

# VEGETATION

Two issues were identified that pertain to the effects of travel management on vegetation.

## **POTENTIAL FOR THE INCREASED SPREAD OF NOXIOUS WEEDS.**

The public expressed concerns about the potential effects of road and trail travel on the spread of noxious weed species.

### ***1. EXISTING CONDITION***

#### **a. Natural Characteristics**

Currently there are 1,423-recorded acres infested with noxious weeds on 445 sites that the Forest Service has treated on the project area. The infested acres include 1,178 acres (372 sites) of National Forest lands and 245 acres (73 sites) in, or through, other ownerships (primarily private). The sites within other ownerships are along public access to the Forest or on small units within, or adjacent to, the National Forest that are spreading, or immediately threaten to spread, onto the Forest. Sites average three acres in size with the vast majority much smaller and widely scattered. Canopy density averages over fifty percent. There are nine known species with the following infestation levels:

**Table III-65. Noxious Weed Infestations**

Common Name	Scientific Name	Acres Infested	Number of Sites
Leafy Spurge	<i>Euphorbia esula</i>	821	240
Spotted Knapweed	<i>Centaurea biebersteinii</i>	307	164
Canada Thistle	<i>Cirsium arvense</i>	142	17
Musk Thistle <sup>1</sup>	<i>Carduus nutans</i>	66	8
Whitetop	<i>Cardaria draba</i>	53	8
Yellow Toadflax	<i>Linaria vulgaris</i>	29	2
Diffuse Knapweed	<i>Centaurea diffusa</i>	5	4
Sulfur Cinquefoil	<i>Potentilla recta</i>	0.3	1
Dalmation Toadflax	<i>Linaria dalmatica</i>	0.1	1

<sup>1</sup> musk (nodding plumeless) thistle is not a Montana listed noxious weed, but is listed in 22 other states, including all of the surrounding states and Alberta. Counties may list additional weed species.

All of the species, except one, are listed by Montana as “Category 1” species, i.e., generally widespread in many counties of the state. No species listed by Montana as “Category 2” (recently introduced in Montana and rapidly spreading) or “Category 3” (rare or unknown in Montana but rapidly spreading in nearby states) has been identified on the Forest within the project area. There are likely other small infestations of the above species that are not known. Lands of other ownership, adjacent to the National Forest, contain many infested sites of unknown magnitude and species that produce seed that may be carried onto the Forest. This is especially true of leafy spurge infestations on adjacent lands along the Smith River and at the east end of the Little Belt Mountains. Other species threaten to spread to the

National Forest from nearby lands, e.g., ox-eye daisy (*Chrysanthemum leucanthemum*) or from counties or states farther away, e.g., tansy ragwort (*Senecio jacobaea*).

The majority of existing infestations are associated with main routes accessing the Forest and the road, trail and stream corridors on the Forest. The remaining ones are predominantly small, scattered sites and occasionally are quite isolated. Disturbed sites, lacking adequate vegetation cover, especially along roads, trails and streams, are prime receptors for noxious weed seed establishment. Infestations range from 4,000 to 7,000 feet in elevation, with the majority between 5,000 and 6,000 feet.

Once established, the noxious weed can then proliferate and spread using its most effective adaptation. Some weed species produce seeds at an enormous rate (e.g., spotted knapweed). Seeds of various species are adapted to facilitate different modes of travel. Some are sticky or have hooks and barbs that attach themselves, some are light and feathery and others are edible. Leafy spurge extends its roots up to 40 feet deep, re-sprouting from nodes along the root system, and have seeds that “explode” from the plant. Because of these and other adaptations, seeds are often readily transported by natural factors of wind, water, birds, or wildlife.

#### **b. Past Events and Conditions**

The majority of plants now called noxious weeds were brought to the United States, either on purpose (e.g., ornamentals) or accidentally through seed contaminated goods (e.g., crop seed), by ship from Eurasia at varying points in history. After establishment in one of the coastal states the weeds gradually spread to Montana, into the various counties and to the project area. This original spread to the area came from human activities such as agriculture (livestock and crop), timber harvest, construction (roads) and recreation, but has been compounded by natural forces. To counter the continuing spread, the Forest has had an active prevention and control program to reduce the impacts of invasive noxious weeds for over 25 years.

Prevention efforts have included: 1) public education (identification and impacts of noxious weeds, risks and methods of spread, and ways of reducing the risk) including speaking to schools and special interest groups, posting signs and educational materials, sponsoring media advertisements, and visiting with members of the public at campgrounds and trailheads; 2) enforcing a special order requiring certified weed free feeds on all NFS lands within the state of Montana; 3) implementing Best Management Practices (BMPs) such as doing risk assessments and adding appropriate prevention requirements in contracts, permits and project plans (e.g., washing equipment, minimizing soil disturbance, certified weed free seed, etc); 4) restricting motorized cross-country travel on all NFS lands per the Tri-state OHV Decision by the Regional Forester in 2001 and the National OHV Policy CFRs issued in December 2005.

Control efforts have included: mechanical, chemical, and biological. Mechanical hand-pulling provides partial control of weeds, reducing spread and density of weeds by reducing seed production, where the use of chemicals is not appropriate. These areas include campgrounds, administrative sites, where the distance to groundwater is not sufficient to use chemicals, and in areas where sensitive plant species are known to exist.

Chemical weed control has historically been the primary tool for noxious weed control on the project area. Chemical weed control is done in accordance with the 1986 Final Environmental Impact Statement for the control of noxious weeds on the Lewis and Clark National Forest, the 1994 Final Supplemental Environmental Impact Statement for the

control of noxious weeds on the Lewis and Clark National Forest, and the label constraints for the regulated herbicide being applied. The only herbicides currently used on the Forest for noxious weed control are 2-4D, Tordon, and Chlopyralid but other chemical agents are likely to be used in the future if the effects are within the range stated in the above documents. Various factors (location, funding, weather, fire activity, new infestations) determine the number of acres that are treated each year. Priority of treatment has been: 1) new, small infestations, especially a new species; 2) trailheads; 3) stream and road corridors; 4) large upland infestations.

Biological control agents have been released for over 15 years, primarily for larger infestations of leafy spurge in the Little Belt Mountains, with significant results observed in recent years.

### **c. Human Influence**

People and their activities have been, and will continue to be, the greatest influence on the introduction and spread of noxious weeds. If education and prevention efforts are effective, the introduction of new weeds and the spread of existing weeds will be reduced, but not eliminated. It is not practical to contact, inform or change attitudes of all users prior to their arrival onto the National Forest.

Human activities of grazing, timber harvest, road construction, recreation (camping, fishing, hunting, trail riding, back packing) and forest administration contribute, to various degrees, to the introduction and spread of weeds. Motorized vehicles and equipment contribute the most to introduction and spread of noxious weeds because of size and/or distance of travel within a given time. Weed seeds become stuck in tire tread and in under carriage mud, pulled off and lodged in the framework, drug out upon unloading from passenger and cargo compartments or deposited with contaminated cargo (e.g., gravel, hay, straw).

Back packers and workers can spread weeds by transporting weeds or seeds caught in the lugs of boots, fabric of clothes, or in equipment. Livestock spread weeds by having seeds caught in the hair, transported in stomach contents (if the animal has not been on clean weed seed free feed for several days prior to coming to the Forest), or in the manure in stock trailers.

Where weed seed is deposited depends on how far and where the person travels. Most often it is along system roads or trails, but some people travel off of the system roads and trails depositing weed seed in isolated and hard to find places. The amount and speed of introduction and spread of noxious weeds depends upon the amount, type and location of use; the amount, type and location of weeds; and the origination of the user on the one hand and the funding for, and the effectiveness of, noxious weed prevention and control measures on the other.

### **d. Relationship to Forest Plan**

Nearly all users and interested parties desire complete prevention and eradication of noxious weeds on the Forest, but not necessarily at the expense of their use and enjoyment of the Forest. Neither are there sufficient resources or technology available to completely eradicate existing weed infestations within the planning horizon. The desired future condition of the Lewis and Clark National Forest Plan anticipated, by the first decade, additional road closures and restrictions to resolve user conflicts, promote user safety, or protect resources (Forest Plan p. 2-19). At the same time, the Forest Plan anticipated an increase in overall recreation and other uses (*Ibid*). In anticipation of a continuing presence and threat of

introduction of noxious weeds, the Forest Plan provides standards for prevention and control. The Forest-Wide Standard for noxious weeds and other pest's states (Forest Plan Management Standard D-2, p. 2-38):

- (1) Develop a public information and education program to emphasize practices that prevent resource degradation and spread of noxious weeds.
- (2) Emphasize preventing noxious weeds by reseeding, with desirable plant species, mineral soil exposed by Forest Service activities.
- (3) Evaluate alternatives, as outlined in FSM 2155.3, to determine effective environmentally acceptable practices to control noxious weeds and other pests.
- (4) Identify areas where noxious weeds and/or pest control is needed. Special attention should be paid to: streams, bogs, and associated riparian habitat; upland game bird nesting habitat; and any other sensitive non-target animal or habitat which may be adversely affected by spraying.
- (5) Annually review spray projects, in environmentally sensitive areas, for opportunities to replace spraying with other Integrated Pest Management methods. Cooperate and support basic research for biological control of noxious weeds and other pests.
- (6) Cooperate closely with other Federal and State agencies, private individuals, contractors, and permittees to control noxious weed and pest infestations.

## ***2. ENVIRONMENTAL CONSEQUENCES***

### **a. Effects Common to All Alternatives**

The amount of use is of much greater significance in determining the risk of spreading or introducing noxious weeds than the type of use. No data on the amount of use on various roads and trails has been collected. Neither is there any known data concerning the correlation between the type of recreation use and the spread of weeds. Anecdotal information shows the greatest number of infestations to be along roads, indicating motorized vehicles are more likely to introduce or spread weeds. This may be because of the greater number of vehicles and greater area traveled (speed) per unit contributing to the amount of use, rather than from the nature of the vehicle itself. Greater surface area coming in contact with weeds and greater area of ground disturbance allowing seed germination may be lesser factors. Livestock are significantly less contributors to weed introduction and spread only if weed seed free feed is fed several days prior to and during the time they are on the Forest. The special order requiring certified weed free feed during the time on the Forest has been partially effective, but there is little evidence that feeding weed seed free feed several days prior to coming to the Forest has been largely adopted by visitors or permittees. Increased weed infestations tend to occur at trail heads and campgrounds where vehicles are parked and livestock are unloaded, fed and tied. The origin of the visitor (i.e., from a weed infested area) is a major factor in the introduction of new weed species, or new infestations of existing weed species, without regard to the type of use.

Based on these observations, there is insufficient data to draw a definite conclusion that any alternative would have a significant difference on the spread of noxious weeds based only on the type of use allowed under that alternative.

## **b. Effects by Alternative**

### ***1. Direct and Indirect Effects***

What does have the potential to impact the spread of noxious weeds is the **amount of use** to transport the seed and the **existence of weeds** for a source of seed. Because motorized vehicle users, livestock users and back packers are largely distinct user groups, it can be assumed that motorized vehicle use is primarily an additional amount of use (e.g., most motorized vehicle users are not likely to become livestock users if motorized vehicles are restricted from an area). Therefore, roads and trails open to motorized travel will have much more use than areas not open to such use and roads and trails open through the full season will generally receive more use than those closed through the late summer and fall season when seed is ripe.

The Forest Service's Region One's policy recommends consideration of weed risk and spread factors (i.e., a risk assessment) in travel plan decisions (R-1 Supplement, FSM 2081.2.1.b.(5)). An analysis of relative risk of noxious weed spread was made based upon the current **existence of weeds** (Map16) and three relative **amounts of use** as shown in Table III-66.

**Table III-66. Risk of Noxious Weed Spread**

<b>Amount of Use (Motorized Restriction)</b>	<b>No Weeds</b>	<b>Weeds<sup>1</sup></b>
Low (Fully Restricted)	Low Risk	Low Risk
Moderate (Late Season Restriction) <sup>2</sup>	Low Risk	Moderate Risk
High (Unrestricted)	Low Risk	High Risk

<sup>1</sup> Weed occurrence assumed if weeds are inventoried within 660 feet of a road or trail

<sup>2</sup> Reduced risk because most travel occurs prior to seed maturity

To determine area of risk, each road and trail was buffered to 660 feet either side (Footnote<sup>1</sup>) based on: 1) a weed inventory primarily from quad maps with limited accuracy, and 2) weed seeds are easily transported that far by natural and non-motorized means to or from the road or trail. Table III-67 shows the number of existing and soon-to-be constructed road and trail miles that would be in each of the three relative risk categories by alternative (Includes roads and trails through National Forest land and under Forest Service jurisdiction).

**Table III-67. Miles of Road & Trail by Weed Risk and Alternative**

<b>Alternative</b>	<b>Low Risk<sup>1</sup></b>	<b>Moderate</b>	<b>High Risk</b>	<b>Total Miles</b>
1	69	132	415	616
3	167	125	324	616
4	238	64	314	616
5	220	108	288	616

<sup>1</sup> Low or no risk

The relative direct and indirect effect for each alternative is noted by an increase in miles of roads and trails at low risk of spreading weeds and, conversely, a decrease in miles in moderate to high risk (e.g., 151 mile change from alternative 1 to 5 -- 219% increase in low risk or 28% decrease in moderate & high risk). This is a relative risk analysis only. Low risk

does not mean the elimination of the spread of noxious weeds, only that the risk is significantly lower than with the addition of motorized travel.

## ***2. Cumulative Effects***

All of the factors identified as cumulative effects in Appendix F have the potential to positively or negatively affect the spread of noxious weeds. Other travel planning decisions on the Lewis and Clark (Rocky, Snowy & Highwood Mountains), Gallatin, Helena, Beaverhead-Deerlodge and Custer National Forests, Bureau of Land Management, State of Montana and private lands will have varying effects, depending upon the decisions made, on the spread of noxious weeds to, and in, the project area. The more any mode of travel is restricted in those decisions, depending on the distance a particular area is from this planning area, the greater the likely increase in that type of travel in the planning area, thus, increasing the use and the spread of weeds. As private lands are opened to more motorized vehicle travel, demand for use on the National Forest will decrease. However, if prevention and control on private land does not occur, noxious weeds will proliferate and increase the risk of spread to the Forest, despite a decrease in use on the Forest, because of the increase in contamination of motorized vehicles and weed seed transported by other agents.

The salvage and thinning (Whitetail Salvage & Newlan Bugs), vegetation restoration (Dry Fork) and prescribed burning fuels reduction (Monarch/Neihart Hazardous Fuels & Ettien Ridge Fuels) projects, identified in Appendix F, all have moderate to high risk of introducing and spreading noxious weeds. This risk comes from: 1) the equipment and people and, 2) the reduction and/or temporary elimination of the vegetation cover, providing a scarified seed bed and less vegetation competition, resulting in a higher chance of weed seed germination and weed establishment.

Any ground or severe vegetation disturbing activity has the potential to increase the spread of noxious weeds. The 1.9 miles of new road construction and the 4.9 miles of reconstruction in the Dry Fork Vegetation Restoration project will have the greatest ground disturbance. The decommissioning of an additional 20 miles of road will reduce the risk of weed spread in the long term by reducing the amount and extent of vehicular use, but ground disturbance in the process of decommissioning will have immediate negative effects similar to construction and reconstruction.

Current on-going activities may have a cumulative negative effect by increasing the introduction and spread of noxious weeds. Livestock grazing may transport weed seed between private or other lands and the Forest, or from place to place on the Forest, by carrying seed in the hair or digestive tract. Livestock may also increase seed germination by reducing vegetation competition in areas of excessive grazing and by ground disturbance in areas of excessive trailing. Wildlife and birds can similarly transport weed seed in hair, feathers and digestive tracts. Weed seeds are also transported by wind and water and wildfire provides improved germination.

All of these specific activities and natural forces combine with activities, previously identified in **Human Influence**, affected by travel planning to cumulatively introduce and spread noxious weeds on the travel planning area.

### **c. Mitigation**

Many natural and other non-motorized agents will continue to transport weeds and weed seeds, regardless of the decision on travel, but the fewer the agents, the less spread of weeds

occurs. However, removing all use would defeat the purpose of the public lands, and is not public policy, and still would not totally eliminate the spread of weeds. Therefore, noxious weed management requires an optimal balance of use restriction, public education, implementation of BMPs, and effective treatment measures. More the public voluntarily accepts and implements weed prevention practices (BMPs), less restrictions and expensive weed control will be required. To reduce cumulative effects, a noxious weed risk analysis will be done for each project and appropriate BMP mitigation measures (FSM 2080, R1 Supplement 2000-2001-1) included in each environmental analysis, permit, and contract. Each project and public use area will be monitored for noxious weeds and the implementation and effectiveness of BMP mitigation measures, prioritized by the degree of risk. The Forest Service will continue prevention, public education and appropriate weed treatment measures.

#### **d. Weed Prevention Practices for Forest Visitors, Permittees, Contractors**

Prior to visiting the National Forest, visitors should apply these preventive practices:

- Inspect and properly dispose of weed seed and plant parts found on clothing
- Inspect and thoroughly clean all equipment
- Thoroughly clean motorized or mechanized (mountain bike) off-road vehicles
- Thoroughly clean road vehicles and equipment (e.g., trailers) inside and out
- Feed only weed-free feed to pack, saddle or other livestock for several days prior
- Bring only certified weed-free feeds to the Forest for feeding livestock
- Thoroughly brush all animals (horses, dogs, etc) to remove any weed seed
- Tie and/or hold stock in such a way as to minimize vegetation and soil disturbance
- Learn to identify all Montana listed noxious weeds

The practices above should be repeated after leaving the Forest, if weeds were observed on the Forest, to prevent transporting weeds and weed seed to other areas. Visitors should report the identity and exact location of any new species or infestations observed on the Forest to Forest officials.

