

APPENDIX A

MBS PREVENTION STRATEGIES AND BEST MANAGEMENT PRACTICES FOR NOXIOUS WEED MANAGEMENT

Forest Plan, Forest-wide Standards and Guidelines

(Added via Plan Amendment # 14, 1999)



Common tansy (left) and tansy ragwort (right) flowers
photo: King County Noxious Weed Control Board website

NOTE: The title page and table of contents for the Prevention Strategies and Best Management Practices—which were originally included in the 1999 EA—have been eliminated here, and removed from the Forest Plan Standards and Guidelines. The Introductory text has been corrected to reflect the signed decision for the 1999 EA [which added these BMPs]. These minor changes, to clarify the text and make it more consistent with all other forest-wide standards and guidelines, do not change the objectives of the Forest Plan, nor entail any action that could have an environmental effect, thus no Plan amendment is needed and NEPA procedures do not apply.

APPENDIX A – INTRODUCTION

This document outlines the steps that everyone--decision makers, project planners, managers, resource specialists, equipment operators, and ground crews-- needs to take in order to prevent the spread of noxious weeds on the Baker-Snoqualmie National Forest.

Treatment of noxious weeds in this Region is guided by the FEIS and ROD for the Management of Competing and Unwanted Vegetation (1988) and the Mediated Agreement, which supplements, expands, and clarifies implementation direction from the FEIS/ROD. Prevention has been identified as the preferred strategy in managing vegetation in the Pacific Northwest Region. Prevention was given additional emphasis in the Mediated Agreement.

Prevention is defined in the Mediated Agreement as detecting and ameliorating conditions that cause or favor the presence of competing or unwanted vegetation. On the Mt. Baker-Snoqualmie National Forest, effective prevention will be accomplished through the implementation of Best Management Practices (BMPs).

The process should be implemented, step-by-step, in the following fashion:

1. For all projects, the project manager completes forms C-1 and C-2.
2. For all projects, the project manager completes Part I of Appendix C (Project Planning and NEPA analysis).
3. Determine the project "type" and follow the BMPs for the relevant resource area.

These Best Management Practices were approved via the 8/23/99 Decision Notice for Noxious Weed Management, as Forest Plan Amendment #14. They are included as Forest Plan, forest-wide Standards and Guidelines

PROJECT PLANNING & NEPA ANALYSIS

Management Requirement	Management Practices
Collect sufficient field data to understand the existing site conditions	<p>1) Conduct an inventory or otherwise obtain information about noxious weeds in the proposed project area, along access routes, and in areas immediately adjacent to the project site.</p> <p>2) If necessary, check for weed-free areas that could potentially be used as an alternate site for the project activity.</p>
Analyze potential risks of project in relation to spread of noxious weeds.	<p>1) Complete Noxious Weed Risk Assessment (Form C-1), which addresses vulnerability of the area to spread of noxious weeds.</p> <p>2) Complete Noxious Weed Prevention Analysis (Form C-2), which addresses the 6 questions required by the Mediated Agreement.</p>
Determine if weeds are a substantive issue.	<p>1) Based on the findings documented in the Noxious Weed Risk Assessment and Noxious Weed Prevention Analysis (Forms C-1 and C-2), determine if weeds are a significant issue that would drive the development of an action alternative.</p>
In the NEPA analysis, incorporate weed risk and prevention issues. Discuss in EA or EIS chapters on the affected environment and environmental consequences. Projects with CE's should include this information in the project file.	<p>1) Incorporate summary of findings from Noxious Weed Risk Assessment and Noxious Weed Prevention Analysis into the text of the NEPA analysis for the proposed project.</p> <p>2) If weeds are present, address the following in the NEPA document:</p> <ul style="list-style-type: none"> a) costs of immediate weed control vs cost of delaying weed control, b) possible mitigation measures including anticipated costs and effectiveness of these measures, c) restoration opportunities. <p>3) If an increased risk of weeds is anticipated, address direct, indirect, cumulative effects (e.g. loss of habitat for TES species, loss of biodiversity, etc.).</p>

Form C-1. Noxious Weed Risk Assessment: To be completed for all projects.

The purpose of this form is to evaluate the potential risk that project activities would cause or favor the presence of competing or unwanted vegetation.

Project Name:

Will the following vectors (potential means in which weed infestations are spread) be entering the project area? Circle all that apply:

1. Heavy equipment
2. Importing from off-site: soil, fill or gravel
3. Importing from off site: seeds, live plants, or mulch
4. Off Road Vehicles (e.g. motorbikes, ATV's, etc.)
5. Pack Animals
6. Passenger vehicles driving off or parking off the road bed
7. Recreationists (hikers, mountain bikers, dogs, boaters)

HIGH RISK _____

Risk is high if either one or both of these factors exist:

1. Known weed infestation within or adjacent to the project area, *and/or*
2. Vector 1, 2, or 3 will be entering the project area

MODERATE RISK _____

1. Vectors 4, 5, 6, or 7 will enter the project area; no noxious weeds in or adjacent to project area.

LOW RISK _____

1. No vectors will be entering the project area *and* no weeds in or adjacent to project area
or
2. Documentation that Best Management Practices for noxious weeds have been (or will be) implemented, indicating the specific steps taken to ensure that noxious weeds will not be brought into the site (or spread *from* the site if the project area is already infested). Examples include certification of weed-free seeds, contract clauses requiring heavy equipment washing, pre-treatment of infestations in the project area before additional ground disturbance, etc.

SUMMARY OF FINDINGS

Discuss risk rating below. In addition, the decision document must identify noxious weed control measures that will be undertaken during project implementation (as per FSM 2081.03, 11/29/95).

Form C-2. Noxious Weed Prevention Analysis: To be completed for all projects.

These questions must be addressed as per the Mediated Agreement (A Guide to Conducting Vegetation Management Projects in the Pacific Northwest Region, page I-15). Prevention is defined as "detecting and ameliorating conditions that cause or favor the presence of competing or unwanted vegetation".

Project Name:

1. What is the nature and role of associated vegetation? (e.g. seral stage, unvegetated landslide, avalanche chute?)

2. Do conditions exist that favor the presence of competing and unwanted vegetation? (exposed ground, continuous disturbance, unshaded area, existing weeds, any vectors 1-7 on previous page?)

3. If conditions exist that favor the presence of competing and unwanted vegetation, have past management actions exacerbated the situation? (caused conditions listed in #2 above?)

4. Do natural controls exist on the site? (E.g. are trees already established and thriving that will eventually lead to a shaded condition? Have biocontrols previously been introduced and are they effective?)

5. Can management actions be taken that either encourage natural controls or help avoid the conditions that favor the presence of competing and unwanted vegetation? (Document how the BMP's will be applied to this particular project.)

6. Is it feasible to undertake the management actions, and if not, why? If undertaken, are impacts on other Forest Service objectives and goals acceptable?

Best Management Practices (BMPs) for ENGINEERING

Management Requirement	Management Practices (should be followed as specified unless the intent of the first column can be met with an alternate method that better meets the management requirement).
<p>Avoid spread of weeds during road decommissioning or construction activities.</p>	<p>1) In decommissioning projects, existing infestations should be treated before the road is made undrivable.</p> <p>2) If weeds are present in project area, all equipment and gear should be cleaned (power wash or high pressure cleaning) before leaving area to avoid spreading the infestation further (<i>Addressed under FSM 2081.3.4</i>).</p> <p>3) Use only weed-free plant materials for revegetation.</p> <p>4) Use only weed-free straw, erosion control mats, or other weed-free mulch.</p> <p>4) For new construction minimize clearing limit widths.</p>
<p>Avoid spread of weeds during road maintenance activities.</p> <p><i>This is not meant to apply to surface vehicles or equipment doing work within the limits of the road surface, <u>or</u> any work in non-infested areas.</i></p>	<p>1) For areas beyond the road surface, existing infestations should be treated before the maintenance activity occurs.</p> <p>2) If weeds are present in project area, all equipment and gear should be cleaned (power wash or high pressure cleaning) before leaving area to avoid spreading the infestation further (<i>Addressed under FSM 2081.3.4</i>).</p> <p>3) Within small infested areas, consider using alternate methods to accomplish maintenance work (e.g. cleaning hand tools for small sites will be more efficient and cheaper than cleaning large equipment).</p> <p>4) When feasible, work from relatively weed-free areas into the infested area rather than vica-versa.</p> <p>5) When feasible, do not maintain ditches when noxious weeds are in flowering or seed stage.</p> <p>6) Do not maintain ditches or mow shoulders within 2 weeks before or after herbicide application - this will minimize herbicide use and increase effectiveness.</p> <p>7) Road maintenance programs should include monitoring for noxious weeds. In coordination with MBSNF Botanists, infestations should be inventoried and scheduled for treatment. (<i>Addressed under FSM 2081.2</i>). On timber sale travel routes, use contract clauses CT6.26, CT6.261, and CT6.27, or equivalent if available.</p>
<p>Avoid spreading weeds via use of infested materials.</p>	<p>1) On the MBSNF, all gravel, fill, winter sanding stockpiles, quarries, and borrow material should be inspected, treated if necessary, and ensured that it is weed free before transport and use. These areas should be designated as "zero tolerance" zones. (<i>Addressed under FSM 2081.2</i>).</p> <p>2) All seed purchased or otherwise designated or accepted for the Mt. Baker-</p>

	<p>Snoqualmie National Forest will be required to be tested for "all states noxious weeds" according to Association of Official Seed Analysts (AOSA) standards. It also will be certified in writing by a Registered Seed Technologist and Seed Analyst as meeting the requirement of the Federal Seed Act and State Seed law for Washington regarding the testing, labeling, sale, and transport of prohibited and restricted noxious weeds.</p> <p>3) Do not draft water (e.g. for dust abatement) from known weed infested water sources.</p>
Limit transport of weed seeds onto the MBS National Forest.	<p>1) Specify cleaning of heavy equipment entering the MBSNF that is contracted for work outside the limits of the road surface. Equipment should be free of all dirt, mud, and plant parts.</p>
Incorporate weed prevention in Access and Travel Management Planning.	<p>1) During transportation planning and alternative development, consider weed risk factors (presence, habitat type, aspect, etc.) to evaluate road location and design.</p> <p>2) EAs for road construction must consider weed risk in development of alternatives and mitigating measures (<i>Addressed under FSM 2080.43 and 2080.44</i>).</p>
Retain shade to suppress weeds.	<p>1) Minimize the removal of trees and other roadside vegetation, particularly on southern aspects.</p> <p>2) Where shoulders or ditches are covered by desirable vegetation, consider leaving it in place rather than blading it off if such a practice can be done without causing excessive damage to the road surface or public safety hazards.</p>
Re-establish desirable vegetation on all bare ground to minimize weed establishment or spread.	<p>1) Seed all exposed soil (except travelway) before soil crusting or otherwise treat in a manner that optimizes establishment of desirable species (<i>Addressed under FSM 2081.2</i>).</p> <p>4) Monitor all seeded sites and spot re-seed as needed (<i>Addressed under FSM 2081.03.1</i>). Preferably use native, pioneer species because they require fewer nutrients and less fertilizer.</p> <p>5) If using fertilizer, do so only after desirable vegetation has become established, to help the desired species maintain a competitive advantage over the weeds.</p>
Encourage weed awareness and prevention efforts among agency workers.	<p>1) Train engineers, road crews, survey crews, and heavy equipment operators in weed identification and management.</p>

Best Management Practices (BMPs) for VEGETATION MANAGEMENT

Management Requirement	Management Practices <small>(should be followed as specified unless the intent of the first column can be met with an alternate method that better meets the management requirement).</small>
Incorporate weed prevention measures into all timber projects.	1) Include risk and prevention factors (i.e., if possible, maximize shade and minimize soil disturbance) in all silvicultural prescriptions, alternative development, and environmental analyses. 2) Avoid placement of landings and yarding facilities in weed infested areas, or treat known sites prior to construction.
Minimize the creation of weed-friendly habitat.	1) Limit soil disturbance to no more than needed for tree regeneration. 2) Prefer skidding over snow. 3) Prefer broadcast burning over dozer pile burning; if pile burning prefer small piles and burn under conditions that minimize heat transfer to the soil. Consider chipping or other means of slash disposal over burning. 4) Minimize ground disturbance during fire line construction. 5) Ensure prompt regeneration to maximize shading. 6) Encourage helicopter logging or other suspended systems. 7) Revegetate skid trails, landings, and other disturbed sites promptly.
Limit accidental transport of weed seeds.	1) Incorporate contract clauses (e.g. CT6.26, CT6.261, and CT6.27 or equivalent if available) in all timber sale contracts that have concerns for spread of noxious weeds.
Examine weed prevention and treatment needs and pursue funding sources.	1) Inspect sale area for weed status and risk. When possible, collect KV funds to prevent, monitor, and treat soil disturbance or weeds as needed during or after harvest or regeneration activities. 2) Where timber purchaser's log yards or other contractor's equipment yards are known or suspected to be infested with noxious weeds, require eradication to the degree possible within the contract framework. Where requirement is not possible, encourage cleanup through cooperation with the purchaser/contractor and the County Weed Board.

Best Management Practices (BMPs) for RECREATION

Management Requirement	Management Practices (should be followed as specified unless the intent of the first column can be met with an alternate method that better meets the management requirement).
Minimize spread of weed seed by stock and pack animals (e.g. horses, mules, llamas, etc.)	<p>1) Require that all stock use only weed-free or processed feed while on national forest lands (<i>Addressed under FSM 2081.03.3</i>).</p> <p>2) Encourage stock users that for 72 hours before travelling on to national forest lands, animals should not graze in weed-infested areas, and should eat only weed-free feed (Kentucky Equine Research, pers. comm.). Hair and hooves should be cleaned and free of soil and plant materials before entering the national forest, to prevent spread of weed seeds.</p> <p>3) Alpine Lakes Wilderness Guidelines on restraintment of stock should be implemented in the back country throughout the MBS national forest.</p>
Encourage weed awareness and prevention efforts among forest users.	<p>1) Sign trailheads for weed awareness and weed prevention techniques (e.g. use the "Leave No Weeds" poster at sites with weed problems).</p> <p>2) Use the "Leave No Weeds" or similar education program to increase public awareness.</p> <p>3) Develop informational materials explaining the weed prevention program, encouraging the use of pelletized feeds, and involving Forest users in the detection and treatment of noxious weeds. These materials should be located at each Visitor office, trailheads, and campgrounds.</p>
Encourage weed awareness and prevention efforts among agency workers.	<p>1) Train wilderness rangers, seasonals, and volunteers in weed identification and management.</p>
Prevent weed establishment during trail construction, reconstruction, and maintenance activities.	<p>2) All gravel, soil, and borrow material should be inspected, treated if necessary, and ensured that it is weed free before use (<i>Addressed under FSM 2081.2</i>).</p> <p>3) Promptly promote the revegetation of exposed soil, preferably with native species.</p> <p>4) Use only weed-free plant materials, straw or mulch for revegetation and restoration projects (<i>Addressed under FSM 2081.03.3</i>).</p>
Keep developed sites weed-free.	<p>1) Campgrounds, trailheads, boat landings parking lots, staging areas, and picnic areas are considered high priority for treatment.</p>
Incorporate weed prevention and treatment in Special Use Permits	<p>1) At time of issuance or amendment of SUPs, include weed prevention and/or control clauses as applicable.</p>

Best Management Practices (BMPs) for WATERSHED/FISHERIES

Management Requirement	Management Practices (should be followed as specified unless the intent of the first column can be met with an alternate method that better meets the management requirement).
Avoid spread of weeds during stream restoration projects.	<p>1) Specify cleaning of heavy equipment entering the MBSNF that is contracted for work outside the limits of the road surface. Equipment should be free of all dirt, mud, and plant parts.</p> <p>2) Use only weed-free plant materials, straw or mulch for revegetation and restoration projects (<i>Addressed under FSM 2081.03.3</i>).</p> <p>3) Within small infested areas, consider using alternate methods to accomplish maintenance work (e.g. cleaning hand tools for small sites will be more efficient and cheaper than cleaning large equipment).</p>
Avoid spreading weeds via use of infested materials.	<p>1) All gravel, fill, quarries, and borrow material must be inspected and ensured that it is weed free before transport and use. These areas should be designated as "zero tolerance" zones. Close infested pits or stockpiles until problem is corrected.</p>
Limit transport of weed seeds into relatively weed-free areas via off road equipment.	<p>1) If weeds are present in project area, all equipment and gear should be cleaned (power wash or high pressure cleaning) before leaving area to avoid spreading the infestation further (<i>Addressed under FSM 2081.3.4</i>).</p> <p>2) Work from relatively weed-free areas into the infested area rather than vica-versa.</p>
Re-establish desirable vegetation on all bare ground to minimize weed establishment or spread.	<p>1) Use only weed-free plant materials for revegetation.</p> <p>2) Use only weed-free straw, erosion control mats, or other weed-free mulch.</p> <p>3) Monitor all seeded sites and spot re-seed as needed. Preferably use native, pioneer species because they require fewer nutrients and less fertilizer (<i>FSM 2081.03.1</i>).</p> <p>4) If using fertilizer, do so only after desirable vegetation has become established to help it maintain competitive advantage over the weeds.</p>

Best Management Practices (BMPs) for WILDLIFE

Management Requirement	Management Practices (should be followed as specified unless the intent of the first column can be met with an alternate method that better meets the management requirement).
Assess wildlife openings	<p>1) Consider the cost/benefits of creating open areas, as many noxious weeds are shade intolerant.</p>
Use weed-free forage.	<p>1) Seed purchased for wildlife forage should be weed-free.</p>

Best Management Practices (BMPs) for HERITAGE RESOURCES

Management Requirement	Management Practices (should be followed as specified unless the intent of the first column can be met with an alternate method that better meets the management requirement).
Reestablish desirable vegetation to discourage weeds.	1) Salvage vegetation layer intact and replace immediately upon completion of excavation.
Limit accidental transport of weed seeds.	1) For contract workers coming in from outside the MBSNF, specify cleaning of equipment, tools, and gear before entering the MBSNF. Items should be free of all dirt, mud, and plant parts. 2) If excavations occur in a site infested with noxious weeds, all hand tools should be cleaned at the site of the infestation before leaving area, to avoid spreading the weeds further (<i>Addressed under FSM 2081.3.4</i>).

Best Management Practices (BMPs) for LANDS

Management Requirement	Management Practices (should be followed as specified unless the intent of the first column can be met with an alternate method that better meets the management requirement).
Incorporate weed risk, prevention, and treatment considerations in all land projects and utility corridors.	1) At time of issuance or amendment of special use permits or easements, include R6 weed prevention measures and control clauses if available. 2) Support the development of weed prevention measures and control clauses. 3) All straw, seed, and mulch mixtures, gravel, borrow, rock or fill material should be weed-free before importing into the project area. 4) Address the pros and cons of acquiring land infested with noxious weeds in the analyses for land exchanges. Noxious weeds should also be taken into consideration in decisions regarding land purchases or donations.
Ensure quick re-establishment of desirable vegetation to discourage weeds.	1) Require that all bare soil resulting from lands projects, including special use permits, easements, and cost-share roads, be re-seeded, planted, and/or mulched promptly after clearing. 2) Use only weed-free plant materials, straw or mulch for revegetation and restoration projects (<i>Addressed under FSM 2081.03.3</i>).

Best Management Practices (BMPs) for MINERALS

Management Requirement	Management Practices <small>(should be followed as specified unless the intent of the first column can be met with an alternate method that better meets the management requirement).</small>
Minimize chances of weed establishment in ground-disturbing mining operations	1) At time of issuance or amendment of mining plans of operation, include R6 weed prevention measures and control clauses if available. 2) Re-seed, plant, and/or mulch all bare soil promptly after project is completed.
Prevent introduction of weeds into uninfested areas.	1) Before equipment moves into new or existing mining operations, treat all noxious weeds along existing access roads within the area of operation. Treated sites should be re-seeded with desirable species and/or mulched promptly after treatment. 2) If weeds are present in project area, all equipment and gear should be cleaned (power wash or high pressure cleaning) before leaving area to avoid spreading the infestation further (<i>Addressed under FSM 2081.3.4</i>). 3) All straw, seed, and mulch mixtures, gravel, borrow, rock or fill material should be weed-free before importing into the project area. 4) Specify cleaning of heavy equipment entering the MBSNF that is contracted for work outside the limits of the road surface. Equipment should be free of all dirt, mud, and plant parts.

Best Management Practices (BMPs) for FIRE

Management Requirement	Management Practices (should be followed as specified unless the intent of the first column can be met with an alternate method that better meets the management requirement).
When firefighter or public safety will not be compromised, ensure that fire suppression and rehabilitation efforts minimize weed spread.	1) Weed specialist serve as resource advisor to all Incident Overhead Teams and Fire Rehabilitation Teams. Consider weeds in daily briefing, with map of known sites. 2) During fire rehabilitation follow BMP guidelines for Roads. 3) Treat infestations along roads adjacent to burned areas as part of the rehabilitation plan. 4) Discourage seeding vast areas of burned land in places where natural reseeding is expected. Minimize introduction of exotic and noxious species by using only weed-free seed. 5) Minimize dozer lines and fire lines in or adjacent to weed infested areas.
To the extent possible, minimize transport of noxious weed seed by fire equipment or crews. <i>(Addressed in FSM 2081.3.4)</i>	1) Establish fire camps, vehicle and crew staging areas, helispots, and airstrips in areas inspected and verified as weed-free. 2) Specify cleaning of heavy equipment entering the MBSNF that is contracted for work outside the limits of the road surface. Equipment should be free of all dirt, mud, and plant parts. 3) Inspect and clean equipment and gear before entering fire area, including boots, packs, tools, etc. 4) If noxious weeds are present in project area, all equipment and gear should be cleaned before leaving area to avoid spreading the infestation further. 5) Ensure that water sources are noxious weed-free before identifying them on maps.
Assess bare ground caused by prescribed burning.	1) Consider risk of weed invasion when planning burns. Several cooler burns in spring are better than hot burns that reduce duff and leave soil open and bare. 2) Minimize fire lines, use natural barriers. 3) Leave a "shade line" between slashed and unslashed areas to be burned.
Integrate weed prevention and management in all prescribed burning.	1) Include weed prevention and follow up weed control in all prescribed fire activities. Involve weed specialist in project planning and implementation. <ul style="list-style-type: none"> a) Design fire to avoid weed infested areas b) Treat infested areas both prior to burning and following burning c) When possible, direct burns into weed infestations instead of away from them.
Give competitive advantage to native plant community.	1) If other management goals can be met, time prescribed burns to coincide with life cycle of noxious weeds in order to burn the weeds before they have produced seed.

Best Management Practices (BMPs) for ADMINISTRATION

Management Requirement	Management Practices (should be followed as specified unless the intent of the first column can be met with an alternate method that better meets the management requirement).
Ensure all USFS administrative sites are weed-free. Set a good example for the public.	1) Use weed treatment and prevention on all USFS ranger stations, office grounds, district compounds, trailheads, campgrounds, pastures, interpretive and historic sites.
Ensure that all USFS employees are aware of and knowledgeable about weeds.	1) All field-going personnel will attend weed orientation including weed identification and best management practices for both field and administrative work. Project-level personnel should be able to recognize noxious weeds occurring on or adjacent to their Districts and should be able to recognize potential invaders. 2) Initiate an incentive program for accurate reporting of new infestations, and for voluntary efforts to hand-pull small infestations as they are encountered. 3) Encourage weed education in employee training and development plans.
Increase customer awareness of weeds and prevention measures.	1) Support environmental education programs that teach people how they can prevent the spread of noxious weeds.