

ENVIRONMENTAL ASSESSMENT
CO-120-2008-31-EA

Weed Management for the Kremmling Field Office



U.S. Department of the Interior
Bureau of Land Management
Kremmling Field Office
P.O. Box 68
Kremmling, CO 80459



April 2009

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P.O. Box 68
Kremmling, CO 80459**

ENVIRONMENTAL ASSESSMENT

NUMBER: CO-120-2008-31-EA

PROJECT NAME: Weed Management for the Kremmling Field Office

LEGAL DESCRIPTION: All public lands administered by the Kremmling Field Office

APPLICANT: BLM

I. INTRODUCTION:

1.1 Background: This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of invasive plant management as proposed by Kremmling Field Office (KFO). The EA is a field office analysis of potential effects that could result with the implementation of the Proposed Action and No Action Alternative. The KFO has been managing invasive plants in accordance with the following documents:

- 1993 Environmental Assessment (CO-018-93-08-EA),
- 1991 14 Western States Environmental Impact Statement (EIS),
- BLM Partners Against Weeds plan,
- BLM's Early Detection Rapid Response Plan,
- The Noxious Weed Act for the State of Colorado and the strategic plan for Colorado that accompanies the Act, and
- Partnership agreements with Grand, Jackson and Larimer Counties.

Invasive plants are defined as “*non-native plants whose introduction does or is likely to cause economic or environmental harm or harm to human health*” based on the definition provided in Executive Order 13112. Invasive plants are compromising the ability to manage BLM lands for a healthy native ecosystem. Invasive plants can create a host of environmental and other effects, most of which are harmful to native ecosystem processes, including: displacement of native plants; reduction in functionality of habitat and forage for wildlife and livestock; increased

potential for soil erosion and reduced water quality; alteration of physical and biological properties of soil; loss of long-term riparian area function; loss of habitat for culturally significant plants; high cost (dollars spent) of controlling invasive plants; and increased cost to maintaining transportation systems and recreational sites.

1.2 Purpose and Need:

The purpose of the Proposed Action is to address the control of invasive plants on BLM-administered public lands in the KFO and to prevent the spread of invasive plants. This EA is addressing the treatment of invasive plants on BLM-administered public lands in the KFO through a programmatic approach. Treatments that require surface disturbance will be addressed in site specific environmental documents.

There is a need to treat invasive plants because they have the potential to spread and out-compete more desirable native vegetation used by wildlife and livestock. Invasive vegetation also reduces soil productivity, water quality and quantity, recreational opportunities, and increases fire hazards. The percentage of weed infestation is low, providing the KFO an opportunity to aggressively treat new and existing infestations. The following are known invasive plants on BLM-administered public lands in the KFO: Leafy spurge, Musk thistle, Scotch thistle, Canada thistle, Bull thistle, Spotted knapweed, Field bindweed, Hoary cress, Yellow toadflax, Dalmation toadflax, Houndstongue, Oxeye daisy, Saltcedar, Corn chamomile, and Downy brome.

1.3 Summary of Proposed Action:

The proposed action is to control the expansion of noxious and invasive weeds, improve riparian and wetland areas, restore fish and wildlife habitat, improve water quality, and improve upland ecological condition on public lands managed by the BLM within the project area by using an integrated approach of management techniques such as mechanical, biological, and chemical methods.

1.4 Conformance with Land Use Plan: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Document: Colorado Standards for Public Land Health and Guidelines for Livestock Grazing Management RMP Amendment

Decision Language: Standard 3: Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential. Plants and animals at both the community and population level are productive, resilient, diverse, vigorous, and able to reproduce and sustain natural fluctuations, and ecological processes.

1.1 1.5 Relationship to Statutes, Regulations, and Other Requirements

1.5 Relationship to Statutes, Regulations or other Plans:

The following Laws, Acts, Plans, manuals, and Policies provide a foundation for noxious and invasive weed management by the BLM.

The National Environmental Policy Act (1969)

- Requires the preparation of Environmental Impact Statements (EIS) for federal projects that may have significant effect on the environment
- Requires systematic, interdisciplinary planning to ensure the integrated use of natural and social sciences and environmental design arts in making decisions about major federal actions that may have significant effect on the environment.

Vegetation Treatments in 17 Western States, Programmatic Report (BLM, 2007)

This document will be referenced in this EA to address the general effects on the environment of using non-herbicide treatment methods including mechanical, manual and biological control methods.

Carlson-Foley Act (1968)

Directs agency heads to enter upon land under their jurisdiction with noxious plants and destroy noxious plants growing on such land

Federal Noxious Weed Act (1975), as amended by Sec.15, Management of Undesirable Plants on Federal Lands, 1990

Congress amended the Federal Noxious Weed Act of 1974 and the amendment was signed into law November 28, 1990. This Act requires that each Federal Agency:

- Designate a lead office and person trained in the management of undesirable plants;
- Establish and fund undesirable plant management program;
- Complete and implement cooperative agreements with State Agencies;
- And establish integrated management systems to control undesirable plant species.

The Plant Protection Act (2000)

- Replaces the Federal Noxious Weed Act of 1975
- Gave the USDA the responsibility to designate certain foreign weeds as noxious and to prevent the entry of these weeds into the US.

Colorado Noxious Weed Act

Directs all Colorado lands under the jurisdiction of local governments that have been delegated the responsibility and power to assure the management of state and locally designated noxious weeds.

Executive Order 13112, Invasive Species (1999)

Directs federal agencies to prevent the introduction of invasive species and provide control of the spread of invasive species, and to minimize the economic, ecological and human health impacts that invasive cause.

Public Rangeland Improvement Act (1978)

Requires the BLM to manage, maintain, and improve the condition of the public rangelands so that they become as productive as feasible.

BLM Manual 9014

Use of Biological Control Agents of Pests on Public Lands- This manual outlines policy, defines responsibilities, and provides guidance for the release, maintenance, and collections of biological control agents for integrated pest management program on the land administered by the BLM.

BLM Manual 9220

Integrated Pest Management- This manual outlines policy, defines responsibilities, and provides guidance for implementing integrated pest management programs on lands administered by the BLM.

BLM Manual 9011 and Manual Handbook H-9011-1

Chemical Pest Control-This manual and handbook outlines policy and provides guidance for conducting pest control programs on public land.

BLM Manual 9015

Integrated Weed Management- This manual addresses the BLM's policy relating to the management and coordination of noxious weed activities among activities of the BLM, organizations, and individuals.

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

- Provides for the registration of pesticides, certification of applicators to apply restricted use pesticides, and enforcement of pesticide regulations
- Provides for individual states to obtain primacy for enforcement of FIFRA regulations as long as states' requirements are at least equal to federal requirements

Endangered Species Act (1973) (ESA) as amended (16U.S.C. 1531, et seq.),

Directs federal agencies to ensure that their actions do not jeopardize threatened and endangered species and that through their authority aid in bringing about the recovery of such species.

1.6 Scoping and Public Involvement Issues:

The PEIS identified many key issues that were determined during scoping that are applicable to this field office-wide analysis and are incorporated either by tiering and/or by addressing specific issues of field office concern. The key issues that affect our office that were addressed in the PEIS include the effects of treatment on invasive plants and native vegetation, monitoring needs during and after treatments, the effects of herbicides on soils and surface/groundwater and the effects of herbicides on wildlife and T&E Species. During local conversations some people addressed concerns over the spread of invasive weeds and the need for more aggressive treatment.

II. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

2.1 Introduction

This EA is tiering to a series of analyses contained in other documents. Tiering is defined as “using the coverage of general matters in broader NEPA documents in subsequent, narrower NEPA documents, allowing the tiered NEPA document to narrow the range of alternatives and concentrate solely on the issues not already addressed” (BLM NEPA Handbook H-1790-1).

This EA tiers to a *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS)* (2007), which analyzed the impacts of using herbicides (i.e. chemical treatment methods) on public lands. Specifically, the Record of Decision (ROD) approved the use of 18 herbicide active ingredients (2,4-D, bromacil, chlorsulfuron, clopyralid, dicamba, diuron, glyphosate, hexazone, imazapyr, metsulfuron methyl, picloram, sulfometuron methyl, tebuthiuron, triclopyr, imazapic, diquat, diflufenzopyr (in formulation with dicamba), and fluridone). This EIS also assessed five alternatives: (see pages ES-2-ES-4, Volume 1 PEIS).

1. **Continued present herbicide use** – Under this alternative, the BLM would continue to use 20 herbicide active ingredients approved for in 14 western states.
2. **Expand herbicide use and allow for use of new herbicides in 17 western states (Preferred Alternative)** - This alternative represents the treatment of vegetation using 18 herbicide active ingredients in 17 western states (Including Alaska)
3. **No use of herbicides** - Under this alternative, the BLM would not treat vegetation using herbicides. The BLM could only use fire, mechanical, manual and biological control methods.
4. **No aerial application of herbicides** - All 18 herbicides would be allowed for use. However, only ground based techniques would be used to apply herbicides to reduce the risk of spray drift impacting non-target areas.
5. **No use of sulfonyleurea and other acetolactate synthase-inhibiting active ingredients** - Under this alternative, the BLM would not use sulfonyleurea and other acetolactate synthase-inhibiting active ingredients approved in the earlier RODs, which are chlorsulfuron, imazapyr, metsulfuron methyl and sulfometuron methyl.

This EA also tiers to *Vegetation Treatments on BLM Lands in 13 Western States (FEIS)* (1991), which analyzed the impacts of using (i.e. biological, physical, cultural, and prescribed fire) on public lands.

In addition, this EA incorporates by reference the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environment Report (PER)* (2007a), which evaluated the general effects of non-herbicide vegetation treatments (i.e. biological, physical, cultural, and prescribed fire) on public lands. The scope of PER is based on several EISs that were prepared from 1985 through 1992, including the 1991 FEIS.

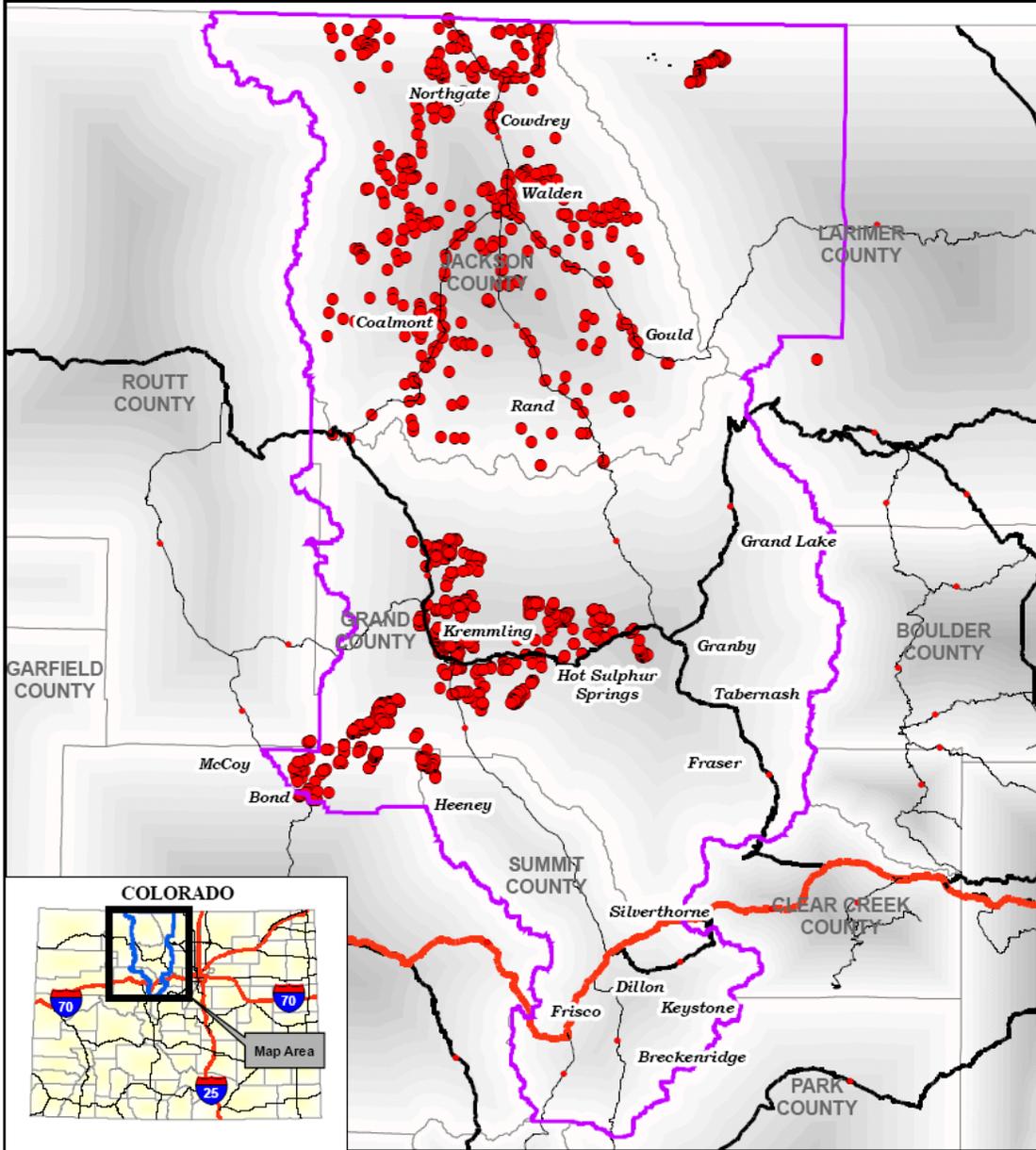
2.2 Proposed Action:

The BLM KFO is proposing to treat invasive plants species on BLM-administered public lands (Map 1) by utilizing integrated weed management (IWM). IWM is a sustainable approach to managing weeds by combining biological, cultural, physical, prescribed fire and chemical tools in a way that minimizes economic, health, and environmental risks (DOI Departmental Manual 517).

The five methods evaluated in this EA are chemical, biological, physical, cultural, and prescribed fire on approximately 800 acres. The five methods of treatment would continue, but the acres treated annually would increase. An estimated 4,000 acres of public lands would be treated annually by all entities, using all treatment methods, based on constraints such as funding, staffing, treatment methods, phenology stage of the species, susceptibility of targeted species to treatment methods and weather, etc. Thus, the primary focus of this EA is analyzing the impacts resulting from chemical (i.e. herbicide) treatments. Under the Proposed

Map 1. Noxious Plant Locations - Reference Map

Kremmling Field Office - Colorado - Bureau of Land Management



Noxious Plants Location	Colorado Counties	Interstate Hwy
Kremmling FO Boundary	U.S. Hwy	State Hwy
BLM		

0 5 10 20 Miles 1:890,770

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NATIONAL SYSTEM OF PUBLIC LANDS

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Action, 14 previously approved herbicides' active ingredients (2,4D, bromacil, chlorsulfuron, clopyralid, dicamba, diuron, glyphosate, hexazone, imazapyr, metsulfuron methyl, picloram, sulfometuron methyl, tebuthiuron, triclopyr, imazapic,) and four new herbicide active ingredients (diquat, diflufenopyr, florigone and imazapic) would be used for chemical treatment.

Weed populations vary in size throughout the KFO. In order to determine actual locations of noxious weed infestations, inventories would continue to be conducted on the ground by the BLM and volunteers trained in plant identification and data recording techniques. The majority of the BLM-administered public lands in the KFO have been inventoried. The KFO would complete the following activities under a comprehensive invasive plant management plan:

- Treat approximately 1000 acres annually using herbicides. Treatments would focus on invasive plants but may also include other invasive species. With the potential expansion of oil and gas development in Jackson County, treatment acres could increase to 2,000 acres annually (i.e. 1000 additional acres in North Park) because weed mitigation is a requirement for all permitted activities.
- Treat approximately 1000 acres annually using physical, cultural, biological and fire methods with the potential to treat up to 2000 acres.
- Continue surveying and treating for new infestations of all A, B, and C listed weeds as described in the Colorado Noxious Weed Act (see Appendix 1 for the A, B, and C list weeds). If needed, species not found on the A, B and C list may be treated. These species would include but not be limited to plants like Crested wheatgrass, Broom snakeweed, sagebrush or rabbitbrush that are not contributing to habitat needs or land health.
- Continue to contract with Grand, Jackson, and Larimer counties to treat weeds on BLM-administered public lands in the KFO.
- Focus on areas along the Colorado River corridor and other areas with limited access (i.e. two-tracks off main county roads). See the description of treatment methods below.
- Conduct outreach at county fairs, schools, BLM-sponsored events, and press releases.
- Monitor treated areas to determine the effectiveness of treatments.

Description of Treatment Methods:

- Chemical Treatments: Currently, the most effective way for the KFO to treat weeds has been with herbicides because the majority of the weed infestations are small (<1 acre), and the majority of the troublesome weeds are perennial, which are best treated with an herbicide. The KFO uses truck-mounted sprayers, all-terrain vehicle (ATV)-mounted sprayers with a handgun, and backpack sprayers to apply the herbicides. These application methods allow for pesticides to be applied to a specific plant, which prevents the loss of non-target plants. Other types of applications that may be used would include wicking and wiping, foliar, cut stump, or basal bark application (see Appendix 2, Glossary). In some cases, large scale herbicide treatments may be needed using an airplane or a helicopter. Aerial treatment would most likely occur during an emergency stabilization or to help improve land health. An example of an emergency stabilization would be to treat cheatgrass after a fire. An example of improving land health would be using a herbicide to reduce and rejuvenate an old stand of sagebrush. There may also be a need to use a broadcast (boom) spraying method. The boom would be attached to an off-

highway vehicle (OHV) or other vehicle. This method is best used along roads or other areas where infestation levels are high and spot spraying would not be cost effective. In all cases, the herbicide treatment would require approval through the use of Pesticide Use Proposal (PUP).

- Physical Treatments: Physical treatments use manual labor or mechanical means to remove weeds. This strategy works best on annual and biennial weeds. It is not effective on perennial weeds unless it is used in conjunction with chemical treatment. Mechanical methods include mowers, dozers, and backhoes, but the KFO has not initiated any mechanical treatments for weed infestations. Most of the manual treatments have involved hand digging. Manual methods include hand pulling and bagging; clipping seedheads; chopping or digging; using chainsaws (e.g. when treating tamarisk).
- Biological Treatments: Biological agents are part of an IWM. By BLM definition, a biological treatment is that which intentionally uses living organisms (agents) to reduce the population of a pest. It may include the use of insects, nematodes, mites, plant pathogens and vertebrates. Some biological agents have been released or used in the KFO. One particular biological agent was released on musk thistle on Independence Mountain. It was noted in 2004, that the insects were still working and thriving. There have also been advancements in the biological treatment of tamarisk using the tamarisk leaf beetle, *Diorhabda elongate*, in Colorado. As further information is learned, this beetle could be utilized on populations of tamarisk in the KFO. Depending on weed growth and spread, the need for biological treatments in KFO may increase.
- Cultural Treatments: Cultural treatments are defined as those which focus on management practices that aid in the prevention or control of invasive plants. Examples include drilling or inter-seeding into a patch of weeds to establish more competitive plants, or using livestock for increasing native vegetation.
- Prescribed Fire: Prescribed burning is the planned application of fire to wildland fuels in their natural or modified state, under specific conditions of fuels, weather, and other variables, to allow the fire to remain in a predetermined area and to achieve site-specific fire and resource management objectives. Treatments would be implemented in accordance with the KFO Fire Management Plan. These treatments may include follow-up seeding to prevent or inhibit the re-invasion of invasive plants.

Design Features of the Proposed Action:

- KFO staff reviewed the 2007 PEIS Standard Operating Procedures (SOPs) and mitigation measures and selected the SOPs and mitigation measures that would become part of this proposed action. Additional design features not found in the PEIS's SOPs or mitigation measures are listed below:
- Wilderness: Control of non-native species inside WSAs would be consistent with the Interim Management Policy for Lands Under Wilderness Review. The wilderness management tool (i.e. minimum required decision guidance) would be utilized to

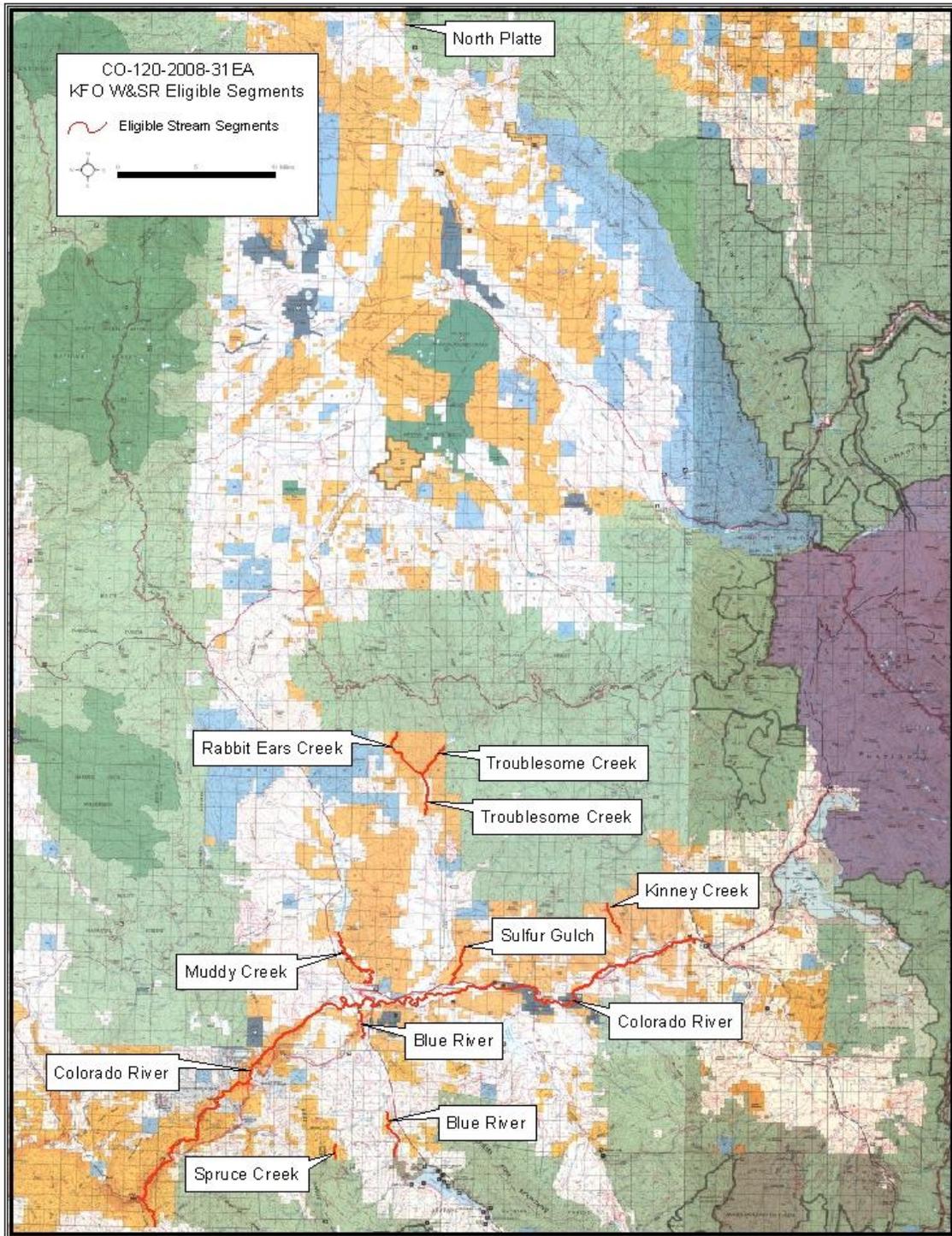
authorize any cross-country motorized travel. Biological controls would not be released inside a WSA.

- Wild and Scenic Rivers: Application of chemicals within ¼ mile of an eligible Wild & Scenic River segment (see Map 2) would be consistent with the manufactures' labeling regarding safe use of the chemical in a river environment. Mechanical treatments within the ¼ mile buffer would be conducted using practices that reduce ground disturbances and prevent additional sediment loads.
- Soils: Herbicide treatments on slopes that exceed 35 percent with erodible soils would be limited to spot applications. Any other herbicide application method would not occur on erodible soils with slopes that exceed 35 percent, unless an erosion control plan can be designed that limits soil loss and provides for successful stabilization and re-vegetation. Monitoring of the treatment area under an erosion control plan would occur for the first three years to insure the area re-vegetates with desirable plants and is stabilized.
- All applications of chemicals would be consistent with the manufactures' labeling regarding safe use of the chemical.

For herbicides, a 10-foot buffer for ground application, a 15-foot buffer for ground vehicle application, and a 100-foot buffer for aerial application would be required between treatments and water.

- Application of herbicide around known T&E species will require consultation with the USFWS.

Map 2 – Wild and Scenic River Eligibility Segments



2.3 No Action Alternative (Continuation of Present Management): The KFO would continue to treat invasive plants using 14 active ingredients (2,4-D, bromacil, chlorsulfuron, clopyralid, dicamba, diuron, glyphosate, hexazone, imazapyr, metsulfuron methyl, picloram, sulfometuron methyl, tebuthiuron, triclopyr, imazapic.). The KFO would continue to use physical, cultural, biological and prescribed fire treatments in addition to herbicide treatments.

Currently, the KFO treats about 95 percent of invasive plants on BLM-administered public lands with herbicides. The other 5 percent of treatments use other IWM treatment methods. This percentage of treatment methods would continue. The KFO would continue to treat approximately 800 acres annually - 300 acres with herbicides and 500 acres with other methods-

2.3 Alternatives Considered But Not Analyzed in Detail: Various situations were considered where practices wouldn't be allowed or would be constrained, such as not allowing the use of aerial applications of herbicides or not using herbicides at all. It was determined that to effectively treat invasive plants, all treatment options need to be available. Thus, alternatives that address the use of fewer than the five IWM treatments or limit the application of those treatments will not be analyzed in detail.

2.5 Plan Conformance Review: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Document: Colorado Standards for Public Land Health and Guidelines for Livestock Grazing Management RMP Amendment, January 1997.

Decision Language: Standard 3, Pg. 7: "Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential. Plants and animals at both the community and population level are productive, resilient, diverse, vigorous, and able to reproduce and sustain natural fluctuations, and ecological processes." As part of the standards, noxious plants and undesirable species are an indicator of meeting Standard 3.

III. AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES /

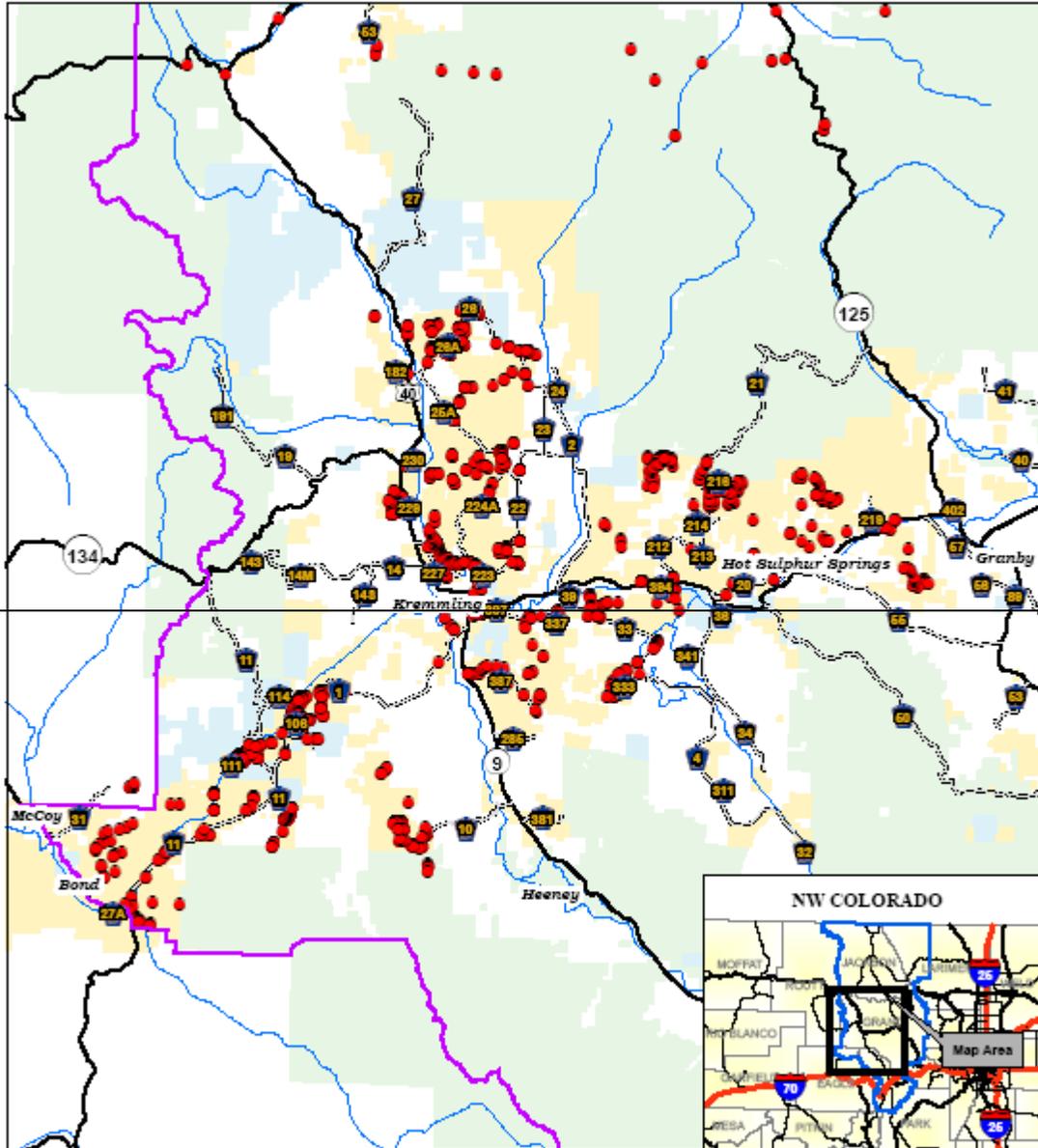
MITIGATION MEASURES: The following elements were determined to be potentially impacted and were carried forward for analysis from the interdisciplinary team analysis review record and checklist in section V.

INVASIVE, NON-NATIVE SPECIES

Affected Environment: There are widely scattered invasive plants throughout the resource area that are increasing in area and density but, in general, their presence is limited to small infestations. Some of the more common weeds include: Musk thistle, Canada thistle, Houndstongue, Corn chamomile, Black henbane, Diffuse knapweed, Leafy spurge, Whitetop, Oxeye daisy, bindweed, Platte thistle, Orange hawkweed, Dalmatian toadflax, Russian knapweed and Bull thistle. See Maps 3 through 6 to identify the known locations of invasive plants in the KFO.

Map 3. Noxious Plant Locations - Colorado River Corridor

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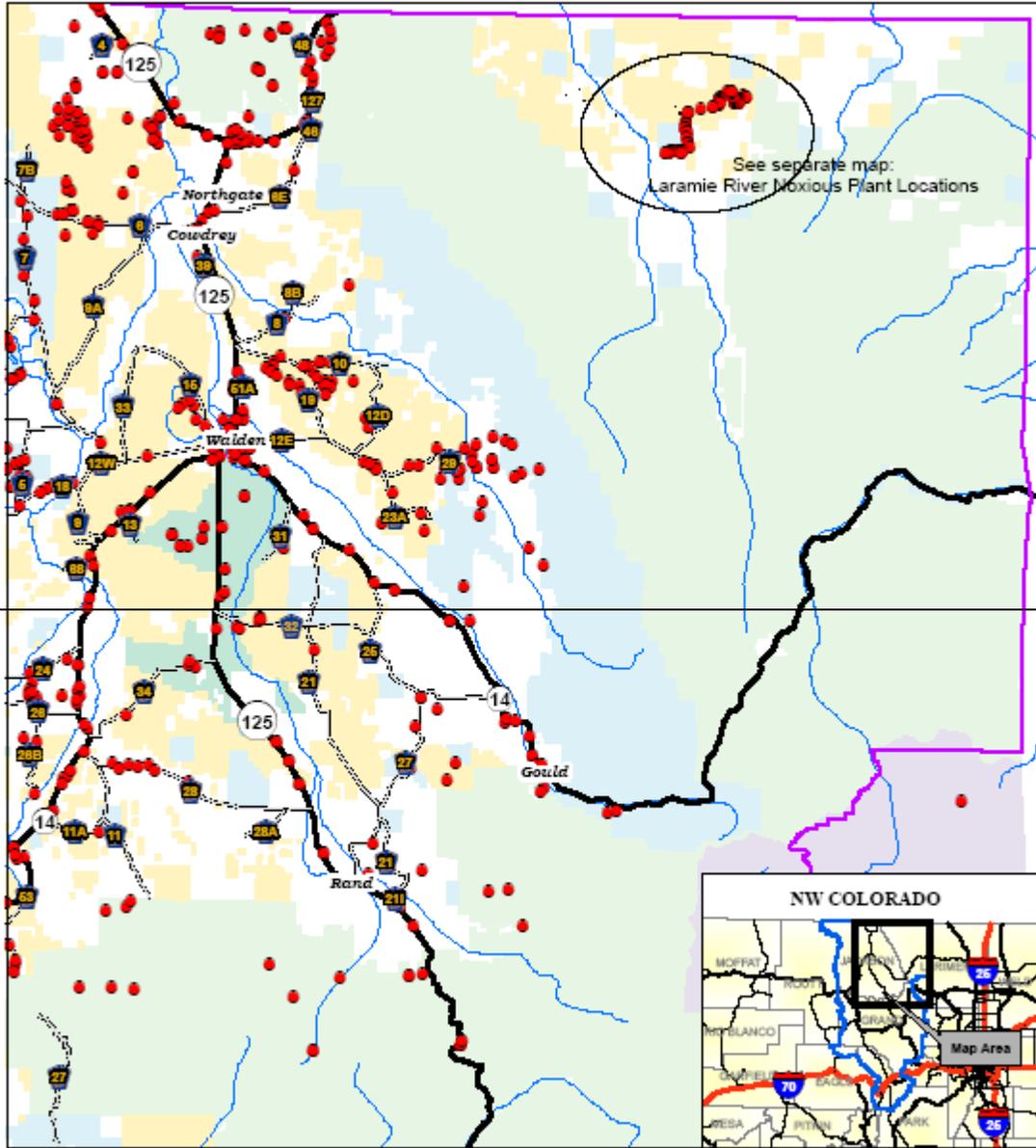
Kremmling FO Boundary	Bureau of Land Mgt	US Forest Service	0 2 4 8 Miles	1:378,469	
Noxious Plants Location	State	National Wildlife Refuge			
U.S.S State Hwy	National Park				

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Map 4. Noxious Plant Locations - East of State Hwy 125

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See separate map:
Laramie River Noxious Plant Locations

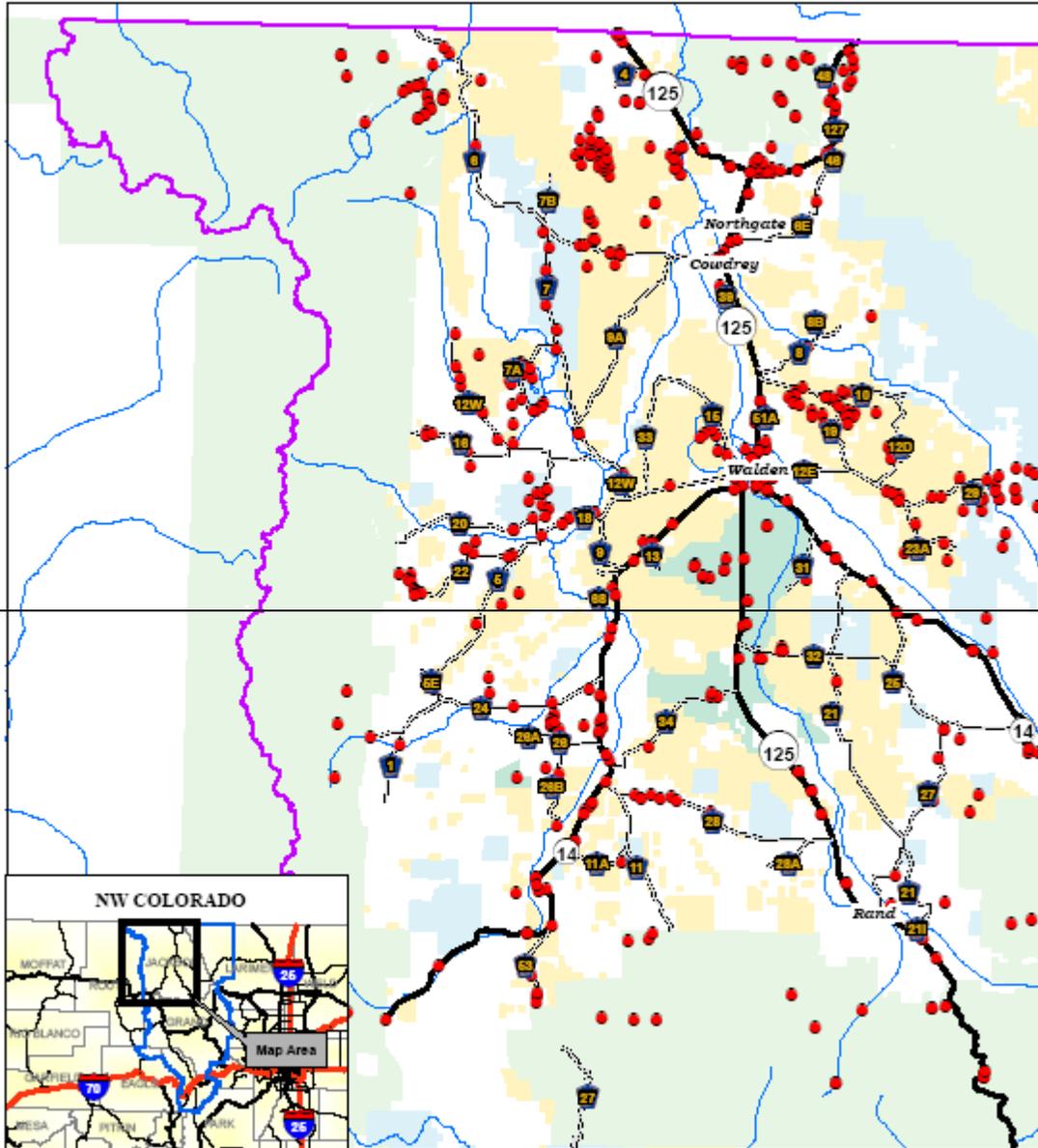
Kremmling FO Boundary	Bureau of Land Mgt	US Forest Service	0 2 4 8 Miles	1:378,469	
Noxious Plants Location	State	National Wildlife Refuge			
State Hwy	National Park				

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Map 5. Noxious Plant Locations - West of State Hwy 125

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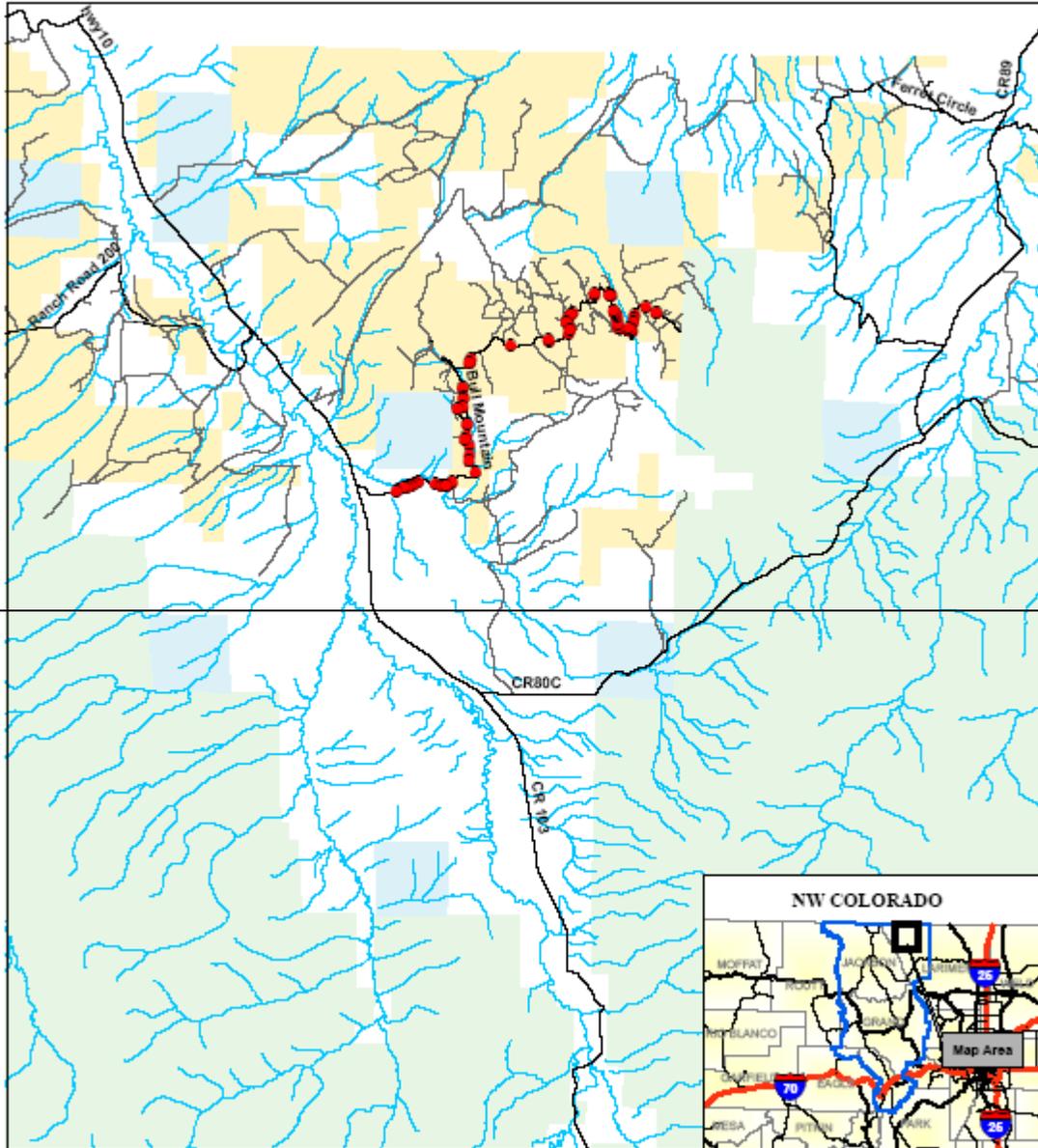
Kremmling FO Boundary	Bureau of Land Mgt	US Forest Service	0 2 4 8 Miles	1:378,469	
Noxious Plants Location	State	National Wildlife Refuge			
State Hwy	National Park				

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Map 6. Noxious Plant Locations - Laramie River

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Noxious Plants Location	Bureau of Land Mgt	US Forest Service	0 0.4 0.8 1.6 Miles	1:116,172	
Road	State	National Wildlife Refuge			
Primitive Road	National Park				

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Environmental Consequences: An IWM approach that uses herbicide application and the other treatment methods mentioned below would provide the most effective long-term prevention of the spread of invasive plants. Under the Proposed Action, the KFO would increase the acreages treated annually (i.e. from 800 to 4000 acres), thus increasing the capacity to treat invasive plants.

Chemical treatments, specifically the four new active ingredients (diquat, diflufenzopyr, fluridone and imazapic), would provide the KFO additional tools to treat invasive weeds. The use of imazapic could be used on cheatgrass infestations. This would be especially important for emergency stabilization and rehabilitation of burned areas where cheatgrass is a problem. Diflufenzopyr could be used to treat oxeye daisy and Musk thistle to help prevent weed tolerance from repeated use of other active ingredients. The use of fluridone could be used in cases of an aquatic weed infestation in reservoirs or irrigation ditches. Together, these new herbicides and the 14 previously approved herbicides would provide more options to effectively manage invasive populations, thus increasing the BLM's ability to limit the spread of noxious species.

Physical treatments would continue to be effective in small populations, however large populations would be difficult to control due to the amount of time and effort required for effective treatments. Also, many weed species would continue to grow if not all of the weed plant, above and below ground, is removed.

Cultural practices and biological practices would provide effective control of invasive plants. The use of goats or other livestock would eat weed species, however they would also impact (eat) native vegetation that is important to wildlife or livestock. Many biological agents are host specific, which means they would only impact a specific weed plant. However, these practices alone would not eradicate a weed population, but rather reduce vigor and productivity of the invasive population.

Fire could be used as an interim step to provide for the re-establishment of native vegetation. In most cases, this is the least preferred method as there is a potential to increase invasive plants.

Under the No Action Alternative, the KFO would be able to use 14 previously approved herbicide active ingredients and would continue to treat approximately 800 acres annually. However, the effectiveness of preventing noxious weed establishment during emergency stabilization after a fire would be limited without the use of imazapic. Also tolerance from repeated use of the same active ingredients would continue to be a problem as imazapic is also used for control of other invasive plants. Thus, the BLM's ability to limit the spread of invasive plants would be limited compared to the Proposed Action.

Mitigation: None

THREATENED, ENDANGERED, AND SENSITIVE SPECIES

Affected Environment:

Plants: (see Maps 7 through 10)

North Park Phacelia, an endangered plant, occurs in central Jackson County and northwest Larimer County, primarily on BLM-administered public lands. It grows on barren exposures where the Coalmont Formation forms outcrops of sandy soil or ledges. The species grows most abundantly on steep, sparsely vegetated, and erodible slopes, such as on the sides of deep ravines.

Osterhout milkvetch and Penland beardtongue are both endangered plants, indigenous to Grand County, and are found primarily on BLM-administered public lands. Osterhout milkvetch prefers selenium rich, clay soils derived mostly from Niobrara and Pierre Shale. The plant occurs between 7500-7700 feet in elevation and typically grows on relatively flat areas and barren knolls. Optimum habitat for Penland beardtongue appears to be in runoff channels shaded by deeply cut banks. It grows in alkaline clays containing selenium between 7500-7700 feet.

Harrington beardtongue is a BLM sensitive plant within the KFO administered public lands. It is located in the southwestern part of the KFO between Grand, Summit, and Eagle counties. This species is found primarily in open sagebrush on rocky loam and rocky clay loam soils from 6800-9200 ft.

Fish:

Greenback cutthroat trout occurs in parts of Larimer County, however it has not been documented in any streams in the Laramie River drainage on BLM-administered public lands. In 2008, this species was documented in two streams within the KFO in Grand and Summit counties by way of genetic testing. These two streams were Spruce Creek on BLM-administered public lands and Antelope Creek on State land (both were previously identified as containing Colorado River Cutthroat Trout).

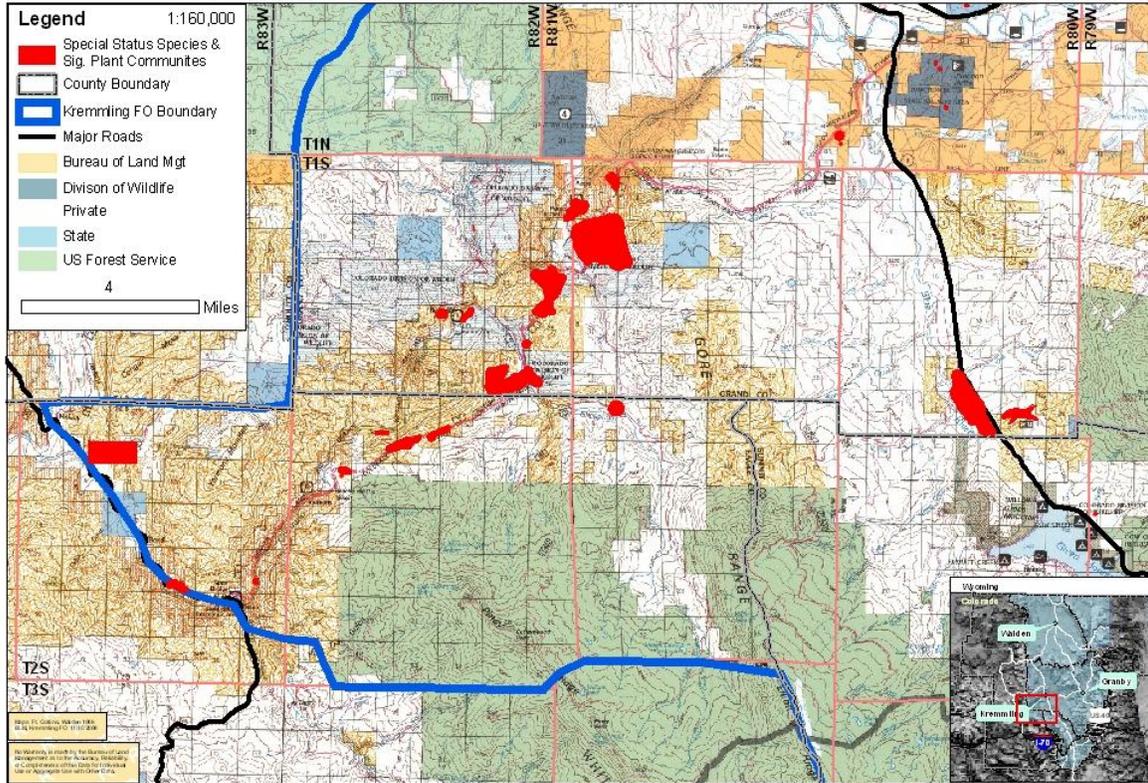
In addition, the Colorado River cutthroat trout is a species of concern that is on the Colorado BLM Director's Sensitive Species List and the Colorado Division of Wildlife (CDOW) list as State Species of Concern. The Colorado River cutthroat trout has been documented on BLM-administered public lands in Kinney Creek.

Amphibians:

The boreal toad, once common in montane habitats between 7,000-12,000 feet in the Southern Rocky Mountains, has experienced dramatic population declines over the past two decades. It is presently listed as a state endangered species in Colorado. The U.S. Fish and Wildlife Service

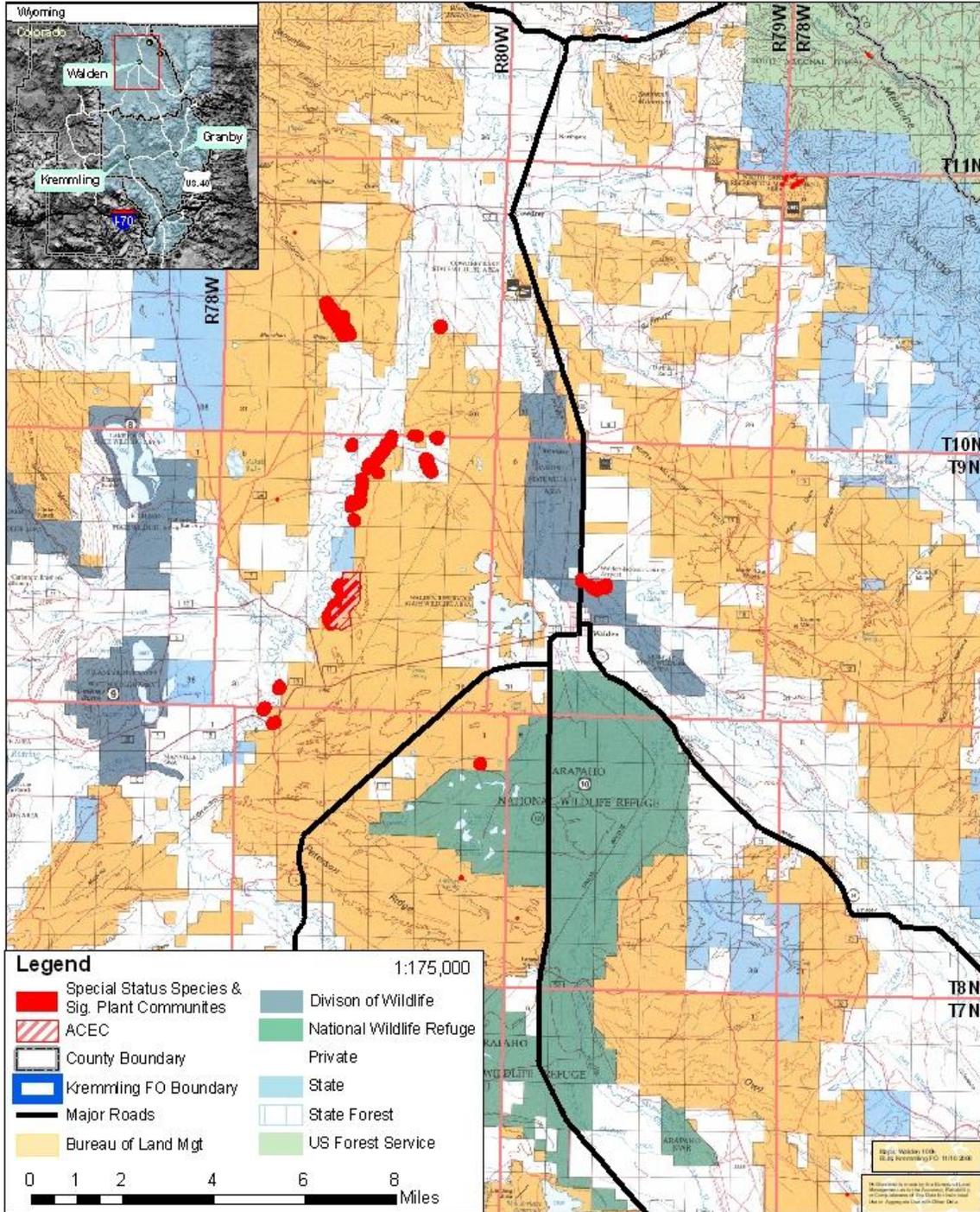


Map 7 - Special Status Species and Significant Plant Communities--Eagle County



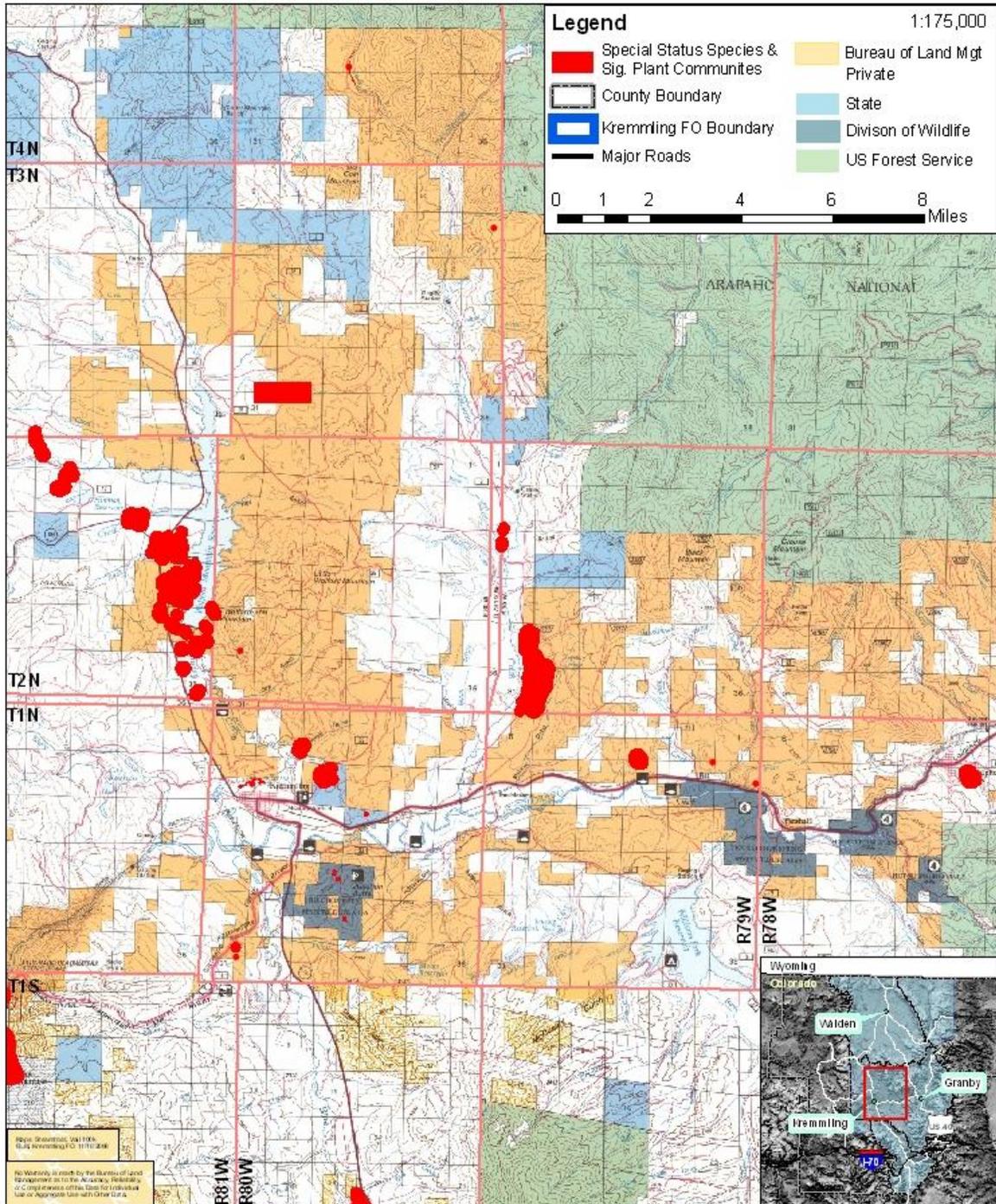


Map 8 - Special Status Species and Significant Plant Communities--Jackson County



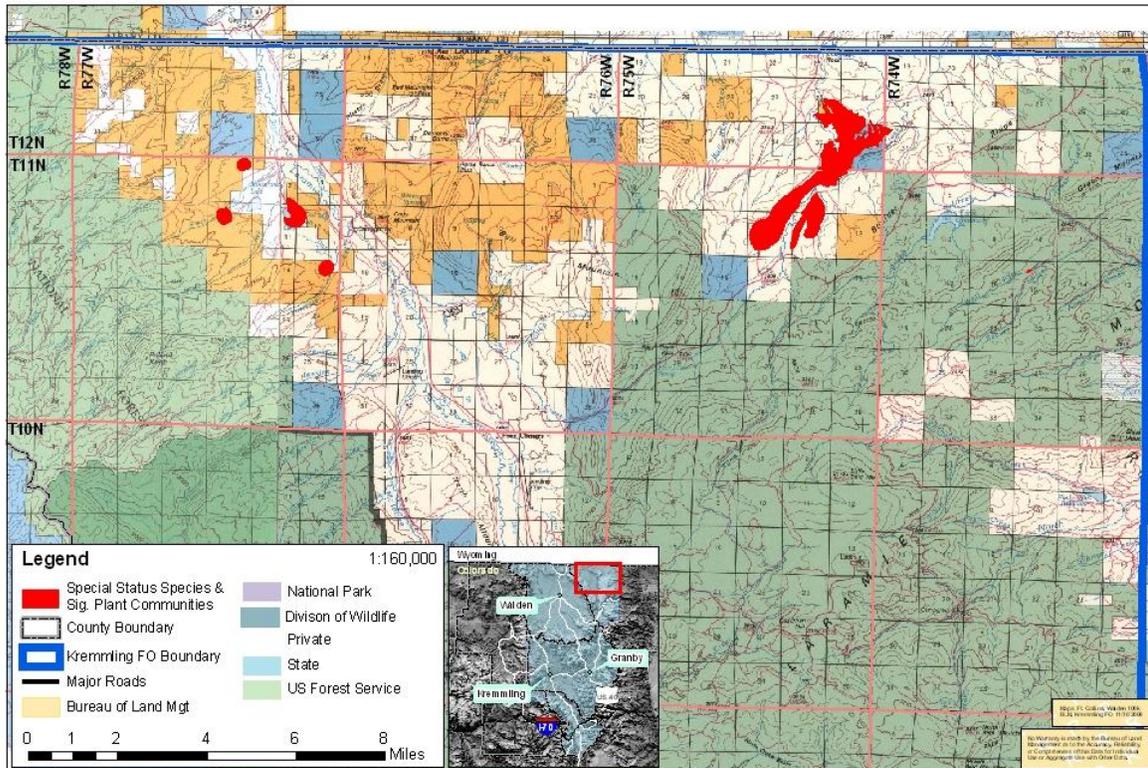


Map 9 - Special Status Species and Significant Plant Communities--Grand County





Map 10 - Special Status Species and Significant Plant Communities--Larimer County



(USFWS) had classified the Southern Rocky Mountain population of the boreal toad in 1995 as a candidate species and found it to be "warranted but precluded" for federal listing. In 2006, this designation was removed while the distinctness of the Southern Rocky Mountain population is reevaluated. The majority of boreal toads within the resource area occur at the periphery on United States Forest Service (USFS) lands. Very few occurrences have been recorded on BLM-administered public lands the last 10 years. These include Pole Creek in west Larimer County (last observed in 1998) and Pole Creek in east Grand County (last observed in 2004).

The northern leopard frog is on the Colorado BLM Director's Sensitive Species list and the CDOW list as State Species of Concern. Typical habitats include wet meadows and the banks and shallows of marshes, ponds, beaver ponds, lakes, reservoirs, streams, and irrigation ditches. Habitat for this species exists throughout the KFO on BLM-administered public lands. A well documented population occurs along Antelope Creek and the Junction Butte Wetland in Grand County.

Birds:

The bald eagle, greater sage-grouse, and northern goshawk are regularly found on BLM-administered public lands within the KFO. Bald eagles, listed as state threatened and recently delisted from federally threatened in 2007, occur throughout the KFO area on or adjacent to BLM-administered public lands near major rivers, lakes and reservoirs with large tall trees, such as cottonwoods. They are primarily winter residents however, several active nests occur within the KFO. Areas where bald eagles occur include the Laramie, Colorado, Blue, and Williams Fork rivers, as well as Muddy Creek and Troublesome Creek.

Northern goshawks are a BLM sensitive species that occupy coniferous and riparian forests and, occasionally, shrublands. Currently three active nest sites have been recorded within the KFO on BLM lands: Green Ridge in Jackson County, Inspiration Point and Kinney Creek in Grand County. Probable sightings have also been reported north of Kremmling and east of Granby in Grand County.

Greater sage-grouse, a BLM sensitive species, inhabit much of the KFO on BLM-administered public lands. Sage grouse are found only in areas where sagebrush is abundant as it is a critical component for this species providing both food and cover. In Jackson County, there are approximately 38 active leks (2007 data); 20 of those are on BLM-administered public lands. In Grand County there are 19 active leks (2006 data) and 7 of those are on BLM-administered public lands.

Mammals:

Canada lynx are generally restricted to extremely isolated areas of the mountains of the central portion of the state. They prefer uneven-aged stands of coniferous forest with relatively open canopies and well-developed understories. Occurrences are scattered throughout the KFO, but primarily occur on USFS lands. Lynx reported on BLM-administered public lands are generally just passing through the area to more suitable habitat. Habitat on BLM is located on the periphery of the KFO adjacent to USFS. Of the total habitat mapped on BLM-administered

public lands, approximately 34,000 acres or only about 20 percent is designated as “winter” habitat and the remaining 80 percent is designated as “other” habitat.

River otters are a State threatened species. They are on or adjacent to BLM-administered public lands within the KFO and are generally found on most major drainages including the Laramie, Illinois, Michigan, Colorado, Fraser, Williams Fork, and Blue rivers. Several smaller creeks, primarily within Grand County, are also mapped as overall range for river otters. Important winter range for this species is found on the Laramie, Colorado, Williams Fork, and Fraser rivers.

Townsend's big-eared bats, a BLM sensitive species, can be found throughout Colorado except on the eastern plains. Habitat includes mines, semi-desert shrub lands, caves and structures in woodlands and forests up to and above 9,500 feet. This species most likely occurs in parts of Larimer County within the KFO, but presence on BLM-administered public lands is not known.

Environmental Consequences: In general, habitat that supports threatened, endangered or sensitive species (i.e. plants, fish, amphibians, birds and mammals) would benefit from a reduction in weed species. The greatest potential impacts from herbicide spraying would occur to threatened, endangered or sensitive (TES) plants (see maps below) and ground nesting birds (such as sage-grouse) because the majority of spraying occurs in areas that support these species. Impacts from other treatment methods would be minimal in most cases.

Consultation with the USFWS would continue to occur when there is a potential to impact federally threatened or endangered species. The following sections summarize the impact analysis contained in the *2007 Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement Record of Decision page 2-2* that is relevant for TES species in the KFO and includes additional impact analysis specific to the KFO.

Fish, Amphibians, and Mammals:

There would be minimal impacts to TES fish, amphibians, and mammals because the majority of spraying occurs outside of areas where these species occur. Risk assessments have been completed in the 2007 PEIS for the new herbicides and the determination concluded that appropriate herbicide use is not likely to affect wildlife species. As stated above, consultation would still occur with the USFWS if there is a potential to impact federally threatened or endangered species.

Plants:

All of the herbicides analyzed in Environmental Risk Assessments (ERAs) would pose risks to terrestrial special status plant species in a situation where plants were directly sprayed, at either typical or maximum application rates, during a treatment. Herbicides with the greatest likelihood of harming special status plants (i.e., those that pose a high risk when applied at the typical application rate) include bromacil, chlorsulfuron, clopyralid, diflufenopyr, diquat, imazapyr, metsulfuron methyl, Overdrive[®], picloram, sulfometuron methyl, and triclopyr. These herbicides

would also present the most risk to terrestrial special status plant species as a result of drift from a nearby application site. The herbicide with the lowest risk to terrestrial plants is imazapic, which, according to ERAs, can be broadcast sprayed by ground methods 25 feet from a sensitive plant without risk. Additional indirect effects to certain special status plant species could occur if populations of pollinators were harmed by herbicide spraying. However, according to risk assessments, risks to pollinators would be less than those associated with direct spray of the rare plants themselves.

Birds:

Possible adverse direct effects to sage-grouse include death, damage to vital organs, change in body weight, decrease in healthy offspring, and increased susceptibility to predation. Adverse indirect effects include reduction in plant species diversity and consequent availability of preferred food, habitat, and breeding areas; decrease in wildlife population densities within the first year following application as a result of limited reproduction; habitat and range disruption (as birds may avoid sprayed areas for several years following treatment), resulting in changes to territorial boundaries and breeding and/or nesting behaviors; and increase in predation due to loss of ground cover. However, harmful doses of herbicide are not likely and risks for direct spray and spills, indirect contact with foliage after direct spray, and ingestion of food items contaminated by direct spray are generally low.

Under the No Action Alternative, impacts to TES species from the use of the existing 14 active ingredients would be similar to those described above. Risk assessments were completed on these active ingredients and it was also determined that appropriate herbicide use would not likely affect wildlife species.

Mitigation: None

WATER QUALITY, SURFACE AND GROUND and WETLANDS & RIPARIAN ZONES

Affected Environment: Water quality within the KFO is generally good, and few areas are identified for water quality concerns. Many of the public lands have private irrigation ditches crossing them, which can create artificial wetlands and very low streamflows. Ditches also intercept runoff from the uplands, transporting the runoff to private hay meadows. Most streams peak in the spring due to snowmelt and return to base flows during the late summer months. Ground water zones include both shallow precipitation-fed seeps and swales with elevated water tables to deeper aquifer-fed springs. Also found on the public lands are numerous wells, ponds and reservoirs which are used by wildlife and livestock. Wetland and riparian zones represent less than five percent of the surface acreage of all ownerships in the KFO. These small areas generally support the greatest diversity of plant and animal species and provide important resource values. The vegetation communities found in these areas not only support a variety of native plants but also support the most aggressive invasive weed species. Currently KFO's highest weed populations occur in the Colorado River Special Recreation Management Area, livestock watering areas, wetlands and riparian areas. These areas have the greatest potential to be affected by invasive plants.

Environmental Consequences: Under the Proposed Action, four new herbicide active ingredients (i.e. diquat, diflufenzopyr, florigone and imazapic) plus 14 existing approved herbicides would be used for chemical treatment. Diquate and florigone, 2,4-D, glyphosate, imazapic and triclopyr would not be expected to impact wetlands or water quality because they are labeled for such use. The other approved herbicides are to be used in a terrestrial setting. When using these herbicides, there is still a potential for water contamination (i.e. ground water or surface water) due to runoff and leaching, drift, and spills which could impact fisheries, agriculture, drinking water, recreational opportunities and native vegetation. The use of spot applications and buffers reduces these risks.

Impacts from other treatment methods vary depending on the method. When spot applications are used, such as with most physical treatments, there would be either no surface disturbance, or small, discontinuous patches of soil would be exposed. In both cases, soil erosion and subsequent effects on water quality would be minimal or nonexistent. When larger-scale treatments are used, such as prescribed fire or using dozers or mowers, areas of soil would be exposed that could be susceptible to wind or water erosion, which could contaminate adjacent surface water and reduce water quality.

Under the No Action Alternative, the 14 approved herbicides and the other four treatment methods would continue to be used. Under this alternative, there is no approved herbicide treatment or cost effective physical or cultural cheat grass control. The inability to use newly approved imazapic to control cheat grass infestation following a fire would decrease native vegetation causing sediment loading which could affect water quality. All other impacts under this alternative would be similar to the Proposed Action.

Mitigation: None

SOILS

Affected Environment: The KFO has over 200 soil mapping units. The public land soils include many areas of low productivity, including rock outcrops, steep slopes, and harsh exposures. The lands tend to have many areas of naturally poor ground cover and higher erosion rates, and land uses that can cause significant soil erosion. Improving upland soil conditions is generally very slow and difficult to perceive, due to the cold soil temperatures and fairly xeric moisture regimes in the rangeland areas. From the limited North Park studies, the soils between grazed and ungrazed areas had similar mycorrhizal populations, which are essential to long-term soil productivity and health. Although nitrogen fertilizers and chemical herbicides reduced mycorrhizal populations, the impact appears to be short term, with populations rebounding a few years after application. Actual soil vulnerabilities to the loss of fertility, erosion, and other detrimental impacts are due to a number of factors, including: soil moisture at the time of treatment; slope and aspect of the site; weather at the time and immediately after treatment; and post treatment management. The percentage of BLM-administered public lands in the KFO with highly erodible soils is summarized below:

Highly Erodible Soils						
County	Eagle County	Grand County	Jackson County	Larimer County	Summit County	Total KFO:
Wind Erosion %	Not available	17%	36%	77%	33%	31%
Water Erosion %	Not available	38%	11%	11%	2%	22%

Environmental Consequences: Under the Proposed Action, the direct impacts to soils from aquatic herbicides would be minimal due to their site specific use, while herbicide treatments on terrestrial sites could provide greater direct impacts to soils. In both the Proposed Action and No Action Alternatives, the direct impacts to soils depend on soil physical property, application rate, and the chemical and biological conditions of the soil. During herbicide application, there is a potential to reduce plant material which could have been incorporated into the soil, thus improving the quality. There is also the potential for a short-term increase in rills, changes in water flow patterns, and bare ground from loss of vegetation due to herbicide treatments resulting in soil erosion. However, after native vegetation reestablishes, the soil stability should improve.

Physical and cultural practices would benefit soil by removing invasive plants and returning the vegetation to a native habitat which would reduce the potential for fires and improve soil structure. Most of the treatments would involve hand digging and pulling. There is the potential that soil crust and structure would be hurt by these types of treatments. In some instances, livestock may be used which may cause soil compaction. Compacted soil would reduce water infiltration, soil aeration, and root penetration. However, treatments that improve plant cover would improve soil properties. Treatment by fire would be the least desirable to due to potential for erosion.

Under the No Action Alternative, the 14 approved herbicides and the other four treatment methods would continue to be used. Under this alternative, there is no approved herbicide treatment or cost-effective physical or cultural cheat grass control. The inability to use newly approved imazapic to control cheat grass infestation following a prescribed or wildland fire would decrease native vegetation, resulting in soil erosion. All other impacts under this alternative would be similar to the Proposed Action.

Mitigation: None

VEGETATION

Affected Environment: The majority of vegetation found within the KFO is a mixture of sagebrush with and an understory of grasses and forbs. The other vegetation found in the resource area includes: timber (lodgepole pine, piñon pine and aspen); willows species; cottonwood; and mountain shrub species. The current condition of grasses and forbs has been determined to meet land health standards, but the condition of the timber is declining due to insects and disease.

Environmental Consequences: Under the Proposed Action, four new herbicide active ingredients (i.e. diquat, diflufenopyr, florigone and imazapic) plus 14 existing approved herbicides would be used for chemical treatment. Diquate and florigone would be approved for use in aquatic systems per label directions. These active ingredients as well as other aquatic approved active ingredients (2,4-D) would cause potential short-term loss of native vegetation found in riparian areas. The potential treatment areas for these active ingredients would be found in irrigation ditches, livestock watering areas, streams and wetlands.

Imazapic and diflufenopyr, as well as other active ingredients (picloram, metsulfuron methyl), are recommended for upland sites. Potential treatment areas include native rangelands, disturbed areas by livestock or recreation areas. In all cases, herbicide use can cause a short-term loss of native vegetation, reduced diversity, and production, impacting wildlife habitat, erosion and forage. These impacts would depend on the mode of action (selective versus non-selective herbicide), the type of treatment (spot application versus broadcast), weather (rain versus sun), drift and soil properties.

In general, the KFO uses selective herbicides such as picloram, dicamba, 2,4-D and metsulfuron methyl in a spot application manner. Selective herbicides are targeted for a specific plant species or family of plants. Many of the herbicides the KFO uses targets broadleaf plants. Harm to grasses would not be anticipated at the recommended application rate but injury to non-targeted broadleaf plants could occur. To help prevent injury to non-targeted broadleaf plants, spot applications using backpack sprayers or hand held guns are used. Use of non-selective herbicides that target all plants are less frequently employed, but when used are generally applied around structures (e.g., oil and gas developments) to mitigate wildfire potential or transportation of weed seed in vehicles.

The use of physical practices would reduce damage to native vegetation. However, the long-term effectiveness of eradicating a noxious weed population is less effective because invasive plants have extensive root systems, can reproduce by their roots or root fragments, and if the population is very large it could take years to eradicate the weed population. Thus, the impacts to vegetation from physical practices would be minor, due to the limited amount of hand digging that would occur.

The use of cultural practices could provide good success in eradicating some weed species. Using livestock, drilling, and inter-seeding to control weeds could reduce native vegetation and create competition with wildlife. Impacts to vegetation would be minor due to the limited amount of cultural practices that occur within the KFO.

Biological control agents are also effective at injuring weed species. Most agents are host-specific and would not harm native vegetation. This practice alone would not eradicate a weed population or species. In some cases, fire would also be needed to clear the vegetation after treatment so a proper seed bed can be prepared. Proper consideration would be needed to insure follow up seeding or spraying is used to prevent further weed spread.

Under the No Action Alternative, the 14 approved herbicides and the other four treatment methods would continue to be used. Under this alternative, there is no approved herbicide treatment or cost-effective physical or cultural cheat grass control. The inability to use newly approved imazapic to control a cheat grass infestation following a prescribed or wildland fire would decrease native vegetation.

Mitigation: None

WILDLIFE and MIGRATORY BIRDS

Affected Environment: Within the KFO, there is a variety of wildlife. This includes mule deer, antelope, moose, bighorn sheep, and Rocky Mountain elk. Mule deer and elk occupy higher elevations, usually forested habitat, during summer and then migrate to lower elevation sagebrush dominant ridges and south-facing slopes in winter. Moose and bighorn sheep occur in more limited numbers within the KFO. Moose concentrate in the Laramie River Valley, northeast Grand County along major streams and water bodies, and in Jackson County along major rivers and their tributaries such as the Michigan, Colorado, and Illinois rivers. Bighorn sheep primarily occur on United States Forest Service (USFS) and Rocky Mountain National Park lands bordering the KFO. In January 2009, a few sheep were released in the southwest portion of the KFO near Inspiration Point. Habitat supporting bighorn sheep is primarily pinyon/juniper woodlands and adjacent mountain shrub habitat where topography plays the most important role in locations used by this species.

Several other key mammal species are found within the KFO. These include black bear, mountain lion, and white-tailed prairie dog, as well as several other species discussed in the special status species section.

The primary aquatic species in the KFO are fish and limited numbers of invertebrates and amphibians. Invertebrates and aquatic plants provide the foundation of the aquatic food chain in which fish and amphibians are predators. Only a few amphibians occur in the resource area. The predominant fish species in the small tributary streams in the resource area is the brook trout. The major game fish in the Colorado River is the rainbow trout. In addition to rainbows, brown, brook, and cutthroat trout occur in lesser numbers. Rainbow trout and Kokanee salmon are the two major fish species that occur in the reservoirs. Other game fish found in the reservoirs include lake, brown, cutthroat, and brook trout. Most of these game fish populations are maintained by CDOW stocking programs. Several lakes in North Park contain valuable fisheries. Lake John has a good population of brown, rainbow, and cutthroat trout. The Delaney Lakes contain excellent brown and rainbow trout populations. In addition to these reservoirs, there are several other lakes in North Park that contain stocked populations of rainbow trout.

Many species of migratory birds summer, winter, and/or migrate through the KFO. The habitat diversity provided by the broad expanses of sagebrush (interspersed with patches of desert shrubs, coniferous forest, aspen and riparian/wetland areas) support many species. The most abundant and characteristic species include mourning doves, common nighthawks, horned larks, house wrens, sage thrashers, green-tailed towhees, Brewer's sparrows, and sage sparrows.

Upland game birds common to the resource area include blue grouse and greater sage-grouse. Sage-grouse occupy the lower elevation sagebrush-dominant rangelands throughout the resource area and are discussed further under the special status species section. Blue grouse are widely distributed throughout the higher elevation woodlands and mountain meadows.

The numerous streams, rivers, reservoirs, ponds, and associated riparian vegetation provide excellent habitat for a wide variety of waterfowl and shorebirds. Great Blue herons and puddle ducks, including mallards, pintails, gadwalls, green-winged teal and American widgeon, are common throughout the aquatic habitats in the resource area. Shorebirds such as killdeers, American avocets, willets, and Wilson's phalaropes are found near the numerous water bodies throughout the KFO.

Raptors (birds of prey) are abundant. Prairie falcons, red-tailed hawks, osprey, northern harrier, Swainson's hawks, and golden eagles are the more common raptors breeding and nesting in the area. Precipitous rock formations, large trees, and mountain meadows provide suitable nesting habitat for these species. The numerous songbirds and small mammal populations provide the prey base available to these raptors. Woodland nesting species such as goshawks, Cooper's hawks, and sharp-shinned hawks are common in the forested areas.

Environmental Consequences: Treatment of weeds under the Proposed Action would likely improve habitat for wildlife and migratory birds in general. The greatest potential impacts from herbicide spraying would occur to ground-nesting shrubland bird species because the majority of spraying occurs in areas that support these species. There would be little impact to fish and amphibians because the majority of treatments with herbicides are not in areas where these species occur. Risk assessments have been completed in the 2007 PEIS for the new herbicides and the determination concluded that appropriate herbicide use is not likely to affect wildlife species. However, possible direct effects to individual animals include death, damage to vital organs, change in body weight, decrease in healthy offspring, and increased susceptibility to predation. Indirect effects include reduction in plant species diversity and consequent availability of preferred food, habitat, and breeding areas; decrease in wildlife population densities within the first year following application as a result of limited reproduction; habitat and range disruption (as wildlife and birds may avoid sprayed areas for several years following treatment), resulting in changes to territorial boundaries and breeding and/or nesting behaviors; and increase in predation of small mammals due to loss of ground cover. However, harmful doses of herbicide are not likely and risks for direct spray and spills, indirect contact with foliage after direct spray, and ingestion of food items contaminated by direct spray are generally low.

The use of physical, cultural, biological and prescribed fire treatments would have limited direct impacts to wildlife and migratory bird species. Physical treatments may reduce habitat requirements for the short term until native vegetation reestablishes. Because most treatments are relatively small, the potential effects would be minimal. The use of cultural treatments could reduce forage or habitat used by wildlife and migratory birds. However the long-term impacts would be reduced as weed species are removed and native vegetation recovers.

Under the No Action Alternative, the 14 approved herbicides and the other four treatment methods would continue to be used. Under this alternative, there is no approved herbicide

treatment or cost effective physical or cultural cheat grass control. The inability to use newly approved imazapic to control cheat grass infestation following a fire would decrease terrestrial wildlife and migratory bird habitat. Impacts from the other treatments would be similar to those of the proposed action.

Mitigation: None

CUMULATIVE IMPACTS SUMMARY:

The geographic scope for the cumulative impact analysis is the KFO.

The No Action Alternative would continue using the 14 previously approved herbicides which would limit the ability to treat cheat grass and also limit the options to effectively manage treatment of noxious weeds. This alternative would limit BLM's ability to reduce the spread of invasive plants which would reduce forage for livestock, wildlife and overall land health. Physical, cultural, and fire would continue to be used.

In regard to past and present actions, as mentioned earlier, public lands have been impacted by invasive plants throughout the KFO. Since the 1993 EA, the KFO has been actively spraying noxious and invasive weeds. Much of the work has occurred in Grand County while the least amount of control has occurred in the Laramie River area. Most of the herbicide treatments have been conducted by spot application. There has been limited biological control with some positive results. In the future, as more biological agents are improved, the KFO will investigate the use if these new agents for the eradication of noxious weeds. Over the last five years, approximately 800 acres of public lands have been treated annually by all partners.-The Proposed Action would increase the amount of acreage treated annually within the next ten years to approximately 4,000 acres. There have been and will continue to be active herbicide spraying programs on the adjacent USFS lands, Rocky Mountain National Park, Arapaho National Wildlife Refuge, State lands, and private lands. These programs have been similar in nature to BLM in that most treatments are with herbicides, the majority occurring through spot application.

In regard to future actions, invasive plants will continue to spread due to their mobility and invasive nature, and the increased development and use of public lands. There is also a potential that new species currently not found within the KFO will be introduced.

When the impacts of the Proposed Action are added to past, present, and future actions regarding noxious weed treatments in the KFO, there would be minor cumulative impacts to native species. The KFO has been actively inventorying noxious weed populations in an effort to learn the extent of their locations. As the KFO and other agencies continue to treat invasive plants, the spread of populations throughout the area will be limited.

The selected SOPs and mitigation measures from the 2007 PEIS and the design features in this EA would help to mitigate adverse cumulative impacts to other resources from treating invasive plants.

IV. TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED

The Proposed Action was listed on the KFO Internet NEPA Register and Public Room NEPA Board. Because this is not an undertaking under the National Historic Preservation Act (NHPA), no tribal consultation is required. Tribal consultation was initiated on April 29, 2009, to identify and avoid potential affects to traditional spiritual use areas.

BLM coordinates annually with local counties to identify targets areas to treat invasive plant species on public lands. Input is received regularly for the Counties on the treatment results and long term population expansion of invasive plants.

V. LIST OF PREPARERS

INTERDISCIPLINARY TEAM ANALYSIS REVIEW RECORD AND CHECKLIST:

Project Title: Weed Programmatic EA

Project Leader: Peter Torma

Consultation/Permit Requirements:

Consultation	Date Initiated	Date Completed	Responsible Specialist/ Contractor	Comments
Cultural/Archeological Clearance/SHPO		8/27/08	B.Wyatt	Individual actions should be identified to the Field Office Archaeologist to determine if known historic properties or areas of traditional spiritual use may be present.
Native American	4/29/09	4/29/09	B.Wyatt	Tribal consultation was initiated on April 29, 2009, to identify and avoid potential affects to traditional spiritual use areas. Native American peoples are known to collect edible and medicinal plants, along with plants for color pigments and other traditional uses along road corridors. Consultation with the necessary tribes prior to yearly weed actions is needed to identify potential traditional plant gathering areas.
T&E Species/FWS	N/A	N/A	M. McGuire	
Permits Needed (i.e. Air or Water)	N/A	N/A	P. Belcher	

(NP) = Not Present

(NI) = Resource/Use Present but Not Impacted

(PI) = Potentially Impacted and Brought Forward for Analysis.

NP NI PI	Discipline/Name	Date Review Comp.	Initials	Review Comments (required for Critical Element NIs, and for elements that require a finding but are not carried forward for analysis.)

CRITICAL ELEMENTS					
NI	Air Quality	Belcher	10/8/08	PB	Actions that could impact air quality such as prescribed burning require a site specific burn plan and the BLM obtains a smoke permit from the state of Colorado to permit burning. Mechanical treatments may create some fugitive dust at the time of treatment, but due to the small amount and short duration, they would be negligible.
NI	Areas of Critical Environmental Concern	J. Stout	2/18/2008	JS	There are two ACECs in the KFO. The TES section addresses impact to endangered plants (North Park Phacelia) and the KFO does not treat the Ammonite Site.
NI	Cultural Resources	Wyatt	8/27/08	BBW	The action is not considered an undertaking as defined under the NHPA of 1966, as amended, and it's implementing regulations. Individual actions should be identified to the Field Office Archaeologist to determine if known historic properties or areas of traditional spiritual use may be present.
NP	Environmental Justice	J. Stout	1/9/09	PT	According to the most recent Census Bureau statistics (2000), there are no minority or low income communities within the Kremmling Planning Area.
NP	Farmlands, Prime and Unique	Belcher	10/09/08	PB	There are no farmlands, prime or unique, in the resource area. Private farmlands may, however, be of state or local importance.
NI	Floodplains	Belcher	10/09/08	PB	The treatment of invasive plants does not affect the functionality of the floodplain, nor does it alter flood hazard.
PI	Invasive, Non-native Species	Johnson Torma	10/20/08	PT	See analysis in EA.
PI	Migratory Birds	McGuire	10/8/08	MM	See analysis in EA.
NI	Native American Religious Concerns	Wyatt	8/27/08	BBW	Tribal consultation was initiated on April 29, 2009, to identify and avoid potential affects to traditional spiritual use areas. Native American peoples are known to collect edible and medicinal plants, and plants for color pigments and other traditional uses along road corridors, and, therefore consultation with tribes prior to yearly weed actions is necessary to identify potential traditional plant gathering areas should be conducted with associated tribes.
PI	T/E, and Sensitive Species (Finding on Standard 4)	McGuire	10/8/2008	MM	See analysis in EA.
NP	Wastes, Hazardous and Solid	Hodgson	5/13/08	KH	There are no quantities of wastes, hazardous or solid, located on BLM-administered lands in the proposed project area, and there would be no wastes generated as a result of the Proposed Action or No Action alternative.

PI	Water Quality, Surface and Ground (Finding on Standard 5) Belcher	10/09/08	PB	See analysis in EA.
PI	Wetlands & Riparian Zones (Finding on Standard 2) Belcher	10/09/09	PB	See analysis in EA.
NI	Wild and Scenic Rivers Windsor	10/3/08	AW	There would be no impacts to Wild and Scenic Rivers if the design features of the Proposed Action are followed.
NI	Wilderness Windsor	10/3/08	AW	There would be no impacts to Wilderness Study Areas if the design features of the Proposed Action are followed.
NON-CRITICAL ELEMENTS (A finding must be made for these elements)				
PI	Soils (Finding on Standard 1) Belcher	10/9/08	PB	See analysis in EA.
PI	Vegetation (Finding on Standard 3) Johnson Torma	10/20/08	PT	See analysis in EA.
PI	Wildlife, Aquatic (Finding on Standard 3) McGuire	10/8/2008	MM	See analysis in EA.
PI	Wildlife, Terrestrial (Finding on Standard 3) McGuire	10/8/2008	MM	See analysis in EA.
OTHER NON-CRITICAL ELEMENTS				
NI	Access/Transportation Monkouski	10/14/08	JJM	No impacts.
NI	Fire Wyatt	8/27/2008	BBW	No impacts.
NI	Forest Management K. Belcher	1/6/09	KB	No impact to Forest Resources with application incorporating Standard Operating Procedures.
NI	Geology and Minerals Hodgson	5/13/08	KH	No impacts.
NI	Hydrology/Water Rights Belcher	10/09/08	PB	Hydrology concerns are addressed under Water Quality and Wetlands. No impacts to water rights.
NI	Paleontology Rupp	2/18/09	JS	There would be no known impacts.
NI	Noise Monkouski	10/14/08	JJM	No impacts.
NI	Range Management Torma	10/20/08	PT	There would be no impact to livestock grazing, AUMs, or season of use.
NI	Lands/ Realty Authorizations Cassel	4/8/08	SC	No leases, permits or rights-of-way would be impacted by weed treatments. All authorizations have stipulations for weed control.
NI	Recreation Monkouski	10/14/08	JJM	No impacts.
NI	Socio-Economics B. Wyatt	4/27/09	BW	Native American peoples are known to collect edible and medicinal plants, including plants for color pigments and other traditional uses along road corridors. There is a possibility of a socio-economic impact to Native Americans if they were unable to use the plants due to herbicide use. Consultation would occur to address any concerns they would have with invasive plant treatments.
NI	Visual Resources Hodgson	5/13/08	KH	The use of broad scale treatments is unlikely. Unless those types of treatments occur, there would be no impacts to VRM from implementation of the Proposed Action or the No Action Alternative.

PI	Cumulative Impact Summary	2/18/09	JS	See analysis in EA.
FINAL REVIEW				
	P&E Coordinator	J. Stout	5/13/09	SC
	Field Manager	D. Stout		

FONSI

CO-120-2008-31 EA

Based on the analysis of potential environmental impacts contained in the attached environmental assessment and considering the significance criteria in 40 CFR 1508.27, I have determined that the Proposed Action will not have a significant effect on the human environment. An environmental impact statement is therefore not required.

SIGNATURE OF AUTHORIZED OFFICIAL:

DATE SIGNED:

DECISION RECORD

DECISION: It is my decision to accept the Proposed Action as described in the attached EA.

RATIONALE: The Kremmling Field Office needs to control invasive plants on BLM-administered public lands because the invasive plants have the potential to spread and out-compete more desirable native vegetation used by wildlife and livestock. Invasive vegetation also reduces soil productivity, water quality and quantity, recreational opportunities, and increases fire hazards. The treatment methods to accomplish this are: chemical, physical, biological, cultural, and prescribed fire. These treatment methods would be applied using Integrated Weed Management that will reduce economic, health, and environmental risks.

MONITORING: Periodic monitoring of the project area will be required to ensure invasive, non-native species do not become established or spread. If weeds do become established or spread, it is the responsibility of the BLM and its partners, permittees, and contractors to control invasive, non-native species. Monitoring is a key component of an integrated weed management strategy to ensure all design features, and adopted SOPs and mitigation measures of the 2007 PEIS, are implemented and the treatments methods are achieving their goals.

NAME OF PREPARER: Peter Torma

NAME OF ENVIRONMENTAL COORDINATOR: Susan Cassel

DATE: 5/13/09

SIGNATURE OF AUTHORIZED OFFICIAL: /s/ Peter McFadden

DATE SIGNED: 5/15/2009

Appendices:

- 1). Colorado Noxious A, B, and C listed weeds
- 2). Glossary
- 3). Herbicide Active Ingredients
- 4). Applicable Mitigation Measures, SOPs and Conservation Measures found in 2007 PEIS
- 5). List of Weed Species, Their Potential Habitat, and Proposed Treatment

Appendix 1 Colorado Noxious A, B, C, Listed Weeds

List A species in Colorado that are designated by the Commissioner for eradication:

African rue (*Peganum harmala*)
Camelthorn (*Alhagi pseudalhagi*)
Common crupina (*Crupina vulgaris*)
Cypress spurge (*Euphorbia cyparissias*)
Dyer's woad (*Isatis tinctoria*)
Giant salvinia (*Salvinia molesta*)
Hydrilla (*Hydrilla verticillata*)
Meadow knapweed (*Centaurea pratensis*)
Mediterranean sage (*Salvia aethiopis*)
Medusahead (*Taeniatherum caput-medusae*)
Myrtle spurge (*Euphorbia myrsinites*)
Orange hawkweed (*Hieracium aurantiacum*)
Purple loosestrife (*Lythrum salicaria*)
Rush skeletonweed (*Chondrilla juncea*)
Sericea lespedeza (*Lespedeza cuneata*)
Squarrose knapweed (*Centaurea virgata*)
Tansy ragwort (*Senecio jacobaea*)
Yellow starthistle (*Centaurea solstitialis*)

List B weed species are species for which the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, develops and implements state noxious weed management plans designed to stop the continued spread of these species:

Absinth wormwood (*Artemisia absinthium*)
Black henbane (*Hyoscyamus niger*)
Bouncingbet (*Saponaria officinalis*)
Bull thistle (*Cirsium vulgare*)
Canada thistle (*Cirsium arvense*)
Chinese clematis (*Clematis orientalis*)
Common tansy (*Tanacetum vulgare*)
Common teasel (*Dipsacus fullonum*)
Corn chamomile (*Anthemis arvensis*)
Cutleaf teasel (*Dipsacus laciniatus*)
Dalmatian toadflax, broad-leaved (*Linaria dalmatica*)
Dalmatian toadflax, narrow-leaved (*Linaria genistifolia*)
Dame's rocket (*Hesperis matronalis*)
Diffuse knapweed (*Centaurea diffusa*)
Eurasian watermilfoil (*Myriophyllum spicatum*)
Hoary cress (*Cardaria draba*)
Houndstongue (*Cynoglossum officinale*)
Leafy spurge (*Euphorbia esula*)
Mayweed chamomile (*Anthemis cotula*)
Moth mullein (*Verbascum blattaria*)
Musk thistle (*Carduus nutans*)
Oxeye daisy (*Chrysanthemum leucanthemum*)
Perennial pepperweed (*Lepidium latifolium*)
Plumeless thistle (*Carduus acanthoides*)
Quackgrass (*Elytrigia repens*)
Redstem filaree (*Erodium cicutarium*)
Russian knapweed (*Acroptilon repens*)
Russian-olive (*Elaeagnus angustifolia*)

Salt cedar (*Tamarix chinensis*, *T. parviflora*, and *T. ramosissima*)
Scentless chamomile (*Matricaria cylindric*)
Scotch thistle (*Onopordum acanthium*)
Scotch thistle (*Onopordum tauricum*)
Spotted knapweed (*Centaurea maculosa*)
Spurred anoda (*Anoda cristata*)
Sulfur cinquefoil (*Potentilla recta*)
Venice mallow (*Hibiscus trionum*)
Wild caraway (*Carum carvi*)
Yellow nutsedge (*Cyperus esculentus*)
Yellow toadflax (*Linaria vulgaris*)

List C weed species are species for which the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, will develop and implement state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective integrated weed management on private and public lands. The goal of such plans will not be to stop the continued spread of these species but to provide additional education, research, and biological control resources to jurisdictions that choose to require management of List C species.

Chicory (*Cichorium intybus*)
Common burdock (*Arctium minus*)
Common mullein (*Verbascum cylindr*)
Common St. Johnswort (*Hypericum perforatum*)
Downy brome (*Bromus tectorum*)
Field bindweed (*Convolvulus arvensis*)
Halogeton (*Halogeton glomeratus*)
Johnsongrass (*Sorghum halepense*)
Jointed goatgrass (*Aegilops cylindrical*)
Perennial sowthistle (*Sonchus arvensis*)
Poison hemlock (*Conium maculatum*)
Puncturevine (*Tribulus terrestris*)
Velvetleaf (*Abutilon theophrasti*)
Wild proso millet (*Panicum miliaceum*)

APPENDIX 2 – GLOSSARY

Basal Bark Application: Type of herbicide application that requires herbicide to be applied to the basal area of woody vegetation.

Cut Stump Application: Type of herbicide application that requires the base of the woody vegetation to be cut exposing the growth rings for herbicide application.

Cryptobiotic crust: A hard crust found on the soil surface that supports living organisms specifically. These organisms are only found on the soil surface.

Drill seeding: Using a tractor with a seeder attachment to distribute seed in cultivated lands

Foliar Application: Applying herbicide to above ground leafy green parts of the vegetation.

Inter-seeding: Using a tractor with a seeder attachment to distribute seed between existing vegetation

Mycorrhizal: symbiotic relationship between a fungus and the roots of a plant.

Non-selective herbicides: Herbicide that can harm or kill a variety of plants.

Resource area: All lands found within the geographical boundary of the Kremmling Field Office.

Spot application: Applying herbicide to a specific plant location

Wicking and Wiping Application: Applying herbicide using a towel or other approved material by hand.

Xeric: dry landscape

**APPENDIX 3 – HERBICIDE ACTIVE INGREDIENTS
Which are Approved for Use on Public Lands under the
September 2007 Record of Decision**

Chemical

2,4-D

Bromacil

Chlorsulfuron

Clopyralid

Dicamba

Diflufenzopy+dicamba

Diquat

Diuron

Floridone

Glyphosate

Hexazinone

Imazapic

Imazapyr

Metsulfuron methyl

Picloram

Sulfometuron methyl

Tebuthiuron

Triclopyr

**APPENDIX 4 - Applicable Mitigation Measures,
SOPs and Conservation Measures found in 2007 PEIS**
Appendix 4 - Comparison of Mitigation Measures (ROD), Standard Operating Procedures (ROD) and Conservation Measures (BA)

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
General	None Listed	<ul style="list-style-type: none"> • Prepare operational and spill contingency plan in advance of treatment. • Conduct a pretreatment survey before applying herbicides. • Select herbicide that is least damaging to environment while providing the desired results. • Select herbicide products carefully to minimize additional impacts from degradates, adjuvants, inert ingredients, and tank mixtures. • Apply the least amount of herbicide needed to achieve the desired result. • Follow product label for use and storage. • Have licensed applicators apply herbicides. • Use only USEPA-approved herbicides and follow product label directions and “advisory” statements. • Review, understand, and conform to the “Environmental Hazards” section on the herbicide label. This section warns of known pesticide risks to the environment and provides practical ways to avoid harm to organisms or to the environment. • Consider surrounding land use before assigning aerial spraying as a treatment method and avoid aerial spraying near agricultural or densely populated areas. • Minimize the size of application areas, when feasible. • Comply with herbicide-free buffer zones to ensure that drift will not affect crops or nearby residents/landowners. • Post treated areas and specify reentry or rest times, if appropriate. • Notify adjacent landowners prior to treatment. • Keep copy of Material Safety Data Sheets (MSDSs) at work sites. MSDSs available for review at http://www.cdms.net/. • Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location. • Avoid accidental direct spray and spill conditions to minimize risks to resources. • Consider surrounding land uses before aerial spraying. • Avoid aerial spraying during periods of adverse weather conditions (snow or rain imminent, fog, or air turbulence). • Make helicopter applications at a target airspeed of 40 to 50 miles per hour (mph), and at about 30 to 45 feet above ground. • Take precautions to minimize drift by not applying herbicides when winds exceeds >10 mph (>6 mph for aerial applications) 	General	<ul style="list-style-type: none"> • The BLM will identify appropriate application methods, including rate, time, and mode of application (source characterization) for projects involving the use of herbicides. • The BLM will use interactive spreadsheets developed during preparation of the Forest Service and BLM ERAs to determine estimates of chemical exposure for species of interest for herbicide applications in the action area. First, the TEP species will be sorted into the ERA surrogate classes based on food and shelter requirements and taxonomic similarity. Information on the chemical characteristics of the herbicide, mode and rate of application, and local environmental conditions (e.g., soil type, rainfall) are also entered into the spreadsheet to calculate the exposure value. These values can then be compared to a table listing risk levels to determine the potential for an acute or chronic risk to the species of interest. Risk levels for TEP species are provided in the ERA and in the following chapters. • The BLM will incorporate mitigation and conservation measures identified in the ERAs and BA, and from analysis of exposure levels based on modeling, to eliminate or reduce risks to TEP species. It is possible that conservation measures would be less restrictive than those listed in subsequent sections of this BA if local site conditions were evaluated using the ERAs when developing project-level conservation measures. • The BLM will use herbicides in a manner that is consistent with labeling instructions, design criteria, and any issued reasonable and prudent measures with terms and conditions to ensure that unlawful taking of an ESA-listed species does not occur. In the event incidental take is likely as a result of the action, the Biological Opinion (BO) will include an incidental take statement that exempts the BLM from the prohibitions of take under Section 9 of the ESA.

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
General – cont.		<p>or a serious rainfall event is imminent.</p> <ul style="list-style-type: none"> • Use drift control agents and low volatile formulations. • Conduct pre-treatment surveys for sensitive habitat and special status species within or adjacent to proposed treatment areas. • Consider site characteristics, environmental conditions, and application equipment in order to minimize damage to non-target vegetation. • Use drift reduction agents, as appropriate, to reduce the drift hazard to non-target species. • Turn off applied treatments at the completion of spray runs and during turns to start another spray run. • Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. • Clean OHVs to remove seeds 		
Air Quality	None Proposed	<ul style="list-style-type: none"> • Consider the effects of wind, humidity, temperature inversions, and heavy rainfall on herbicide effectiveness and risks. • Apply herbicides in favorable weather conditions to minimize drift. For example, do not treat when winds exceed 10 mph (6 mph for aerial applications) or rainfall is imminent. • Use drift reduction agents, as appropriate, to reduce the drift hazard. • Select proper application equipment (e.g., spray equipment that produces 200- to 800-micron diameter droplets [spray droplets of 100 microns and less are most prone to drift]). • Select proper application methods (e.g., set maximum spray heights, use appropriate buffer distances between spray sites and non-target resources). 		
Soil Resources	None Proposed	<ul style="list-style-type: none"> • Minimize treatments in areas where herbicide runoff is likely, such as steep slopes when heavy rainfall is expected. • Minimize use of herbicides that have high soil mobility, particularly in areas where soil properties increase the potential for mobility. • Do not apply granular herbicides on slopes of more than 15% where there is the possibility of runoff carrying the granules into non-target areas. 		
Water Resources	<ul style="list-style-type: none"> • Establish appropriate (herbicide specific) buffer zones to downstream water bodies, habitats, and species/populations of interest (see Appendix C, Table C-16). • Areas with potential for groundwater for domestic or municipal water use shall be evaluated through the appropriate, validated USEPA model(s) to estimate vulnerability to potential groundwater contamination, and appropriate mitigation measures shall be developed if such an area requires the application of herbicides and cannot otherwise be treated with non-chemical methods. 	<ul style="list-style-type: none"> • Consider climate, soil type, slope, and vegetation type when developing herbicide treatment programs. • Select herbicide products to minimize impacts to water. This is especially important for application scenarios that involve risk from active ingredients in a particular herbicide, as predicted by risk assessments. • Use local historical weather data to choose the month of treatment. Considering the phenology of the target species, schedule treatments based on the condition of the water body and existing water quality conditions. • Plan to treat between weather fronts (calms) and at appropriate time of day to avoid high winds that increase water movements, and to avoid potential stormwater runoff and water turbidity. • Review hydrogeologic maps of proposed treatment areas. Note depths to groundwater and areas of shallow groundwater and areas of surface water and groundwater interaction. Minimize treating areas with high risk for groundwater contamination.. • Conduct mixing and loading operations in an area where an accidental spill would not contaminate an aquatic body. 		

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
		<ul style="list-style-type: none"> Do not rinse spray tanks in or near water bodies. Do not broadcast pellets where there is danger of contaminating water supplies. Maintain buffers between treatment areas and water bodies. Buffer widths should be developed based on herbicide- and site-specific criteria to minimize impacts to water bodies. Minimize the potential effects to surface water quality and quantity by stabilizing terrestrial areas as quickly as possible following treatment. 		
Wetlands and Riparian	<ul style="list-style-type: none"> See mitigation for Water Resources and Quality and Vegetation. 	<ul style="list-style-type: none"> Use a selective herbicide and a wick or backpack sprayer. Use appropriate herbicide-free buffer zones for herbicides not labeled for aquatic use based on risk assessment guidance, with minimum widths of 100 feet for aerial, 25 feet for vehicle, and 10 feet for hand spray applications. 		
Vegetation	<ul style="list-style-type: none"> Minimize the use of terrestrial herbicides (especially bromacil, diuron, and sulfometuron methyl) in watersheds with downgradient ponds and streams if potential impacts to aquatic plants are identified. Establish appropriate (herbicide specific) buffer zones around downstream water bodies, habitats, and species/populations of interest. Consult the ERAs for more specific information on appropriate buffer distances under different soil, moisture, vegetation, and application scenarios. Limit the aerial application of chlorsulfuron and metsulfuron methyl to areas with difficult land access, where no other means of application are possible. Do not apply sulfometuron methyl aerially. To protect special status plant species, implement all conservation measures for plants presented in the Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Biological Assessment. 	<ul style="list-style-type: none"> Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. Use native or sterile species for revegetation and restoration projects to compete with invasive species until desired vegetation establishes Use weed-free feed for horses and pack animals. Use weed-free straw and mulch for revegetation and other activities. Identify and implement any temporary domestic livestock grazing and/or supplemental feeding restrictions needed to enhance desirable vegetation recovery following treatment. Consider adjustments in the existing grazing permit, needed to maintain desirable vegetation on the treatment site. 	Plants	<p>Required Steps include the Following:</p> <ul style="list-style-type: none"> A survey of all proposed action areas within potential habitat by a botanically qualified biologist, botanist, or ecologist to determine the presence/absence of the species. Establishment of site-specific no activity buffers by a qualified botanist, biologist, or ecologist in areas of occupied habitat within the proposed project area. To protect occupied habitat, treatment activities would not occur within these buffers. Collection of baseline information on the existing condition of TEP plant species and their habitats in the proposed project area. Establishment of pre-treatment monitoring programs to track the size and vigor of TEP populations and the state of their habitats. These monitoring programs would help in anticipating the future effects of vegetation treatments on TEP plant species. Assessment of the need for site revegetation post treatment to minimize the opportunity for noxious weed invasion and establishment. <p>At a minimum, the following must be included in all management plans:</p> <ul style="list-style-type: none"> Given the high risk for damage to TEP plants and their habitat from burning, mechanical treatments, and use of domestic animals to contain weeds, none of these treatment methods should be utilized within 330 feet of sensitive plant populations UNLESS the treatments are specifically designed to maintain or improve the existing population. Off-highway use of motorized vehicles associated with treatments should be avoided in suitable or occupied habitat. Biological control agents (except for domestic animals) that affect target plants in the same genus as TEP species must not be used to control target species occurring within the dispersal distance of the agent. Prior to use of biological control agents that affect target plants in the same family as TEP species, the specificity of the agent with respect to factors such as physiology and morphology should be evaluated, and a determination as to risks to the TEP species made. Post-treatment monitoring should be conducted to determine the effectiveness of the project. <p>In addition, the following guidance must be considered in all management plans in which herbicide treatments are proposed to minimize or avoid risks to TEP species. The exact conservation measures to be included in management plans would depend on the herbicide that would be used, the desired mode of application, and the conditions of the site. Given the potential for off-site drift and surface runoff, populations of TEP species on lands not administered by the BLM would need to be considered if they are located near proposed herbicide treatment sites.</p>
Vegetation – cont.			Plants – cont.	

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
Vegetation – cont.			Plants – cont.	<ul style="list-style-type: none"> • Herbicide treatments should not be conducted in areas where TEP plant species may be subject to direct spray by herbicides during treatments. • Applicators should review, understand, and conform to the “Environmental Hazards” section on herbicide labels (this section warns of known pesticide risks and provides practical ways to avoid harm to organisms or the environment). • To avoid negative effects to TEP plant species from off-site drift, surface runoff, and/or wind erosion, suitable buffer zones should be established between treatment sites and populations (confirmed or suspected) of TEP plant species, and site-specific precautions should be taken (refer to the guidance provided below). • Follow all instructions and Standard Operating Procedures (SOPs) to avoid spill and direct spray scenarios into aquatic habitats that support TEP plant species. • Follow all BLM operating procedures for avoiding herbicide treatments during climatic conditions that would increase the likelihood of spray drift or surface runoff. <p>The following conservation measures refer to sites where <u>broadcast spraying</u> of herbicides, either by ground or aerial methods, is desired. Manual spot treatment of undesirable vegetation can occur within the listed buffer zones if it is determined by local biologists that this method of herbicide application would not pose risks to TEP plant species in the vicinity. Additional precautions during spot treatments of vegetation within habitats where TEP plant species occur should be considered while planning local treatment programs, and should be included as conservation measures in local-level NEPA documentation.</p> <p>The <u>buffer distances</u> provided below are conservative estimates, based on the information provided by ERAs, and are designed to provide protection to TEP plants. Some ERAs used regression analysis to predict the smallest buffer distance to ensure no risks to TEP plants. In most cases, where regression analyses were not performed, suggested buffers extend out to the first modeled distance from the application site for which no risks were predicted. In some instances the jump between modeled distances was quite large (e.g., 100 feet to 900 feet). Regression analyses could be completed at the local level using the interactive spreadsheets developed for the ERAs, using information in ERAs and for local site conditions (e.g., soil type, annual precipitation, vegetation type, and treatment method), to calculate more precise, and possibly smaller buffers for some herbicides.</p> <p>2,4-D</p> <ul style="list-style-type: none"> • Because the risks associated with this herbicide were not assessed, do not spray within ½ mile of terrestrial plant species or aquatic habitats where TEP aquatic plant species occur. • Do not use aquatic formulations in aquatic habitats where TEP aquatic plant species occur. • Assess local site conditions when evaluating the risks from surface water runoff to TEP plants located within ½ mile downgradient from the treatment area. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Bromacil</p> <ul style="list-style-type: none"> • Do not apply within 1,200 feet of terrestrial TEP plant species. • If using a low boom at the typical application rate, do not apply within 100 feet of an aquatic habitat in which TEP plant species occur.

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
Vegetation – cont.			Plants – cont.	<ul style="list-style-type: none"> • If using a low boom at the maximum application rate or a high boom, do not apply within 900 feet of an aquatic habitat in which TEP plant species occur. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Chlorsulfuron</p> <ul style="list-style-type: none"> • Do not apply by ground methods within 1,200 feet of terrestrial TEP species. • Do not apply by aerial methods within 1,500 feet of terrestrial TEP species. • Do not apply by ground methods within 25 feet of aquatic habitats where TEP plant species occur. • Do not apply by aerial methods at the maximum application rate within 300 feet of aquatic habitats where TEP plant species occur. • Do not apply by aerial methods at the typical application rate within 100 feet of aquatic habitats where TEP plant species occur. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Clopyralid</p> <ul style="list-style-type: none"> • Since the risks associated with using a high boom are unknown, use only a low boom during ground applications of this herbicide within ½ mile of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. • Do not apply by ground methods at the typical application rate within 900 of terrestrial TEP species. • Do not apply by ground methods at the typical application rate within ½ mile of terrestrial TEP species. • Do not apply by aerial methods within ½ mile of terrestrial TEP species. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Dicamba</p> <ul style="list-style-type: none"> • If using a low boom at the typical application rate, do not apply within 1,050 feet of terrestrial TEP plant species. • If using a low boom at the maximum application rate, do not apply within 1,050 feet of terrestrial TEP plant species. • If using a high boom, do not apply within 1,050 feet of terrestrial TEP plant species. • Do not apply within 25 feet of aquatic habitats where TEP plant species occur. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Diflufenzopyr</p> <ul style="list-style-type: none"> • If using a low boom at the typical application rate, do not apply within 100 feet of terrestrial TEP plant species. • If using a high boom, or a low boom at the maximum application rate, do not apply within 900 feet of terrestrial TEP plant species.

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
Vegetation – cont.			Plants – cont.	<ul style="list-style-type: none"> • If using a high boom, do not apply within 500 feet of terrestrial TEP plant species. • Do not apply within 25 feet of aquatic habitats where TEP plant species occur. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Diquat</p> <ul style="list-style-type: none"> • Do not use in aquatic habitats where TEP aquatic plant species occur. • Do not apply by ground methods within 1,000 feet of terrestrial TEP species at the maximum application rate. • Do not apply by ground methods within 900 feet of terrestrial TEP species at the typical application rate. • Do not apply by aerial methods within 1,200 feet of terrestrial TEP species. <p>Diuron</p> <ul style="list-style-type: none"> • Do not apply within 1,100 feet of terrestrial TEP species. • If using a low boom at the typical application rate, do not apply within 900 feet of aquatic habitats where TEP aquatic plant species occur. • If using a high boom, or a low boom at the maximum application rate, do not apply within 1,1000 feet of aquatic habitats where TEP aquatic plant species occur. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Fluridone</p> <ul style="list-style-type: none"> • Since effects on terrestrial TEP plant species are unknown, do not apply within ½ mile of terrestrial TEP species. <p>Glyphosate</p> <ul style="list-style-type: none"> • Since the risks associated with using a high boom are unknown, use only a low boom during ground applications of this herbicide within ½ mile of terrestrial TEP plant species. • Do not apply by ground methods at the typical application rate within 50 feet of terrestrial TEP plant species. • Do not apply by ground methods at the maximum application rate within 300 feet of terrestrial TEP plant species. • Do not apply by aerial methods within 300 feet of terrestrial TEP plant species. <p>Hexazinone</p> <ul style="list-style-type: none"> • Since the risks associated with using a high boom or an aerial application are unknown, only apply this herbicide by ground methods using a low boom within ½ mile of terrestrial TEP plant species and aquatic habitats that support aquatic TEP species. • Do not apply by ground methods at the typical application rate within 300 feet of terrestrial TEP plant species or aquatic habitats that support aquatic TEP plant species. • Do not apply by ground methods at the maximum application rate within 900 feet of terrestrial TEP plant species or aquatic habitats that support aquatic TEP plant species. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
Vegetation – cont.			Plants – cont.	<p>Imazapic</p> <ul style="list-style-type: none"> • Do not apply by ground methods within 25 feet of terrestrial TEP species or aquatic habitats where TEP plant species occur. • Do not apply by helicopter at the typical application rate within 25 feet of terrestrial TEP plant species. • Do not apply by helicopter at the maximum application rate, or by plane at the typical application rate, within 300 feet of terrestrial TEP plant species. • Do not apply by plane at the maximum application rate within 900 feet of terrestrial TEP species. • Do not apply by aerial methods at the maximum application rate within 300 feet of aquatic TEP species. • Do not apply by aerial methods at the typical application rate within 100 feet of aquatic TEP species. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Imazapyr</p> <ul style="list-style-type: none"> • Since the risks associated with using a high boom are unknown, use only a low boom for ground applications of this herbicide within ½ mile of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. • Do not apply at the typical application rate, by ground or aerial methods, within 900 feet of terrestrial TEP plant species or aquatic habitats in which aquatic TEP species occur. • Do not apply at the maximum application rate, by ground or aerial methods, within ½ mile of terrestrial TEP plant species or aquatic habitats in which aquatic TEP species occur. • Do not use aquatic formulations in aquatic habitats where TEP aquatic plant species occur. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Metsulfuron Methyl</p> <ul style="list-style-type: none"> • Since the risks associated with using a high boom are unknown, use only a low boom for ground applications of this herbicide within ½ mile of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. • Do not apply at the typical application rate, by ground or aerial methods, within 900 feet of terrestrial TEP plant species or aquatic habitats in which aquatic TEP species occur. • Do not apply at the maximum application rate, by ground or aerial methods, within ½ mile of terrestrial TEP plant species or aquatic habitats in which aquatic TEP species occur. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Overdrive[®]</p> <ul style="list-style-type: none"> • If using a low boom at the typical application rate, do not apply within 100 feet of terrestrial TEP plant species. • If using a low boom at the maximum application rate, do not apply within 900 feet of terrestrial TEP plant species. • If using a high boom,

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
Vegetation – cont.			Plants – cont.	<p>do not apply within 900 feet of terrestrial TEP plant species.</p> <ul style="list-style-type: none"> • Do not apply within 25 feet of aquatic habitats where TEP plant species occur. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Picloram</p> <ul style="list-style-type: none"> • Do not apply by ground or aerial methods, at any application rate, within ½ mile of terrestrial TEP plant species. • Assess local site conditions when evaluating the risks from surface water runoff to TEP plants located within ½ mile downgradient from the treatment area. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Sulfometuron Methyl</p> <ul style="list-style-type: none"> • Do not apply by ground or aerial methods within 1,500 feet of terrestrial TEP species. • Do not apply by ground methods within 900 feet of aquatic habitats where TEP plant species occur, or by aerial methods within 1,500 feet of aquatic habitats where TEP plant species occur. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Tebuthiuron</p> <ul style="list-style-type: none"> • If using a low boom at the typical application rate, do not apply within 25 feet of terrestrial TEP plant species. • If using a low boom at the maximum application rate or a high boom at the typical application rate, do not apply within 50 feet of terrestrial TEP plant species. • If using a high boom at the maximum application rate, do not apply within 900 feet of terrestrial TEP plant species. • Do not apply within 25 feet of aquatic habitats where TEP plant species occur. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Triclopyr Acid</p> <ul style="list-style-type: none"> • Since the risks associated with using a high boom are unknown, use only a low boom during ground applications of this herbicide within ½

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
Vegetation – cont.			Plants – cont.	<p>mile of terrestrial TEP plant species.</p> <ul style="list-style-type: none"> • Since the risks associated with using a high boom are unknown, use only a low boom during ground applications at the maximum application rate of this herbicide within ½ mile of aquatic habitats in which TEP plant species occur. • Do not apply by ground methods at the typical application rate within 300 feet of terrestrial TEP plant species. • Do not apply by aerial methods at the typical application rate within 500 feet of terrestrial TEP plant species. • Do not apply by ground or aerial methods at the maximum application rate within ½ mile of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. • If applying to aquatic habitats in which aquatic TEP plant species occur, do not exceed the targeted water concentration on the product label. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Triclopyr BEE</p> <ul style="list-style-type: none"> • Since the risks associated with using a high boom are unknown, use only a low boom for ground applications of this herbicide within ½ mile of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. • Do not apply by ground methods at the typical application rate within 300 feet of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. • Do not apply by aerial methods at the typical application rate within 500 feet of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. • Do not apply by ground or aerial methods at the maximum application rate within ½ mile of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. • Do not use aquatic formulations in aquatic habitats where TEP aquatic plant species occur. • In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species. <p>Treatment plans must also address the presence of and expected impacts on noxious weeds on the project site. These plans must be coordinated with BLM weed experts and/or appropriate county weed supervisors to minimize the spread of weeds. In order to <u>prevent the spread</u> of noxious weeds and other unwanted vegetation in occupied or suitable habitat, the following precautions should be taken:</p> <ul style="list-style-type: none"> • Cleared areas that are prone to downy brome or other noxious weed invasions should be seeded with an appropriate seed mixture to reduce the probability of noxious weeds or other undesirable plants becoming established on the site. • Where seeding is warranted, bare sites should be seeded as soon as appropriate after treatment, and at a time of year when it is likely to be successful. • In suitable habitat for TEP species, non-native species should not be used for revegetation. • Certified noxious weed seed free seed must be used in suitable habitat, and preference should be given to seeding appropriate plant species when

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
Fish and Other Aquatic Organisms – cont.	designing treatment programs.		Aquatic Animals: Conservation Measures Related to Revegetation Treatments	<ul style="list-style-type: none"> • Outside riparian areas: <ul style="list-style-type: none"> ○ Avoid hydro-mulching within buffer zones established at the local level. This precaution will limit adding sediments and nutrients and increasing water turbidity. • Within riparian areas: <ul style="list-style-type: none"> ○ Engage in consultation at the local level to ensure that revegetation activities incorporate knowledge of site-specific conditions and project design (<i>not in the BO</i>).
Fish and Other Aquatic Organisms – cont.			Aquatic Animals: Conservation Measures Related to Herbicide Treatments	<p>Possible Conservation Measures:</p> <ul style="list-style-type: none"> • Maintain equipment used for transportation, storage, or application of chemicals in a leak proof condition. • Do not store or mix herbicides, or conduct post-application cleaning within riparian areas. • Ensure that trained personnel monitor weather conditions at spray times during application. • Strictly enforce all herbicide labels. • Do not broadcast spray within 100 feet of open water when wind velocity exceeds 5 mph. • Do not broadcast spray when wind velocity exceeds 10 mph. • Do not spray if precipitation is occurring or is imminent (within 24 hours). • Do not spray if air turbulence is sufficient to affect the normal spray pattern. • Do not broadcast spray herbicides in riparian areas that provide habitat for TEP aquatic species. Appropriate buffer distances should be determined at the local level to ensure that overhanging vegetation that provides habitat for TEP species is not removed from the site. Buffer distances provided as conservation measures in the assessment of effects to plants (Chapter 4 of this BA) and fish and aquatic invertebrates should be consulted as guidance (Table 5-5). (Note: the Forest Service did not determine appropriate buffer distances for TEP fish and aquatic invertebrates when evaluating herbicides in Forest Service ERAs; buffer distances were only determined for non-TEP species). (<i>not in the BO</i>). • Do not use diquat, fluridone, terrestrial formulations of glyphosate, or triclopyr BEE, to treat aquatic vegetation in habitats where aquatic TEP species occur or may potentially occur. • Avoid using glyphosate formulations that include R-11 in the future, and either avoid using any formulations with POEA, or seek to use the formulation with the lowest amount of POEA available, to reduce risks to aquatic organisms. • Follow all instructions and SOPs to avoid spill and direct spray scenarios into aquatic habitats. Special care should be followed when transporting and applying 2,4-D, bromacil, clopyralid, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, tebuthiuron, and triclopyr. • Do not broadcast spray diuron, glyphosate, picloram, or triclopyr BEE in upland habitats adjacent to aquatic habitats that support (or may potentially support) aquatic TEP species under conditions that would likely result in off-site drift. • In watersheds that support TEP species or their habitat, do not apply bromacil, diuron, tebuthiuron, or triclopyr BEE in upland habitats within ½ mile upslope of aquatic habitats that support aquatic TEP species under conditions that would likely result in surface runoff.
Fish and Other Aquatic Organisms – cont.			Aquatic Animals: Conservation Measures Related to Herbicide Treatments - cont.	

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
				<ul style="list-style-type: none"> • Avoid accidental direct spray and spill conditions to reduce the largest potential impacts. Use the typical application rate, rather than the maximum application rate to reduce risk for most herbicides, where practical (<i>derived from EIS Mitigating Measures – covers most herbicides rather than the specific ones listed in the EIS</i>). • Reduce the size of the application area, when possible (<i>derived from EIS SOPs – used ‘minimize’ in the EIS</i>). • Establish appropriate (herbicide specific) buffer zones to downstream waterbodies, habitats, or species/populations of interest (in EIS Mitigating Measures). Buffer distances presented in Table 4 below should be consulted as guidance for all site-specific treatments. Local BLM offices will have to determine buffer zones for active ingredients not listed below in Table 4 (2,4-D, clopyralid, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram and triclopyr) on a site-specific basis (not in BA, SOPs or Mitigating Measures, but okay to include).
Fish and Other Aquatic Organisms – cont.			Aquatic Animals: Wetland and Riparian Areas	<ul style="list-style-type: none"> • Minimize the use of terrestrial herbicides (especially bromacil, diuron, and sulfometuron methyl) in watersheds with downgradient ponds and streams if potential impacts to aquatic plants exist (<i>from EIS Mitigating Measures</i>).
Fish and Other Aquatic Organisms – cont.			Aquatic Animals: Fish and Other Aquatic Organisms	<ul style="list-style-type: none"> • Regulate the use of diquat in waterbodies that have native fish and aquatic resources (<i>from EIS Mitigating Measures</i>). • Regulate the use of terrestrial herbicides in watersheds, which have characteristics suitable for potential surface runoff, with fish-bearing streams during periods when fish are in life stages most sensitive to the herbicide(s) use (<i>from EIS Mitigating Measures</i>). • Establish appropriate herbicide-specific buffer zones to waterbodies, habitats, or fish or other aquatic species of interest (<i>from EIS Mitigating Measures</i>). • At the field level, consider effects to listed species, otherwise special status fish and other aquatic organisms when designing treatment programs (<i>not in BA, SOPs or Mitigating Measures, but okay to include</i>).
Fish and Other Aquatic Organisms – cont. Fish and Other Aquatic Organisms – cont.			Aquatic Animals: Conservation Measures Related to Prescribed Fire Aquatic Animals: Conservation Measures Related to Prescribed Fire – cont.	<ul style="list-style-type: none"> • Conduct prescribed burning only when long-term maintenance of the riparian area is the primary objective, and where low intensity fires can be maintained. • Do not construct black lines, except by non-mechanized methods. • Utilize/create only the following firelines: natural barriers; hand-built lines parallel to the stream channel and outside of buffer zones established at the local level; or hand built lines perpendicular to the stream channel with waterbars and the same distance requirement. • Do not ignite fires using aerial methods. • In forested riparian areas, keep fires to low severity levels to ensure that excessive vegetation removal does not occur. • Do not camp, unless allowed by local consultation. • Have a fisheries biologist determine whether pumping activity can occur in streams with TEP species. • During water drafting/pumping, maintain a continuous surface flow of the stream that does not alter original wetted stream width. • Do not alter dams or channels in order to pump in streams occupied by TEP species. • Do not allow helicopter dipping from waters occupied by TEP species, except in lakes outside of the spawning period.

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
				<p>species, unless their placement will enhance weed-control effectiveness without damaging the riparian system.</p> <p>Local BLM offices should design conservation measures for treatment plans using the above conservation measures as guidance, but altering it as needed based on local conditions and the habitat needs of the particular TEP aquatic species that could be affected by the treatments. Locally-focused conservation measures would be necessary to reduce or avoid potential impacts such that a Not Likely to Adversely Affect determination would be reached during the local-level NEPA process. BLM offices that are responsible for the protection of Northwest salmonids are directed to the guidance document: <i>Criteria for At-Risk Salmonids: National Fire Plan Activities</i>, Version 2.1 (National Fire Plan Technical Team 2002), which contains detailed instructions for developing suitable conservation measures for these TEP species in conjunction with vegetation treatment programs, and from which many of the above-listed conservation measures were taken.</p>
Wildlife	<ul style="list-style-type: none"> • To minimize risks to terrestrial wildlife, do not exceed the typical application rate for applications of dicamba, diuron, glyphosate, hexazinone, tebuthiuron, or triclopyr, where feasible. • Minimize the size of application areas, where practical, when applying 2,4-D, bromacil, diuron, and Overdrive® to limit impacts to wildlife, particularly through contamination of food items. • Where practical, limit glyphosate and hexazinone to spot applications in rangeland and wildlife habitat areas to avoid contamination of wildlife food items. • Avoid using the adjuvant R-11® in aquatic environments, and either avoid using glyphosate formulations containing POEA, or seek to use formulations with the least amount of POEA, to reduce risks to amphibians. • Do not apply bromacil or diuron in rangelands, and use appropriate buffer zones (see Vegetation section in Chapter 4) to limit contamination of off-site vegetation, which may serve as forage for wildlife. • Do not aerially apply diquat directly to wetlands or riparian areas. • To protect special status wildlife species, implement all conservation measures for terrestrial animals presented in the <i>Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic</i> 	<ul style="list-style-type: none"> • Use herbicides of low toxicity to wildlife, where feasible. • Use spot applications or low-boom broadcast operations where possible to limit the probability of contaminating non-target food and water sources, especially non-target vegetation over areas larger than the treatment area. • Use timing restrictions (e.g., do not treat during critical wildlife breeding or staging periods) to minimize impacts to wildlife. 		

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
				<p>vegetation in habitats where TEP amphibians occur or may potentially occur.</p> <ul style="list-style-type: none"> • When conducting herbicide treatments in upland areas adjacent to aquatic or wetland habitats that support TEP herpetofauna, do not broadcast spray during conditions under which off-site drift is likely. • In watersheds where TEP amphibians occur, do not apply bromacil, diuron, or triclopyr BEE in upland habitats upslope of aquatic habitats that support (or may potentially support) TEP amphibians under conditions that would likely result in surface runoff. • Follow all instructions and SOPs to avoid spill and direct spray scenarios into aquatic habitats that support TEP herpetofauna. • Do not use 2,4-D in terrestrial habitats occupied by TEP herpetofauna; do not broadcast spray 2,4-D within ¼ mile of terrestrial habitat occupied by TEP herpetofauna. • When conducting herbicide treatments in or near terrestrial habitat occupied by TEP herpetofauna, avoid using the following herbicides, where feasible: clopyralid, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, and triclopyr. • When conducting herbicide treatments in upland habitats occupied by TEP herpetofauna, do not broadcast spray 2,4-D, clopyralid, glyphosate, hexazinone, picloram or triclopyr; do not broadcast spray these herbicides in areas adjacent to habitats occupied by TEP herpetofauna under conditions when spray drift onto the habitat is likely. • If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in upland habitats occupied by TEP herpetofauna, utilize the typical, rather than the maximum, application rate. • If spraying imazapyr or metsulfuron methyl in or adjacent to upland habitats occupied by TEP herpetofauna, apply at the typical, rather than the maximum, application rate • If conducting herbicide treatments in or near upland habitats occupied by TEP herpetofauna, consult Table 6-3 on a species by species basis to determine additional conservation measures that should be enacted to avoid negative effects via ingestion of contaminated prey.
Wildlife – cont.			<p>Terrestrial Animals:</p> <p>Bird Species:</p> <ul style="list-style-type: none"> • Mature Forest Nesters: <ul style="list-style-type: none"> ○ Mexican Spotted Owl <p>Terrestrial Animals:</p> <p>Bird Species:</p> <ul style="list-style-type: none"> • Mature Forest Nesters – cont. 	<ul style="list-style-type: none"> • Survey for marbled murrelets, northern spotted owls, and Mexican spotted owls (and their nests) on suitable proposed treatment areas, prior to developing treatment plans. • Delineate a 100-acre buffer around nests prior to mechanical treatments or prescribed burns. • Do not allow human disturbance within ¼ mile of nest sites during the nesting period (as determined by a local biologist). • Ensure that nest sites are at least 1 mile from downwind smoke effects during the nesting period. • Protect and retain the structural components of known or suspected nest sites during treatments; evaluate each nest site prior to treatment and protect it in the most appropriate manner. • Maintain sufficient dead and down material during treatments to support spotted owl prey species (minimums would depend on forest types, and should be determined by a wildlife biologist). • Do not conduct treatments that alter forest structure in old-growth stands. • Do not use 2,4-D in marbled murrelet, northern spotted owl, or Mexican spotted owl habitats; do not broadcast spray 2,4-D within ¼ mile of marbled murrelet, northern spotted owl, or Mexican spotted owl habitat.

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				<ul style="list-style-type: none"> • Where feasible, avoid use of the following herbicides in northern spotted owl and Mexican spotted owl habitat: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, and triclopyr. • Do not broadcast spray clopyralid, glyphosate, hexazinone, picloram, or triclopyr in marbled murrelet, northern spotted owl, or Mexican spotted owl habitat; do not broadcast spray these herbicides in areas adjacent to marbled murrelet, northern spotted owl, or Mexican spotted owl habitat under conditions when spray drift onto the habitat is likely. • Do not broadcast spray diuron in Mexican or northern spotted owl habitat; do not broadcast spray these herbicides in areas adjacent to Mexican or northern spotted owl habitat under conditions when spray drift onto the habitat is likely. • If broadcast spraying imazapyr or metsulfuron methyl in or adjacent to marbled murrelet, northern spotted owl, or Mexican spotted owl habitat, apply at the typical, rather than the maximum, application rate. • If broadcast spraying bromacil or diquat in or adjacent to Mexican or northern spotted owl habitat, apply at the typical, rather than the maximum, application rate. • If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in marbled murrelet, northern spotted owl, or Mexican spotted owl habitat, utilize the typical, rather than the maximum, application rate. • Follow all instructions and SOPs to avoid spill and direct spray scenarios into aquatic habitats, particularly marine habitats where murrelets forage for prey. <p>Additional conservation measures would be developed, as necessary, at the project level to fine-tune protection of these species.</p>
Wildlife – cont.			<p>Terrestrial Animals:</p> <p>Bird Species:</p> <ul style="list-style-type: none"> • Whooping Crane 	<ul style="list-style-type: none"> • Burn whooping crane wintering grounds in late winter, when the food supply is low. • Avoid prescribed fire activities in whooping crane breeding areas. • Do not allow human disturbance within 1 mile occupied whooping crane habitat (nesting, roosting foraging) or potential nesting habitat where whooping cranes have been observed within the past 3 years during periods when cranes may be present (as determined by a qualified biologist). • During prescribed burns, ensure that nest sites or occupied habitat are greater than 1 mile from downwind smoke effects during periods when cranes may be present. • Do not conduct herbicide treatments in whooping crane habitat during the breeding season. • Closely follow all application instructions and use restrictions on herbicide labels; in wetlands and riparian habitats use only those herbicides that are approved for use in those areas. • Do not use 2,4-D in whooping crane habitats; do not broadcast spray 2,4-D within ¼ mile of whooping crane habitat. • Where feasible, avoid use of the following herbicides in whooping crane habitat: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, tebuthiuron, and triclopyr. • Do not broadcast spray clopyralid, diquat, diuron, glyphosate, hexazinone, picloram, or triclopyr in whooping crane habitat; do not broadcast spray these herbicides in areas adjacent to whooping crane habitat under conditions when spray drift onto the habitat is likely. • If broadcast spraying bromacil, imazapyr, or metsulfuron methyl in or adjacent to whooping crane habitat, apply at the typical, rather than the maximum, application rate.

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
				<ul style="list-style-type: none"> • If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in whooping crane habitat, utilize the typical, rather than the maximum, application rate.
Wildlife – cont.			Terrestrial Animals: Bird Species: <ul style="list-style-type: none"> • Bald Eagle 	<ul style="list-style-type: none"> • Do not allow human disturbance within a suitable buffer distance of known bald eagle nest sites during the breeding season (as determined by a qualified wildlife biologist). For active bald eagle nests in open country, buffer distances should be 1 mile. In other habitats, with a shorter line-of-site distance, buffer distances may be reduced, based on consultation with the USFWS. • Do not allow ground disturbing activities within ½ mile of active roost sites year round. • Avoid human disturbance within 1 mile of a winter roost during the wintering period (as determined by a qualified wildlife biologist). • Complete treatment activities that must occur within 1 mile of a winter roost within the hours of 9 a.m. to 3 p.m., during the winter roosting period. • Do not allow helicopter/aircraft activity within 1 mile of bald eagle nest sites or winter roost sites during the breeding or roosting period. • Conduct prescribed burn activities in a manner that ensures that nest and winter roost sites are greater than 1 mile from downwind smoke effects. • Do not cut trees within ¼ mile of any known nest trees. • Do not use 2,4-D in bald eagle habitats; do not broadcast spray 2,4-D within ¼ mile of bald eagle habitat. • Where feasible, avoid use of the following herbicides in bald eagle habitat: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, and triclopyr. • Do not broadcast spray clopyralid, diuron, glyphosate, hexazinone, picloram, or triclopyr in bald eagle habitat; do not broadcast spray these herbicides in areas adjacent to bald eagle habitat under conditions when spray drift onto the habitat is likely. • If broadcast spraying bromacil, diquat, imazapyr, or metsulfuron methyl in or adjacent to bald eagle habitat, apply at the typical, rather than the maximum, application rate. • If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in bald eagle habitat, utilize the typical, rather than the maximum, application rate.
Wildlife – cont.			Terrestrial Animals: Mammals: <ul style="list-style-type: none"> ○ Canada Lynx Terrestrial Animals: Mammals: <ul style="list-style-type: none"> ○ Canada Lynx – cont. 	<ul style="list-style-type: none"> • Prior to vegetation treatments, map lynx habitat within areas in which treatments are proposed to occur. Identify potential denning and foraging habitat, and topographic features that may be important for lynx movement (major ridge systems, prominent saddles, and riparian corridors). • Design vegetation treatments in lynx habitat to approximate historical landscape patterns and disturbance processes. • Avoid the construction of permanent firebreaks on ridges or saddles in lynx habitat. • Where possible, keep linear openings out of mapped potential habitat and away from key habitat components, such as denning areas. • When planning vegetation treatments, minimize the creation of linear openings (fire lines, access routes, and escape routes) that could result in permanent travel ways for competitors and humans. • Obliterate any linear openings constructed within lynx habitat in order to deter future uses by humans and competitive species.

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
				<ul style="list-style-type: none"> • Design burn prescriptions to regenerate or create snowshoe hare habitat (e.g., regeneration of aspen and lodgepole pine). • Ensure that no more than 30% of lynx habitat within a Lynx Analysis Unit (as defined in Ruediger et al. 2000) would be in an unsuitable condition at any time. • If deemed necessary, defer livestock grazing following vegetation treatments to ensure the re-establishment of key plant species. Bureau of Land Management personnel should use resource goals and objectives to determine the need for this restriction and the length of deferment on a case by case basis. • Give particular consideration to amounts of denning habitat, condition of summer and winter foraging habitat, as well as habitat linkages, to ensure that that treatments do not negatively impact lynx. If there is less than 10% lynx habitat in a Lynx Analysis Unit, defer vegetation treatments that would delay development of denning habitat structure. Protect habitat connectivity within and between Lynx Analysis Units. • Do not use 2,4-D in Canada lynx habitat; do not broadcast spray 2,4-D within ¼ mile of Canada lynx habitat. • Where feasible, avoid use of the following herbicides in Canada lynx habitat: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, and triclopyr. • Do not broadcast spray clopyralid, diuron, glyphosate, hexazinone, picloram, or triclopyr in Canada lynx habitat; do not broadcast spray these herbicides in areas adjacent to Canada lynx habitat under conditions when spray drift onto the habitat is likely. • If broadcast spraying bromacil, diquat, imazapyr, or metsulfuron methyl in or near Canada lynx habitat, apply at the typical, rather than the maximum, application rate. • If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in Canada lynx habitat, utilize the typical, rather than the maximum, application rate. <p>In addition, the BLM must develop and implement additional conservation measures, as necessary, during project-level analysis at the local level.</p>
Wildlife – cont.			<p>Terrestrial Animals:</p> <p>Mammals:</p> <ul style="list-style-type: none"> ○ Bighorn Sheep <p>Terrestrial Animals:</p> <p>Mammals:</p> <ul style="list-style-type: none"> ○ Bighorn Sheep – cont. 	<ul style="list-style-type: none"> • Prior to treatment activities, survey suitable habitat for evidence of use by bighorn sheep. • Do not use domestic animals as a vegetation treatment in bighorn sheep habitat. • When planning vegetation treatments, minimize the creation of linear openings that could result in permanent travel ways for competitors and humans. • Obliterate any linear openings constructed within bighorn sheep habitat in order to deter future uses by humans and competitive species. • Where feasible, time vegetation treatments such that they do not coincide with seasonal use of the treatment area by bighorn sheep. • Do not broadcast spray herbicides in key bighorn sheep foraging habitats. • Do not use 2,4-D in bighorn sheep habitat; do not broadcast spray 2,4-D within ¼ mile of bighorn sheep habitat. • Where feasible, avoid use of the following herbicides in bighorn sheep habitat: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, Overdrive[®], picloram, and tebuthiuron, and triclopyr. • Do not broadcast spray bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, Overdrive[®], picloram, or triclopyr in bighorn sheep habitat; do not broadcast spray these herbicides in areas adjacent to bighorn sheep habitat under conditions when spray drift onto the habitat is likely.

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
				<ul style="list-style-type: none"> • If broadcast spraying imazapyr, metsulfuron methyl, or tebuthiuron in or near bighorn sheep habitat, apply at the typical, rather than the maximum, application rate. • If conducting manual spot applications of glyphosate, hexazinone, imazapyr, metsulfuron methyl, tebuthiuron, or triclopyr to vegetation in bighorn sheep habitat, utilize the typical, rather than the maximum, application rate.
Wildlife – cont.			Terrestrial Animals: Mammals: <ul style="list-style-type: none"> ○ Gray Wolf 	<ul style="list-style-type: none"> • Avoid human disturbance and/or associated activities within 1 mile of a den site during the breeding period (as determined by a qualified biologist). • Avoid human disturbance and/or associated activities within 1 mile of a rendezvous site during the breeding period (as determined by a qualified biologist). • Do not use 2,4-D in areas where gray wolves are known to occur; do not broadcast spray within ¼ mile of areas where gray wolves are known to occur. • Where feasible, avoid use of the following herbicides in gray wolf habitat: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, and triclopyr. • Do not broadcast spray clopyralid, diuron, glyphosate, hexazinone, picloram, or triclopyr in gray wolf habitat; do not broadcast spray these herbicides in areas adjacent to gray wolf habitat under conditions when spray drift onto the habitat is likely. • If broadcast spraying bromacil, diquat, imazapyr, or metsulfuron methyl in or near gray wolf habitat, apply at the typical, rather than the maximum, application rate. • If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in gray wolf habitat, utilize the typical, rather than the maximum, application rate.
Threatened, Endangered, & Sensitive Species	<ul style="list-style-type: none"> • Resource Not Listed in Table 	<ul style="list-style-type: none"> • Survey for special status species before treating an area. Consider effects to special status species when designing herbicide treatment programs. • Use a selective herbicide and a wick or backpack sprayer to minimize risks to special status plants. • Avoid treating vegetation during time-sensitive periods (e.g., nesting and migration, sensitive life stages) for special status species in area to be treated. 		
Livestock	<ul style="list-style-type: none"> • Minimize potential risks to livestock by applying diuron, glyphosate, hexazinone, tebuthiuron, and triclopyr at the typical application rate, where feasible. • Do not apply 2,4-D, bromacil, dicamba, diuron, Overdrive®, picloram, or triclopyr across large application areas, where feasible, to limit impacts to livestock, particularly through the contamination of food items. • Where feasible, limit glyphosate and hexazinone to spot applications in rangeland. • Do not aerially apply diquat directly to wetlands or riparian areas used by livestock. • Do not apply bromacil or diuron in rangelands, and use appropriate buffer zones (see Vegetation section in Chapter 4) to limit contamination of off-site rangeland vegetation. 	<ul style="list-style-type: none"> • Whenever possible and whenever needed, schedule treatments when livestock are not present in the treatment area. Design treatments to take advantage of normal livestock grazing rest periods, when possible. • As directed by the herbicide label, remove livestock from treatment sites prior to herbicide application, where applicable. • Use herbicides of low toxicity to livestock, where feasible. • Take into account the different types of application equipment and methods, where possible, to reduce the probability of contamination of non-target food and water sources. • Avoid use of diquat in riparian pasture while pasture is being used by livestock. • Notify permittees of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. • Notify permittees of livestock grazing, feeding, or slaughter restrictions, if necessary. • Provide alternative forage sites for livestock, if possible. 		
Wild Horse & Burros	<ul style="list-style-type: none"> • Minimize potential risks to wild horses and burros by applying diuron, glyphosate, hexazinone, tebuthiuron, and triclopyr at the 	<ul style="list-style-type: none"> • Minimize using herbicides in areas grazed by wild horses and burros. • Use herbicides of low toxicity to wild horses and burros, where 		

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	Conservation Measure
	<p>typical application rate, where feasible, in areas associated with wild horse and burro use.</p> <ul style="list-style-type: none"> Consider the size of the application area when making applications of 2,4-D, bromacil, dicamba, diuron, Overdrive®, picloram, and triclopyr in order to reduce potential impacts to wild horses and burros. Apply herbicide label grazing restrictions for livestock to herbicide treatment areas that support populations of wild horses and burros. Where feasible, limit glyphosate and hexazinone to spot applications in rangeland. Do not apply bromacil or diuron in grazing lands within herd management areas, and use appropriate buffer zones identified in Tables 4-12 and 4-14 in Chapter 4 of the Final PEIS to limit contamination of vegetation in off-site foraging areas. Do not apply 2,4-D, bromacil, or diuron in herd management areas during the peak foaling season (March through June, and especially in May and June), and do not exceed the typical application rate of Overdrive® or hexazinone in HMAs during the peak foaling season in areas where foaling is known to take place. 	<p>feasible.</p> <ul style="list-style-type: none"> Remove wild horses and burros from identified treatment areas prior to herbicide application, in accordance with label directions for livestock. Take into account the different types of application equipment and methods, where possible, to reduce the probability of contaminating non-target food and water sources. 		
Paleontological and Cultural Resources	<ul style="list-style-type: none"> Do not exceed the typical application rate when applying 2,4-D, bromacil, diquat, diuron, fluridone, hexazinone, tebuthiuron, and triclopyr in known traditional use areas. Avoid applying bromacil or tebuthiuron aerially in known traditional use areas. Limit diquat applications to areas away from high residential and traditional use areas to reduce risks to Native Americans and Alaska Natives. 	<ul style="list-style-type: none"> Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the <i>Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act</i> and state protocols or 36 CFR Part 800, including necessary consultations with State Historic Preservation Officers and interested tribes. Follow BLM Handbook H-8270-1 (<i>General Procedural Guidance for Paleontological Resource Management</i>) to determine known Condition 1 and Condition 2 paleontological areas, or collect information through inventory to establish Condition 1 and Condition 2 areas, determine resource types at risk from the proposed treatment, and develop appropriate measures to minimize or mitigate adverse impacts. Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected by herbicide treatments. Work with tribes to minimize impacts to these resources. Follow guidance under Human Health and Safety in areas that may be visited by Native peoples after treatments. 		
Visual	<ul style="list-style-type: none"> None Proposed 	<ul style="list-style-type: none"> Minimize the use of broadcast foliar applications in sensitive watersheds to avoid creating large areas of browned vegetation. Consider the surrounding land use before assigning aerial spraying as an application method. Minimize off-site drift and mobility of herbicides (e.g., do not treat when winds exceed 10 mph; minimize treatment in areas where herbicide runoff is likely; establish appropriate buffer widths between treatment areas and residences) to contain visual changes to the intended treatment area. If the area is a Class I or II visual resource, ensure that the change 		

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		<p>to the characteristic landscape is low and does not attract attention (Class I), or if seen, does not attract the attention of the casual viewer (Class II).</p> <ul style="list-style-type: none"> Lessen visual impacts by: 1) designing projects to blend in with topographic forms; 2) leaving some low-growing trees or planting some low-growing tree seedlings adjacent to the treatment area to screen short-term effects; and 3) revegetating the site following treatment. When restoring treated areas, design activities to repeat the form, line, color, and texture of the natural landscape character conditions to meet established Visual Resource Management (VRM) objectives. 		
Wilderness	<ul style="list-style-type: none"> Mitigation measures that may apply to wilderness and other special area resources are associated with human and ecological health and recreation (see mitigation measures for Vegetation, Fish and Other Aquatic Resources, Wildlife Resources, Recreation, and Human Health and Safety). 	<ul style="list-style-type: none"> Encourage backcountry pack and saddle stock users to feed their livestock only weed-free feed for several days before entering a wilderness area. Encourage stock users to tie and/or hold stock in such a way as to minimize soil disturbance and loss of native vegetation. Revegetate disturbed sites with native species if there is no reasonable expectation of natural regeneration. Provide educational materials at trailheads and other wilderness entry points to educate the public on the need to prevent the spread of weeds. Use the “minimum tool” to treat noxious and invasive vegetation, relying primarily on use of ground-based tools, including backpack pumps, hand sprayers, and pumps mounted on pack and saddle stock. Use chemicals only when they are the minimum method necessary to control weeds that are spreading within the wilderness or threaten lands outside the wilderness. Give preference to herbicides that have the least impact on non-target species and the wilderness environment. Implement herbicide treatments during periods of low human use, where feasible. Address wilderness and special areas in management plans. Maintain adequate buffers for Wild and Scenic Rivers (¼ mile on either side of river, ½ mile in Alaska). 		
Recreation	<ul style="list-style-type: none"> Mitigation measures that may apply to recreational resources are associated with human and ecological health (see mitigation measures for Vegetation, Fish and Other Aquatic Resources, Wildlife Resources, Recreation, and Human Health and Safety). 	<ul style="list-style-type: none"> Schedule treatments to avoid peak recreational use times, while taking into account the optimum management period for the targeted species. Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas. Adhere to entry restrictions identified on the herbicide label for public and worker access. Post signs noting exclusion areas and the duration of exclusion, if necessary. Use herbicides during periods of low human use, where feasible. 		

Resource	Mitigation Measure	Standard Operating Procedure	Species/Site Identification as Listed in the Biological Assessment	
Social & Economic Values	<ul style="list-style-type: none"> None Proposed 	<ul style="list-style-type: none"> Consider surrounding land use before selecting aerial spraying as a method, and avoid aerial spraying near agricultural or densely-populated areas. Post treated areas and specify reentry or rest times, if appropriate. Notify grazing permittees of livestock feeding restrictions in treated areas, if necessary, as per label instructions. Notify the public of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. Control public access until potential treatment hazards no longer exist, per herbicide product label instructions. Observe restricted entry intervals specified by the herbicide label. Notify local emergency personnel of proposed treatments. Use spot applications or low-boom broadcast applications where possible to limit the probability of contaminating non-target food and water sources, especially vegetation over areas larger than the treatment area. Consult with Native American tribes and Alaska Native groups to locate any areas of vegetation that are of significance to the tribe and that might be affected by herbicide treatments. To the degree possible within the law, hire local contractors and workers to assist with herbicide application projects and purchase materials and supplies, including chemicals, for herbicide treatment projects through local suppliers. To minimize fears based on lack of information, provide public educational information on the need for vegetation treatments and the use of herbicides in an Integrated Pest Management program for projects proposing local use of herbicides. 		
Rights-of-way	<ul style="list-style-type: none"> Resource Not Listed in Table 	<ul style="list-style-type: none"> Coordinate vegetation management activities where joint or multiple use of a ROW exists. Notify other public land users within or adjacent to the ROW proposed for treatment. Use only herbicides that are approved for use in ROW areas. 		
Human Health and Safety	<ul style="list-style-type: none"> Use the typical application rate, where feasible, when applying 2,4-D, 2,4-DP, atrazine, bromacil, diquat, diuron, fluridone, fosamine, hexazinone, tebuthiuron, and triclopyr to reduce risk to occupational and public receptors. Avoid applying bromacil and diuron aerially. Do not apply sulfometuron methyl aerially. Limit application of chlorsulfuron via ground broadcast applications at the maximum application rate. Limit diquat application to ATV, truck spraying, and boat applications to reduce risks to occupational receptors; limit diquat applications to areas away from high residential and subsistence use to reduce risks to public receptors. Evaluate diuron applications on a site-by-site basis to avoid risks to humans. There appear to be few scenarios where diuron can be applied without risk to occupational receptors. Do not apply hexazinone with an over-the-shoulder broadcast applicator. 	<ul style="list-style-type: none"> Establish a buffer between treatment areas and human residences based on guidance given in the HHRA, with a minimum buffer of ¼ mile for aerial applications and 100 feet for ground applications, unless a written waiver is granted. Use protective equipment as directed by the herbicide label. Post treated areas with appropriate signs at common public access areas. Observe restricted entry intervals specified by the herbicide label. Provide public notification in newspapers or other media where the potential exists for public exposure. Have a copy of MSDSs at work site. Notify local emergency personnel of proposed treatments. Contain and clean up spills and request help as needed. Secure containers during transport. Follow label directions for use and storage. Dispose of unwanted herbicides promptly and correctly. 		

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"Additional"	<ul style="list-style-type: none"> • Avoid using the adjuvant R-11® in aquatic environments, and either avoid using glyphosate formulations containing POEA, or seek to use formulations with the least amount of POEA, to reduce risks to amphibians and other aquatic organisms.. • Prohibit aerial application of sulfometuron methyl. 			

Appendix 5 – List of Weed Species, Their Potential Habitat, and Proposed Treatment

Common Name	Habitat	Herbicide		
Black henbane	Occurs in disturbed areas, parking areas, rights of ways, range, oil and gas areas roadsides and agricultural lands	Tordon at .25 to 0.5 lb. ai/A		
Bull thistle	Occurs in rangelands, roadsides, rights of ways, oil and gas areas, and disturbed areas	Tordon at 0.5 lb. ai/A Escort at .6 oz ai/A		
Canada thistle	Occurs in rangelands ,agricultural lands, pastures, mountain meadows, oil and gas areas, riparian areas, rights of ways, and other disturbed areas	Tordon at 1 to 2 pt. ai/A plus 2,4-d at 1lb. ae/A Curtail at 1 to 5 qts product/A Telar at 1.5 oz. ai/A Escort at .6oz ai/A		
Common mullein	Common in dried up river bottoms, rangelands, rights of ways, roadsides, waste areas, meadows, oil and gas areas, disturbed areas and especially within gravelly soils	Telar at 1.5 oz. ai/A Escort at .6oz ai/A		
Dalmation toadflax	Occurs on drier open areas among rangelands, rights of ways, roadsides, oil and gas areas, gravelly soils, and disturbed areas	Tordon at .5 lb ae/A plus 2,4-D at 1.5 lb ae/A Tordon at 1.0 lb ae/A Telar at .75 oz ai/A		
Downy brome	Occurs along roadsides, waste areas, rights of ways, rangelands, oil and gas areas, agricultural lands, pastures and riparian areas	Plateau refer to label for recommended rate on rangeland/riparian areas		
Dyer woad	Occurs in rangelands, rights of ways, road sides, oil and gas areas, waste areas, and disturbed areas	Telar at .75 oz ai/A Escort at 0.3 to 0.6 oz ai/A 2,4-D 2.0 to 2.5 lb ae/A		
Sulfur cinquefoil	Occurs in rangelands, agricultural lands, roadsides, rights of way, oil and gas areas, and waste areas	Tordon at 1 pt product/acre plus 2,4-d at 1 to 2 qts product/A		
Hoary cress	Occurs in rangelands, rights of ways, agricultural lands, roadsides, oil and gas areas, riparian areas, and disturbed areas	Escort at .3 to.6 oz ai/A Telar at .37 to .75 oz. a.i./A 2,4-D at 2 to 3 lb ae/A		
Houndstongue	Occurs in disturbed areas such as right of ways, rangelands, oil and gas areas Agricultural lands, riparian areas, and waste areas	2,4-D at 2.0 lb ae/A Escort at 0.6 oz ai/A Tordon at .5lb ae/A		
Leafy spurge	Occurs in disturbed areas, rights of ways, rangelands, agricultural lands, and meadows.	Tordon at 1 pt/A plus 2,4-D at 1 qt/A		
Musk thistle	Occurs in agricultural and rangelands, rights of ways , riparian areas, forested areas, oil and gas areas, roadsides, meadows, and disturbed areas	Tordon at .25 lb ae/A Telar at .75 oz ai/A Escort at .3 to.6 oz ai/A 2,4-D at 1.5 to 2.0 lb ae/A		
Oxeye daisy	Occurs along roadsides, meadows, rights of ways, waste places, oil and gas areas, riparian areas and disturbed areas	Tordon 1 to 2 pt/A		
Perennial pepperweed	Occurs in waste areas, riparian areas, oil and gas areas, roadsides, rangelands, agricultural lands, and rights of ways	Telar at .75 oz ai/A		
Purple loosestrife	Occurs in riparian areas, floodplains, and drainage ditches	Rodeo at 4-6 pt product/A		
Saltcedar	Occurs in riparian areas, floodplains, and drainage ditches	Arsenal at 4 to 6 pt product/A Rodeo 4 to 6 pt product/A		
Scotch thistle	Occurs in rangelands, pastureland, rights of ways, riparian areas, oil and gas areas, roadsides, waste areas, and disturbed areas	Tordon at .25 lb ae/A Telar at .75 oz. ai/A Escort at .3 to .6 oz ai/A 2,4-D at 1.5 to 2.0 lb		

Spotted knapweed	Occurs in rangelands, right of ways, mountain meadows, oil and gas areas, waste areas, and disturbed areas	Roundup at 3.0lb ae/A Tordon at .25 to .5 lb ae/A 2,4-D at 1.0 to 2.0lb ae/A Curtail at 2 to 5 qts product/A	
Yellow Toadflax	Occurs in disturbed areas, rangelands, rights of ways, mountain meadows, rangelands, pasturelands, oil and gas areas, roadsides, cliff outcrops, and riparian areas	Tordon at 1.0 lb ae/A Telar at .75 oz ai/A Tordon at .5 ae/A plus 2,4-D at 1.5 lb ae/A	