

Appendix E
Sawtooth and Boise Forest-wide Invasive Plant
Species Treatment Monitoring Plan

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A. General Reporting

The following process will be implemented to document the yearly program for invasive and noxious plant treatments on the Boise and Sawtooth National Forest.

- Pesticide Use Proposals (PUPs) (Form FS-2100-2) as required in Forest Service Handbook 2109.14 will be developed, evaluated and approved by the District Ranger before treatment can occur. These proposals will be developed and approved prior to treatment activities each year. Copies of the proposals will be submitted for review by Forest Biologists for compliance with the BA.
- Maps and records associated with noxious weed infestations will be maintained in the NRIS Invasives Data Base.
- Daily Application Logs, along with maps of treatment sites, will be maintained by the treatment supervisor and anyone authorized under special use permit. All information will be recorded in the FACTS database as appropriate.
- A treatment summary that is prepared for annual EPA reporting, will be submitted to District Rangers and the Level I Teams for weed treatments in the past year. The EPA report summarizes all treatments inside Waters of the US (WOTUS) buffers. It also summarizes the herbicides used and amount of Active Ingredients applied within WOTUS and is broken out by anadromous fisheries and non-anadromous fisheries treatment sites. Weed managers will also discuss what herbicides are proposed for the following season and where treatments would take place

B. Monitoring

Monitoring will be conducted to determine how well the project design criteria (PDCs) are being implemented. PDCs are intended to protect aquatic and terrestrial resources by ensuring that the actions fall within a specific range of effects.

Weed managers will meet with district and/or Forest biologists annually or as needed, prior to treatments, to review the PUPs for the upcoming season's treatment objectives, emphasis areas, and to share any potential resource concerns and/or identify any necessary field reviews or additional site-specific mitigation. Periodic coordination with district specialists should also occur as new information is available throughout the field season.

Implementation monitoring will be conducted onsite during treatment application and recorded on the Daily Application Log to validate the implementation of the appropriate BMPs and mitigation measures applicable for the site. Monitoring the effectiveness of the noxious weed control program will be conducted at the landscape level as well as the site-specific treatment level.

Site-specific treatment level monitoring would involve assessing the effectiveness of the treatment agent or control method on selected infestations of invasive plants. Treated and restored sites would be monitored for effectiveness through field investigations to determine the following: 1) whether the desired management objectives of eradicating, controlling, or containing aggressive invasive plants are being achieved; 2) whether site restoration techniques

(if used) are resulting in the re-establishment of native plants; and if not, what follow-up treatments would be necessary to achieve establishment; and 3) whether the native vegetation is responding adequately in non-restored treatment areas to provide for adequate site protection; and, if not, what follow-up restoration treatments are necessary. Follow-up treatments would occur as staffing and funding allow. Monitoring of selected sites may occur over multiple years at an appropriate frequency to determine effectiveness. Initial monitoring of different invasive plant treatment control methods would be conducted on selected sites within 1 to 2 months of treatment or the following year for biocontrol treatments. Monitoring will be through visual observation of target species' relative abundance/site dominance compared to pre-treatment conditions. Follow-up monitoring of these sites would occur in subsequent years as appropriate. Control areas (non-treated) should also be examined to make comparisons for effectiveness, species diversity, and revegetation needs.

Effectiveness monitoring would be accomplished by tracking invasive plant species occurrence through Geographic Information System (GIS) and NRIS Invasives database mapping across the Boise and Sawtooth Forests. Noxious weed infestations would be inventoried, mapped, and tracked through GIS to monitor the amount of the National Forest land base with invasive plants, density of infestations, and how the control program has worked over the consultation period. Inventory and mapping results would be included in the annual monitoring report to District Rangers and the Level I Teams.

Inventory and monitoring is expected to reveal new populations of invasive plants, which would be mapped and evaluated for control or eradication. Management of these newly discovered sites would occur under the guidelines as described in the preceding description of the Proposed Action.

C. Evaluation

The invasive plant species treatment program is a long-term endeavor to control these species when and where practicable. However, because there are areas of scientific and management uncertainty, management actions may need to be refined over time to meet the basic objective of treatment program. Annual site-specific monitoring would assess the effectiveness of specific control measures on invasive plant species relative to treatment, application rate, and area. Management actions may require refinement or change over time as data from specific effectiveness monitoring are analyzed. Based on annual treatment evaluations and with the likely development of new control methods and technology, changes in existing or use of new treatments may be authorized and warranted as described in the Proposed Action – Adaptive Management section.

D. Aerial Monitoring

See the *Aerial Herbicide Application Coordination and Safety Implementation Plan – Boise & Sawtooth NFs* as well as the *Aerial Herbicide Drift Monitoring Procedure Boise & Sawtooth National Forests* for a complete list of requirements associated with aerial spraying of herbicides. Below is a summary of the monitoring requirements pulled from those documents.

Monitoring Procedure

To monitor for drift within the “no treatment” buffers along streams, drift detection cards will be placed perpendicular and downslope from the waterbody, within the treatment units, as needed and appropriate. Where a treatment unit is bisected by a stream, drift detection cards may be placed on both sides of the stream depending on buffer distances and wind direction and speed.

For other live water bodies, drift detection cards will be placed at intervals moving outwards from the water body where it intersects the treatment area. The line farthest from the water body will initially be located at 300 feet, in appropriate locations where drift could potentially occur.

Before the day’s application, project managers will determine strategic locations for placing drift detection cards. GPS coordinates will be taken and an individual identification number recorded at the site of each card holder. Project personnel will observe and record information on dew and precipitation on vegetation from the night before. Care is required in setting out the cards as they are very sensitive to moisture and contact by dew drops can skew monitoring results.

Buffer distances from live water will be specifically identified on all treatment area maps and provided to the pilot both digitally and hard copy so pilot can visually reference the buffers. Drift detection cards will be used to determine if desired coverage is being attained. Application can be adjusted as necessary based on feedback from these drift cards.

The pattern on drift detection cards in subsequent intervals, placed as needed where drift has the potential to occur, will be monitored during application to detect drift. Wind speed and wind direction would continue to be closely monitored.

Observations by personnel at the time of collection are critical to an accurate reading. To complete and document monitoring, project personnel will observe and record spray detection on the cards before removing them from the card holders. Each drift detection card will be photographed and tagged for identification. Cards will be handled carefully along the edges only to avoid damage to the record. Dew markings, animal tracks, herbicide and other markings will be recorded. Each card will be sealed in a dry sealed plastic bag for transport and storage.

Complete the drift detection monitoring cards results form and attach observation report and photos.

The site would be monitored on a regular basis to determine treatment efficacy, need for follow-up treatments and to document non-target effects.

E. Monitoring Requirements from the National Pollutant Discharge Elimination System (NPDES) Permit – Pesticides General Permit

Section 4.0 – Monitoring

4.1 – Visual Monitoring Requirements for Pesticide Applicators:

During any pesticide application with discharges authorized under this permit, all Applicators must, when considerations for safety and feasibility allow, visually assess the area to and around where pesticides are applied for possible and observable adverse incidents*, caused by

application of pesticides, including the unanticipated death or distress of non-target organisms and disruption of wildlife habitat, recreational or municipal water use.

Section 4.2 – Visual Monitoring Requirements for all Operators:

During any Operator post-application surveillance of any pesticide application with discharges authorized under this permit, all Operators must visually assess the area to and around where pesticides were applied for possible and observable adverse incidents*, caused by application of pesticides, including the unanticipated death and distress of non-target organisms and disruption of wildlife habitat, recreational or municipal water use.

*Adverse Incident – means an unusual or unexpected incident that an Operator has observed upon inspection or of which the Operator otherwise becomes aware, in which:

1. There is evidence that a person or non-target organism has likely been exposed to a pesticide residue, and
2. The person or non-target organism suffered a toxic or adverse effect.

The phrase toxic or adverse effect includes effects that occur within Waters of the United States on non-target plants, fish or wildlife that are unusual or unexpected (e.g., effects are to organisms not otherwise described on the pesticide product label or otherwise not expected to be present) as a result of exposure to a pesticide residue, and may include:

- Distressed or dead juvenile and small fishes
- Wasted up or floating fish
- Fish swimming abnormally or erratically
- Fish lying lethargically at water surface or in shallow water
- Fish that are listless or nonresponsive to disturbance
- Stunting, wilting, or desiccation of non-target submerged or emergent aquatic plants
- Other dead or visibly distressed non-target aquatic organisms (amphibians, turtles, invertebrates, etc.)

The phrase, toxic or adverse effects, also includes any adverse effects to humans (e.g., skin rashes) or domesticated animals that occur either from direct contact with or as a secondary effect from a discharge (e.g., sickness from consumption of plants or animals containing pesticides) to Waters of the United States that are temporally and spatially related to exposure to a pesticide residue (e.g., vomiting, lethargy).

F. National Best Management Practices (BMP) for Water Quality

Management on National Forest System Lands– Chemical Use

The National BMP Program was developed to improve agency performance and accountability in managing water quality consistent with the Federal Clean Water Act (CWA) and State water quality programs. Current Forest Service policy directs compliance with required CWA permits

and State regulations and requires the use of BMPs to control nonpoint source pollution to meet applicable water quality standards and other CWA requirements. The National Core BMPs are written in broad, non-prescriptive terms, focusing on “what to do”, not “how to do it”. The National BMP Monitoring Forms/Protocols can be used to monitor and analyze BMP implementation and effectiveness at several different scales, including national, regional, land management plan, and project-level purposes.

Monitoring implementation and effectiveness of BMPs focused on chemical use and application for treatment of invasive plant species is accomplished through use of two evaluation forms¹. The Chemical A (Chem A) form assesses BMPs employed to protect water quality and aquatic habitats from chemicals that are used near water, including projects in which broad-scale aerial treatments of chemicals were used, such as for forest pest control, but flight paths were not discontinued over waterbodies (including small streams). Chem A is not aimed at evaluating the effectiveness of how well the chemicals met their primary objectives of controlling plants, insects, or animals, or altering soil chemical properties (e.g., lime or fertilizers). Chemical B (Chem B) Use form assesses BMPs employed to protect water quality from the application of chemicals in waterbodies. For Chem A and Chem B, the normal high water line separates the waterbody from the area outside the waterbody. That is, chemical application targeting areas above the normal high water line constitutes treatment outside the waterbody (i.e., near the waterbody for the purposes of Chem A), and chemical application targeting the area below the high water line constitutes treatment in/of the waterbody (Chem B).

The term aquatic management zone or AMZ is used in the National BMP Program as an inclusive term to denote the longitudinal protection zone adjacent to any type of waterbody. Use of this single term avoids having to reference the many terms used by National Forests and Grasslands to describe these zones. For the purposes of BMP monitoring, employ the AMZ width normally assigned by the land management plan to the type of waterbody present, unless that waterbody has been assigned a different width (e.g., it is given a greater level of protection).

Monitoring can be performed any time after the chemical use project has been completed and should include only those projects for which BMP effectiveness monitoring can be timed to detect unintended water quality or aquatic ecosystem impacts from the particular chemical applied. Monitoring sites are selected randomly – and ultimately one representative site is selected for implementation and subsequent effectiveness monitoring.

¹ Fire retardants to control wildland fires are evaluated using form Fire B, Wildfire Management Actions and are not part of this analysis. Chemical C (Chem C) Use form assesses application of dust abatement chemicals on roads and is considered in this analysis under cumulative effects.

G. Forest Service Handbook – Monitoring Requirements

FSH 2109.14,50

FSH 2109.14 - PESTICIDE-USE MANAGEMENT AND COORDINATION HANDBOOK

WO AMENDMENT 2109.14-94-1

EFFECTIVE 12/06/94

CHAPTER 50 - QUALITY CONTROL MONITORING AND POST-TREATMENT
EVALUATION

Note – this Forest Service Handbook is cited here only as a reference and the most current version should be accessed online.