DRAFT ENVIRONMENTAL IMPACT STATEMENT

HELENA NATIONAL FOREST WEED TREATMENT PROJECT

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

HELENA NATIONAL FOREST

Lewis and Clark, Powell, Jefferson, Broadwater, and Meagher Counties.
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Responsible Official

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ABSTRACT

The Helena National Forest is proposing to treat weeds on approximately 23,000 acres of National Forest System lands over the next 12 years. The Proposed Action is considered as Alternative A. Treatment methods would be largely through aerial and ground application of herbicides, with mechanical and biological control where appropriate. Environmental protection measures would be included to protect sensitive resources (e.g., water quality, fish habitat, vegetation, human health, and cultural resources).

Two other alternatives were considered in detail in the Environmental Impact Statement. One is Alternative B, which includes fewer treatment acres and no aerial application of herbicides. Alternative C is the No Action Alternative, which continues the current weed treatment program, including some herbicide treatments.

The agency's preferred alternative is the Proposed Action (Alternative A). A 45-day public comment period on the Draft Environmental Impact Statement will close 45 days after the Notice of Availability appears in the Federal Register. Comments should be sent to Dea Nelson at the above address.

Public meetings will be held during the comment period in Townsend, Helena, and Lincoln, MT.

SUMMARY

INTRODUCTION

This Environmental Impact Statement (EIS) discloses potential effects of implementing a noxious weed treatment project (Proposed Action) on the Helena National Forest (Helena NF). Currently, about 22,668 acres of the Helena NF and 198 miles of roads are known to be infested with noxious weeds. The main weed species of concern are spotted and diffuse knapweed, leafy spurge, Dalmatian and common (or yellow) toadflax, ox-eye daisy, and sulfur cinquefoil. Other weed species of concern include Russian knapweed, Canada and musk thistles, St. Johnswort, and houndstongue. The rate of spread of these weeds is expected to expand 14 percent per year (Asher 1998) and may increase due to large wildfires (recent and future). A shift from trees, shrubs, and bunchgrass vegetation to noxious weeds will cause a decrease in wildlife forage, a reduction in species diversity, and an increase in soil erosion and overland flow due to a decrease in surface cover. A shift from timber, shrubs, and bunchgrass vegetation to noxious weeds will cause a decrease in wildlife forage, a reduction in species diversity, and an increase in soil erosion and overland flow due to a decrease in surface cover. An estimated 319,700 acres of the Helena NF are currently susceptible to weed invasion based on acres of rangeland and forested areas with less than 35 percent tree canopy coverage, including 43,000 acres burned in 2000. Future activities or events that reduce canopy cover could increase the acres susceptible to weed invasion.

PROJECT AREA

The Helena NF encompasses approximately 975,000 acres in central Montana within Lewis and Clark, Powell, Jefferson, Broadwater, and Meagher counties. The project area consists of land within the boundaries of the Helena NF. Proposed treatments would occur throughout the Forest, on National Forest System lands.

PURPOSE AND NEED FOR ACTION

Damage from noxious weeds is increasing due to their expanding populations; distribution will continue to increase if aggressive action is not taken to control their spread. Noxious weeds can crowd out native plants and diminish productivity, bio-diversity, and appearance of land.

Although only a small portion (two percent) of the Helena NF is now infested with weeds, experience shows weeds become epidemic when an aggressive weed control program is delayed (Lolo, Bitterroot, Flathead, and Idaho Panhandle National Forests). Infested acres continue to increase because all identified infestations cannot be effectively treated under the existing program.

The purpose of the project is to implement the Forest Plan and expand implementation of the "managing weed infestation" portion of integrated weed management. Treatments are proposed for reducing growth or reproduction of existing noxious weed plants. Prevention methods are ongoing. However, there is a need to:

- **Control Noxious Weeds**

New weed species are coming into the Helena area from all directions with potential for new weed species to move in and spread. Adjacent states and other areas in Montana already have infestations of weeds that have not yet arrived on the Helena NF. Some examples are weeds on the Montana State or county noxious weed lists known to occur in the Counties but not yet found on the Helena NF, such as orange hawkweed, common tansy, perennial pepperweed, and tamarisk (Rice 2003). New invaders need to be treated aggressively to limit establishment of new weed populations.

- **Treat Weeds on Rangeland**

A healthy rangeland provides high quality forage for native herbivores and domestic livestock as well as providing cover and foraging habitat for many small animals and birds. Establishment of weeds reduces forage production, which can result in reduced wildlife numbers (Duncan 1997). Rangeland with a good cover of native vegetation holds the soil, reducing erosion from runoff. Soil erosion from a weed-dominated site may contribute sediment to waterways (Lacey *et al.* 1989), which can decrease productivity of a stream by reducing availability of aquatic habitats.

- **Treat weeds in Burned Areas**

Two large wildfires on the Helena NF in 2000 burned about 43,000 acres including both rangeland and timber. Other previous fire areas such as the Scapegoat fire (1988), Warm Springs fire (1988), and the North Hills fire (1984) have experienced weed spread. Susceptibility of burned areas to new weed invasion is increased due to decreased canopy cover and increased bare ground (Goodwin and Sheley 2001). Nearby weed infestations are poised to invade burned areas if management measures are not taken.

- **Treat weeds in Remote Areas**

Large weed infestations continue to expand on the Helena NF because of difficult access for equipment and personnel, creating arduous and sometimes unsafe working conditions. As a result, about 6,800 acres of total infested acres currently are not being treated. Weed infestations have doubled and in some cases tripled in inaccessible areas over the last decade; while weed populations in accessible areas, such as roads, have shown decreases due to consistent treatment measures. Cost-effective and safe methods are needed to control spread of weeds in these areas.

PROPOSED ACTION

The Helena NF proposes to implement an aggressive noxious weed control program on approximately 22,668 acres, which includes aerial application of water-soluble herbicides, increased ground application of water-soluble herbicides, and increasing biological and mechanical control efforts through use of insects and grazing. All of these methods would become part of the Helena NF's integrated weed management program.

The project would be implemented over a 12-year period. Not all acres would be treated in the first year, but some areas would be treated repeatedly on a 2- or 3-year rotation to ensure effective control, as part of a "maintenance mode of action." Follow-up maintenance treatments are expected to require reduced amounts of herbicide from initial application. Maintenance treatments may be ground based, but in some cases, a second or third aerial treatment may be required.

HERBICIDES

Chemical treatments would include both ground and aerial herbicide applications. Chemical applications would take place at the appropriate time of year for targeted weed species and environmental considerations such as proximity to water or residential areas. Equipment such as helicopters, trucks, all-terrain vehicles (ATVs), horse, and backpack sprayers would be used. New herbicides are being developed which are more species specific and less persistent or less mobile in soil. Newly registered water-soluble herbicides displaying toxicity, leaching, and persistence characteristics less than or equal to picloram may be used.

Ground applied herbicide treatments are proposed in Scapegoat and Gates of the Mountains Wilderness areas.

Surfactant adjuvant would be used in certain situations to increase efficacy, primarily on target species with a waxy cuticle (especially toadflax), or when temperature and humidity are not optimal (but still within label and more restrictive locally-prescribed limits) yet other conditions (such as plant phenology) are ideal. Surfactants may be used during periods of

drought. Surfactants used would be a silicone-blend type, (including silicone components mixed with non-silicone components such as modified seed oils) such as Phase II®, added to tank mixes. Surfactant adjuvant would be used in accordance with label requirements for both the herbicide and the surfactant products.

BIOLOGICAL CONTROLS

Biological controls (such as insects) would continue to be introduced where appropriate and newly approved agents would be considered for use.

GRAZING

Grazing of livestock such as sheep or goats would occur to control leafy spurge, Dalmatian toadflax and spotted knapweed. Grazing would be done on a contract basis, would be high-intensity and short duration, and would be done with animals specially conditioned to graze on target weeds.

MECHANICAL TREATMENT

Mechanical treatment such as handpulling or grubbing would occur on sensitive areas or in very small infestations. Cultivation and/or seeding would occur where natural recovery of native species is inadequate to provide needed competition to prevent reinvasion by weeds.

ADAPTIVE MANAGEMENT

Weeds spread aggressively and the most effective time to treat new infestations or new species is when they are first discovered. An Adaptive Management Strategy was included to address new areas of infestation, new weed species discovered or listed, and new weed treatment methods becoming available (herbicides, biocontrols, and cost effective mechanical methods).

Effective weed treatment would require a combination of tools to treat target species for a particular location. Reliance on one method or restricting use of one or more weed management tools may prove less effective. Effectiveness and applicability of each tool varies and depends on weed biology and ecology, location and size of infestation, environmental factors, management objectives, and costs.

SCOPE OF THE DECISION

GEOGRAPHIC SCOPE

Treatments would occur on National Forest System land within the Helena NF only. For each resource, an analysis area was determined that could be used to adequately measure cumulative effects of the proposed alternatives. Unless otherwise stated, the cumulative effects area is the project area.

TEMPORAL SCOPE

The timeframe for project implementation is 12 years. Direct, indirect, and cumulative effects, if any, would occur during that period. For cumulative effects analysis, an additional 10 years past the final implementation year is considered. In some cases, longer-term effects are discussed.

SIGNIFICANT ISSUES

Comments from the public and Helena NF Interdisciplinary Team (IDT) members were used to determine issues of concern that could result from implementing the Proposed Action. One issue (see below) was considered by the IDT to be significant, because there is no way to resolve the conflict within the confines of the Proposed Action. Therefore, the best way to address it is through development of a new alternative. An "Issue Indicator" is specified which is a statement of how the effects will be measured in the "Summary Comparison of Alternatives" section at the end of this Chapter.

Potential effects on human health, non-target vegetation, and wildlife from aerial application

Comments during scoping indicate there is a perception that, regardless of the required Environmental Protection Measures (EPM) that were designed to minimize unintended

herbicide exposure, aerial application may cause herbicides to be deposited in unintended locations and affect non-target species. This issue is addressed through development of Alternative B, which contains no aerial application of herbicides. Under Alternative B, all weed treatments would be conducted using ground application, biocontrol methods, or mechanical treatment. In some areas, due to worker safety and effectiveness of available control methods, no treatment would occur.

ISSUES AND ALTERNATIVES NOT STUDIED IN DETAIL

Comments were received suggesting that various mitigation measures or other plans of action be considered. Alternatives derived from these issues were either outside the scope of the analysis or did not meet the Purpose and Need. Some issues, such as actions to address the existence of noxious weeds on adjacent privately owned land, and their disposition can be found in the Project File (PF-*Scoping Issues*).

Aerial applications should not take place in areas anywhere near (at least ¼ of a mile away from) water or private land and should not include any restricted use herbicides.

Various buffer widths for herbicide application areas were considered. This alternative was not considered in detail because buffer areas proposed for aerial spraying have been determined to be effective through past monitoring to prevent drift to water and private land (PF-*Aquatics*). Not using restricted herbicides in aerial applications was not considered in detail because restricted herbicides would be used safely when applied carefully and in accordance with herbicide label instructions as described in the Proposed Action.

Develop an alternative that does not include chemical treatments

Some people believe herbicides may present a risk to people, animals, and native plants. Although herbicides proposed for weed control in the Proposed Action have gone through rigorous scientific testing and government approval, some people perceive use of these herbicides as unsafe. An alternative that did not use chemical treatments was not considered in detail because, for many of the most troublesome noxious weeds, other methods are not effective, or are not feasible. For example, because of its physical characteristics, pulling, digging, and mowing are not effective treatments for Dalmatian toadflax (Lajeunesse *et al.* n.d.), one of the most common weeds. The rhizomatous root systems cause re-sprouting after pulling or digging, requiring repeated treatments for up to 15 years. Mowing tends to spread the seed and reduces competition from native vegetation.

Another example is knapweed, where infestations are so large that pulling and digging could not reasonably be accomplished. Hand-pulling is labor intensive and only suitable for small infestations (Lacey *et al.* 1995). Given availability and cost of labor combined with slow rates of accomplishment, it is unlikely enough acres could be treated annually to address the Purpose and Need. Mowing is not physically possible in many areas. Knapweed and toadflax constitute 80 percent of the weed infestations proposed for treatment (PF-*Weed Database*).

The Beaverhead-Deerlodge Noxious Weed Control Program Final Environmental Impact Statement (FEIS) (USFS 2002b) analyzed an alternative that contained no herbicide use and determined the alternative provided the lowest level of protection for native plant communities from weed invasion with no reduction of weed-caused impacts to soil and water. The analysis of the alternative that used herbicides did establish that herbicide use would result in no anticipated, adverse impacts on human health from properly used herbicides as required by label specifications and Forest Service Policy.

The Lolo National Forest Big Game Winter Range and Burned Area Weed Management FEIS analyzed an alternative that eliminated use of herbicides and determined that elk grass forage would decline, possible long-term losses

to flammulated owl prey base would occur, and decline of wildflowers with possible loss of most native species would occur because of noxious weeds. This EIS also established that there was a low risk to human health where herbicides were used at prescribed rates.

The Bureau of Land Management (BLM) in their 1991 Vegetation Treatment on BLM Lands in Thirteen Western States Final Environmental Impact Statement (FEIS), considered a no herbicide use alternative and determined that without herbicide treatment, noxious weed control would be ineffective for species that had no biological control agents, making public land an infestation source for adjacent land under other ownership. More erosion was likely under this alternative than alternatives that allowed herbicide use. The no herbicide alternative also resulted in the most adverse impacts from uncontrolled noxious weeds.

An alternative that does not have chemical control would not meet the Purpose and Need because it would not effectively treat existing and potential weed infestations. In addition, it is not physically or financially feasible.

Aerial spray weeds in wilderness areas

This alternative was suggested with rationale that aerial spraying would be considered a "minimum impact tool" for weed treatment in wilderness areas. This alternative was not considered in detail because at the present time, weed treatment areas in wilderness are in small, isolated patches; aerial treatment would not meet Forest Plan standards for wilderness; and it would not comply with wilderness regulations pertaining to low flying aircraft.

Require lease/permit holders to eradicate noxious weeds on land they use

This alternative was considered at the suggestion of the public. This alternative was not considered in detail because of complications involved with ensuring permittees applying herbicides on National Forest System land are licensed to apply herbicide; that lessees would write and submit pesticide use plans for approval as required by Forest Service policy, and ensuring that the correct amount of herbicide, timing of application, and appropriate use of herbicides by permittees was occurring. Although requiring permittees/lease holders to hand pull weeds could be implemented, it would not effectively treat weed in those areas. See "Develop an alternative that does not include chemical treatments" above.

Do not treat weeds in wilderness areas

Some people indicated that weed management within wilderness contradicted the definition of wilderness and therefore weed treatment should not occur. An alternative that would eliminate wilderness area treatments was considered, but not studied in detail because management practices, such as weed treatment that maintains the natural ecosystem in wilderness areas, are allowed (see the effects on wilderness in Chapter 4). Only about 80 acres of weed treatment is proposed in wilderness areas and potential adverse effects on wilderness attributes are not expected.

Develop public volunteer program using schools, businesses, even prisoners, to pull weeds

This activity already occurs to some degree as part of the Helena NF's integrated weed management strategy. In addition, pulling weeds is not an effective treatment in most instances, but where it is, it is part of the Proposed Action. Another concern is safety of volunteers (allergic reactions, steep terrain, exposure to heat and cold).

Eradicate all weeds, not just new and existing ones

Eradication of all weeds is an impossible task at this time. Weed seeds last for years, even decades and there are thousands of acres in Montana where no effective weed treatments are planned. It is unlikely that weed establishment in new areas could be completely prevented, given the vectors for transportation and distribution of seeds (water, wind, animals, and humans).

Analyze a true "no action" alternative

The "No Action" alternative (*Alternative C*) as described in this EIS is a continuation of the current weed treatment program. The "No

Action Alternative" can be described as no change in action (as in this EIS) or no action at all (Council on Environmental Quality's "40 most asked question concerning CEQ's National Environmental Policy Act Regulations" question 3). A No Action Alternative that has no weed treatment activities was not studied in detail because it would require eliminating all previously approved weed treatment plans, would violate applicable state and federal laws and policies, and would not meet the Purpose and Need.

ALTERNATIVES CONSIDERED IN DETAIL

ALTERNATIVE A – PROPOSED ACTION

This alternative is described by the Proposed Action (above) and is considered in detail in the EIS.

ALTERNATIVE B – NO AERIAL HERBICIDE APPLICATION

Under Alternative B, chemical weed treatments would include ground herbicide applications, in addition to the ongoing activities described under the No Action Alternative (*Alternative C*). Many acres proposed for aerial application would be treated through ground application, but some areas would not be treated at all due to remoteness, steepness of terrain, or cost. About 18,900 acres would have herbicide application. Mechanical, biological, and grazing treatments would occur as in Alternative A.

Activities described under *Features Common to All Alternatives* and under *Environmental Protection Measures* below apply to this alternative.

ALTERNATIVE C – NO ADDITIONAL WEED TREATMENT

This alternative is the No-Action Alternative. Current activities would continue as planned. Some measures under *Environmental Protection Measures* would also apply.

SUMMARY COMPARISON OF ALTERNATIVES

The tables below provide a summary comparison of the three alternatives analyzed and their relationship to the Purpose and Need, the extent to which they address significant issues, and the extent to which they address public concerns.

Meeting the Purpose and Need			
Purpose and Need Statement	**Alt. A**	**Alt. B**	**Alt. C**
Control Noxious Weeds (acres)	22,668	18,913	15,871

Addressing Significant Issues			
Issue	**Alt. A**	**Alt. B**	**Alt. C**
1. Potential effects on human health, non-target vegetation, and wildlife from aerial application.			
Issue Indicator: Acres of aerial herbicide application (total).	11,086	0	0

Addressing Concerns			
Concern	**Alt. A**	**Alt. B**	**Alt. C**
Effects of weed treatment on water quality, groundwater, and fisheries			
	Low risk with environmental protection measures in place	Low risk with environmental protection measures in place.	Low risk with environmental protection measures in place.
Effects of weed treatment on native grasses, forbs, shrubs, and trees			
	1-3 year reduction in growth for individual plants from herbicides on 22,668 acres. More selective herbicides can be used.	1-3 year reduction in growth for individual plants from herbicides on 18,913 acres. More selective herbicides can be used.	1-3 year reduction in growth for individual plants from herbicides on 15,871 acres. Herbicide selection limited.

Addressing Concerns			
Concern	**Alt. A**	**Alt. B**	**Alt. C**
Effects of weed treatment on wildlife			
	No effects from herbicides. Short-term disturbance (between alternatives considered) from application, handpulling.	No effects from herbicides. Short-term disturbance (highest of alternatives considered) from application, handpulling.	No effects from herbicides. Short-term disturbance (lowest of alternatives considered) from application, handpulling.
Cost of proposed treatments for the initial treatments*			
Per Acre Total	$44.23 to $48.84 $1,002,510 to $1,106,994	$66.51 to $68.52 $1,257,974 to $1,295,942	$62.00 $987,350
Effects on human health from herbicide use			
	No health effects or risks to worker or general public.	No health effects or risks to worker or general public.	No health effects or risks to worker or general public.
Effects of weed treatment on insects			
	No effect	No effect	No effect
Effects of weed treatment on recreationists and adjacent landowners			
	Short-term disturbance (middle)	Short-term disturbance (highest)	Short-term disturbance (lowest)
Effects of weed treatment on wilderness, inventoried roadless areas, research natural areas, and unroaded areas			
Acres Treated Wilderness IRA RNA	 68 2,399 5	 68 1,418 5	 <3 1,038 5
Effects on apparent naturalness and natural integrity	Improved through reduction of weed invasion.	Improved through reduction of weed invasion on 60% of infested acres. Long-term reduction as remaining weeds spread.	Improved through reduction of weed invasion on 43% of infested acres. Long-term reduction as remaining weeds spread.
Effects of weed treatment on sensitive areas and important ecological communities			
	No effect with environmental protection measures.	No effects with environmental protection measures.	No effect with environmental protection measures.
Effects of herbicide use on soil			
	Slight temporary reduction in productivity, long-term improvement on 100% of infested area.	Slight, temporary reduction in productivity, long-term improvement on acres treated (84% of infested area). Decrease on areas not treated.	Slight, temporary reduction in productivity, long-term improvement on acres treated (70% of infested area). Decrease on areas not treated.
Weed treatment effectiveness			
	High on 100% of infested areas.	High on 84% of infested area, ineffective on 26%.	High on 70% of infested area, ineffective on 30%.
Effects of noxious weeds on other resources			
Noxious weeds have negative impacts on wildlife habitat, water quality, recreational values, soil productivity, wilderness and IRAs.	100% of infested areas treated with provisions for new infestations to be treated, reducing effects of noxious weeds.	84% of infested areas treated with provisions for new infestations to be treated in most areas, reducing effects of noxious weeds.	70% of infested areas treated with no provisions for new infestations to be treated without further NEPA decisions. Effects of noxious weeds likely to increase.

* Initial treatments include the first 3-4 years in Alternative A, and 4-5 years for Alternatives B and C.