Bear Trap Wilderness

Weed

Management Plan

Bear Trap Wilderness Weed Management Plan

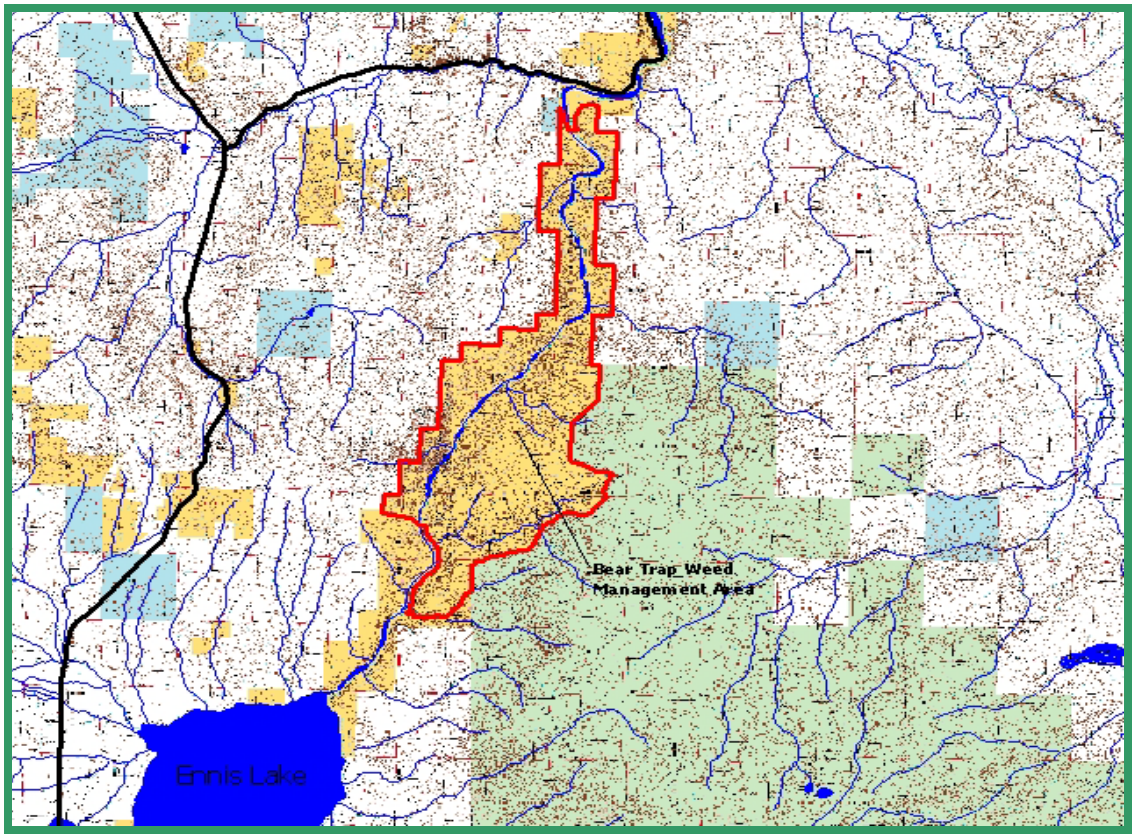
Introduction

The Bear Trap Wilderness Area encompasses the area along the Madison River contained within the boundaries of the Lee Metcalf Wilderness and is the BLM's first designated wilderness area. This area, consisting of approximately 6000 acres, is bounded by the power station at the dam of Ennis Lake on the south and Warm Springs Day Use Area to the north. The Bear Trap Wilderness is made up solely of public lands managed by the Bureau of Land Management (BLM), and because of its wilderness designation there are no motorized vehicles or equipment allowed inside the boundaries of this area.

Recreation is the major use of the lands within the Bear Trap Wilderness. Activities include sight-seeing, big game hunting, camping, back country hiking, white-water rafting and most of all, fishing. The Madison River, a blue ribbon trout fishery, flows through the canyon and supports many species of fish including brown, rainbow and cutthroat trout, and occasionally an arctic grayling. The canyon itself is home to many species of wildlife such as bald eagles, moose, elk, mountain goats, and grizzly and black bears.

The vegetation of the Bear Trap Wilderness is quite varied, going from low/moderate cover grasslands along the river to Douglas-Fir/Lodge pole Pine forest in the higher elevations. Average rainfall for the area is approximately 12 inches. Elevation ranges from approximately 4500 feet on the canyon floor to approximately 7000 feet along the canyon's rim.

Weed control was initiated in 2001 in an effort to control the spread of noxious weeds already present in the wilderness area and to prevent any new infestations from becoming established. Because of the size, density and location of the current infestations, it was determined that eradication was no longer an option but that a long term plan of control and containment would be more practical and cost effective.



Purpose

The purpose of this management plan is to define priorities, goals and objectives for weed management within the Bear Trap Wilderness and develop a strategy (planned actions) to achieve the goals and objectives, while retaining the area's primitive character and influence.

Weed Management Area Goals

1. To use the methods of control necessary to achieve the objectives while minimizing impacts on wilderness values.

2. Prevent the introduction, reproduction and spread of noxious weeds and non-native invasive species into, within and out of the Bear Trap Wilderness.

3. Reduce the extent and density of established noxious weeds to a point that native plant communities and associated wildlife interact in a more natural process and, wherever possible eradicate the established infestations.

4. Implement an integrated management system using all appropriate available methods or a combination of methods of weed control. Appropriate methods include those that are economical, effective and socially acceptable.

5. Educate recreational users about the impact of noxious weeds and the ways in which they can help stop the spread, and help in the control of noxious weeds.

Management Objectives and Priorities

The following management objectives and treatment practices will be assigned to specific species and/or infestations to provide direction for the intensity and duration of effort of control actions and to coordinate management efforts in the Bear Trap Wilderness. It is intended that these objectives and priorities will focus limited resources where they are the most effective in managing weeds within the wilderness boundaries.

Management Objectives:

1. Education / Awareness

Awareness programs develop public understanding of the threat that invasive or exotic plants pose for the natural resources of the Bear Trap Wilderness and educate people to the variety of methods whereby undesirable plants can be transported to uninfested areas. Awareness also provides an important first step in the detection of new invaders.

Continuing education of weed district and agency personnel, and the general public on weed identification, resource threats, new techniques and proper management of available methods is a critical element in a sustainable effort against the spread of noxious weeds. Education/Awareness programs include distributing publications, sponsoring seminars and field trips, providing posters, developing

informational brochures and articles and involving interested groups in treatment and monitoring activities.

Planned Actions:

- Upon request, provide yearly informational float and/or hiking trips through the area for interested agency personnel, wilderness groups, herbicide representatives and recreational organizations. These trips would share the progress that has been made in meeting our planned objectives and solicit input from the group on future actions.

- Provide informational material on noxious weeds found in the area to all licensed guides that guide float trips through the Bear Trap.

- Display educational material at the trailhead kiosk about noxious weed identification and their affect on the environment along with information about our goals, strategy and progress.

- Train all weed treatment personnel about the values and issues associated with a wilderness area.

2. Prevention / Early Detection: –

Prevention measures are the first line of attack against the spread of noxious weeds. In the long-term, it is more cost effective to prevent weeds from establishing themselves rather than to begin treatment after establishment. One of the key areas of focus needs to be seed transportation activities. The following land management activities are examples of actions that require consideration and evaluation for prevention measures:

- Recreational activities including areas of concentrated use such as camp sites, trailheads and trails.
- Fire suppression and rehabilitation
- Use of noxious weed free forage

Planned Actions

- Train all field personnel that go into the Bear Trap Wilderness in weed identification to help in the discovery of new infestations.
- Place weed identification posters at trailheads, boat launches and campgrounds encouraging people to stay on the designated

trails to limit the spread of noxious weeds and provide phone numbers of who to contact if an infestation is found.

- Educate all float guides in weed identification and in practices in how to prevent spreading already established infestations.
- Rehabilitate all burned areas, using a native seed mix, unless sufficient perennial grasses were present prior to the fire to protect the watershed and prevent encroachment by undesirable plants.
- All equipment used in the Bear Trap Wilderness whether for fire suppression or maintenance should be washed prior to entering the area and before leaving.
- Signs will be posted at trailheads stating that only weed-free forage can be used in this area.

3. Inventory:

A critical part of integrated management is a current and maintained inventory of infestations occurring within the Bear Trap Wilderness. Inventory provides necessary information for site specific priority control objectives and for prescribing control methods. It highlights the need for preventative measures and is the baseline for effective monitoring.

Planned Actions:

- An inventory of weed locations is already partially completed. This inventory will be completed by the end of 2003 and will be instrumental in helping set management priorities.

- Use GPS units and appropriate software to keep current inventory updated as much as possible. If GPS data is not available, weed locations will be manually marked on 7 ½ minute topographic maps to be digitized.

- New weed locations will be added to the inventory map as they are discovered. Photos with a date stamp will be taken of these new locations so that any progress made will be documented.

4. Contain, Control and Eradicate:

Prevent the spread of the weed beyond the perimeter of patches or infestation areas. Prevent seed production throughout the target patch and reduce the area coverage of the weed. May tolerate weeds within

established infestations, but control or eradicate weeds found outside those areas. Attempt to totally eliminate new noxious weed species from the Bear Trap Wilderness.

Using an integrated weed management approach, all control methods are available. It is the use of all available options in combination that results in the most successful program. Specific treatment is determined by plant species, site characteristics, and management objectives.

The following management techniques of noxious weed control will be considered on a site specific and plant species basis:

Physical/Mechanical - The use of physical or mechanical methods for weed control can be effective on small infestations of annual or biannual species. Hand grubbing, mowing, tilling, and burning are commonly used to physically destroy weeds or interfere with their reproduction. To be effective, treatment must take place before seed production. Plants which have flowered must be removed from the site and destroyed. In order to adhere to wilderness standards no mowing, tilling or motorized equipment will be used in the treatment of noxious weeds.

Planned Actions:

- Using both Agency and Volunteer help conduct weed pull floats and hikes to help contain small infestations or hard to access sites.

- Pull or cut any weeds located in areas that are either inaccessible or where it's inappropriate to use any other method; such as in dense shrubbery.

Biological – Biological weed control involves the deliberate introduction and establishment of natural enemies to reduce the target plant's competitive or reproductive capacities. Insects are the most common agent released against noxious weeds. Plant pathogens, such as fungi, are increasing in use. Sheep and goats have been effective in reducing densities and limiting the spread of specific weed species. Biological control can be a slow process often requiring 10 to 20 years to be effective. Its purpose is not eradication but a reduction in densities and rate of spread to an acceptable level. It is most effective on dense weed infestations over large areas. All types of biological control that will be used in the Bear Trap Wilderness have undergone extensive testing to make sure that they are not a threat to other plant

or animal species. The forms of known biological control that will be used are listed in Appendix B.

Planned Actions:

- Through cooperation with APHIS, ARS and other agencies obtain biological releases for Spotted Knapweed and Leafy Spurge.

- Use these releases to control infestations that are above the trail or in more inaccessible areas.

- Large established infestations will be treated by releasing bio-control agents onto the infestation and controlling the perimeter with either chemical or manual methods to prevent expansion.

- Once these release sites are established they will be collected from and spread to other sites within the Bear Trap Wilderness.

- In some of the less rugged terrain and in areas surrounding the wilderness, sheep or goats may be used to help control the spread of noxious weeds.

Chemical – Herbicides are an effective and efficient tool for the control of noxious weeds. Herbicide applications and rates are dependent on specific site characteristics, target plant, location, non-target vegetation, and land use. Herbicides are an important method of treatment when control or eradication is the management objective. Environmental concerns make it critical to follow all label instructions, site directions, and safety precautions when using any herbicide. When it is determined that pesticide use is necessary the following guidelines will be followed:

1. Use only registered chemicals, which are on the BLM's approved herbicide list, according to label directions.
2. In selecting herbicides, give preference to those that will have the least impact on non-target species and on the wilderness environment.
3. Use these herbicides at the lowest rates possible to achieve the desired results while minimizing the impact on the surrounding environment.

4. Whenever logistically possible, schedule herbicide treatments during periods of low human use.
5. Sprayed areas will be posted for three days after treatment to alert the public that herbicide was used in the area.
6. Applicators will be instructed to use herbicides on the target species ***only***. There will be no broadcast spraying except in areas with dense, monoculture infestations.

The herbicides that are currently available; the rates at which they will be used; the reason that this chemical was chosen; and the weed species that it will be used on; are listed in Appendix C.

Planned Actions:

- Herbicides will be used to treat infestations along the trail and from the trail to the river because these are the areas from which the weed is most likely to spread. Herbicides may also be used in other areas determined to be at high risk for seed spread.

- Herbicide treatments will be continued until either the seed source of the infestation is exhausted, the populations of biological control are sufficient to control the infestation or until another method of control or combination of controls becomes a more viable option (*the method that gives the best control with the least impact on wilderness values will always be considered the more viable option*).

- All methods of herbicide application will be by non-motorized means; such as backpack sprayer or wipe on application.

- Treat either by pulling or with herbicide any known or new found small infestations or individual plants with the goal of eradicating these small populations and preventing further seed source and spread.

Cultural/Land Use (Restoration and Revegetation) – Cultural practices are activities that purposefully enhance and maintain the growth of desired vegetation. Practices that retain, enhance or introduce desirable plant species that out compete or dominate exotic plant species can serve as prevention, control and/or follow-up.

Examples that are applicable to the Bear Trap Wilderness are seeding, planting, and retaining brush and tree canopy cover. Minimizing the extent and duration of exposed soil during management actions can also reduce the risk of problem plant establishment.

Planned Actions:

- When re-vegetation is determined to be necessary, a seed mix consisting of the most weed resistant native plants found in the Bear Trap Wilderness will be used in all reseeding projects.

- Any treated area that leaves bare soil will be replanted the following fall season to help supply competition against re-infestation by noxious weeds.

- Ground disturbances, created by fire control or other human activities, will be reseeded immediately to prevent invasion by noxious weeds.

Planned Actions Common to All Methods: –

- Preference will be given to the method of treatment that will achieve the best control with the least impact on wilderness values.

- To effectively contain, control or eradicate, weed infestations must be checked within the current season, after treatment, by agency personnel or individuals responsible for treatment to assess if desirable control was obtained. If not follow-up treatment will be done.

- Any new invasive weed species found within the boundaries of the Bear Trap Wilderness will be targeted for eradication by either physical or chemical methods, which ever is determined more appropriate, before they become established.

- Each infestation treated by either physical or chemical methods will be treated at least twice a year to help prevent the spread of weeds outside of their current location.

- To help keep the number of trips into the wilderness at a minimum pack animals, such as horses, mules and llamas, may be used to carry equipment and supplies.

5. Monitoring:

Monitoring is the collection of information to determine the effectiveness of management actions in meeting the prescribed objectives. In noxious weed management, we are concerned with the density and rate of spread of specific exotic plant species and the effect these aggressive plants have on the natural processes of the Bear Trap Wilderness. We are also interested in the effectiveness of prescribed actions on the targeted species and the response of desirable vegetation. Monitoring will help determine if our prescriptions and activities are accomplishing the goals and objectives of the Bear Trap Wilderness. Various sites, that have had control practices applied, will be monitored. The monitoring will take place over a period of time and various techniques will be used.

Planned Actions:

- All treated areas will be monitored either in the fall or spring following treatment and the information gathered will be used to determine the priority treatment areas for the following season.

- Biological release sites will be monitored for population density to determine when the site can be collected from and these insects relocated to another site.

- Permanent photo plots will be established at several different areas to help chart the progress. Photos will be taken each year during the same time period to give an accurate view of progress made.

6. Coordination:

Coordination is a group consisting of agencies, organizations, and/or private landowners working together to ensure that management of noxious weeds is carried out efficiently and consistently across jurisdictional and political boundaries. In the Bear Trap, the BLM hopes to bring together recreational and environmental organizations, herbicide company representatives, agency employees and anyone else concerned about noxious weed impacts on the wilderness. This group will be responsible for setting up an Annual Operating Plan for the Bear Trap Wilderness that will set priority areas for treatment and the method of treatment to be used.

Planned Actions:

- Hold annual meetings with interested groups to discuss successes and failures of the previous year and to set priorities for the coming year. These meetings should be held early in the spring.

- Send out notices to all participants of when we will be spraying or having a weed pull so that they may participate.

- Encourage interested groups to hold their own weed pulls but emphasize coordination with BLM to prevent repetitive treatment of the same area.

Management Priorities:

1. Prevent the establishment of potential invaders.

2. Eradicate new invaders.

3. Complete a detailed inventory of weed locations and sizes according to guidelines detailed in Montana Noxious Weed Survey and Mapping System by Cooksey and Sheley.

4. Following the guidelines set forth above, use pulling or acceptable herbicides to treat satellite infestations of established invaders and treat transportation corridors and areas of concentrated activities such as parking lots, trailheads, trails and areas between trails and the river that are frequently used. Once started this will continue twice yearly until either the seed bank is exhausted or that the infestation becomes manageable through other means of control.

5. Contain and manage large infestations.

Appendix A

Weed species of the Bear Trap Wilderness. Category I, II, III are those that have been designated by the State of Montana Department of Agriculture. The weed species marked by an asterisk "*" are known to exist within the Bear Trap Wilderness.

Established Invaders (Category I) – These noxious weeds are currently established and generally widespread throughout many of the counties in the state. Management criteria include awareness and education, containment, and suppression of existing infestations and prevention of new infestations. These weeds are capable of rapid spread and render land unfit or greatly limit beneficial uses.

1. Canada Thistle (*Cirsium arvense*) *
2. Field Bindweed (*Convolvulus arvensis*)
3. Whitetop or Hoary Cress (*Cardaria draba*)
4. Leafy Spurge (*Euphorbia esula*) *
5. Russian Knapweed (*Centaurea repens*)
6. Spotted Knapweed (*Centaurea maculosa*) *
7. Diffuse Knapweed (*Centaurea diffusa*)
8. Dalmation Toadflax (*Linaria dalmatica*)
9. St. Johnswort (*Hypericum perforatum*)
10. Sulfur (Erect) Cinquefoil (*Potentilla recta*) *
11. Common Tansy (*Tanacetum vulgare*) *
12. Ox-eye Daisy (*Chrysanthemum leucanthemum* L.)
13. Houndstongue (*Cynoglossum officinale*) *
14. Yellow Toadflax (Linaria vulgaris)

New Invaders (Category II) – These noxious weeds have recently been introduced into the state or are rapidly spreading from their current infestation site. These weeds are capable of rapid spread and invasion of lands, rendering lands unfit for beneficial uses. Management criteria include awareness and education, monitoring and containment of known infestations and eradication wherever possible. None of these weeds are known to exist within the Bear Trap Wilderness.

1. Dyers Woad (Isatis tinctoria)
2. Purple Loosestrife or Lythrum (Lythrum salicaria, L. virgatum, and any hybrid crosses thereof)
3. Tansy Ragwort (Senecio jacobea)
4. Meadow Hawkweed Complex (Hieracium pretense, H. floribundum, H. piloselloides)
5. Orange Hawkweed (Hieracium aurantiacum)
6. Tall Buttercup (Ranunculus acris L.)
7. Tamarisk [Saltcedar] (Tamarix spp.)
8. Perennial pepperweed (Lepidium latifolium)

Potential Invaders (Category III) – These noxious weeds have not been detected in the state or may be found only in small, scattered, localized infestations. Management criteria include awareness and education, early detection and immediate action to eradicate infestations. These weeds are known pests in nearby states and are capable of rapid spread and render land unfit for beneficial uses.

1. Yellow Starthistle (Centaurea solstitialis)
2. Common Crupina (Crupina vulgaris)
3. Rush Skeletonweed (Chondrilla juncea)
4. Eurasian watermilfoil (Myriophyllum spicatum)
5. Yellow flag iris (Iris pseudacorus)

County Designated (Category IV) – These noxious weeds have been determined a problem by the Madison County Weed Board and placed on this list to be treated in a similar fashion as the weeds in Category I. The weeds on this list that appear in the Bear Trap Wilderness are designated with an asterisk "*".

1. Musk Thistle (Carduus nutans) *
2. Field Scabious (Knautia arvensis)
3. Common Teasel (Dipsacus fullonum L.)
4. Common Mullein (Verbascum thapsus L.) *
5. Black Henbane (Hyoscyamus niger) *

Appendix B

Biological Control Agents
To Be Used In the Bear Trap Wilderness

Spotted Knapweed

SPECIES	TYPE OF INSECT	DAMAGE TO HOST
Agapeta zoegana	Root boring moth	Larvae bore into the root
Bangasternus fausti	Seed-head weevil	Larvae consumes seeds
Cyphocleonus achates	Root boring weevil	Larvae root boring Adults defoliate the plants
Larinus minutus	Seed-head weevil	Larvae damages flowers and consumes seeds
Urophora affinis	Seed-head gall fly	Larvae induces gall formation
Urophora quadrifasciata	Seed-head gall fly	Larvae induces gall formation

* The Urophora species is already well established in the area and was included in the list due to its chance of expansion throughout the Bear Trap Wilderness.

Leafy Spurge

SPECIES	TYPE OF INSECT	DAMAGE TO HOST
Apthona cyparissiae, lacertosa, and nigriscutis	Flea beetle	Larvae feed on roots

Although the insects contained on the above charts are the ones being used today; if others become available they will be considered on a case by case scenario.

Appendix C

Rates and Types of Herbicides

To Be Used in the Bear Trap Wilderness

Herbicide	Noxious Weed Controlled	Rate of Use	Location of Use	Reason for Use
Tordon 22k (picloram)	Spotted Knapweed, Leafy Spurge	16oz to 32 oz per acre	Around trails, trailheads, parking lots and areas of concentrated activity that are more than 50 feet from water and not near woody vegetation	Tordon is still the best means of control for these types of noxious weeds. It's residual in the soil will allow for longer term control in areas of high use.
2,4 – D	Spotted Knapweed, Canada Thistle	32 oz to 64 oz per acre	50 feet from/to waters edge	Has only a short term residual in the soil (approximately 15 days) and can be used up to waters edge.
Krenite (fosamine)	Leafy Spurge	1 ½	In and around shrubs and trees	A woody plant herbicide that quickly degrades when exposed to the soil and because of this affects only the foliage applied to.
Rodeo (glyphosate)	All weeds	Up to 6 pints per acre	Where ever water is present	A broad spectrum contact herbicide with an aquatic label.

Herbicide	Noxious Weed Controlled	Rate of Use	Location of Use	Reason for Use
Transline (clopyralid)	Spotted Knapweed, Canada Thistle	2/3 pint to 1 pint per acre	In and around trees, shrubs and any other woody plant	Has the same effect on the target plant as 2,4-D but is safe to use around most trees and shrubs. (very selective)
Redeem R&P (clopyralid and triclopyr)	Spotted Knapweed, Canada Thistle	1½ pints to 4 pints per acre	Can be used in same areas as Transline but more cost effective	Is safe like Transline for use around trees and shrubs but with the addition of triclopyr has a longer soil life to help control regrowth. Redeem also has a cheaper cost per acre than Transline.