forests, acres along perennial streams and roadways are often dominated by hardwoods such as big leaf maple (*Acer macrophyllum*) and red alder (*Alnus rubra*). The majority of these forested lands have been logged beginning in the late 1800's. Timber harvesting has resulted in various age classes of forested stands occurring across the landscape and throughout checkerboard ownership. Existing right-of-ways traverse much of the forested landscape. Road acres total approximately 7,298 acres or 3.02% of the landscape. Approximately 868 acres or 0.68% of the RAs are considered non-forested and are comprised of; grassland meadows, shrubs, rock outcrops and wetlands.

The Westside Salem BLM currently manages 18 ACECs (Areas of Critical Environmental Concern). The ACEC designation includes ONA (Outstanding Natural Areas) and RNA (Research Natural Areas). Outstanding natural areas have been designated for recreation while the RNAs were designated for research of the natural processes of the areas. Regardless of the ONA or RNA designation most ACECs have been designated due to the unique vegetation, wildlife habitat and/or recreational opportunities. Often the unique feature of the ACECs in western Oregon is the lack of a coniferous overstory, such as a grassy meadow or wetland. Most all of the ACECs are highly susceptible to invasion of NNPs.

Yaquina Head Outstanding Natural Area is unique in habit as compared to the majority of other lands included in western Salem BLM. Yaquina Head is an approximate 106 acre parcel of basalt headlands that overlook the Pacific Ocean. Prior to Federal ownership, this land was managed as a quarry which led to highly disrupted natural vegetation. Yaquina Head consists of at least 4 habitat types; grassland meadows, basalt outcrops and cliffs, shrub communities and coniferous forestlands. The grasslands meadows consist of mainly non-native species with native species dispersed throughout. The basalt cliffs and boulder fields are mostly non-vegetated. The shrublands are dominated by native species such as; salal, salmonberry, thimbleberry, willow (*Salix hookeriana*) and black twin-berry (*Lonicera involucrata*). The higher elevations of Yaquina Head are forested and dominated by a canopy of Sitka spruce with a shrub layer of mostly salal. Lodgepole pine (*Pinus contorta*) occurs just below the Sitka spruce stands. The stands of lodgepole pine have a thick, dense canopy with little vegetation beneath. It is evident that the lodgepole pine forest is encroaching into the grassland meadows. However, the grassland meadows contain a high percentage of NNP species while the coniferous forested stands contain a high percentage of native plant species.

Another unique area, but not included as an ACEC is known as PC-80, an 80 acre tract that is managed by the Tillamook Resource Area. It is located just north and adjacent to the community of Pacific City, Oregon. In the late 1960's the BLM initiated a stabilization project on approximately 30 acres of unstable dunes at PC-80. The project area was planted with Lodgepole Pine (*Pinus contorta*), European beach grass (*Ammophila arenaria*) and Scot's broom (*Cytisus scoparius*). It is not known what the lodgepole pine (*Pinus contorta*) seed source was, but it is suspected that the seed was collected offsite as health and vigor is poor when compared to pine that seeded in naturally. The other two species planted were recognized at the time as species of choice for ground stabilization, however, today they are recognized as "invasive species" on the ODAs noxious weed list.

Bureau Special Status Botanical and Fungal Species:

Marys Peak and Tillamook RAs have a few known sites of bureau special status species in the sub-category of Federal and/or Oregon State threatened or endangered listed species and hundreds of other bureau special status vascular plant, lichen, fungi and bryophyte species. The 'other' bureau special status species sites are scattered throughout the resource areas and are known from natural occurring vegetation or forested stands. Because of the unique vegetation, many ACECs have Bureau special status plants, animals and fungi within the boundaries.

Non-native plants and noxious listed weeds:

Non-native plants are well established throughout the Mary Peak and Tillamook RAs. Non-native plants have displaced native vegetation in many portions of the resource areas. Non-native weed species occur mainly along areas of man made disturbances such as roads, stock piles, trails, recreation areas and within forest management boundaries. Non-native plants also occur within riparian zones where they displace naturally occurring vegetation and disrupt the function of the aquatic system. Initial spread of non-native species generally occurs along transportation systems and aquatic systems. Each year new invader Oregon state listed noxious weeds become established within the boundaries of the resource areas.

Common and widespread Oregon State listed noxious weeds that currently occur throughout the resource areas include; Scot's or Scotch broom (*Cytisus scoparius*), Himalayan blackberry (*Rubus discolor*), Canadian thistle (*Cirisium arvense*), bull thistle (*Cirisium vulgare*), St. Johns wort (*Hypericum perforatum*) and Tansy ragwort (*Senecio jacobaea*). Other noxious weed species known or suspected to occur within the resource areas on BLM administer lands include; meadow knapweed (*Centaurea pratensis*), spotted knapweed (*Centaurea maculosa*), English ivy (*Hedra helix*), giant knotweed (*Polygonum sachalinense*), Himalayan knotweed (*Polygonum polystachym*), Japanese knotweed (*Polygonum cuspidatum*), purple loosestrife (*Lythrum salicaria*), false brome (*Brachypodium sylvaticum*), gorse (*Ulex europaeus*) and giant horsetail (*Equisetum telmateia*). Several other non-native species are well established within the resource area as well. Common chickweeds (*Stellaria*, *Cerastium* sp.), teasle (*Dipsacus fullonum* var. *sylvestris*), annual bluegrass (*Poa annua*), and spotted cat's-ear (*Hypochaeris radicata*) are a very small list of the common non-native species that occur throughout the resource area.

At Yaquina Head, Austrian pine (*Pinus nigra*) was planted by the BLM and has been spreading among the lodgepole pine over the past 10 years. Other horticultural species such as cottoneaster (*Cottoneaster*), Calla lily (*Zantedeschia aethiopica*), crocosmia (*Crocosmia* x *crocosmiiflora*), barberry (*Berberis darwinii*), daffodil (*Narcissus* sp.) and Gladiolas (*Gladiolus* sp.) have escaped cultivation from nearby residences and have become well established at Yaquina Head. A few other common non-native species that occur mostly in the grasslands at Yaquina Head include; sheep sorrel (*Rumex acetocella*), creeping buttercup (*Ranunculus repens*), common mustard (*Brassica campertris*), few seeded bittercress (*Cardamine oligosperma*), hedge mustard (*Sisymbrium officinale*), several lotus species (*Lotus* sp.), clover species (*Trifolium* sp.), vetch species (*Vicia* sp.), red-sepaled evening primrose (*Oenothera erythrosepala*), hedge bindweed (*Convolvulus sepium*), Queen Anne's lace (*Daucus carota*), oxeye-daisy (*Chrysanthemum leucanthemum*), velvet grass (*Holcus lanatus*), fescues (*Festuca* sp.) and many others. However, these non-native species often account for the colorful hues within the grassland meadows.

PC-80 was planted with European beach grass (*Ammophila arenaria*) and Scot's broom and has other non-native species present similar to those mentioned above for Yaquina Head.

Environmental Effects

3.2.1.1 Alternative 1 (No Action Alternative)

The No Action Alternative would allow continued implementation of current control measures to limit the growth and spread of NNPs. NNP would continue to be treated using physical,

biological, and cultural control methods. Oregon State listed noxious weed species that are not easily controlled and require chemical applications would be expected to persist and increase in size and density. Noxious weed infestations would continue to out-compete native plants while reducing nesting and/or foraging habitat for wildlife species. Threatened and Endangered and bureau special status botanical and fungal species could be displaced from the encroachment of noxious weeds. Infestations of aquatic noxious weed species would continue to destabilize banks, increase sedimentation, and reduce the quality of existing fisheries habitat.

3.2.1.2 Alternative 2 (Proposed Action)

Effects on native vegetation:

Non-native plant populations or infestations would be reduced by treatments listed in Table 1, while minimizing soil disturbances. During treatments some native vegetation adjacent to the targeted NNP may be removed, cut, chopped, or otherwise damaged, severed or killed depending on control method used. The amount of native vegetation killed during treatments would be considered minimal since the majority of native vegetation within the treatment areas is common, widespread and the maximum percent of the resource areas treated per year would be considered low (0.65%).

Based on potential site disturbance, exposure to light, and increased soil temperatures post treatment NNP invasion is likely if native species are not present and/or become established. Native species sown or planted within the treatment areas would decrease the amount of time it takes for the site to recover from the treatment.

Some soil disturbance may be included in the use of physical treatments. The areas of displaced soil could allow for additional germination of NNP species that had a seed source in the area or the treatment area could become infested with new NNP. Monitoring treatment sites would provide for early detection of new invaders or allow for proposed follow-up treatments.

Non-native plant control would remove NNP species that occur within ACECs. All treatments utilized would minimize soil disturbances and would incorporate restoration using native species after treatments. Removal of NNP would restore ACECs and help maintain the values in which the ACECs were established.

Effects on Bureau Special Status Botanical and Fungal Species
Bureau special status botanical and fungal species should not be affected through the use of treatments. Generally special status and special attention vascular plant, bryophyte, lichen or fungi species do not occur in areas where native vegetation has been displaced by NNP. All project areas would be evaluated prior to initiating treatments. If any of these species are located within a project area they would be protected according to bureau policy and treatments would be designed to protect the known site from any NNP infestation.

Non-native plants and noxious listed weeds:

Non-native plants would be targeted for removal. Removal would include any means from the list of treatments contained in Table 1 (Summary of Control Methods). The targeted species would be pulled, severed, sprayed with herbicide (glyphosate) or otherwise removed and destroyed. After the initial treatment, these plants would be hauled off site or left on site to decay or would be piled or broadcast burned.

3.2.1.3 Cumulative Effects

The proposed action to implement a plan to control the spread of NNPs in the Marys Peak and Tillamook Resource Areas would have a positive long term cumulative impact across the landscape by restoring native vegetation to areas fragmented by NNP infestations. This action would reduce the impacts that NNPs have on native plants. In addition, other Federal, State and Private landowners efforts in reducing the spread of non-native plants would have positive cumulative effects over the long-term.

The analysis area for cumulative effects to NNP species is in the Northern Coast Range and northwestern Willamette Valley throughout the Marys Peak RA and Tillamook RA. Examples of forest management activities and natural events within the affected area that will create soil disturbance, increase available light, and increase soil temperatures, all of which will influence the spread of NNP's are: commercial and pre-commercial timber density management projects; young stand maintenance; road construction, maintenance, renovation, de-commissioning, and culvert replacements; landslides, high flow sedimentation deposits; and off highway vehicle (OHV) activities. Activities that do not necessarily create disturbance but influence the spread of weed seeds are recreational hiking, biking, horseback riding, fishing and hunting. Other sources of seed dispersal are from wildlife movement, water movement, natural dehiscence and wind. Many past and present management and non-management activities tend to open dense forest settings and disturb soils therefore providing opportunities for widespread NNP infestations to occur. Most NNP's are not shade tolerant and will not persist in a forest setting as they become out-competed for light as tree and/or shrub canopies close and light to the understory is reduced.

Treatment or removal of NNP infestations would result in the reduction of the NNP seed source and the long term re-establishment or restoration of native plant habitats that are currently occupied with established non-native vegetation.

The implementation of this project would not contribute negatively to cumulative effects on vegetation because; 1) the proposal minimizes the number of acres treated annually with glyphosate (100 acres) and physical treatments (1,500 acres), 2) the high binding potential (non-leaching) of glyphosate to soil particles and high solubility in water would limit effects on non-targeted vegetation, 3) the proposal limits glyphosate application to hand treatments only (vs. aerial or boom applications), and 4) the project includes direct involvement with resource area specialists (wildlife biologist, botanist, soil scientist and fisheries biologist) prior to the implementation of any projects.

3.2.2 Wildlife

Affected Environment

The Oregon Coast Range provides diverse conifer forest habitat types for many wildlife species. Habitat types are usually defined by the dominant plant species, associations, or seral-stages in the environment. Different forest stand age-classes and non-forest vegetation types provide the following major wildlife habitat types within the resource areas: early-seral habitat (trees 0 to 39 years old), mid-seral habitat (40 to 79 years), late-seral habitat (80 to 199 years), old-growth habitat (200+ years), hardwood dominated habitat and oak woodlands on the edge of the Willamette Valley; and non-forest special habitats (wet and dry meadows, rock outcrops, cliffs, grass balds, etc.). These lands provide habitat for a number of species that are included in the BLM's special status species programs including terrestrial mollusks, amphibians, reptiles, mammals and numerous birds. Non native plants can be found in any of these habitat types.

Willamette Valley Associated Birds

Within the proposed project area there is a small amount of land (~ 50 acres) that historically hosted oak woodland/ oak savannah ecotype that may be available for treatment. These lands currently have a mix of conifer and hardwoods and some include old pasture, of which some had been planted with Douglas-fir in the 1980's. These lands have the potential to support individuals of the Willamette Valley populations of common nighthawk, Oregon vesper sparrow, and yellow-breasted chat (Altman, Vroman in Marshall et al. Eds. 2003), which are listed in the (SSS) program as bureau sensitive for the Willamette Valley populations only.

Amphibians

There are two bureau sensitive amphibians that occur within the proposed project area; Cope's giant salamander and the Columbia torrent salamander, both of which only occur within the Tillamook Resource Area. Both species are highly aquatic and have the potential to be impacted by treatment operations, particularly herbicide application.

The Cope's giant salamander has rarely been observed in the adult (terrestrial) form and inhabits small to medium sized streams in the northeastern portion of the Tillamook RA; generally Columbia and Washington Counties (Leonard et. al. 1993). The Columbia torrent salamander inhabits small streams at the margin of land and water (splash zone) and can also be found at the confluence of small and larger streams, potentially throughout the Tillamook RA.

Reptiles

The Northwestern pond and Western painted turtles are two bureau sensitive species that have the potential to occur in Willamette Valley drainages within the proposed project area. These two turtle species prefer slow moving streams, ponds, marshes, lakes; permanent or at times intermittent water, with mud or rock bottoms, and available basking sites (Brown et. al. 1995) . There also needs to be adjacent open sunlit areas for turtles to nest and/or hibernate. Pond turtles are much more common in the Willamette Valley south of Eugene and in the Rogue and Umpqua Valleys than in northwestern Oregon, although by some estimates the population in the Willamette

Valley has declined by more than 96 - 98% in the last century (Csuti et. al. 1997). The painted turtle is more common in the Columbia Gorge and eastern Washington than in northwestern Oregon. Most turtle populations in northern latitudes of the range in Oregon are associated with grasslands and cottonwood and ash forest in the lower river systems rather than the conifer forest uplands typified by the BLM lands in the area. Although there have not been any documented sightings of turtles on Marys Peak or Tillamook Resource Area lands, there are a few creeks on BLM lands with beaver ponds and/or low gradients that do provide the necessary habitat elements to support turtles.

Terrestrial Mollusks

The Marys Peak and Tillamook Resource Area have surveyed over 9000 acres of suitable mollusk habitat in the last eight years and have never found the *evening fieldslug, pacific walker or salamander slug.* Fewer than five individuals each of *Puget Oregonian, crowned tightcoil and spotted taildropper* have been found (all in Tillamook Resource Area), while hundreds of *Tillamook westernslug*s have been found in the Tillamook Resource Area, with none found in Marys Peak Resource Area.

The literature suggests that the pacific walker is semi-aquatic and is expected to be found within ½ mile of the coast, adjacent to live water in humid forest. Of the three parcels of land managed by the Marys Peak and Tillamook Resource Areas within ½ mile of the coast, none has live water that would provide suitable habitat for the pacific walker.

The Puget Oregonian is much more common in the western Washington Cascades and Puget Trough. The few known sites are all within ½ mile of each other on the east side of the Coast Range and represent the southern extent of the known range.

The spotted taildropper and crowned tightcoil sites were found in native forests with little recent disturbance and no NNP infestations. Based on the survey effort over the last eight years, there is little expectation that either the evening fieldslug or salamander slug would be found on BLM land in the proposed project area.

The following table shows the SSS program species (Salem RMP) that have the potential to reside in the proposed project area, including a synopsis of the possible affects, if any, which could occur as a result of the implementation of the Proposed Action. The type and degree of impacts that may occur to species is discussed in more detail in the Environmental Effects section below.

Table 6: SSS Program species Marys Peak and Tillamook Resource Areas

Project: Westside Salem Integrated NNP				
Common Name	**ESA**	**NFP**	**BLM**	**Impact Synopsis**
Mammals:				
Columbian White-tailed Deer (Tillamook only)	FE	-	FE	No - Not within range
Fringed Myotis	-	ROD	BA	No – No or Negligible impact to habitat
Long-eared Myotis	-	ROD	BT	No – No or Negligible impact to habitat
Long-legged Myotis	-	ROD	BT	No – No or Negligible impact to habitat
Silver-haired Bat	-	ROD	BT	No – No or Negligible impact to habitat

Project: Westside Salem Integrated NNP				
Common Name	**ESA**	**NFP**	**BLM**	**Impact Synopsis**
Townsend's Big-eared Bat	-	-	BS	No – No or Negligible impact to habitat
Red Tree Vole	-	S&M	BS	No – No or Negligible impact to habitat
Birds:				
Bald Eagle	FT	-	FT	Yes - Potential disturbance to individuals from smoke/noise
Harlequin Duck	-	-	BA	No – No or Negligible impact to habitat
Lewis's Woodpecker	-	-	BA	No – No or Negligible impact to habitat
Marbled Murrelet	FT	-	FT	Yes - Potential disturbance to individuals from smoke/noise
Northern Spotted Owl	FT	-	FT	Yes - Potential disturbance to individuals from smoke/noise
Northern Goshawk	-	-	BS	Yes - Potential disturbance to individuals from smoke/noise
American Peregrine Falcon	-	-	BS	No - No Habitat
Purple Martin	-	-	BS	No – No or Negligible impact to habitat
Common Nighthawk (WV)	-	-	BS	Yes - Possible negative impact to individuals – long term positive impact to habitat and species
Oregon Vesper Sparrow (WV)	-	-	BS	Yes - Possible negative impact to individuals – long term positive impact to habitat and species
Yellow-breasted Chat (WV)	-	-	BS	Yes - Possible negative impact to individuals – long term positive impact to habitat and species
Reptiles and Amphibians:				
Columbia Torrent Salamander (Tillamook only)	-	-	BS	Yes - Possible negative impact to individuals – long term positive impact to habitat and species
Cope's Giant Salamander (Tillamook only)	-	-	BA	Yes - Possible negative impact to individuals – long term positive impact to habitat and species
Painted Turtle	-	-	BS	Yes - Possible negative impact to individuals – long term positive impact to habitat and species
Northwestern Pond Turtle	-	-	BS	Yes - Possible negative impact to individuals – long term positive impact to habitat and species
Invertebrates: (arthropods and worms)				
American Acetropis Grass Bug	-	-	BS	No - No habitat
Insular Blue Butterfly	-	-	BS	No – Dependent on specific plant species that are not targets for treatments
Fender's Blue Butterfly (MP only)	FE	-	FE	No – Dependent on specific plant species that are not targets for treatments
Oregon Silverspot Butterfly	FT	-	FT	No - No habitat
Whulge Checkerspot Butterfly	-	-	BS	No – Dependent on specific plant species that are not targets for treatments
Johnson's Hairstreak (Butterfly)	-	-	BS	No – Dependent on specific plant species that are not targets for treatments
Hoary Elfin (Butterfly)	-	-	BS	No – Dependent on specific plant species that are not targets for treatments
Oregon Giant Earthworm	-	-	BS	No – Expected only in native undisturbed forest habitat. NNP infestations are found in previously disturbed areas.
Roth's Blind Ground Beetle (MP only)	-	-	BS	No – No Habitat
Haddock's Rhyacophilan Caddisfly (MP only)	-	-	BS	No – No Habitat
Siskiyou Short-Horned Grasshopper (MP only)	-	-	BS	No – No Habitat

Project: Westside Salem Integrated NNP				
Common Name	**ESA**	**NFP**	**BLM**	**Impact Synopsis**
Invertebrates: (mollusks)				
Evening Fieldslug	-	S&M	BS	Yes - Possible negative impact to individuals – long term positive impact to habitat and species
Puget Oregonian (snail)	-	S&M	BS	Yes - Possible negative impact to individuals – long term positive impact to habitat and species
Salamander Slug	-	-	BS	Yes - Possible negative impact to individuals – long term positive impact to habitat and species
Tillamook Westernslug	-	-	BS	Yes - Possible negative impact to individuals – long term positive impact to habitat and species
Pacific Walker (snail)	-	-	BS	No - No habitat
Crowned Tightcoil (snail)	-	-	BS	Yes - Possible negative impact to individuals – long term positive impact to habitat and species
Spotted Taildropper (slug)	-	-	BS	Yes - Possible negative impact to individuals – long term positive impact to habitat and species

Environmental Effects

3.2.2.1 Alternative 1 (No Action Alternative)

Native wildlife species are dependent on native vegetation for nest sites, for food, and, if a predator, for hunting. These activities are all vital life and population sustaining functions. The presence and spread of NNP has negative short-term, long-term, and cumulative impacts on native wildlife species. Many of the native forest and non-forest habitat types in the Oregon Coast Range have been invaded, to some extent, by NNP species. Every infestation of NNP would have some impact on the composition, structure and functioning of the surrounding environment to provide suitable habitat for native fauna. The greatest impacts to these conifer forest habitats from NNP invasions occur in the understory when small or large openings are created in the overstory forest canopy. NNP species impact wildlife by reducing the quantity and degrading the quality of foraging and nesting habitat, and modifying resting, hiding/escape habitat. These alterations change the way a species interacts with its environment, such as avoiding NNP infestations which requires more energy and increases the threat of predation. As the size and/or density of NNP infestations increases the greater the negative impact to wildlife.

If the proposed action is not implemented there would continue to be NNP control using physical control methods such as pulling or cutting, but control with herbicides would not be implemented. Many habitat sites for Special Status Species would not be treated effectively without efficient and cost effective control measures such as the use of herbicide. There could be an unquantified loss of opportunity to treat weed infestations due to the unavailability of some control methods and/or time involved in documenting environmental effects on a project by project basis.

3.2.2.2 Alternative 2 (Proposed Action)

Implementation of the proposed action is expected to result in little potential for adverse impacts to SSS species populations and would not be expected to result in an elevated level of concern for SSS species. Since the Proposed Action intends to treat additional NNP infestations beyond those currently identified in Appendix 6, it is impossible to say if any individuals of specific SSS species would be affected by treatments. This analysis assumes that SSS species may be present if suitable habitat exists.

Physical treatments such as burning, pulling, cutting, etc. have the potential to impact low mobility species, such as terrestrial mollusks and amphibians directly by crushing or burning them or to disrupt breeding activities. High mobility species such as birds would be able to move from the impact area and therefore it is not likely that individuals would be directly impacted, but they could be indirectly impacted during nesting periods if forced to abandon breeding attempts. Any threat to SSS species would be reduced by the small size and dispersed number of NNP infestations (which are usually devoid of most native wildlife species) to be treated, by the method of treatment – physical treatments predominantly, careful use of herbicide by hand application only (spot spraying), and seasonal restrictions.

Over the long term, the effects of NNP control would be beneficial because they would help restore degraded habitats and plant communities and prevent additional areas from being degraded due to further invasions. Controlling NNP and encouraging native plant growth would provide higher quality habitat for many wildlife species, including SSS species, as well as ensure future productivity and use of the land for wildlife.

Some of the impacts to wildlife from the use of the herbicide glyphosate have been analyzed in other documents to which this analysis is tiered. However none of those documents has analyzed the impacts to reptiles, amphibians or terrestrial mollusks. The EPA re-registration document for glyphosate (US EPA 1993) includes bioassays for several surrogate species that represent impacts to native wild species. In addition, the USFS completed a risk assessment on Glyphosate in 2003.

The following analysis is intended to supplement the analysis already completed in *Northwest Area Noxious Weed Control Program* (1985) and the supplement to that document (1987).

Bald Eagle, Spotted Owl, Marbled Murrelet and Northern Goshawk

The three ESA (Endangered Species Act) threatened species (eagle, owl, murrelet) and goshawk are treated together because the impacts are expected to be similar. Treatments that cause noise above the ambient forest level or create smoke have the potential to disturb these birds, especially during breeding activities, but have virtually no possibility to directly injure or kill individuals. Managing treatment activities consistent with the required programmatic USFWS Biological Opinion for activities that may disturb the listed species, (ie. seasonal restrictions), would reduce or eliminate potential disturbance impacts.

There are few records of goshawks nesting within the range of the proposed action. Disturbance to goshawks could occur that may disrupt their breeding, but due to the restricted nature of the proposal together with the remote possibility that there are actually unknown goshawks breeding in any treatment area, the proposal would not have an overall negative affect to the species.

No adverse impacts to habitat would occur. The reduction of NNP within suitable habitat for any of the species could result in improved habitat conditions, especially over longer time periods.

Willamette Valley Associated Birds

Treatment of NNP would benefit common nighthawk, Oregon vesper sparrow, and yellow-breasted chat species by improving desired habitat. Individuals that may be present could be negatively impacted by treatments, mostly by mechanical or burning treatments. There is lesser likelihood that vesper sparrows or nighthawk may actually be nesting in potential weed treatment areas than for chats which prefer mixed brushy areas with abundant invertebrate resources. Compared with the more extensive available habitat within the Willamette Valley, impacts associated with weed treatments on lands that may be targeted by the proposed action would have a slight possibility of causing negative effects to chat, nighthawk or vesper sparrow populations.

Amphibians

Herbicide applications along stream edges, particularly knotweed eradication efforts, have the greatest potential to cause negative impacts. By incorporating design features, (Section 2.3.3) the potential for adverse impacts is greatly diminished. However, there still exists some potential for negative effects from unintended exposure such as overspray, injector failure, and accidental spill.

Recently there have been many studies in response to the perceived global decline in amphibian numbers, including some that looked at developmental abnormalities that are occurring in some amphibian populations. (Mann and Bidwell 1999, Perkins et. al. 2000, Howe et. al. 2004, Relyea 2005). Although the results are difficult to determine, in most cases where amphibian deaths occurred, the deaths were attributed to certain surfactants. These surfactants were not labeled for aquatic use and would not be used in the proposed action. McComb et. al. looked at sublethal affects of exposure to high doses of glyphosate to several species in the Oregon Coast Range, (including rough skinned newts) and found no detectable difference over time between target animals and controls (McComb et. al. 1990, 1997). Cole et al. (1997) sampled amphibians in Oregon clearcuts with and without glyphosate applications and found that capture rates did not differ between treated and untreated plots for rough-skinned newt, ensatina, Pacific giant salamander, Dunn's salamander, western redback salamander, and red-legged frog. Conversely, unpublished work by King et al. (2005) at Central Washington University indicates that Roundup at sublethal concentrations can increase the susceptibility of Northwest amphibians to disease pathogens. However, King's work was with Roundup which included the surfactant not labeled for aquatic use rather than technical glyphosate. Since not all of the studies cited here controlled the same factors, it is impossible to accurately conclude the level of toxicity of glyphosate to amphibians. The evidence suggests that glyphosate in its basic form has low toxicity to amphibians and that ingredients other than glyphosate in some formulations may be responsible for most of the observed toxic effects. The proposed action would only use formulations that are approved for aquatic use within riparian areas.

The other aspect of herbicide application that may negatively impact Columbia torrent salamander and Cope's giant salamander than contamination by herbicide is the direct impact of applicators crushing individuals while applying herbicide. The stem injection technique to control knotweed could be especially impactful since it could require concentrated movement around the infestation that may be at waters edge (i.e. at the torrent salamanders' life zone). Mechanical weed control measures may also directly affect these species if operations include foot traffic within the splash zones of creeks where individuals could be crushed.

While there is a possibility that individual Columbia Torrent or Cope's giant salamanders could be killed by weed control treatments, there is virtually no likelihood that any impacts to populations would occur when considering the design features of the proposal coupled with the very restricted nature, both in time and space, of the treatments. Even if the maximum treatment level were achieved each year in every watershed, it would still result in only a very small fraction of the potential habitat to be negatively impacted and within that small percentage of habitat the chances are small that more than a few individuals would actually be impacted.

Reptiles

There have been very few studies that have documented the affects of glyphosate on turtles but one study on red-eared slider turtle embryos and hatchlings found that eggs exposed to very high concentrations of glyphosate and LI 700 surfactant (95%) had a significant affect on hatching success (73% vs. 80-100% for other treatments) and weight of hatchlings two weeks post hatch (Sparling et. al. 2006). However, it appears that the affects were significant at only the highest concentrations and the authors concluded that the use of glyphosate and LI 700 under normal field conditions would pose a low level of risk to red-eared sliders. Adverse effects may occur from carelessness (accidental spill) or failure to follow label instructions. Design features that are part of this proposal would greatly decrease the likelihood of adverse chemical exposure to turtles in the unlikely case where turtles are actually present at a weed control project site.

Mechanical controls would not likely adversely affect turtles except in the unlikely event that a turtle was impacted on land while dispersing or moving to or from nesting habitat. Control of NNPs around riparian areas would have an overall positive affect on turtles by allowing the reestablishment of native vegetation and potentially improving nesting habitat.

Grazing (cultural control) may negatively affect turtles by trampling nest sites, hibernacula or moving individuals, but may also clear areas resulting in improved nest and hibernating sites.

The effects to turtle populations are expected to be similar to those identified for the Willamette Valley associated birds where, compared with the available potential habitat within the Willamette Valley, impacts associated with weed treatments on lands with suitable turtle habitat would have a slight possibility of causing negative effects.

Terrestrial Mollusks

The few studies that have analyzed the effects of glyphosate on mollusks, indicate that snails are less affected than slugs and that some species of slugs are more susceptible to glyphosate exposure than others (Nair, G. A., A. I. Mohamed, and K. C. Bhuyanb. 1995). One study showed that one species of snail tolerated high levels of glyphosate ingestion before lethal dose, much higher than would be found under label applied conditions (Schuytema, G. S., A. V. Nebeker, and W. L. Griffis. 1994). The study also found that snails avoided glyphosate sprayed vegetation.

Due to their common nature, some native terrestrial mollusks could be present in weed treatment areas and if so, individuals could be impacted by treatments. However, areas infested with non-native weeds are not the favored habitat of any of the Special Status Species listed above. Since most of the species have been found rarely or not at all, the likelihood that any would be present at a weed treatment site is extremely small. The one exception could be the Tillamook westernslug, which is very common in mid-seral conifer forest in the Tillamook Resource Area. Even with its

common nature, the Tillamook westernslug would not be expected to be found in NNP infestations based on the habitat at the multitude of sites it has been found (coarse wood and needle duff).

Depending on the timing of treatments, the degree of impact to terrestrial mollusk may vary. Treatments that occurred in late summer or early fall may have less impact, since many mollusks would be dormant and less available to be impacted.

Treatments that would occur in NNP infestations within forested landscapes and that could be suitable habitat for the bureau special status mollusk species (evening fieldslug and Puget Oregonian) would be surveyed for their presence. If either of those species were found, then measures would be taken to assure that the site location would be protected from harm. The survey measures would not only reduce the probability of negative impacts to the species populations, but would also help assure the survival of individuals at the site.

Considering both the very small likelihood that more than a few individuals may be present at a given treatment site, and the small scale of area treated relative to the availability of potential habitat throughout northwestern Oregon, the expected impacts to sensitive mollusk populations from weed treatments would be immeasurably small.

3.2.2.3 Cumulative Effects

The proposed action to implement a plan to control the spread of NNP in the conifer forests of the Oregon Coast Range would have a positive cumulative impact on wildlife by restoring native vegetation to areas fragmented with NNP infestations. This action would improve the nesting, foraging, resting and escape habitat in the watersheds where it is applied.

3.2.3 Water Quality

Affected Environment

There are thirty-nine 5th field watersheds containing public lands within the MP and Tillamook RAs. Fifteen 5th & 6th field watersheds have been identified by the ROD as Key Watersheds which serve as refugia crucial for salmonid and resident fish species. Seventeen of the 5th-field watersheds have been analyzed by district Watershed Analyses, with the remainder being incorporated into analyses completed by other agencies.

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The main rivers within the RAs are the Alsea, Luckiamute, Nehalem, Nestucca, Siletz, Trask, Tualatin, Wilson, Yamhill, and Yaquina. BLM lands within the project area are generally located in the higher elevations. Most of the weed infested areas in and near waterways occur along smaller tributaries and headwaters. In addition to streams, there are also wetlands, ponds, marshes and some lakes on MP and Tillamook RA lands.

Elevations range from sea level to approximately 3,500 feet. The climate is characterized by mild temperatures, wet winters and relatively dry summer. The RAs receive on average approximately 90 inches of precipitation annually. Most of the precipitation occurs as rain and comes during the winter months of November, December, and January.

According to the RMP, the beneficial uses within the RAs are resident and anadromous fish, municipal water, domestic, irrigation use, and water contact recreation. The predominant non-consumptive use of the water on BLM lands is propagation of salmonids and other cold water fish and aquatic life. There are several municipal watersheds within the RAs.

The Yaquina Head Outstanding Natural Area includes a distinct promontory bounded by the Pacific Ocean on its north, west, and south sides. It includes an intertidal zone, but does not include any freshwater habitat. Annual precipitation ranges from 40 to 60 inches with all but a fraction of this amount coming in the form of rain. Nearly all the precipitation runs off directly into the Pacific Ocean due to the impermeability of the basalt rock underlying the soil.

Water quality is generally very high within the MP and Tillamook RAs. Most streams are currently in proper functioning condition. Small, intermittent, headwater tributaries dominate the hydrology of the RAs and streams are generally cold and clear.

The Oregon Department of Environmental Quality (ODEQ) is responsible for developing, protecting and enhancing Oregon's water. At the present time, the ODEQ is not requiring a National Pollutant Discharge Elimination System (NPDES) permit or other water quality permit for pesticide applications provided the application is performed according to the approved label instructions.

Past land management activities such as timber harvest and road construction have disturbed soils and removed riparian vegetation and have had an adverse effect on water quality in parts of the project area. Sedimentation and turbidity are a concern in some areas, as is a lack of large woody debris in stream channels. A few streams are 303d listed as water quality limited by the Oregon Department of Environmental Quality (ODEQ), primarily for elevated summer temperatures. Some of the larger streams are also identified by the ODEQs 319 report for nonpoint source pollution concerns. BLM has not applied pesticides, which include herbicides, fungicides, insecticides, and rodenticides, within the project area since ~1984. Pesticides are used by many of the adjacent landowners for forest site preparation and maintenance.

The only herbicide that would be used is the EPA and BLM approved glyphosate. Only Oregon Certified Applicators or individuals under the direct supervision of Oregon Certified Applicators would be allowed to apply herbicides. Only the aquatic labeled glyphosate and aquatic approved surfactants (LI 700 or Agri-Dex) would be used in riparian and aquatic environments.

The following information about glyphosate comes mainly from a US Forest Service risk assessment for glyphosate (US Forest Service, 2003). The document gathered literature using PubMed, TOXLINE as well as the U.S. EPA CBI files.

Glyphosate is highly soluble and stable in water. It does not evaporate easily, and the potential for leaching is low. Glyphosate is not broken down by sun light or water. Instead it is removed from water by sediment adsorption and degradation by soil microbes. It will accumulate in sediment where it is held.

It has a typical half-life in water ranging from 50 to 70 days in water. A “half-life” is the amount of time its takes for half of the original amount of herbicide to be deactivated. It’s half-life in streams are typically shorter. In ponds, its half-life can be up to 10 weeks.

Herbicide use would be limited to 100 acres per year (0.04% of the public lands in the project area) and restricted to whatever is less: 1) 10 acres per year, per 6th field watershed or 2) less than 10% of the total riparian area within each 6th field per year. The 100 acre herbicide limit would be the sum of all treatments on BLM lands and all private lands treated using Federal dollars, excluding the projects listed in Appendix 6. It mainly would be applied during the growing season after the NNP species begin to grow.

In forestry, typical glyphosate application rates by air or ground ranges from 0.5 to 3 pounds of active ingredient per acre, usually higher rates on upland sites and along roads than along riparian areas.

Environmental Effects

This section will analyze the effects of the proposed action and no action alternatives on sediment, water temperature, dissolved oxygen, channel stability and structural complexity, and water contamination. Hydrologic effects (peak flows, low flows, and water yields) were considered but were found not to have effects in any of the alternatives. Few research studies have been conducted on NNPS effects on water quality. None are known for affected NNPS for this area. No local data is available. Because of these limitations, the following analysis is based upon general information known about NNPS, processes that can that can affect water quality and professional knowledge.

3.2.3.1 Alternative 1 (No Action Alternative)

Under the no action alternative, glyphosate would not be applied to control NNP infestations. Management actions would be limited to manual, biological, and mechanical controls in the Marys Peak Resource Area and manual and mechanical controls in the Tillamook Resource Area. Since many NNP infestations cannot be effectively controlled by non-herbicide control methods, many current NNP infestations would expand to other sites including streams, rivers, and wetlands.

Sediment – Some NNPS provide less ground cover and root holding strength than native plant species. Japanese knotweed plants, for example, have leaves that fall off in the fall and winter exposing the soil beneath it to rain. They also have shallower root systems than native plants. Stream banks colonized by Japanese knotweed tend to be unstable and have more slumping and erosion than those with trees and shrubs (Talmage, 2004).

Manual, biological, and mechanical methods to control NNP infestations in riparian areas would continue. Under some circumstances, these methods to control NNP infestations will cause soil disturbance and remove vegetative and result in localized increases in fine sediment deposition or turbidity. The most likely activities to cause this are hand pulling of emergent and streambank vegetation and walking in stream channels. These increases are expected to continue to be small, short-term, and local and to have negigible effects because the amount of disturbances are small (it is very difficult to hand pull large areas) and disturbances would be spread out over time and space.

Other methods to control NNP infestations are unlikely to cause fine sediment or turbidity increases because they do not involve ground disturbance or remove extensive vegetative cover near streams.

Increased sediment deposition caused by other land management activities including logging, road building, timber hauling, and farming in the project area would continue to dwarf the amounts produced by NNP infestations and management methods to control them.

Water Temperature – Many NNPS are shrubs and herbs and provide less streamside shade than native hardwoods and conifers. A decrease in streamside shade can lead to increase water temperatures. The greatest potential for water temperature increases are wider (>15 feet wide) and shallower (<2 feet deep) stream channels with large blocks of NNP infestations, especially on the south and westerly sides of streams. Any stream temperature increase from this alternative is expected to be very localized and small because NNPS infestations are relatively small and few areas with NNP infestations meet those site conditions described above.

Current management activities including including logging, road building, and NNP control on BLM lands are unlikely to be causing increase temperatures in project streams due to project design features to limit losses in effective stream shade.

Dissolved Oxygen – Some NNPS (e.g., Japanese knotweed leaves) produce large quantities of vegetative material each year. If a large quantity of organic matter fall into surface water, there could be a local increase in biological oxygen demand and a reduction in the amount of dissolved oxygen. The greatest risk for water temperature increases are in ponds, and shallow, slow moving streams with elevated water temperatures.

The risk for this to occur under this alternative is low because NNPS infestations near surface water are relatively small, there are few ponds, and most project streams are relatively turbulent and cool and are resistant to dissolved oxygen depletions. Current management activities are unlikely changing dissolve oxygen levels.

Channel Stability and Structural Complexity – Some NNPS can prevent the establishment of native trees along stream, potentially decreasing or delaying the future supply of large wood in stream channels.

Changes in channel stability and structural complexity from this alternative are unlikely, especially in the short-term, because NNPS infestations are relatively small. Current management activities on BLM lands are unlikely changing future supply of large wood in stream channels. Levels of large wood in stream adjacent to many of the non-BLM lands are likely to continue to diminish due to logging and agricultural activities.

Chemical Contamination – Some NNPS contribute large amounts of organic matter, some of which can fall into streams. Sudden addition of large amounts organic matter into streams can change its water chemistry by increasing the concentration of organic acids. The greatest potential for this alternative to change the water chemistry are areas near stream channels with large blocks of NNP infestations.

Under this alternative, due to the relative small size of NNPS infestations, the risk of these effects would be small and probably not measurable. Any effects should be quickly mitigated by dilution or turbulence.

In summary, under this alternative without the ability to use herbicides NNPS are likely to continue to spread and replace native vegetation. Any effects would be small and localized,

probably not measurable at the 7th field watershed or larger scale, effect to water quality. The risk of adverse effects to water quality would increase as NNP infestations expand and extend into more areas.

3.2.3.2 Cumulative Effects

Cumulative impacts to water quality across the project area would continue to occur on BLM and other lands as a consequence of forest management (e.g., clear-cutting, broadcast burning, fertilizing, herbicide applications, road construction, and timber haul, and agriculture activities on lands adjacent to BLM lands.

As stated above, effects from manual, biological and mechanical treatments on BLM lands and the spread of NNPS infestations would be small and localized and not discernible at 7th field watershed or larger scale. The magnitude of the effect in comparison to the potential effect of other management activities on all lands within the project area would be negligible. Consequently, the no action alternative would be expected to result in negligible cumulative effect to water quality.

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3.2.3.3 Alternative 2 (Proposed Action)

Sediment – The proposed action would be expected to result in little or no net increase in sediment deposition and turbidity. Herbicide application would kill NNPs and temporarily reduce ground cover in some treatment areas. This could potentially increase surface erosion and result in temporary delivery of fine sediment to streams. But the risk for this to happen is anticipated to be low. Implementation of design features would minimize the risk of soil and sediment delivery. Only a small amount of area along streams would be treated at any one time (no more than 100 acres/yr and <10% of 6th field watershed). Successful removal of NNPS and the re-establishment of native vegetation would increase ground cover and reduce the amount of sediment that could be delivered to streams.

Water Temperature – Changes in water temperature resulting from herbicide use would be unlikely. Most NNPS provide little to no streamside shade. No large blocks of dead vegetation from herbicide application would be expected. Only small areas of streamside vegetation would be treated with backpack or hand operated sprayers at any one time and area. Re-establishment of native riparian vegetation in areas along streams in one to several years would increase shading and potentially reduce water temperature.

Dissolved Oxygen – The proposed action is unlikely to change dissolved oxygen contents in streams. The herbicide treatments would not result in large quantities of organic material being delivered to streams. Only small areas of streamside vegetation would be chemically treated. Treatments would be spread out in space and time. Most project streams are cold, turbulent and well aerated and are resistant to changes in dissolved oxygen concentrations from forest management activities.

Channel Stability and Structural Complexity – Successful removal of NNPS in riparian areas would allow the re-establishment of tree species. This could potentially increase the future amount of large woody debris in a few small stream channels. The overall effect would likely be small and limited to local treatment sites.

Chemical Contamination – Herbicides applied to control NNPS near water could contaminate and impact water quality. The worst case would be if there was a chemical spill. The most likely way herbicides would enter water would be when it is applied by to NNPS around streambanks or when it is sprayed by backpack sprayers to the waters edge (mostly knotweed projects). Treatment sites with the highest potential for chemical contamination are knotweed treatment stream sites. Contamination would be less likely to occur through surface runoff or leaching because glyphosate binds strongly to soil particles, becomes immobile and is quickly broken down by microbial degradation.

Project design features (Section 2.3.3) and label restrictions would minimize the potential for introduction of herbicides into water. Label restriction would limit nozzle pressure and spray, and restrict herbicide application during high winds or expected precipitation would. Herbicide treatments would generally not be used if other control methods, e.g., manual and cultural, are practicable. Herbicides would be applied by selective or spot hand application. No broadcast spraying would be allowed. The maximum application rate of glyphosate that would be allowed are substantially less (approximately 40% less) than allowed on the label. Daily use quantities of herbicides would only be allowed to be transported to the project site.

In a worst case scenario, a backpack sprayer spill, there would be a moderate to high risk of water quality impairment. In this scenario, most of the content of a backpack sprayer is emptied by intention or accident into a small, slow moving stream. The duration of the effect would be expected to short-term (up to several hours) when it is reduced by dissipation of flowing water. This case is unlikely because only Oregon Certified Applicators or trained individuals under the direct supervision of Oregon Certified Applicators would be used. Potential impacts would be minimized by project design features such as limiting the glyphosate that could be transported and restricting the place that it could be prepared.

Little contamination would be expected to occur with backpack foliar application. Any drift is unlikely to travel more than a few feet. While there are no known studies have been found that quantitatively assess drift after backpack applications, Labatt-Anderson (2002) conservatively estimated that it would amount to 0.001% at 25 feet.

Herbicide application would be limited by area and time (up to 100 acres of the public lands in the project area (approximately 0.04%) per year and to whatever is less 10 acres per year, per 6th field watershed or 10% of the total riparian area within each 6th field per year). The 100 acre limit would be the sum of all treatments on BLM lands and all private lands treated using Federal dollars, excluding the projects listed in Appendix 6.

No herbicides would be applied to submersed or floating vegetation or open water. Herbicides would be applied within some intermittent/ephemeral channels. However, because no water would be present in the channels when the herbicides are applied, no or little herbicide concentrations would reach downstream perennial channels.

Any contaminates in flowing water from spray or drip would likely decline rapidly in concentration as it moves downstream mixing with additional water and binding to sediment and organic matter particulates (Solomon and Thompson 2003). In conclusion, considering the above factors, this alternative is unlikely to result in adverse effects to water quality because the herbicide concentrations would be very low.

In conclusion, replacing NNPS infestations with native vegetation would improve riparian and upslope conditions which could result in beneficial effects on water quality. Only small areas would be chemically treated at any given time. (Up to 100 ac/yr and whatever is less: 1) 10 ac/ yr/ 6th field watershed or less than 10% of the riparian area within a 6th field watershed/ yr.) Consequently, the magnitude of effect is likely to be too small and spread out in time and space and not be discernible at the watershed scale.

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3.2.3.4 Cumulative Effects

BLM lands are commonly intermingled with other land ownerships within the project area. Other land managers use a variety of manual, mechanical, and chemical methods of controlling vegetation. Pesticides, which include herbicides, fungicides, insecticides, and rodenticides, are commonly applied on other than BLM lands for a variety of forestry, agricultural, landscaping and invasive plant management purposes. Limited information on the type and quantity of pesticides is known on these other ownership lands. However, because pesticides are being applied on adjacent lands upstream of BLM lands, it is likely that some of that pesticide is reaching waters on BLM.

The potential that these other land activities could result in cumulative affects when combined with the proposed action is negligible for the following reasons: Proposed treatments would be spread out in time and space. Little herbicide is expected to reach surface waters from the proposed action due to the implementation of project design features. Dilution of contaminants would occur over time and space by mixing from additional inflow from downstream tributaries and groundwater. This dilution would make it very unlikely that herbicide concentrations would be additive or synergistic at the 5th field watershed scale or have adverse cumulative effects to other downstream ownerships.

The proposed action would improve riparian and upslope conditions in treatment areas which could result in beneficial effects on water quality.

3.2.4 Fisheries/Aquatic Habitat

Affected Environment

The fishery values of the MP and Tillamook RAs are important for the diversity of populations and quality of spawning and rearing habitat. There are many regionally important fisheries within the proposed project area. The BLM, U. S. Forest Service, and Coquille Tribes recently submitted a *Biological Assessment For Fish Habitat Restoration Activities Affecting ESA and MSA-listed animal and Plant Species found in Oregon and Washington* to NOAA NMFS for consideration of affect of multiple restoration actions including the treatments of invasive plant species with mechanical and chemical treatments on ESA and MSA listed species (USFS et al 2006). This BA included descriptions for the biology and habitat of multiple salmonids including: Chinook salmon, coho salmon, chum salmon, and steelhead trout. The BA also included population and habitat descriptions for a native non-salmonid, (Oregon Chub), which potentially may occur in portions of the project area. All of these species could be affected by the proposed weed treatments covered by this EA.

Habitat Summary

The quality and quantity of fresh water habitat in much of the project area has declined dramatically in the last 150 years. Land management activities that have degraded habitat of salmonids (and other native fishes) include water withdrawals, unscreened water diversions, hydropower development, road construction, timber harvesting, stream cleaning of large wood, splash dams, mining, farming, livestock grazing, outdoor recreation, and urbanization (USDA and USDI 1994; Lee *et al*. 1997; Spence *et al*. 1996). In many river basins, land management activities have:

- ✓ reduced connectivity between streams, riparian areas, floodplains, and uplands;
- ✓ elevated fine sediment yields, filling pools and reducing spawning and rearing habitat;
- ✓ reduced instream and riparian large wood that traps sediment, stabilizes stream banks, and helps form pools;
- ✓ reduced or eliminated vegetative canopy that minimizes temperature fluctuations;
- ✓ caused streams to become straighter, wider, and shallower, which has the tendency to reduce spawning and rearing habitat and increase temperature fluctuations;
- ✓ altered peak flow volume and timing, leading to channel changes and potentially altering fish migration behavior;
- ✓ altered floodplain function, water tables and base flows, resulting in riparian wetland and stream dewatering; and
- ✓ degraded water quality by adding heat, nutrients and toxicants (USDA and USDI 1994; Henjum 1994; Lee *et al* . 1997; McIntosh *et al* . 1994; Rhodes *et al* . 1994; Spence *et al* . 1996).

Coastal estuaries and marshes have also been significantly impacted. Estuarine wetlands and marshes close to seaports and urban centers have been particularly vulnerable to conversion. Losses of 50% to 90% have been reported for many estuaries and wetlands in Oregon and Washington (NRC 1996). Many of these marshes have been isolated from the adjacent estuaries by dikes (Frenkel and Morlan 1991) and in some cases completely or partly filled in to accommodate a variety of land uses (agriculture, recreational, residential, industrial) (Giannico 2005).

While there has been substantial habitat degradation across all land ownerships (including Federal lands); habitat in many headwater stream segments is generally in better condition than in the largely non-Federal lower portions of tributaries (Lee *et al*. 1997). Because Federal lands are generally forested and situated in upstream portions of watersheds, U.S. Forest Service and BLM lands now contain much of the highest quality salmon and steelhead habitat remaining in Oregon and Washington.

Fish Species description

Due to the scope of the project area, the following species accounts were developed in order to describe the biological considerations for the commercially and recreationally important native species known to be present within the project area. The various ESA listed species, described at the distinct population segments (DPS) level, are also presented within the project area species account and presented in Table 7.

Table 7: Native fish species, including distinct populations segments (DPS), known to occur within the Project area, including federal status and distribution within the analysis area.

DPS Name	Scientific Name	Status	Distribution within Project area
LCR[1] Chinook salmon	*Oncorhynchus tshawytscha*	Threatened[7]	Mouth Columbia River to Celilo Falls and up to the Willamette Falls
UCR[2] Spring Chinook salmon		Endangered[7]	Columbia River migratory habitat only
UWR[3] Spring Chinook salmon		Threatened[7]	Willamette Basin – above Willamette Falls
Snake Spring/Summer Chinook salmon		Threatened[7]	Columbia River migratory habitat only
OC[4] Chinook salmon		None	Oregon Coast
LCR chum salmon	*Oncorhynchus keta*	Threatened[7]	Mouth Columbia River and up to the Willamette Falls
Chum salmon		Bureau Assesment[7]	Pacific Coast
LCR coho salmon	*Oncorhynchus kisutch*	Threatened[7]	Mouth Columbia River to Big White Salmon River and up to the Willamette Falls
OC coho salmon		Bureau Sensitive[7]	Oregon Coast
Coho salmon		Introduced	Willamette Basin – above Willamette Falls
Snake Sockeye	*Oncorhynchus nerka*	Endangered[7]	Columbia River migratory habitat only
UWR steelhead	*Oncorhynchus mykiss*	Threatened[7]	Willamette Basin - above Willamette Falls up to Calapooia River
LCR steelhead		Threatened[7]	Mouth Columbia River to up to the Willamette Falls
MCR[5] steelhead		Threatened[7]	Columbia River migratory habitat only
UCR steelhead		Endangered[7]	Columbia River migratory habitat only
Snake steelhead		Threatened[7]	Columbia River migratory habitat only
OC steelhead		Bureau Sensitive[7]	Oregon Coast
Rainbow Trout		None[8]	Local lakes & ponds
CR&SWW[6] coastal cutthroat trout	*Oncorhynchus clarki*	Bureau Sensitive[7]	Mouth Columbia River and up to the Willamette Falls
OC coastal cutthroat trout		Bureau Tracking[7]	Oregon Coast

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DPS Name	Scientific Name	Status	Distribution within Project area
White sturgeon	*Acipenser transmontanous*	None	Columbia River and estuaries/bays and large river channels of all Oregon Coast Rivers
Green sturgeon	*Acipenser medirostris*	Bureau Tracking[7]	Columbia River and estuaries/bays of most larger Oregon Coast river systems
Oregon chub	*Oregonichthys crameri*	Endangered[7]	Historically present thru much of Willamette Basin lowlands.
Largescale sucker	*Catostomus macrocheilus*	None	Widely distributed
Northern Pike Minnow	*Ptychocheilus oregonensis*	None	Columbia and Willamette Basin
Speckled dace	*Rhinichthys osculous*	None	Widely distributed
Redside shiner	*Richardsonius balteatus*	None	Columbia and Willamette Basins
Threespine stickleback	*Gasterosteus aculeatus*	None	Columbia and Willamette Basins
Whitefish	*Prosopium williamsoni*	None	Columbia and Willamette Basin
Sandroller	*Percopsis transmontana*	None	Columbia and Willamette Basin
Chiselmouth	*Acrocheilus alutaceus*	None	Columbia and Willamette Basin
Peamouth	*Mylochilius caurinus*	None	Columbia and Willamette Basin
Sculpin species	*Cottus ssp.*	None	Widely distributed
Pacific lamprey	*Lampetra tridentata.*	Bureau Tracking[7]	Widely distributed
Western brook lamprey	*Lampetra richardsoni*	None	Widely distributed

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1 – LCR = Lower Columbia River,
2 – UCR = Upper Columbia River,
3 – UWR = Upper Willamette River,
4 – OC = Oregon Coastal
5 – MCR = Middle Columbia River,
6 – CR&SWW = Columbia River and Southwest Washington
7 – BLM Special Status Species List (2005)
8 – Hatchery stock reared by ODFW and placed in lakes & ponds for angling

Oregon Chub – Oregon chub occur at approximately 29 locations, including 21 naturally occurring populations and eight introduced populations (Scheerer *et al.* 2004). No chub populations are currently known to occur on BLM or U. S. Forest Service lands within the Willamette Basin portions of the project area. The proposed action includes treatments occurring on cooperative partner properties which may include water bodies that contain suitable chub habitat.

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Chinook Salmon – The lower Columbia River DPS is characterized by numerous short- and medium-length rivers that drain the coast ranges and the west slope of the Cascade Mountains. The LCR Chinook salmon ESU includes all native populations from the mouth of the Columbia River to the crest of the Cascade Range, excluding populations above Willamette Falls. The proposed project area includes the Youngs River, Big Creek, Clatskanie River, and Scapoose Creek which are known to include LCR Chinook.

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Upper Willamette River (UWR), Spring Chinook salmon migrate into the Willamette River above Willamette Falls. The project area contains little if any spawning habitat for UWR spring

Chinook. The lower reaches of many rivers draining the western side of the Willamette basin are largely thought to provide rearing and migratory habitat for out-migrant juveniles.

Upper Columbia River (UCR) and Snake River Chinook salmon populations utilize the Columbia river, and tributary confluences, in the project area as migratory and rearing habitat as part of migration process to and from their natal stream to the estuary and ocean. It is assumed that only during the migratory period these populations are present within the project area.

Chum Salmon – Chum salmon return to the lower reaches of small to moderate sized streams and rivers of the Oregon coast and lower Columbia (ODFW 2005). Oregon populations are near the southern limits of the chum salmon range. Population data are extremely limited for chum as they are not subject to extensive fisheries or significant hatchery programs.

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Lower Columbia River chum salmon populations that remain in the project area are small, and overall abundance for the species is low. This species has showed low productivity for many decades, even though the remaining populations are at low abundance and density dependent compensation might be expected. The lower Columbia River rearing/migration corridor downstream of the spawning range is considered to have a high conservation value.

Oregon Coastal chum salmon are considered at risk because of the loss of populations and low returns and productivity; however, ODFW speculated in the 1995 Stock Status Review that the historical populations south of the Nestucca River were naturally small (ODFW 2005). North Coastal stocks supported significant commercial fisheries up until the early 1960's when commercial fishing was ended.

Coho Salmon – Coho salmon are widespread in small, low gradient streams of the coast and lower Columbia (ODFW 2005). Oregon coho salmon generally range along the Oregon coast where survival is closely related to upwelling of cool, nutrient-rich waters.

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The Lower Columbia River coho salmon were identified as a separate ESU and were listed as threatened on June 28, 2005. The ESU includes all naturally spawned populations of coho salmon in the Columbia River and its tributaries in Washington and Oregon, from the mouth of the Columbia up to and including the Big White Salmon and Hood Rivers, and includes the Willamette River to Willamette Falls, Oregon, as well as twenty-five artificial propagation programs. None of the populations are officially designated as extinct, though several populations are severely depressed and current returns may primarily be offspring of naturally spawning hatchery fish (ODFW 2005). The near-term sustainability of these coho salmon populations is at risk.

The Oregon Coast Coho Salmon ESU includes 19 populations in ocean tributaries from the Necanicum to the Sixes rivers (ODFW 2005). Until recently, escapements have been at or near record lows. However, numbers, distributions, and productivity have rebounded for most populations in the last four years following improved ocean productivity. These improvements have eased near-term risks, but it is not clear whether all underlying factors for the recent decline have been addressed or if this is just a temporary response to improved ocean conditions.

The coho salmon present above the Willamette Falls are part of an introduction effort which occurred during the 1900's (ODFW 1992). No active supplementation is known to occur in the Upper Willamette basin at this time. Currently, naturally produced coho are returning to

tributaries of the western side of the Willamette River including the Rickreall Creek, Luckiamute River, and Yamhill River basins in the project area.

Steelhead trout – Steelhead trout are rainbow trout that migrate to the ocean. Two races of steelhead are found: summer and winter steelhead. Natural production in the proposed project area is largely dominated by winter steelhead runs, only the Upper Siletz River is known to contain native runs of summer steelhead in the project Area (BLM 1995). Summer steelhead are present in many of the affected watershed however these animals are largely of hatchery origin. There are no known self sustaining populations of summer steelhead on the Oregon Coast north of the Siletz River. Winter steelhead are widely distributed in small to moderate sized coastal, Willamette, and Columbia streams (ODFW 2005). In some streams, anadromous steelhead and resident rainbow trout populations are interrelated.

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The UWR winter steelhead ESU occupies the Willamette River and tributaries upstream from Willamette Falls, extending to and including the Calapooia River. Rivers that contain naturally-spawning, winter-run steelhead include the Tualatin, Molalla, Santiam, Calapooia, Yamhill, Rickreall, Luckiamute, and Marys Rivers. Early migrating winter and summer steelhead have been introduced into the Upper Willamette Basin, but those components are not part of the ESU. Willamette Falls (RM 26) is a known migration barrier, and while winter steelhead and spring-run Chinook salmon historically occurred above the falls, summer-run steelhead, fall-run Chinook salmon, and coho salmon did not. Native winter steelhead within this ESU have been declining since 1971, and have exhibited large fluctuations in abundance. Habitat in this ESU has become substantially simplified since the 1800s by removal of large woody debris (LWD) to increase the river's navigability, by reduction in riparian vegetation, and by channel modifications.

Native steelhead of the Upper Willamette Basin is primarily late-migrating winter steelhead, entering freshwater primarily in March and April. This atypical run timing appears to be an adaptation for ascending Willamette Falls, which functions as an isolating mechanism for UWR steelhead. Reproductive isolation resulting from the falls may explain the genetic distinction between steelhead from the Upper Willamette Basin and those in the lower river. UWR late-migrating steelhead is an ocean-maturing fish. Most return at age four, with a small proportion returning as five-year-olds (Busby *et al.*1996).

Upper and Middle Columbia River and Snake River populations of steelhead utilize the Columbia River as a migratory corridor through the project area. In addition, due to the highly diverse life-history expressions of this species adults and juvenile steelhead may make extended migrations into tributaries of the Columbia that are within the project area.

The Oregon Coast steelhead has more distinct populations (23) than any other ESU and all historical populations are still present (ODFW 2005). There is limited data available to describe overall abundance and productivity for this population. The Nestucca River has an ongoing program to monitor adult and juvenile steelhead populations. The Nestucca appears to be supporting a healthy run of winter steelhead with an estimated population of 4,000 to 10,000 wild spawning winter steelhead in the Nestucca from 2000 to 2005. (ODFW, 2005/Progress Report)

Coastal Cutthroat Trout – Basins along the Oregon Coast, the Columbia, and the Upper Willamette within the project area support multiple life history types of coastal cutthroat trout; resident, fluvial, and adfluvial populations (ODFW 2005). Anadromous cutthroat migration is known to occur within the Columbia and Coastal populations. Quantitative data on cutthroat trout

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populations within the project area are limited. Coastal cutthroat trout are distributed widely throughout the affected basins and abundance is thought to be relatively high. The populations appear to be very resilient and able to respond to events that reduce abundance. The sustainability of the cutthroat trout in the project area is not at risk.

White and Green Sturgeon – White sturgeon in Oregon were considered to all belong to one group, however, disjunct populations now exist on the Columbia and Snake Rivers due to poor passage conditions at multiple dams on these systems (ODFW 2005). White sturgeon is present in the Willamette River above Willamette Falls, but they are believed to be entirely supported by hatchery stocking and were not considered to be a population. Coastal estuaries support rearing populations of White Sturgeon derived from spawning populations in the Columbia River.

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Green sturgeon in Oregon can be divided into two populations groups to reflect the DPS (distinct population segment) designations of NOAA NMFS (ODFW 2005). The Southern Green Sturgeon DPS consists of green sturgeon spawning in the Sacramento River, and found off the Oregon coast, and in coastal estuaries, including the Columbia River estuary. The Northern Green Sturgeon DPS consists of green sturgeon spawning in the Klamath and Trinity Rivers of California, in the Rogue River, Oregon, found off the Oregon coast, and in coastal estuaries, including the Columbia River estuary. Population boundaries for green sturgeon are not clearly understood.

Pacific and Western Brook Lamprey – These species are widely distributed throughout the Project area, but both distribution and abundance have likely decreased in recent years (ODFW 2005). Habitat loss and pollution have contributed to the decline of pacific and western brook lamprey. Passage barriers also play a role in Pacific lamprey population declines. Little is known about life history characteristics of lamprey in Oregon, and many critical uncertainties regarding lamprey status, biology, and requirements remain.

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Other Species – Other native species may also reside in the project area (see Table 7). In addition, several non-native game fish species are present within the project area (Table 8). Striped bass are primarily limited to lower portions of mainstem rivers in the project area. Reports of striped bass in North Coastal estuaries are rare. Shad and walleye are limited to the Columbia River and Lower Willamette River in the project area. Warmouth, bluegill, pumpkinseed, crappie, and largemouth bass are located primarily in sloughs and backwaters of the larger river systems in the Columbia and Willamette basins and have been introduced to ponds and small to medium water impoundments through much of the project area. Smallmouth bass are primarily limited to flowing water habitat in Columbia and Willamette Rivers and their larger tributary rivers of the project area

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Table 8 – Introduced sport fish species known to occur within the project area including distribution within the analysis area.

DPS Name	Scientific Name	Distribution within Project area
American Shad	*Alosa sapidissima*	Columbia River*
Largemouth bass	*Micropterus salmoides*	Widely distributed
Smallmouth bass	*Micropterus dolomieu*	Widely distributed
Striped bass	*Morone saxatilis*	Lower reaches of several coastal rivers
Warmouth	*Lepomis gulosus*	Columbia and Willamette Rivers.

DPS Name	Scientific Name	Distribution within Project area
Pumpkinseed	*Lepomis gibbosus*	Widely distributed
Bluegill	*Lepomis macrochirus*	Widely distributed
White crappie	*Pomoxis annularis*	Widely distributed
Black crappie	*Pomoxis nigromaculatus*	Widely distributed
Yellow perch	*Perca flavescens*	Widely distributed
Walleye	*Stizostedion vitreum*	Widely distributed
Brown bullhead	*Ameiurus nebulosus*	Widely distributed
Yellow bullhead	*Ameiurus natalis*	Widely distributed
Channel catfish	*Ictalurus punctatus*	Widely distributed
Common Carp	*Cyprinus carpio*	Columbia and Willamette Rivers.

*Juveniles found in North Coast estuaries.

Environmental Effects

3.2.4.1 Alternative 1 (No Action Alternative)

Under this alternative, NNPs would not be managed. Non native plant species would continue to dominate some riparian areas and provide a source for future infestations. Impacts related to contamination, sedimentation, and temperature would not occur. However, in some circumstances extensive monocultures of non-native weeds would continue to dominate stream channels and banks. The presence of dense monocultures non-natives weeds can reduce natural transport potentials of stream beds thru root stabilization and reduce coarse and large woody debris recruitment from infested riparian areas.

3.2.4.2 Alternative 2 (Proposed Action)

Individual fish, and other aquatic animals, may be displaced for short periods of time during project implementation associated with perennial water bodies due to the small turbidity plumes from stream channel disturbances and activities in or near the water channel. These disturbances would affect fish for a very short duration, (only during project implementation activities) and a very small number fish would be affected.

Manual/Mechanical Weed Treatments – The manual and mechanical treatment of scattered noxious weeds via pulling, mowing, girdling, brushing, and lopping/scattering techniques with the use of applicable project design features are not anticipated to negatively affect the aquatic environment. Design features to limit soil disturbance close to stream banks would keep impacts to the aquatic environment to a minimal level.

Ground disturbance of an extent that may cause localized increases in fine sediment deposition or turbidity is likely to occur only under some circumstances. Hand pulling of emergent vegetation is likely to result in localized turbidity and mobilization of fine sediments. The degree of effect would be proportionate to the extent of the infestation treated, type of substrate in which the plants are rooted, rooting depth, whether a hand tool is required for pulling (weed wrench, shovel, etc.), and similar factors. Some hand pulling treatments, where dense infestations occur near riparian

areas may be likely to result in short-term negative effects to listed fish in the vicinity of the treatment area.

Hand pulling or site preparation (for replanting) that is extensive, intensive, and immediately adjacent to a stream course could plausibly cause localized instream fine sediment or turbidity increases. However, hand pulling or site preparation of a magnitude likely to generate large amounts of sediment and increase turbidity is not likely to occur due to the difficulty in treating large sites by hand.

Other manual, mechanical, and solarization treatment methods are unlikely to cause fine sediment or turbidity increases. Seed clipping, stabbing, girdling, and cutting typically do not involve ground disturbance or result in bare ground.

Grazing – Treatments can affect riparian areas by changing, reducing, or eliminating vegetation and by eliminating riparian through channel widening, channel aggrading, or lowering of the water table (Plats 1991). No grazing within 25 feet of stream channel would occur and any proposed grazing activities would be designed to avoid adverse impacts. Implementation of the proposed action incorporating these design features is not expected to negatively affect aquatic habitat.

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Burning – Proposed burning within riparian areas of stream channels has the potential to increase erosion and sedimentation into the intermittent streams, reducing riparian shade (thereby increasing stream temperatures), and increasing nutrient within the burn units which may cause short term negative affects aquatic habitat downstream. In order to minimize impacts to aquatic habitat, implementation of project design criteria would include: fisheries review/approval needed for proposed action for ESA-EFH compliance. Ignition can occur anywhere within the riparian area as long as project design criteria are met.

Vegetation existing along the intermittent stream channels is anticipated to be maintained post burn due to the low intensity nature of the prescribed burning and assuming the implementation of appropriate PDFs for prescribed fires (see ARBA PDCs in USDI 2006). The residual vegetation near the stream channels would provide channel shading, residual duff layers, and protect soil properties, thus minimizing the potential for increased erosion and resulting sedimentation from reaching intermittent stream channels.

Chemical Weed Treatments – The proposed use of glyphosate is unlikely to have direct effects on fish species within the project area. The means of placing herbicide in direct contact with fish would most likely occur due to spilling or breaking containers which hold the herbicide, drift from spraying applications, accidental overspray of streams, or from spot spray application associated with treating aquatic or emergent noxious weeds.

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The probability of breaking or spilling containers carrying any herbicide is considered highly unlikely; no instances are known to have occurred in the Salem District where herbicide use has been allowed. The probability that containers with chemical herbicides would break within or adjacent to stream channels would be even less likely. In order to minimize the potential impacts of contamination due to spilling or breakage, implementation of PDFs would limit the quantities of herbicide transported over open water and transported daily to treatments sites to a small potential volume per site or per day (see PDFs).

Drift from hand held sprayers is unlikely to travel more than a few feet. Labatt-Anderson (2002) conservatively estimated that drift from backpack sprayers would amount to 0.001% at 25 feet. Spraying up to the bankful edge on perennial streams, a minute amount of herbicide may reach perennial streams during application. One study found that the maximum amount of herbicide transported by runoff was 1.85% of the applied amount, and that in each of the three study years, the first runoff event after treatment accounted for 99% of the total herbicide runoff (Norris *et al.* 1991). Any glyphosate that enters surface waters is expected to be diluted fairly quickly. Any contaminates in flowing water are likely to move downstream and decline rapidly as mixing occurs and glyphosate binds to particulates (Solomon and Thompson 2003).

A small amount of herbicide may be applied within intermittent/ephemeral channels; however, since no water would be present in the intermittent channels when the treatments are made, herbicide would not be delivered to downstream perennial channels. Glyphosate is considered immobile in soils, with rapid absorption by soil particles and some microbial breakdown (Norris et al 1991). Direct contamination of aquatic habitat would not occur from proposed intermittent channel treatment. The duration between treatment and rainfall onset would further limit the quantity of chemical transported from intermittent channels.

Most large diameter (>0.75 inch) emergent knotweeds would be injected directly with glyphosate; however, some emergent knotweed may be treated with spot spray and wicking and wiping. Spot spray applications over perennial water is limited to small emergent knotweed (<0.75 inch diameter). As a result of this application a very small quantity of aquatic glyphosate may enter the stream watercourse.

Weed eradication treatments may occur in areas near or adjacent to estuarine areas. However, the project design limits any potential impact to estuarine communities. In addition, tidal flushing would further reduce any potential impacts.

If contamination were to occur due to breakage, drift, overspray, or spot spraying, the direct effects to fish can be evaluated by using traditional concepts of toxicology and dose-response relationships (Norris et al 1991). The dosage needed for an acute toxicity effect to fish from glyphosate is relatively high; however, formulations of glyphosate such as Roundup are toxic at a lower dosage than the active ingredient glyphosate itself. Application of glyphosate with formulations specifically intended for treatments near waters, such as aquatic glyphosate, do not have the surfactants that are believed to increase the mortality rates. The proposed application of aquatic glyphosate to the perennial stream waters edge and to intermittent channels when dry is anticipated to have minimal to no direct impacts on aquatic species.

The magnitude of potential effects to non-target vegetation would be substantively reduced thru the use of design features intend to prevent or minimize impacts. The primary design feature intended to minimize herbicide use is the pre-emptive use of manual treatments (pulling, cutting, bagging, and removing) at infestation site prior to herbicide treatments. If manual treatments fail to eradicate the infestations, herbicides maybe utilized. Herbicides would be applied with either backpack or handheld sprayers, stem injections, or by hand-wicking of cut stems. Because manual treatments would generally precede chemical treatments, the extent and magnitude of herbicide applied to any infestation would be reduced.

Spot spraying and wicking treatments within intermittent or ephemeral stream channels would be limited to dry channel conditions. Herbicide spraying/wicking limited to dry channels is unlikely to directly enter a flowing stream during application and affect streamside vegetation.

Within perennial waters project design features are intended to limit the use of herbicides that could negatively affect non-target vegetation within the riparian area and adjacent to the stream channels. Spot spraying may occur to the waters edge and treating emergent vegetation is restricted to stem injection and wicking and wiping. Stem injection with the herbicide, aquatic glyphosate, may occur within perennial stream channels to large (>0.75 inch) diameter vegetation such as knotweed plants. Limiting spot spraying to smaller (< 0.75 inch) emergent plants is intended to keep the treatment area small and the amount of herbicide needed small. Stem injection is unlikely to directly enter the stream channels. With the application of these design criteria the magnitude of herbicide likely to enter surface water is expected to be very small due to overspray. Any glyphosate that does reach surface waters is expected to be diluted fairly quickly. Any contaminates in flowing water are likely to move downstream and decline rapidly as mixing occurs and glyphosate binds to particulates (Solomon and Thompson 2003). Therefore the probability of negatively affecting nearby streamside vegetation is unlikely.

Indirect effects from modification of the riparian and stream bank habitat such as reduction in cover, shade, and sources of food from riparian vegetation could result due to herbicide utilization in a streamside zone (Norris et al 1991). In addition disturbance of minute amounts of sediment may occur due to accessing treatment locations which are emergent or adjacent to the stream.

Weed eradication treatments would typically occur outside of the bankfull channel. Those activities occurring adjacent to or within perennial stream channels or within the intermittent channels would result in small amounts of sediment disturbance with small turbidity plumes, generally resulting from run-off rather than at the time of project implementation. Project related sediment introduced into the stream would occur at isolated sites and settle within a short distance of the project site and turbidity is expected to last only a few minutes.

Under most circumstances the proposed herbicidal treatments of invasive plant species in riparian areas are not likely to decrease shading of streams. However, in some situations, decreased shading is likely to result, increasing the amount of incident solar radiation reaching the stream, and could result in increased water temperatures thereby negatively effecting fish. Significant shade loss is likely to be rare, occurring primarily from treating streamside knotweed and blackberry monocultures. The loss of shade would persist until native vegetation reaches and surpasses the height of the invasive plants that were removed. Shade recovery may take one to several years, depending on the success of invasive plant treatment, stream size and location, topography, growing conditions for the replacement plants, and the density and height of the invasive plants when treated.

The proposed weed treatments activities is expected to restore riparian conditions over the long term by allowing reestablishment of conifers and other shade producing vegetation in areas currently infested by invasive plants. Increasing the amount of shading covering stream channels is expected to protect water temperatures and would indirectly positively benefit aquatic habitat and fish.

3.2.4.3 Cumulative Effects

Private land managers use a variety of manual, mechanical, and chemical means of controlling vegetation across the affected watersheds with varying levels of impact on the aquatic environment. The State of Oregon, the various counties, and the multiple municipal administrative units also treat invasive species using manual, mechanical, and chemical methods in all the affected watersheds of the project area. The combination of these activities could result in cumulative affects when combined with the proposed action.

The scale of the proposed project, incorporating the Project Design Criteria, are anticipated to result in such minimal site impacts that the proposed actions are unlikely to be detectable at a scale that may constitute a cumulative effect at a 5th field watershed analysis level. The soils and hydrology assessments, incorporated in the EA, indicated no cumulative effects to those resources would occur. Thus no cumulative impacts to the fisheries/aquatic resources would be anticipated with the implementation of the proposed project.

3.2.5 Soils

Affected Environment

The analysis area for the proposed actions on soil resources is NNP species infested sites across the MP and Tillamook RAs on federal and non-federal lands. NNP species currently infest a very small proportion of the RAs. Infested sites occur on a wide variety of soil types. While many NNP species thrive on nutrient poor, shallow soils; some NNP species, such as Himalayan blackberry, English ivy, and Japanese knotweed can prosper in deep, moist, nutrient rich soils. The most common soil characteristic of NNP species infested sites is that their surface has been physically disturbed (displaced, compacted, scarred, or churned) and the mineral surface has been exposed to sunlight where there is little competition from other plants. As a general rule, the greater the amount and intensity of soil disturbance, the more likely a site will be infested by NNP species. Examples of disturbed sites where weeds are often found are rock pits, heavily used recreation trails and staging areas, logging skid trails and landings, roadsides, turnouts, stockpile areas, stream shorelines and islands, and ditch banks.

Soil properties are often negatively affected by NNP species. These negative effects include decreasing organic matter levels, altering soil structure and porosity, increasing soil temperature, increasing soil erosion, and altering nutrient and water availability. These changes can decrease the diversity and abundance of soil organisms and reduce soil productivity. Some NNP species can suppress growth and germination of other plants. Little is known about the affect that invasive plants have on soil mycorrhizal fungi. However, since many forest plants are strongly dependent on mycorrhizal fungi, it is likely that invasion of NNPs will affect the mycorrhizal fungi community.

Environmental Effects

3.2.5.1 Alternative 1 (No Action Alternative)

Under the no action alternative, no herbicide control measures of any noxious listed plant species would be implemented. All potential affects (beneficial and detrimental) associated with

treatments described above would not occur. Without treatments to reduce and control infestation, NNP species would continue to spread rapidly displacing native vegetation throughout the RAs resulting in mostly negative and potentially irreversible effects on soil quality. Soil quality degradation would increase to the approximate acreage of weed spread. Scotch broom and gorse (*Ulex europaeus*) is displacing native vegetation and altering soil properties. When they invade a site they increase the amount of nitrogen in a soil and thereby get a competitive advantage over the native species. Reed canary grass (*Phalaris arundinacea*) is transforming riparian forest and wetlands into monoculture grasslands. Changes in soil properties are often difficult to reverse. In addition, soils occupied by NNP species tend to have higher erosion rates and lower site productivity.

Soil impacts across the project area would continue to occur on BLM and other lands as a consequence of forest management (e.g., clear-cutting, broadcast burning, fertilizing, herbicide applications, road construction, and timber haul, and agriculture activities on lands adjacent to BLM lands.

3.2.5.2 Cumulative Effects

Cumulative impacts to soils across the project area would continue to occur. The magnitude of the effect from NNP infestation and current management activities to control NNP infestation would be negligible in comparison to the effects that are occurring from other management activities within the project area. Consequently, this alternative is not expected to result in measurable cumulative soil effect.

3.2.5.3 Alternative 2 (Proposed Action)

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The primary means by which the proposed action could negatively affect soil quality is by physical treatments, burning, and the use of herbicides. Cultural treatments (including prevention, wildlife management, and competitive plantings with native seeds/plants) and release of biological control agents would have a negligible effect on soil quality.

Physical Treatments – Physically treating up to 1,500 acres of NNP species infested sites per year would cause some minor, localized soil disturbance. Pulling of NNP would mix and displace a small amount of the top soil in the immediate area where plant roots are pulled. Displaced soil would remain in close proximity to where the plants are pulled. Post treatment monitoring would ensure that if any of the displaced soil areas became infested by new NNP species, the new NNP species would be removed with follow-up treatments.

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The use of mechanical equipment would cause some localized light soil compaction, mixing and displacement. The least ground disturbance methods (e.g., cultural, biological, and manual) would be used where possible. Heavy equipment (primarily mowers) would be kept mainly on roads, and would not be allowed to operate off roads in riparian areas. When heavy equipment is used off road, it would be done mainly in the dry season. Equipment would generally be spaced far apart and involve a single or double pass over a given area. Because the severity and extent of soil compaction and displacement would be small, there should not be any measurable reduction in soil productivity. Water infiltration rates would remain at or very close to the current rate since no

moderate or severe compaction is expected. Since the ground surface would retain a layer of organic material, there would be little risk of erosion.

Burning Treatment- Spot, pile or broadcast burning to control NNP species would remove vegetation, surface litter, and groundcover but result in no long-term soil damage. Burned areas typically would be small (typically 30 to 100 square feet) and scattered. If any areas are broadcast burned, the burn duration time would be very short since the fuel loading is light. Most burning would be low intensity and leave a large portion of the duff intact and the mineral soil unaltered. Pile burning may result in short-term damage to the soil surface layer in isolated patches. Burned areas in this area of high rainfall recover quickly. There should be no loss in soil productivity nor increase in surface runoff or surface erosion.

Soil Contamination- The proposed herbicide application would likely result in some soil contamination. It would be reduced or eliminated by the following: 1) Herbicide treatments would generally not be used if other control methods, e.g., manual and cultural, are practicable; 2) Its use would be limited by area and time (up to 100 acres of the public lands in the project area (approximately 0.04%) per year and to whatever is less 10 acres per year, per 6th field watershed or 10% of the total riparian area within each 6th field per year). The 100 acre limit would be the sum of all treatments on BLM lands and all private lands treated using Federal dollars, excluding those projects listed in Appendix 6; 3) It would be applied by selective or spot hand application. No broadcast or aerial spraying would be allowed; 4) The maximum application rate of glyphosate that would be allowed are substantially less (approximately 40% less) than allowed on the label; 5) The proposed action would incorporate a number project design features (Section 2.3.3) that would minimize potential chemical contamination. For example, only daily use quantities of herbicides would be allowed to be transported to the project site. Applications would be restricted to calm dry weather conditions and no treatments would occur during rain or high wind within 24 hours of spraying.

Contamination would be short-term. Glyphosate strongly binds to soil particles, becomes immobile and is quickly broken down by microbial degradation. Research to date indicates that glyphosate is not harmful to soil microorganisms under field conditions. In fact some studies indicate that it might be beneficial to some soil microorganisms.

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3.2.5.4 Cumulative Effects

Effects of the proposed action on soils are expected to be short-term, localized and not additive. Consequently cumulative effects to soils are not anticipated. There are no other known actions, aside from those described above, which would be enhanced or diminished by these proposed actions. Successful treatment of NNP species would improve soil quality to the approximate acreage of NNP species removed. Recovered areas in general would have less soil erosion, more soil organic matter, and higher soil productivity. Successful NNPs species eradication would prevent dramatic changes to properties of soils from occurring from the occupation of weeds.

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3.2.6 Recreation/Rural Interface/Visual Resources

Affected Environment

Recreation

The MP and Tillamook RAs have a range of recreational uses spreading from the Pacific Ocean to the Willamette Valley, north to the Columbia River and south to Lane County. Recreational use of the area tends to increase each year. Some of the main recreational uses are fishing, hunting, hiking, picnicking, swimming, camping, target shooting, Off-Highway Vehicle (OHV) use and scenic driving.

The two resource areas manage nine recreation sites. They include: Alsea Falls campground and picnic areas, Missouri Bend and Mill Creek day use sites in the MP RA and Yaquina Head Outstanding Natural Area (YHONA), Alder Glen, Dovre, Elk Bend, and Fan Creek campgrounds in the Tillamook RA.

Alsea Falls Campground is the only campground managed in the MP area. It is located southeast of the town of Alsea between the South Fork of the Alsea River and the South Fork Alsea River Back Country Byway. It has a maintenance building, paved main roadways, individual camping units, potable water, restrooms and many hiking and biking trails. Alsea Falls Picnic Area is located just to the north of the Alsea Falls Campground and is connected by paved roadways and hiking trails. It has a paved parking area, individual picnic areas and restrooms. Small infestations of NNP and Oregon listed noxious weeds occur within these areas.

Missouri Bend Recreation Area is located west of the town of Alsea between State Highway 34 and the Alsea River. This recreation area consists of a parking lot, boat ramp, restroom, few picnic sites and a short hiking trail. Small infestations of NNP and Oregon listed noxious weeds occur mostly around the boat launch and bathroom areas. These infestations have been receiving treatments (mowing) for the past 2 years.

Mill Creek Recreation Area is located southeast of the town of Willamina. It has individual picnic sites and a restroom. Small infestations of NNPs and Oregon listed noxious weeds occur within the area.

Alder Glen, Elk Bend, Fan Creek and Dovre Campgrounds are located northwest of McMinnville between the Nestucca River and the Nestucca National Back Country Byway. The Nestucca River is listed as a State Scenic Waterway. Alder Glen, Dovre, and Fan Creek have paved main roadways, individual camping units, potable water and restrooms. Elk Bend is walk in only with individual campsites, potable water and restrooms. Small infestations of NNP and Oregon listed noxious weeds occur in the campground.

Off-highway vehicle use is prevalent within both Marys Peak and Tillamook RAs. The Upper Nestucca OHV Trail System is a designated riding area receiving extensive within the Tillamook RA. Lands outside of the designated riding area also receive OHV use where this activity is not prohibited. Riders often seek out areas to ride which may not support OHV riding activities. Any vehicle that has traveled within an area containing NNP species has potential of promoting the

spread of the NNP species over a large area. It is common for OHV enthusiasts to participate in the sport in numerous geographic locations and varying terrains. Non-cleaned OHV's often spread NNP species from an infested area to new locations. This is apparent along trails and roadways that receive OHV use.

Yaquina Head Outstanding Natural Area (YHONA) is located north of the town of Newport on the Oregon Coast. Yaquina Head is located west of State Highway 101 and ends on a cliff overlooking the Pacific Ocean. Before YHONA was obtained by the United States Government, it was actively managed as a quarry site resulting in a heavily disturbed landscape. There are several paved roads and parking lots to access the lighthouse area, tide pool areas and the Interpretive Center. YHONA facilities consist of an interpretive center, maintenance building, entrance building, restrooms and lighthouse. Several hiking paths and trails occur throughout the area. Some of these are paved (concrete or asphalt) while others are either gravel or natural surfaced. Many NNP species occur at Yaquina Head and are discussed in the vegetation section, 3.2.1.

Rural Interface Areas

More than 36,380 acres of Salem District administered lands are zoned for rural interface for 1 to 20 acre lots. Areas zoned for 40 acres or larger with a home is also considered rural interface, however these are not mapped.

Visual Resources

All recreation sites and Back Country Byways are within the visual resource management (VRM) Class 2, ACECs are with VRM Class 1, generally publicly viewed corridors are VRM Class 3 and the remaining BLM lands are VRM Class 4. The proposed action complies with all VRM classes depending on the treatment prescribed.

Environmental Effects

3.2.6.1 Alternative 1 (No Action Alternative)

Recreation

Under this alternative, noxious weed species would not be managed using herbicides. Non-native plants would continue to slowly replace (out compete) native vegetation in many places throughout the recreation areas within the MP and Tillamook RAs, especially along trails, roadways, buildings and parking lots. Increased infestations of NNPs would continue to increase in size, close trails and degrade permanent structures within recreation areas. Recreation maintenance and site maintenance is becoming more difficult and costly as the recreation areas become increasingly infested with NNPs.

Visual Resources

Scenic quality could become degraded as infestations increase in size or new infestations become established. Although some NNP species have bright showy flowers, NNP degrade the scenic quality of these sites by choking out native plants and wildflowers.

3.2.6.2 Alternative 2 (Proposed Action)

Recreation

Elimination and control of NNPs and promotion of native vegetation should serve to maintain a high quality experience for recreating visitors. It would also reduce NNP spread to other recreation sites and private residential or production lands. The recreating public would have potential of exposure to areas treated with herbicides. However, signing areas to be treated and treating area in times of park 'closures' and implementing other project design measures would minimize any potential exposures.

Rural Interface Areas

Many rural interface residents do not want weed treatments along their property for various reasons, such as pesticide treatments or the unsightly dead weeds. Visual impacts would be short in duration (one or two years) while the site is restored with native vegetation. Where individual plants or small groups of plants are treated, the visual effects would be minimized and not noticeable to the average public land user.

Visual Resources
Scenic quality would be improved unless large scale areas were treated or burned or where total plant mortality occurred (especially in rural interface areas near residential houses).

3.2.6.3 Cumulative Effects

Both the Nestucca River and South Fork Alsea River National Back Country Byways are brushed annually to improve sight distance and reduce vegetative encroachment on the road. Numerous county and privately owned roads throughout the project area have weed treatments occurring, including spraying and mowing roadside vegetation, especially near residential houses, (i.e. rural interface areas). The implementation of this action would be considered as a positive effect on recreation. There would be no cumulative effects on recreation considering the few acres treated per year.

3.2.7 Fuels/Air Quality

Affected Environment

Fuels

The fuels affected environment is the same as discussed in vegetation and soils sections.

Air Quality

Air quality is generally considered as very high at most areas in the MP and Tillamook RAs. This is due to good air circulation, distance from point source pollution, and proximity to the Pacific Ocean with winds generally from the west. Accumulation of locally generated particulate air

pollution generally occurs during periods of air stagnation which are short lived along the coast (less than 1 day) and may last several days in interior valleys within the coast range.

Environmental Effects

3.2.7.1 Alternative 1 (No Action Alternative)

No NNP infestations would be treated. There would be no need to use prescribed fire to reduce NNP infestations or reduce NNP debris. Invasion of non-native vegetation could result in changes in fire condition class by displacing native vegetation

3.2.7.2 Alternative 2 (Proposed Action)

Fuels

There would be minimal wild fire risk associated with the burning of the small areas associated with this action. There would be a very slight increase in risk of starting a wildfire when NNP are piled and burned. When piles are ignited, flame lengths would average 2-8 feet and small fire brands that can travel moderate distances (approx. 100') would be created.

Air Quality

With dry fuels, burn duration (flaming stage) would be less than 20 minutes with nearly complete consumption of piles within 3 hours. Since the total amount of fuel is anticipated to be low and of small diameter, the amount of smoke generated would be small and should dissipate rapidly. Any broadcast burning would produce 1-4 foot flame lengths with burn duration of less than 1 hour. Smoke would be light and dissipate rapidly.

3.2.7.3 Cumulative Effects

There would be no measurable cumulative effects to this resource, as the effects from the project would be local, and there would be no other uses affecting this resource. Burning of slash would occur in accordance with bureau policies and the Oregon State Smoke Management Plan which serves to coordinate all forest burning activities on a regional scale to prevent negative impacts to local and regional air sheds. Based on this control of smoke production there are no expected cumulative effects from the planned fuel treatments under this proposal.

4.0 COMPLIANCE WITH THE COMPONENTS OF THE AQUATIC CONSERVATION STRATEGY

Table 9 and Appendix 1 describe the project's compliance with the four components of the Aquatic Conservation Strategy.

Table 9: Project's Compliance with Components of the Aquatic Conservation Strategy

ACS Component	Project Consistency
Component 1 - Riparian Reserves	Riparian Reserve boundaries would be established with direction from the RMP. Infestations of NNPs can de-stabilize streambanks, increase sediment, and increase water temperature, and could be prevented or ameliorated by actions in this project. By maintaining or restoring the native species composition and structural diversity of plant communities in riparian areas and wetlands, riparian functions would be protected. The project meets ACS objective of maintaining and restoring well-distributed populations of native plants, supporting invertebrate and vertebrate riparian-dependant species. Water quality would be maintained by adherence to project design features that control conditions, timing and buffer widths for treatments. In riparian zones, only Glyphosate formulation labeled for aquatic use would be allowed.
Component 2 - Key Watershed	Treatments could occur in Key Watersheds, but would only occur where watershed analysis is completed. Project objectives are consistent with Key Watershed objectives of maintaining salmonid habitat and providing high quality water. In addition, maintaining native plant communities contributes to habitat integrity and healthy riparian function. Watershed restoration, which includes native species restoration, is a priority in Key Watersheds. Water quality would be maintained by adherence to project design features. Key watersheds that occur within the project area according to the 2002 REO GIS database include the following Tier 1 key watersheds; Cummins/Tenmile/Rock/Big Creek (coast), Drift Creek (Alsea), Drift Creek (Siletz), Elkhorn Creek (Trask), Kilchis River, Little North Fork Wilson River, Mill Creek, North Fork Beaver (coast), North Fork Siletz River, Salmon River, Tobe Creek, Upper Lobster Creek, Upper Nestucca River, and Yachats. They are no Tier 2 Key Watersheds located within the project area.
Component 3 - Watershed Analysis	The project is consistent with the recommendations in numerous watershed analyses which recommend inventory and control of NNPs.
Component 4 - Watershed Restoration	Control of NNPs is consistent with restoration objectives of recovery of riparian and fish habitat and water quality. Control of NNPs on BLM lands reduce downstream spread, contributing to watershed health.

This project is expected to aid in meeting ACS Objectives by preventing or reversing the negative affects that can result from infestations of NNPs in both riparian and upland that displace native plant communities and their watershed functions. Native plant communities function to provide streambank stability, intercept precipitation, filter runoff, shade surface water and provide structure and nutrients to aquatic systems. Maintenance or restoration of native plant communities

maintains these functions intact. Potential impacts from treatment activities can be reduced, through design features, to an acceptable level of risk.

5.0 COMPARISON OF ALTERNATIVES WITH REGARD TO PURPOSE AND NEED

5.1 Comparison of Alternatives With Regard to the Purpose and Need

Table 10: Comparison of Alternative by Purpose and Need

Purpose and Need (EA section 1.5)	Proposed Action	No Action
The purpose of this proposal is to maintain healthy functioning ecosystems by restoring native plant communities through reduction, control and eradication of NNP species. The BLM needs to implement the Westside Salem Integrated NNP Management Plan to provide for early detection and rapid response of NNP species.	The proposed action would allow for the control and eradication of non-native and ODA designated noxious weeds.	Non-native vegetation would continue to infest new locations and spread causing adverse affects to native vegetation, wildlife, fisheries, soil, water resources and recreation.

6.0 LIST OF PREPARERS

Table 11: List of Preparers

Resource	Name	Initial	Date
Cultural Resources	Dave Calver (Marys Peak)		1/15/08
	Dennis Worrel (Tillamook)		01/10/2008
Hydrology/Water Quality/Soils	Dennis Worrel (Tillamook)		01/10/2008
Ecologist	Hugh Snook (Marys Peak)		01/15/08
Botany TES and Special Status Plant Species/Vegetation; Team leads	Ron Exeter (Marys Peak)		JAN 15, 2008
	Kurt Heckeroth (Tillamook)		01/10/2008
Wildlife TES and Special Status Animal Species	Gary Licata (Marys Peak)		01/15/08
	Andy Pampush (Tillamook)		1/10/08
Fuels/Air Quality	Tom Tomczyk (Marys Peak)		01/15/08
	Kent Mortensen (Tillamook)		1/10/08
Fisheries	Scott Snedaker (Marys Peak)		
Recreation/Rural Interface/Visual Resources	Traci Meredith (Marys Peak)		1/15/08
	Debra Drake (Tillamook)		1/10/08
NEPA	Gary Humbard (Marys Peak)		1/15/08
	Bob McDonald (Tillamook)		1/10/08
GIS Support	Michelle Davis (Marys Peak)		1-15-08
	Bob McDonald (Tillamook)		1/10/08
Natural Staff Administrator	Diane Morris (Marys Peak)		01/15/08
	Steve Small (Tillamook)		1/11/08

7.0 CONTACTS AND CONSULTATION

7.1 Agencies, Organizations, and Persons Consulted (ESA Section 7 Consultation)

U.S. Fish and Wildlife Service

To address concerns for effects to federally listed wildlife species and potential modification of critical habitats, the proposed action was consulted upon with the U.S. Fish and Wildlife Service, as required under Section 7 of the Endangered Species Act. Consultation for this proposed action was facilitated by its inclusion within a programmatic Biological Assessment (USDA-FS and USDI-BLM 2005) that analyzed all projects which might disturb listed wildlife species on federal lands within the Northern Oregon Coast Range during fiscal years 2006 and 2007. The resulting Biological Opinion (FWS Reference Number 1-7-05-F-0664), concluded that this action is not likely to jeopardize the continued existence of the northern spotted owl, marbled murrelet, or bald eagle. This proposed action has been developed to incorporate all appropriate design standards set forth in the Biological Opinion to minimize impacts to listed species. Inclusion of this action (described in the BA/BO process as "invasive plant control") in all future programmatic consultations on disturbance will ensure that this program has met the requirements under Section 7 of the Endangered Species Act.

National Marine Fisheries Service

Consultation with NOAA- NMFS is required for projects that 'May Affect' listed species. The proposed actions associated with the Integrated NNP Management Plan Project may affect listed fish or listed critical habitat in the MP and Tillamook RA. A determination has been made that the proposed project, specifically those actions within the riparian area associated with salmon habitat, would 'Adversely Affect' EFH within the affected watersheds.

Given the programmatic nature of the proposed activities, and extensive geographic coverage, it is likely that circumstances would arise where treatment of invasive plant infestations would occur within perennial, intermittent, or ephemeral channels tributary to streams with ESA-listed fish and their designated critical habitat. Since instream herbicide concentrations are difficult to quantify in absence of site specific analysis potentially high runoff may occur in some situations, but cannot currently be calculated (due to unknown site conditions). For this reason a may affect 'Likely to Adversely Affect' determination is warranted for ESA listed fish species and for the listed critical habitat.

Protection of EFH (Essential Fish Habitat) as described by the MSA (Magnuson/Stevens Fisheries Conservation and Management Act) and consultation with NOAA-NMFS is required for all projects which may adversely affect EFH. For purposes of this assessment habitat harboring salmon species (Chinook, coho, and chum salmon) are considered EFH. The proposed Integrated NNP Management Plan project may affect EFH due to activities associated with the Integrated NNP Management Plan project from occupied habitat.

The proposed actions would meet the Project Design Criteria established in the *Biological Assessment for USDA Forest Service (Pacific Northwest Region), USDI Bureau of Land Management (Oregon State Office), and the Coquille Indian Tribe Fish Habitat Restoration Activities Affecting ESA and MSA-Listed Animal and Plants Species Found in Oregon and*

Washington (December 12, 2006). On April 28, 2007 NOAA National Marine Fisheries Service (NMFS) completed their Biological Opinion (BO) *Endangered Species Act Section 7 Formal Programmatic Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Fish Habitat Restoration Activities in Oregon and Washington, CH2007-CY2012* which included NNP treatments. Adverse affects to ESA listed species and EFH and application of design features to minimize affects are covered by the Programmatic BO. Conformance with the design criteria established in the NOAA NMFS BO would result in no additional consultation needs to implement the proposed activities. Any activities not covered by the Programmatic BO which "may affect" listed species would be consulted on separately. The USDA/USDI/Coquille programmatic BA included design criteria not included in the NOAA NMFS BO. Application of herbicide using spot spray to emergent knotweed within perennial waters or other spot spraying closer than 15 feet from the water edge as described in this assessment would need consultation coverage not currently covered in the NOAA NMFS BO.

7.2 Cultural Resources - Section 106 Consultation and Consultation with State Historical Preservation Office

The project area occurs in the Coast Range. Survey techniques are based on those described in Appendix D of the *Protocol for Managing Cultural Resource on Lands Administered by the Bureau of Land Management in Oregon*. Post-project survey would be conducted according to standards based on slope defined in the Protocol Appendix. Ground disturbing work would be suspended if cultural material is discovered during project work until an archaeologist can assess the significance of the discovery.

7.3 Public Scoping and Notification-Tribal Governments, Adjacent Landowners, General Public, and State County and local government offices

- A scoping letter, dated March 8, 2007, was sent to 79 potentially affected and/or interested individuals, groups, and agencies. Comments were accepted until April 19, 2007. One response was received during the scoping period. A summary of comments received are included in Appendix 2.

- A description of the project was included in the December 2006, March 2007 and June 2007 project updates to solicit comments on the proposed project.

7.3.1 EA public comment period

The EA and FONSI will be made available for public review **January 23, 2008 to February 22, 2008**. The notice for public comment will be published in a legal notice by the *Polk County Itemizer Observer, Dallas; Gazette Times, Corvallis; Headlight Herald, Tillamook; News Register, McMinnville; South County Spotlight, Scappoose; Hillsboro Argus, Hillsboro; and the Newport News Times, Newport.* Comments received by the MP RA of the Salem District Office, 1717 Fabry Road SE, Salem, Oregon 97306, on or before **February 22, 2008** will be considered in making the final decisions for this project.

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8.0 MAJOR SOURCES AND GLOSSARY

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8.2 Glossary: Abbreviations, Acronyms, and Terms

Abfluvial	Fish life history strategy where fish migrate to a lake and returns to a stream to reproduce.
ACS	Aquatic Conservation Strategy. A set of objectives developed to restore and maintain the ecological health and aquatic habitat of watersheds
Alternative	Proposed project (plan, option, choice)
Anadromous fish	Species that migrate to oceans and return to freshwater to reproduce.
BLM	Bureau of Land Management. Federal agency within the Department of Interior responsible for the management of 275 million acres.
BMP	Best Management Practice(s). Design features and mitigation measures to minimize environmental effects.
CA	About
CEQ	Council of Environmental Quality, established by the National Environmental Policy Act of 1969
CEQ Regulations	Regulations that tell how to implement NEPA
Cumulative effects	Past, present, and reasonably foreseeable effects added together (regardless of who or what has caused, is causing, and might cause those effects)
EA	Environmental Assessment
E.G.	Example
ESA	Endangered Species Act. Federal legislation that ensures federal actions would not jeopardize or elevate the status of living plants and animals.
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy Management Act
Fluvial	Fish life history strategy where fish migrate to a major river and returns to a smaller stream to reproduce.
FONSI	Finding of No Significant Impact
Invasive Plant	Any plant species that is aggressive and difficult to manage.
LSR	Late-Successional Reserve (a NWFP designated land use allocation) Lands to be managed or maintained for older forest characteristics.

LSRA	Late-Successional Reserve Assessment for Oregon Coast Province – Southern Portion
LUA	Land Use Allocation. NWFP designated lands to be managed for specific objectives
MSA	Magnuson-Stevens Fishery conservation and Management Act.
Native Plant	Species that historically occurred or currently occur in a particular ecosystem and were not introduced
NEPA	National Environmental Policy Act (1969)
NMFS	National Marine Fisheries Service. Federal agency within NOAA which is responsible for the regulation of anadromous fisheries in the U. S.
NOAA	National Oceanic Atmospheric Administration. Agency within the Department of Commerce responsible for regulating migratory fisheries and other responsibilities.
Non-native plant	Any species that historically does not occur in a particular ecosystem or were introduced
Noxious weed	A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or diseases; or non-native, new, or not common to the United States.
NWFP	Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Related Species within the Range of the Northern Spotted Owl (1994) (Northwest Forest Plan).
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife. Oregon State Agency responsible for the management and protection of fish and wildlife.
Oregon Smoke Management Plan	The State of Oregon's plan for implementing the National Clean Air Act in regards to burning of forest fuels
RMP	Salem District Record of Decision and Resource Management Plan (1995)
RMP/FEIS	Salem District Proposed Resource Management Plan / Final Environmental Impact Statement (1994).
ROD	Record of Decision. Document that approves decisions to the analyses presented in the FEIS.
RR	Riparian Reserves (NWFP land use allocation). Lands on either side of streams or other water feature designated to maintain or restore aquatic habitat.
Rural Interface	BLM lands within ½ mile of private lands zoned for 1 to 20 acre lots. Areas zoned for 40 acres and larger with homes adjacent to or near BLM lands.

S&M FSEIS	Final Supplemental Environmental Impact Statement for Amendment to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines (2000).
S&M ROD	Record of Decision and Standards and Guidelines for Amendment to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines (2001).
SPZ	Stream Protection Zone is a buffer along streams where no material will be removed and heavy machinery will not be allowed. The minimum distance is 50 feet.
SSSP	Special Status Species Program
SSSP ROD	Record of Decision to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl, 2004
SSSP/SEIS	Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines, 2004
Surfactant	A material that improves the dispersing, spreading, wetting, or other surface-modifying properties of liquids.
Turbidity	Multiple environmental sources which causes water to change conditions.
USDI	United States Department of the Interior
USEPA	United States Environmental Protection Agency
VRM	Visual Resource Management, all lands are classified from 1 to 4 based on visual quality ratings.
Weed	A plant considered undesirable and that interferes with management objectives for a given area at a given point in time.

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9.0 APPENDICES

9.1 Appendix 1 – Aquatic Conservation Strategy Objectives

9.1.1 Documentation of the Project's Consistency with the Nine Aquatic Conservation Strategy Objectives

Unless otherwise specified, the No Action Alternative would not prevent the attainment of any of the nine ACS objectives. Current conditions and trends would continue and are described in EA Section 3.2. EA section 4.0 describes the project's consistency with the Aquatic Conservation Strategy Objectives.

Table A.1.1: Project's Consistency with the Nine Aquatic Conservation Strategy Objectives

Aquatic Conservation Strategy (ACS) Objectives	Project 1 - Alternative 2 (EA section 2.3)
1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features.	Does not prevent the attainment of ACSO 1. The removal and/or control of NNP species under Alternative 1 would help ensure that the lands are managed in compliance with the ACS objectives. The riparian and wetland habitat on the lands would be protected from non-native species, which would encourage a diversity of native species. This would contribute toward maintaining and restoring the complexity of aquatic systems.
2. Maintain and restore spatial and temporal connectivity within and between watersheds.	Does not prevent the attainment of ACSO 2. The integrated weed management program as outlined in Alternative A would begin to restore some of the wetlands, floodplains and uplands. Species such as Japanese knotweed can quickly take over riparian sites and crowd out native species destroying any connecting habitats. By controlling species, connecting habitats are restored and managed under ACS objectives.
3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.	Does not prevent the attainment of ACSO 3. Most non-native species are not known for their soil stabilizing ability nor do they provide the habitat needed for floodplains. Native species that have adapted over the years to the streams and river ecology would most likely provide greater protection to the shoreline and banks. This NNP management plan would restore native species that historically occurred within riparian systems that are currently occupied by NNP species. The restoration of such species would improve the physical integrity of the aquatic system.
4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems.	As discussed above, the integrated non-native species management plan would increase the amount of native riparian and wetland habitats managed for ACS objectives and contribute toward meeting this objective especially with restoration efforts on the disturbed lands. Site level effects to water quality are expected from the proposed action in the short term (1-2 years) due to removal of NNP and exposure of mineral soil. Over the long term, water quality would be

Aquatic Conservation Strategy (ACS) Objectives	Project 1 - Alternative 2 (EA section 2.3)
	expected to improve at the local and 5th field scale due to restoration of native vegetation and natural processes.
5. Maintain and restore the sediment regime under which aquatic ecosystems evolved.	Does not prevent the attainment of ACSO 5. Changes in the sediment regime could occur if non-native species were allowed to become the dominant species. In the short-term (1-2 years) very local sediment levels may be affected due to removal of NNP and exposure of mineral soil. Over the long term, by controlling or eradicating non-native species, native species are more likely to maintain and restore the sediment regime, because they have adapted to variable water flows.
6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing.	Does not prevent the attainment of ACSO 6. An integrated non-native species management program would work to maintain and restore natural in-stream flows by providing native vegetation along riparian areas, which have adapted to high and low flow regimes. NNP are unlikely to influence peak flow due to evapotranspiration. Under this action, no canopy alteration of size sufficient to alter flow would occur.
7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.	Floodplains and meadows which have non-native weed species should be prioritized for management action. Inundation of these habitats could assist in propagation of non-native species downstream. It is possible that NNP would alter channel profile by altering sediment capture, if so the proposed management action would help maintain and restore this objective. If NNP do not alter channel profile, this action would have little affect to floodplain inundation and water table elevation.
8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands.	Does not prevent the attainment of ACSO 8. Integrated non-native species management would help restore diversity of plant communities by allowing native species to repopulate sites. Native species are adapted to the conditions and ecological processes in riparian areas and wetlands.
9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.	Does not prevent the attainment of ACSO 9. Non-native weed species tend to create monocultures and crowd out native species. Using an integrated management approach and eradicating populations of NNP species can accomplish an effective and successful restoration effort.

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9.2 Appendix 2 – Response to Scoping Comments

A scoping letter, dated March 08, 2007, was sent to 79 potentially affected and/or interested individuals, groups, and agencies. One letter was received during the scoping period and was received by:

Chandra LeGue
Healthy Forests Advocate
Oregon Wild
Western Field Office
P.O. Box 11648
Eugene, Oregon 97440
cl@oregonwild.org 541-344-0675

9.2.1 Summary of comments and BLM responses

The following addresses comments raised in one letter from the public received as a result of scoping (40 CFR Part 1501.7). Additional supporting information can be found in Specialists' Reports in the NEPA file. The comments, (in italics type), may have been paraphrased for clarity or conciseness, but the complete text of the comment was available to the Interdisciplinary Team (IDT) making the response. The full text of the comment letter is available in the Integrated NNP Management Plan NEPA/ EA file.

9.2.2 Oregon Wild (April 18, 2007)

1. Comment: *"The scoping notice does not say what time period the plan will remain in effect, how many acres are proposed for potential management or what species are at issue."*

Response: The EA will address all of these concerns. This EA would remain in effect as long as the supporting documents it is tiered to remain valid. However, we estimate the period to be between 5 and 10 years.

2. Comment: *Oregon Wild asks that the BLM please consider the avoidance of any measure that increases the risk of invasive species introduction and spread including soil disturbing activities such as: logging, OHVs use, livestock grazing, road activities; and activities that open the canopy and increase the availibility of light, water, and nutrient for the growth of invasive species (eg., fuel reduction, brush control) and activities that provide vectors for the spread of weed seeds (eg. roads, OHVs, logging, grazing).*

Response: BLM incorporates noxious weed evaluations and provides mitigating measures designed to reduce any non-native weed infestation on all projects and NEPA documents.

3. Comment: *The BLM should treat the causes not the symptoms. Many weed sites are located along roads and the BLM should prioritize closing roads that pose problems. Fuels reduction projects present a significant threat of spreading NNPs as well as OHVs. The NEPA analysis needs to incorporate these threats into a comprehensive EA or EIS.*

Response: The development of this plan would provide necessary tools to control many weed sites that are located adjacent roadways without restricting access. However, closing roads and road management are options included in this proposed management plan. All fuels reduction projects and recreation projects that allow the use of OHVs require NEPA analysis and weeds are analyzed in each NEPA document. Appropriate mitigation measures are often incorporated to reduce any adverse affects anticipated by the establishment of NNP.

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4. Comment: *Oregon Wild asks to please comply with Executive Order 13112 of Feburary 3, 1999 which provides: (a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law.*

- ✓ *identify such actions;*
- ✓ *subject to funding, use relevant programs and authorities to prevent the introduction of invasive species, detect and respond rapidly in a cost-effective and environmentally sound manner, monitor non-native populations, provide for restoration of native species, conduct research and promote public education on invasive species, and,*
- ✓ *not authorize, fund, or carry out actions that it believes are likely to cause or promote the introductioin or spread of invasive species in the United States or elsewhere. www://www.invasivespecies.gog/laws.execorder.shtml*

Response: The development of the Westside Salem Integrated NNP Management Plan would provide the necessary NEPA documentation for the prevention and treatment of NNP species that occur or are suspected to occur within the Marys Peak and Tillamook Resource Areas. This plan would be in full conformance with Executive Order 13112.

5. Comment: *Oregon Wild hopes the BLM uses the physical means of control before moving toward the use of chemicals as a weed control tool in most cases. The BLM should consider non-chemical alternatives even if they are less effective because:*

- ✓ *Need to disclose non chemical treatments are not effective;*
- ✓ *Need to compare and disclose effects of chemical and no-chemical for trade-offs;*
- ✓ *Non chemical treatments and no action are not the same.*

Response: BLM has taken many steps to limit the use of chemicals in this analysis. The full design features are listed in the EA. The Marys Peak and Tillamook Resource Areas would always consider the use of cultural, physical and biological control methods prior to chemical use. If a non-native infestation is targeted as a high priority, it generally would receive a physical treatment first. This treatment would reduce the bio-mass of the NNP species. At this time the treatment to the infestation would be evaluated. If the non-native species is listed as an ODA Noxious weed list, chemical treatment may be an option for control. The following features are incorporated into the proposal to limit the use of chemical treatments.

- ✓ Of the 4 chemicals available to use on Oregon BLM lands (Glyphosate, Picloram, 2,4-D and Dicamba) this EA restricts chemical use to glyphosate only.
- ✓ Only aquatic labeled glyphosate would be applied within riparian zones.
- ✓ Glyphosate would be applied at the lowest of the following rates, either a) rates according to the label, or b) rates of active ingredient per acre as restricted by BLM policy.
- ✓ Chemical use would be restricted within each 6th field watershed (10 acres per year or not to exceed 10% of the total riparian area within each 6th field watershed, whichever is less) and limited to 100 acres per year (approx. 0.0004% of public land in the project area) in

BLM landownership within the project area. The 100 acre limit would be the sum of all treatments on BLM lands and all private lands treated using Federal dollars, excluding those projects listed in Appendix 6.

- ✓ Surfactants would be utilized according to label and only LI 700 or Agri-Dex (both aquatic labeled surfactants) would be available for use.
- ✓ Chemical use would be restricted to hand applications only (spot spray, wicking, injection).
- ✓ No aerial applications, or boom spraying applications would be allowed.
- ✓ Many other restrictions are included in the EA design features that further limit chemical use to minimize effects to the environment.

6. Comment: *The scoping document does not give a timeframe for the treatments that would happen under this EA, and does not describe acres to be treated. The EA should include a cumulative impact analysis on BLM and non federal lands and plan to reduce the use of herbicide use during the life of the plan.*

Response: The EA includes a maximum number of acres treated per year for Cultural, Physical, Biological and Chemical treatments. Physical and cultural treatments would be limited to 1500 acres per year (0.65% of BLM lands within the project area) and Chemical use would be limited to 100 acres per year (0.0004% of BLM lands within the project area. The 1,500 acre annual physical treatment limit and the 100 acre annual herbicide limit would be the sum of all treatments on BLM lands and all private lands utilizing Federal dollars, excluding those project areas listed in Appendix 6.

7. Comment: *The EA should address the potential for application of multiple chemicals at one site over time if more than one target species is present.*

Response: This EA analyzes for the use of glyphosate only. If other chemicals are necessary to control infestations where glyphosate is not accomplishing the desired outcome, a site specific EA would be written to address the concern and affects.

8. Comment: *Special Status species surveys must be completed prior to developing NEPA alternatives and before the decision is determined. Site specific treatments should protect sensitive species and habitats. A detailed analysis of fish habitat and treatment impacts should be included in the EA.*

Response: BLM would conduct surveys for special status wildlife, botanical and fungal species prior to any decision to utilize Cultural, Physical, Biological or Chemical control methods. See design features in EA. All fish and wildlife issues have been analyzed within this EA or supporting EIS or supplemental EIS.

9. Comment: *Project analysis should separately discuss each of the separate Aquatic Conservation Strategies*.

Response: All Aquatic Conservation Strategy objectives are discussed in the EA.

10. Comment: *A full range of action alternatives should be considered in the EA*

Response: Several alternatives including alternatives considered but dropped are discussed within the EA.

11. Comment: *The NEPA analysis needs to incorporate Best Management Practices that reduce the potential spread of NNP. Some of the activities that disturb soil (logging, OHVs livestock grazing, road activities) also increase the spread of NNPs. Some of the Best Management Practices would include the following:*

- ✓ *Cleaning of heavy equipment and OHVs prior to entering BLM managed lands*
- ✓ *Require use of weed free feed on all ACECs, RNAs and other natural areas*
- ✓ *Retain shade to suppress weeds and prevent their establishment and minimize soil disturbance on timber harvests and fuels management projects.*
- ✓ *Enforce cleaning rules and close areas for native plant restoration to OHVs.*

Response: BLM has the same concerns. It treats prevention as a 'cultural' treatment type. The BLM has an action plan that would be regarded as weed best management practices. This plan is titled, "Partners Against Weeds" (January 1996).

The Marys Peak and Tillamook resource areas do not graze livestock.

12. Comment: *The BLM should mitigate chemical use since herbicide companies launder hazardous wastes through inert ingredient screen. Use only adjuvants ingredients reviewed in BLM hazard and risk assessment documents. Use site specific soil characteristics, proximity to surface water and local water table depth to determine herbicide formulation.*

Response: Proposed project design features limit the type of adjuvants that can be utilized, such as aquatic approved surfactants (LI 700 or Agri-Dex). Only aquatic labeled glyphosate would be used in riparian area. Additional design features provide for protection to surface water and riparian channels.

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9.3 Appendix 3 – Herbicides Approved for Use for Invasive NNP Control on BLM Managed Lands in Oregon

The herbicides listed below were approved for use for invasive NNP control on BLM managed lands in Oregon in the Northwest Area Noxious Weed Control Program EIS (December 1985), supplement to the Northwest Area Noxious Weed Control Program Final Environmental Impact Statement (March 1987) and Western Oregon Program-Management of Competing Vegetation (Final Record of Decision, August 1992) and/or Information Bulletin No. 2007-028 (December 28, 2006) and Final vegetation Treatments on bureau of Land Management Lands in 17 Western States Programmatic Environmental Report and Record of Decision (September 2007). However, this EA only analyzes for the use of glyphosate.

2,4-D; dicamba; dicamba plus 2,4-D; glyphosate; glyphosate plus 2,4-D; glyphosate plus dicamba; picloram, and picloram plus 2,4-D.

The following (Summary of Basic Information for Glyphosate) is a summarized version of the worksheets covering uses and effects of glyphosate. Pesticide Fact Sheets were prepared for the U.S. Department of Agriculture, Forest Service by Information Ventures, Inc. The complete sheets can be found at: http://www.fs.fed.us/r6/weeds/glyphosate032603/Glyphosate_FS_Risk_Assessment_March_2003_SERA_TR_02-43-09-04a.PDF. A summary for forestry use is also available from Oregon Extension Service at: http://www.oregon.gov/ODF/PRIVATE_FORESTS/docs/chem/glyphosate.pdf

In addition, a second data sheet on glyphosate is included and was provided by the website EXTOXNET, Extension Toxicology Network (http://extoxnet.orst.edu/pips/glyphosa.htm).

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9.3.1 Summary of Basic Information for Glyphosate

Common name: Glyphosate **Chemical name:** N-(phosphonomethyl)glycine
Common Product names: Roundup®, Rodeo®, Accord®
Pesticide classification: herbicide
Registered Use Status: "General Use"

I. Herbicide Uses
Registered forestry, rangeland, right-of-way uses: planting site preparation, conifer release, forest nurseries, rights-of-way and facilities maintenance, and invasive NNP control.

Target Plants: Glyphosate is used to control grasses, herbaceous plants including deep rooted perennial weeds, brush, some broadleaf trees and shrubs, and some conifers. Glyphosate does not control all broadleaf woody plants. Timing is critical for effectiveness on some broadleaf woody plants and conifers.

Glyphosate applied to foliage is absorbed by leaves and rapidly moves through the plant. It acts by preventing the plant from producing an essential amino acid. This reduces the production of protein in the plant, and inhibits plant growth. Glyphosate is metabolized or broken down by some plants, while other plants do not break it down. Aminomethylphosphonic acid is the main break-down product of glyphosate in plants.

Method of application: aerial spraying; spraying from a truck, backpack or hand-held sprayer.

II. Environmental Effects/Fate
Soil: Glyphosate is not generally active in the soil. It is not usually absorbed from the soil by plants. Glyphosate and the surfactant used in Roundup are both strongly adsorbed by the soil. Glyphosate remains unchanged in the soil for varying lengths of time, depending on soil texture and organic matter content. The half-life of glyphosate can range from 3 to 130 days. Soil microorganisms break down glyphosate. In tests, the surfactant in Roundup has a soil half-life of less than 1 week. Soil microorganisms break down the surfactant. The main break-down product of glyphosate in the soil is aminomethylphosphonic acid, which is broken down further by soil microorganisms. The main break-down product of the surfactant used in Roundup is carbon dioxide.

Water: Glyphosate dissolves easily in water. The potential for leaching is low. Glyphosate and the surfactant in Roundup are strongly adsorbed to soil particles. Tests show that the half-life for glyphosate in water ranges from 35 to 63 days. The surfactant half-life ranges from 3 to 4 weeks. Studies examined glyphosate and aminomethylphosphonic acid (AMPA) residues in surface water after forest application in British Columbia with and without no-spray streamside zones. With a no-spray streamside zone, very low concentrations were sometimes found in water and sediment after the first heavy rain. Where glyphosate was sprayed over the stream, higher peak concentrations in water always occurred following heavy rain, up to 3 weeks after application. Glyphosate and AMPA residues peaked later in stream sediments, where they persisted for over 1 year. These residues were not easily released back into the water.

Air: Glyphosate does not evaporate easily. Major products from burning treated vegetation include phosphorus pentoxide, acetonitrile, carbon dioxide and water. Phosphorus pentoxide

forms phosphoric acid in the presence of water. None of these compounds is known to be a health threat at the levels which would be found in a vegetation fire.

III. Ecological Effects

Non-Target Toxicity: Glyphosate and the surfactant have no known effect on soil microorganisms. Contact with non-target plants may injure or kill plants. Glyphosate is no more than slightly toxic to fish, and practically non-toxic to aquatic invertebrate animals. It does not build up (bioaccumulate) in fish. The Accord and Rodeo formulations are practically non-toxic to freshwater fish and aquatic invertebrate animals. The Roundup formulation is moderately to slightly toxic to freshwater fish and aquatic invertebrate animals. Glyphosate and its formulations have not been tested for chronic effects in aquatic animals.

Terrestrial Animals: Glyphosate is practically non-toxic to birds and mammals. It is practically non-toxic to bees. Glyphosate and its formulations have not been tested for chronic effects in terrestrial animals.

Threatened and Endangered Species: Glyphosate may be a hazard to endangered species if it is applied to areas where they live.

IV. Human Health Effects

Most incidents reported in humans have involved skin or eye irritation in workers after exposure during mixing, loading or application of glyphosate formulations. Nausea and dizziness have also been reported after exposure. Swallowing the Roundup formulation caused mouth and throat irritation, pain in the abdomen, vomiting, low blood pressure, reduced urine output, and in some cases, death. These effects have only occurred when the concentrate was accidentally or intentionally swallowed, not as a result of the proper use of Roundup. The amount swallowed averaged about 100 milliliters (about half a cup). There are no reported cases of long term health effects in humans due to glyphosate or its formulations.

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9.3.2 EXTOXNET

Extension Toxicology Network

Pesticide Information Profiles

A Pesticide Information Project of Cooperative Extension Offices of Cornell University, Oregon State University, the University of Idaho, and the University of California at Davis and the Institute for Environmental Toxicology, Michigan State University. Major support and funding was provided by the USDA/Extension Service/National Agricultural Pesticide Impact Assessment Program.

EXTOXNET primary files maintained and archived at Oregon State University

Revised June 1996

Glyphosate

Trade and Other Names: Trade names for products containing glyphosate include Gallup, Landmaster, Pondmaster, Ranger, Roundup, Rodeo, and Touchdown. It may be used in formulations with other herbicides.

Regulatory Status: Glyphosate acid and its salts are moderately toxic compounds in EPA toxicity class II. Labels for products containing these compounds must bear the Signal Word WARNING. Glyphosate is a General Use Pesticide (GUP).

Chemical Class: Not Available

Introduction: Glyphosate is a broad-spectrum, nonselective systemic herbicide used for control of annual and perennial plants including grasses, sedges, broad-leaved weeds, and woody plants. It can be used on non-cropland as well as on a great variety of crops. Glyphosate itself is an acid, but it is commonly used in salt form, most commonly the isopropylamine salt. It may also be available in acidic or trimethylsulfonium salt forms. It is generally distributed as water-soluble concentrates and powders. The information presented here refers to the technical grade of the acid form of glyphosate, unless otherwise noted.

Formulation: Glyphosate itself is an acid, but it is commonly used in salt form, most commonly the isopropylamine salt. It may also be available in acidic or trimethylsulfonium salt forms. It is generally distributed as water-soluble concentrates and powders.

Toxicological Effects:

- **Acute toxicity:** Glyphosate is practically nontoxic by ingestion, with a reported acute oral LD50 of 5600 mg/kg in the rat. The toxicities of the technical acid (glyphosate) and the formulated product (Roundup) are nearly the same [58,96]. The oral LD50 for the trimethylsulfonium salt is reported to be approximately 750 mg/kg in rats, which indicates

moderate toxicity [58]. Formulations may show moderate toxicity as well (LD50 values between 1000 mg/kg and 5000 mg/kg) [58]. Oral LD50 values for glyphosate are greater than 10,000 mg/kg in mice, rabbits, and goats [8,96]. It is practically nontoxic by skin exposure, with reported dermal LD50 values of greater than 5000 mg/kg for the acid and isopropylamine salt. The trimethylsulfonium salt has a reported dermal LD50 of greater than 2000 mg/kg. It is reportedly not irritating to the skin of rabbits, and does not induce skin sensitization in guinea pigs [58]. It does cause eye irritation in rabbits [58]. Some formulations may cause much more extreme irritation of the skin or eyes [58]. In a number of human volunteers, patch tests produced no visible skin changes or sensitization [58]. The reported 4-hour rat inhalation LC50 values for the technical acid and salts were 5 to 12 mg/L [58], indicating moderate toxicity via this route. Some formulations may show high acute inhalation toxicity [58]. While it does contain a phosphatyl functional group, it is not structually similar to organophosphate pesticides which contain organophosphate esters, and it does not significantly inhibit cholinesterase activity [1,58].

- **Chronic toxicity:** Studies of glyphosate lasting up to 2 years, have been conducted with rats, dogs, mice, and rabbits, and with few exceptions no effects were observed [96]. For example, in a chronic feeding study with rats, no toxic effects were observed in rats given doses as high as 400 mg/kg/day [58]. Also, no toxic effects were observed in a chronic feeding study with dogs fed up to 500 mg/kg/day, the highest dose tested [58,97].
- **Reproductive effects:** Laboratory studies show that glyphosate produces reproductive changes in test animals very rarely and then only at very high doses (over 150 mg/kg/day) [58,96]. It is unlikely that the compound would produce reproductive effects in humans.
- **Teratogenic effects:** In a teratology study with rabbits, no developmental toxicity was observed in the fetuses at the highest dose tested (350 mg/kg/day) [97]. Rats given doses up to 175 mg/kg/day on days 6 to 19 of pregnancy had offspring with no teratogenic effects, but other toxic effects were observed in both the mothers and the fetuses. No toxic effects to the fetuses occurred at 50 mg/kg/day [97]. Glyphosate does not appear to be teratogenic.
- **Mutagenic effects:** Glyphosate mutagenicity and genotoxicity assays have been negative [58]. These included the Ames test, other bacterial assays, and the Chinese Hamster Ovary (CHO) cell culture, rat bone marrow cell culture, and mouse dominant lethal assays [58]. It appears that glyphosate is not mutagenic.
- **Carcinogenic effects:** Rats given oral doses of up to 400 mg/kg/day did not show any signs of cancer, nor did dogs given oral doses of up to 500 mg/kg/day or mice fed glyphosate at doses of up to 4500 mg/kg/day [58]. It appears that glyphosate is not carcinogenic [97].
- **Organ toxicity:** Some microscopic liver and kidney changes, but no observable differences in function or toxic effects, have been seen after lifetime administration of glyphosate to test animals [97].
- **Fate in humans and animals:** Glyphosate is poorly absorbed from the digestive tract and is largely excreted unchanged by mammals. At 10 days after treatment, there were only minute amounts in the tissues of rats fed glyphosate for 3 weeks [98]. Cows, chickens, and pigs fed small amounts of glyphosate had undetectable levels (less than 0.05 ppm) in muscle tissue and fat. Levels in milk and eggs were also undetectable (less than 0.025 ppm). Glyphosate has no significant potential to accumulate in animal tissue [99].

Ecological Effects:

- **Effects on birds:** Glyphosate is slightly toxic to wild birds. The dietary LC50 in both mallards and bobwhite quail is greater than 4500 ppm [1].

- **Effects on aquatic organisms:** Technical glyphosate acid is practically nontoxic to fish and may be slightly toxic to aquatic invertebrates. The 96-hour LC50 is 120 mg/L in bluegill sunfish, 168 mg/L in harlequin, and 86 mg/L in rainbow trout [58]. The reported 96-hour LC50 values for other aquatic species include greater than 10 mg/L in Atlantic oysters, 934 mg/L in fiddler crab, and 281 mg/L in shrimp [58]. The 48-hour LC50 for glyphosate in Daphnia (water flea), an important food source for freshwater fish, is 780 mg/L [58]. Some formulations may be more toxic to fish and aquatic species due to differences in toxicity between the salts and the parent acid or to surfactants used in the formulation [58,96]. There is a very low potential for the compound to build up in the tissues of aquatic invertebrates or other aquatic organisms [96].
- **Effects on other organisms:** Glyphosate is nontoxic to honeybees [1,58]. Its oral and dermal LD50 is greater than 0.1 mg/ bee [98]. The reported contact LC50 values for earthworms in soil are greater than 5000 ppm for both the glyphosate trimethylsulfonium salt and Roundup [58].

Environmental Fate:

- **Breakdown in soil and groundwater:** Glyphosate is moderately persistent in soil, with an estimated average half-life of 47 days [58,11]. Reported field half-lives range from 1 to 174 days [11]. It is strongly adsorbed to most soils, even those with lower organic and clay content [11,58]. Thus, even though it is highly soluble in water, field and laboratory studies show it does not leach appreciably, and has low potential for runoff (except as adsorbed to colloidal matter) [3,11]. One estimate indicated that less than 2% of the applied chemical is lost to runoff [99]. Microbes are primarily responsible for the breakdown of the product, and volatilization or photodegradation losses will be negligible [58].
- **Breakdown in water:** In water, glyphosate is strongly adsorbed to suspended organic and mineral matter and is broken down primarily by microorganisms [6]. Its half-life in pond water ranges from 12 days to 10 weeks [97].
- **Breakdown in vegetation:** Glyphosate may be translocated throughout the plant, including to the roots. It is extensively metabolized by some plants, while remaining intact in others [1].

Physical Properties:

- **Appearance:** Glyphosate is a colorless crystal at room temperature [1].
- **Chemical Name:** N-(phosphonomethyl) glycine [1]
- **CAS Number:** 1071-83-6
- **Molecular Weight:** 169.08
- **Water Solubility:** 12,000 mg/L @ 25 C [1]
- **Solubility in Other Solvents:** i.s. in common organics (e.g., acetone, ethanol, and xylene) [1]
- **Melting Point:** 200 C [1]
- **Vapor Pressure:** negligible [1]
- **Partition Coefficient:** -3.2218 - -2.7696 [58]
- **Adsorption Coefficient:** 24,000 (estimated) [11]

Exposure Guidelines:

- **ADI:** 0.3 mg/kg/day [12]
- **MCL**: Not Available

- **RfD:** 0.1 mg/kg/day [13]
- **PEL:** Not Available
- **HA**: 0.7 mg/L (lifetime) [98]
- **TLV**: Not Available

Basic Manufacturer:

Monsanto Company
800 N. Lindbergh Blvd.
St. Louis, MO 63167

- **Phone:** 314-694-6640
- **Emergency:** 314-694-4000

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9.4 Appendix 4 – Compliance with Current Bureau Special Status Direction

All project proposals on Federal lands would be evaluated by resource area specialists prior to implementation.

Site management of any bureau special status wildlife, botanical and fungal species would be accomplished in accordance with bureau policies.

In addition, project design features have been incorporated into this EA to mitigate potential adverse affects to these species (see 2.3.3 design features, p. 9).

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9.5 Appendix 5 – Oregon Department of Agriculture Noxious Weed List

Oregon Department of Agriculture Noxious Weed Control Program. 2006 Noxious Weed Policy and Classification System.

Noxious Weed Control Classification System
Noxious weeds, for the purpose of this system, shall be designated "A" or "B" and may be given the additional designation of "T" according to the ODA

Noxious Weed Classification System.
• "A" Classified Weed – a weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent (Table A.6.1).

Recommended action: Infestations are subject to eradication or intensive control when and where found.

• "B" Classified Weed – a weed of economic importance which is regionally abundant, but which may have limited distribution in some counties (Table A.6.2).

Recommended action: Limited to intensive control at the state, county or regional level as determined on a case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the main control approach. ("B" weeds targeted for biological control are identified with an asterisk).

• "T" Classified Weed – a priority noxious weed designated by the Oregon State Weed Board as a target on which the ODA will develop and implement a statewide management plan. "T" designated noxious weeds are species selected from either the "A" or "B" list (Table A.6.3).

Table A.6.1: "A" Designated weeds as determined by the Oregon Department of Agriculture

Common Name	Scientific Name
African rue	*Peganum harmala*
Camelthorn	*Alhagi pseudalhagi*
Coltsfoot	*Tussilago farfara*
Cordgrass Common Dense-flowered Saltmeadow Smooth	 *Spartina anglica* *Spartina densiflora* *Spartina patens* *Spartina alterniflora*
European water chestnut	*Trapa natans*
Giant hogweed	*Heracleum mantegazzianum*
Goatgrass Barbed Ovate	 *Aegilops triuncialis* *Aegilops ovata*

Common Name	Scientific Name
Hawkweed	
King-devil	*Hieracium piloselloides*
Meadow	*Hieracium pratense*
Mouse-ear	*Hieracium pilosella*
Orange	*Hieracium aurantiacum*
Yellow	*Hieracium floribundum*
Hydrilla	*Hydrilla verticillata*
Kudzu	*Pueraria lobata*
Matgrass	*Nardus stricta*
Patersons curse	*Echium plantagineum*
Purple nutsedge	*Cyperus rotundus*
Silverleaf nightshade	*Solanum elaeagnifolium*
Skeletonleaf bursage	*Ambrosia tomentosa*
Squarrose knapweed	*Centaurea virgata*
Starthistle	
Iberian	*Centaurea iberica*
Purple	*Centaurea calcitrapa*
Syrian bean-caper	*Zygophyllum fabago*
Texas blueweed	*Helianthus ciliaris*
Thistle	
Plumeless	*Carduus acanthoides*
Smooth distaff	*Carthamus baeticus*
Woolly distaff	*Carthamus lanatus*
Yellow floating heart	*Nymphoides peltata*

Table A.6.2: "B" designated weeds as determined by the ODA
(*indicates targeted for biological control)

Common Name	Scientific Name
Austrian peaweed (Swainsonpea)	*Sphaerophysa salsula*
Bearded creeper (common crupina)	*Crupina vulgaris*
Biddy-biddy	*Acaena novae-zelandiae*
Broom	
French*	*Genista monspessulana*
Portuguese	*Cytisus striatus*
Scotch*	*Cytisus scoparius*
Spanish	*Spartium junceum*
Buffalobur	*Solanum rostratum*
Butterfly bush	*Buddleja davidii*
Common bugloss	*Anchusa officinalis*
Creeping yellow cress	*Rorippa sylvestris*
Cutleaf teasel	*Dipsacus laciniatus*
Dodder	*Cuscuta spp.*
Dyers woad	*Isatis tinctoria*
English ivy	*Hedera helix*
Eurasian watermilfoil	*Myriophyllum spicatum*
False brome	*Brachypodium sylvaticum*
Field bindweed*	*Convolvulus arvensis*
Garlic mustard	*Alliaria petiolata*
Giant horsetail	*Equisetum telmateia*
Gorse*	*Ulex europaeus*
Halogeton	*Halogeton glomeratus*
Himalayan blackberry	*Rubus discolor* (*R. procerus, R. aremeniacus*)
Houndstongue	*Cynoglossum officinale*
Johnsongrass	*Sorghum halepense*
Jointed goatgrass	*Aegilops cylindrical*
Jubata grass	*Cortaderia jubata*
Knapweeds	
Diffuse*	*Centaurea diffusa*
Meadow*	*Centaurea pratensis* (*C. jacea x C. nigra*)
Russian*	*Acroptilon repens*
Spotted*	*Centaurea maculosa* (*C. stoebe*)
Knotweeds	
Giant	*Polygonum sachalinense*
Himalayan	*Polygonum polystachyum*
Japanese (fleece flower)	*Polygonum cuspidatum* (*Fallopia japonica*)
Kochia	*Kochia scoparia*
Mediterranean sage*	*Salvia aethiopis*
Medusahead rye	*Taeniatherum caput-medusae*
Old mans beard	*Clematis vitalba*
Perennial pepperweed	*Lepidium latifolium*
Poison hemlock	*Conium maculatum*

Common Name	Scientific Name
Policemans helmet	*Impatiens glandulifera*
Puncturevine*	*Tribulus terrestris*
Purple loosestrife*	*Lythrum salicaria*
Quackgrass	*Agropyron repens*
Ragweed	*Ambrosia artemisiifolia*
Rush skeletonweed*	*Chondrilla juncea*
Saltcedar*	*Tamarix ramosissima*
Small broomrape	*Orobanche minor*
South American waterweed	*Egeria densa* (*Elodea*)
Spikeweed	*Memizonia pungens*
Spiny cocklebur	*Xanthium spinosum*
Spurge	
Leafy*	*Euphorbia esula*
Myrtle	*Euphorbia myrsinites*
St. Johnswort (Klamath weed)*	*Hypericum perforatum*
Sulfur cinquefoil	*Potentilla recta*
Tansy ragwort*	*Senecio jacobaea*
Thistles	
Bull*	*Cirsium vulgare*
Canada*	*Cirsium arvense*
Italian*	*Carduus pycnocephalus*
Milk*	*Silybum marianum*
Musk*	*Carduus nutans*
Scotch	*Onopordum acanthium*
Slender-flowered*	*Carduus tenuiflorus*
Toadflax	
Dalmatian*	*Linaria dalmatica* (*L.genista*)
Yellow*	*Linaria vulgaris*
Velvetleaf	*Abutilon theophrasti*
Whitetop	
Hairy	*Lepidium pubescens*
Lens-podded	*Lepidium chalepensis*
Whitetop (hoary cress)	*Lepidium draba*
Yellow flag iris	*Iris pseudacorus*
Yellow nutsedge	*Cyperus esculentus*
Yellow starthistle*	*Centaurea solstitialis*

Table A.6.3: "T" or target weeds designated by the ODA

The ODA annually develops a target list of weed species that will be the focus for prevention and control by the Noxious Weed Control Program, sanctioned by the Oregon State Weed Board. Because of the economic threat to the state of Oregon, action against these weeds will receive priority.

Common Name	Scientific Name
Barbed goatgrass	*Aegilops triuncialis*
Common bugloss	*Anchusa officinalis*
Cordgrass	
Common	*Spartina anglica*
Dense-flowered	*Spartina densiflora*
Saltmeadow	*Spartina patens*
Smooth	*Spartina alterniflora*
Giant hogweed	*Heracleum mantegazzianum*
Gorse	*Ulex europaeus*
Hawkweed	
Meadow	*Hieracium pretense*
Orange	*Hieracium aurantiacum*
Yellow	*Hieracium floribundum*
Knapweed	
Spotted	*Centaurea maculosa* (*C. stoebe*)
Squarrose	*Centaurea virgata*
Knotweed	
Giant	*Polygonum sachalinense*
Himalayan	*Polygonum polystachyum*
Japanese	*Polygonum cuspidatum* (*Fallopia japonica*)
Kudzu	*Pueraria lobata*
Leafy Spurge	*Euphorbia esula*
Portuguese broom	*Cytisus striatus*
Purple loosestrife	*Lythrum salicaria*
Rush skeletonweed	*Chondrilla juncea*
Starthistle	
Iberian	*Centaurea iberica*
Purple	*Centaurea calcitrapa*
Yellow	*Centaurea solstitialis*
Tansy ragwort	*Senecio jacobaea*
Woolly distaff thistle	*Carthamus lanatus*

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9.6 Appendix 6 – Treatment Areas Excluded from the 1,500 Acre Physical and 100 Acre Herbicide Annual Restrictions.

Treatment Area	6th field Watershed	Target NNP	Treatment Type	Treatment description
Marys Peak Resource Area				
None.				
Tillamook Resource Area				
Little North Fork Wilson River	Little NF Wilson	Knotweed blackberries	Physical and Chemical	Manual cutting, chemical stem injection, wiping, and foliar spraying.
Columbia County Knotweed Control Project	N Scappoose Crk S Scappoose Crk E Fork Nehalem Gilbert River	Knotweed	Physical and Chemical	Manual cutting, chemical stem injection, wiping, and foliar spraying
Yaquina Head Outstanding Area	Moolack Creek	Scots broom, English Ivy, Knotweed, Blackberry and NNPs	Physical and Chemical.	Physical removal of non-native, non-noxious designated woody species. Continuing physical control of blackberries. Herbicide treatment to approximately ½ acre of English ivy, ¼ acre of knotweed and approximately 20 acres of blackberries. Spot spray 10-20 physically treated Scot's broom stumps.

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9.7 Appendix 7– BLM Policy on the Use of Native Plant Materials

POLICY ON USE OF NATIVE SPECIES PLANT MATERIALS
BUREAU OF LAND MANAGEMENT OREGON/WASHINGTON

EXECUTIVE SUMMARY

This is a policy for Oregon/Washington on the use of native species plant materials. The intent is to encourage Districts to develop supplies and to use native plant materials. The long-term goal is the general use of adapted native plant materials. The timeframe to reach this goal will vary according to individual Districts. Proposed actions involving non native or naturalized plant materials should be analyzed through the National Environmental Policy Act (NEPA) process. The delegation of authority to approve plant and animal introduction, transplant, reestablishment and augmentation are explained in this policy and Bureau of Land Management (BLM) Manual 1745.16.

Recommendations to expedite the implementation of BLM's native species program include: coordination to facilitate the availability of native species plant materials; genetic studies and development of interagency transfer guidelines for native species plant materials; and training and workshops in each District for education, interagency coordination, and information exchange. The appendix contains definitions and an explanation of the authorities for establishing and implementing the native species program.

INTRODUCTION

BLM Manual 1745 established policy and guidance on the introduction, transplant, augmentation, and reestablishment of plants (exotic, native, and naturalized species). Current Resource Management Plans (RMPs) emphasize the principles of ecosystem management. Native species are an inherent part of ecosystems. Native species are also a part of the objectives and management for many of the resource programs and are being used in watershed restoration projects. Westside RMPs specify that the impacts from non natives in Late Successional Reserves (LSRs) will be evaluated.

This document defines policy and objectives, and includes discussion topics. Definitions and the authorities for implementing a native plant species program are in the appendix. Recommended guidelines for the development and implementation of a native plant species program in western Oregon are available in a separate document. These guidelines were written for western Oregon conditions. Guidelines for eastern Oregon will be developed in FY 2001.

Several documents were considered in development of this policy: *BLM Manual 1745-Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants;* Eugene and Coos Bay District policies on native plant restoration; BLM California *Policy On The Use Of Native Plant Materials*; U.S. Forest Service Region 5 and 6 policies on the use of native plants; BLM OR/WA *Standards For Rangeland Health And Guidelines For Livestock Grazing Management*; and the BLM *Emergency Fire Rehabilitation Handbook - H1742*.

POLICY

Native species shall be used unless, through the NEPA process, it is determined that: (1) Suitable native species are not available; (2) The natural biological diversity of the proposed management area will not be diminished; (3) Exotic and naturalized species can be confined within the proposed management area; (4) Analysis of ecological site inventory information indicates that a site will not support reestablishment of a species that historically was part of the natural environment; (5) Resource management objectives cannot be met with native species (See BLM Manual 1745.06).

Proposed actions involving native or non native species should be analyzed and documented in accordance with the requirements of NEPA. Revegetation projects should incorporate good stewardship practices of early planning, interdisciplinary review, implementation, evaluation, and periodic reporting. This policy applies to BLM projects and all projects which occur on BLM land; except where specifically precluded (example: such as in the case of nondiscretionary easements and right-of-ways).

OBJECTIVES

Native species plant materials are used for management actions such as, but not limited to: roadside seeding for erosion control, reforestation, fire rehabilitation, forage enhancement, noxious weed control, and vegetation community restorations (e.g., meadows, wetlands, etc.). Objectives for use of native species plant materials are:

1. To conserve biological diversity and maintain the adaptive capacity of ecosystems, plant communities, and native species. This includes maintaining the integrity of the natural genetic structure within and among populations of a species.

2. To prevent the displacement of native species through the introduction of aggressive, long lasting, or undesirable vegetation into managed and natural plant communities.

3. To develop and improve techniques for rehabilitation and restoration projects by interagency coordination, data sharing, and education on native species.

DISCUSSION

Native species in the RMPs - In the draft southeastern Oregon RMP/EIS, native species are part of the objectives and management directives for rangeland vegetation and are included in desired range of future conditions for rangeland and riparian habitats. Native species are also a component in the management directives for resources, including: ACECs, fire, rangeland vegetation, wildlife habitat, and others. The Standards For Rangeland Health and Guidelines For Livestock Grazing Management include guidelines for the use of non native vegetation in rangeland recovery.

Native species are part of the two major management concepts (Ecological Principles for Management of LSRs and the Aquatic Conservation Strategy) underlying the objectives and management actions/direction of each land use allocation in western Oregon. One of the goals under principles for management of late successional forests is "...to maintain biological diversity associated with native species and ecosystems in accordance with laws and regulations." One of the objectives in the Aquatic Conservation Strategy is to "Maintain and restore habitat to support well distributed populations of

native plant, invertebrate, and vertebrate riparian dependent species." The RMPs specify that BLM will evaluate the impacts of NNP species existing within reserves and develop plans and recommendations for eliminating or controlling non native species which are inconsistent with LSR objectives. These evaluations are included in LSR assessments. Native species are also a component in the management actions/direction for the various resource programs (for examples see: water and soils, wildlife habitat, special areas, noxious weeds).

Benefits of native species - Native species are important in maintaining resilient, healthy, productive ecosystems. Native species have become well adapted to the local environments through natural selection and have evolved co-relationships with other plants and animals in their ecosystems. Maintenance of viable populations is considered important to maintaining ecological processes. Native vegetation is recognized by the public as an important part of the natural community.

Native species generally do not require fertilization, irrigation, and other expensive manipulations to become established and maintain viable communities. If a seed source is available on site, natural regeneration can be the easiest and least expensive option for revegetation.

Analysis and documentation - Introductions, transplants, and reestablishments involve the establishment of a species where it does not currently exist. Augmentation involves maintaining or enlarging a species in an existing population. All proposed introductions, transplants, re-establishments, and augmentations must be reviewed to identify and disclose their environmental consequences (see BLM manual 1745.1).

In cases where the introduction of non native vegetation is proposed, a justification shall be submitted to the State Director (as outlined in BLM Manual 1745.1). State Directors are responsible for approving the plant and animal introductions, transplants, and reestablishments. This authority cannot be re-delegated. The approval for augmenting existing populations can be re-delegated to Field Managers (see BLM manuals 1203 and 1745.16).

Native plants should always be given first consideration. However, there are certain situations where non natives may be necessary. In noxious weed control, non natives can be the best choice when effective competition is desired. On highly disturbed sites that have had their physical characteristics altered so that native vegetation can no longer survive, it may be necessary to use soil amendments or non natives to help restore the site. Non natives can be an intermediate step in establishment of native plants as a last resort in an emergency situation or used when native seed is not available or in short supply.

If a NEPA analysis determines a non native species is necessary, select a species which is consistent with the objectives of the project. Selection of the species and source of plant materials should be carefully decided because NNP materials can be persistent, invasive, and have the potential for disrupting natural communities and processes for a long time. Non native vegetation should not aggressively compete with the naturally occurring native plant community, invade plant communities outside the project area, persist in the ecosystem over the long-term, or exchange genetic material with local native plant species.

Constraints on the use of native plants - Barriers to the use of native plants can exist and include, but aren't limited to: lack of funding and staff time; poor germination or failed plant establishment; lack of operational knowledge, experience or facilities; extra time and higher costs needed to collect and

propagate a wide variety of native plant species; and the higher costs of native species compared to some non natives. Native species plant materials are often in short supply and it may be difficult to determine if the available plant materials are adapted to the project site. Project planning, seed collection, and plant propagation span multiple years and can be difficult to coordinate.

Use of native species - Alternatives for plant materials will typically include a range of choices - non natives, naturalized species, natives of unknown or questionable sources, natives of non local sources, or known sources of adapted natives. NEPA analysis and interdisciplinary team review should be used to design the proposed action and select the appropriate plant materials.

Districts are encouraged, to the extent possible, to use adapted native plant materials. The long- term goal being the general use of adapted native plant materials. Districts should initiate or continue with development of a native species program to meet the anticipated plant materials needs. The timeframe to reach this goal will vary according to individual Districts. Some will be fully implemented in 5-to-10 years, while others will take much longer. The production of native species plant materials can be scaled up to meet the needs. The costs for native species plant materials will decrease as demand and supplies increase.