

# Environment Assessment

## Noxious and Invasive Weed Control and Commercial Site Vegetation Control Programs

March 2011

**BLM**

High Desert District – Rawlins Field Office



The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

## **Tiered Environmental Analysis**

**BLM/WY/PL-11/025+1020**

**WY-030-2008-0150-EA**

ENVIRONMENTAL ASSESSMENT TITLE PAGE  
RAWLINS FIELD OFFICE

EA: WY-030-08-EA-150

Draft \_\_\_\_\_ Supplemental \_\_\_\_\_ Final \_\_\_\_\_

Name or Title of Action: Noxious and Invasive Weed Control and Commercial Site Vegetation Control

Case No. \_\_\_\_\_

Location:

Field Office: Rawlins

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Activity Code 1020-JD

EA Level Routine

**DRAFT**  
FINDING OF NO NEW SIGNIFICANT IMPACT  
for  
Environmental Assessment #DOI-BLM-WY-030-2008-0150-EA  
for  
Noxious and Invasive Weed Control and  
Commercial Site Vegetation Control Programs

Based on the analysis of potential environmental impacts contained in the attached Environmental Assessment (EA), I have determined that the impacts of the Proposed Action are not expected to be significant and that an environmental impact statement is not required. The Proposed Action, which incorporates the BLM required Standard Operating Procedures and Best Management Practices listed in Appendix 1 of the EA, would not create effects which have sufficient context and intensity, as defined in section 7.3 of the BLM National Environmental Policy Act Handbook (Manual H-1790-1, page 70), to be considered significant.

The considerations listed in 40 CFR 1509.27(b)(1-10) were used to evaluate the intensity of the effects described in the EA:

- 1) There would not be an offset between potential adverse and beneficial effects by approving the proposed action.
- 2) Health and safety would not be adversely affected. The use of hazardous materials is not proposed, nor hazardous wastes produced. Solid wastes would be disposed of properly. Air and water quality would not be adversely affected. There would be no adverse Social or Economic effects.
- 3) Neither the Rawlins Resource Management Plan (RMP) nor interdisciplinary review found unique characteristics in the geographic area which would be adversely affected.
- 4) The effects described would not be highly controversial.
- 5) The effects of weed treatments such as the Proposed Action are well known. There would not be high uncertainty of the effects, nor unique or unknown risks.
- 6) The effects would not establish a precedent for future actions.
- 7) The area already has a large number of human intrusions, so the contribution to cumulative effects would be very small.
- 8) There would be no adverse effects to resources with scientific, cultural, or historic resources. Although cultural resources were found on the surface, they were not eligible for the National Register of Historic Places.
- 9) There would be no effect to habitat for threatened or endangered species. Treatment timing restrictions would prevent adverse effects to other wildlife species in their habitat.
- 10) Approving the Proposed Action would not violate any Federal, State, or local laws or regulations imposed for the protection of the environment. However, approving the No Action alternative would.

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Dennis Carpenter, Field Office Manager

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Date

THIS ENVIRONMENTAL ASSESSMENT IS TIERED TO AND REFERENCES THE Vegetation Treatments Using Herbicides on BLM Lands FEIS (2007) and the Record of Decision for same.

EA: WY-030-08-EA-150  
Environmental Assessment for  
Noxious and Invasive Weed Control and  
Commercial Site Vegetation Control

## **INTRODUCTION**

### **Background**

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 Species. Invasive plants are compromising the ability to manage Bureau of Land Management (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.

### **Purpose and Need for the Proposal**

The percentage of land infested by invasive plants is relatively low within the Rawlins Field Office (RFO), thus providing an opportunity to aggressively treat new and existing infestations. The current untreated, known weed-infested acreage is estimated at 20,000 acres (not including areas infested with cheatgrass (*Bromus tectorum*)). However, most of the RFO has not been inventoried for noxious and invasive species; thus, the actual number of acres needing treatment has not been established. Historically, the RFO has treated an average of 2,000 acres of vegetation per year. The current treatment focus is on Wyoming state listed noxious weeds<sup>1</sup>; however, controlling other invasive species (halogeton, black henbane, alyssum, and cheatgrass, for example) that cause management problems related to livestock, wildlife, and human activities is a secondary focus. Surface disturbing activities associated with commercial resource development (such as well pad, road, wind turbine, powerline, and pipeline construction, for example) are increasing the presence of invasive species. Production facility structures such as tanks, well heads, meter houses, etc., require complete vegetation control to eliminate fire hazards.

The purpose of an environmental assessment is to allow the Responsible Official to determine whether to prepare an environmental impact statement or a finding of no new significant impact (43 CFR 46.300).

### **Conformance**

This project is in conformance with the Rawlins Resource Management Plan (Rawlins RMP), December 2008 and other guidance. It is consistent with vegetation goals, objectives, and management actions as stated on pages 2-47 and 2-48 of the Rawlins RMP. The management objective is to control the introduction and proliferation of noxious and invasive species and reduce the established populations to acceptable levels determined through consultation, and coordination with local, state, and other federal plans, policies, and agency agreements. Management actions include:

- The priority for control of noxious and invasive species would be to reduce and eliminate, where possible, small new infestations and to control large infestations;
- Vegetation treatments (physical, biological, chemical, and prescribed fire) would be applied to meet the standards for rangeland health and watershed function, and to achieve the desired plant community, while considering habitat for wildlife, including Special Status Species.
- All forms of control for noxious and invasive species are allowed in the RFO on a case-by-case basis (Appendix 19, Rawlins RMP)

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<sup>1</sup> Wyoming Noxious Weed – Legal designation by the Wyoming Department of Agriculture

## Relationship to Statutes, Regulations, or Other Plans

This EA is prepared in accordance with NEPA procedures, and is in compliance with all applicable laws and regulations passed subsequently, including Council of Environmental Quality (CEQ) regulations (40 CFR, Parts 1500-1508); U.S. Department of Interior (DOI) Regulations for Implementation of the National Environmental Policy Act of 1969 (43 CFR Part 46); DOI BLM NEPA Handbook, H-1790-1 (BLM January 2008); Guidelines for Assessing and Documenting Cumulative Impacts (BLM 1994); and the Departmental Manual (DM) part 516. This EA and the Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States, Final Programmatic Environmental Impact Statement (FEIS) assess the environmental impacts of the Proposed Action and serves to guide the decision-making process.

Under the Federal Land Policy and Management Act of 1976, the BLM must manage public lands according to the principles of multiple use and sustained yield. These principles are further qualified in the Act by the statutory duty that BLM prevent unnecessary degradation of the public lands. Weeds have been established and are rapidly spreading on both public and private rangeland. As a result, forage production is reduced, ecological condition is compromised, and habitat quality is reduced. Weed management would help achieve restoration of habitats for fish and wildlife and improvement of ecological condition to achieve Standards for Healthy Rangelands and Healthy Forests. The weed control program is consistent with decisions identified in the FEIS dated June 2007; Record of Decision (ROD) for the FEIS dated September 2007 ([http://www.blm.gov/wo/st/en/prog/more/veg\\_eis.html](http://www.blm.gov/wo/st/en/prog/more/veg_eis.html)), and with other statutory requirements in the FEIS, pages 1-6 to 1-8.

## Scoping and Issues:

A BLM interdisciplinary team has reviewed the proposal and the following resources were found to have issues of concern that are addressed in this EA: soils; water, livestock, wildlife including special status species, recreation, wilderness study areas and areas of critical environmental concern, social and economic, human health and safety. Additional resources considered, that were found not to be present, had concerns not requiring analysis, or were not elevated to a level requiring further consideration in this EA include: air quality (FEIS p.4-5), cultural and historic resources (FEIS, p.4-147), Wild horses (FEIS, p.4-136), and Fish and other aquatic resources (FEIS, p.4-76).

## PROPOSED ACTION AND ALTERNATIVES

### Proposed Action

The RFO proposes to implement integrated pest management to address the introduction and spread of invasive plants. The short term (under 5 years) goal would be to halt the spread of weeds and eradicate new patches, or for commercial sites, to remove the vegetation around facilities. The long term goal would be to eradicate weeds where possible or reduce infested acreage.

The methods evaluated in this EA include:

- Chemical - Herbicides are products, either liquid or granular, which kill or injure plants. These products are applied by hand, vehicle mounted or backpack sprayers, or aerially.
- Biological - Control which involves the intentional use of domestic animals, insects, nematodes, mites, or pathogens (agents such as bacteria or fungus that can cause diseases in plants) that weaken or destroy vegetation.
- Physical - Treatments involve the use of hand tools or power tools to cut, clear, prune, pull or dig out undesired plants. All remaining plant material is disposed of at a waste management site unless it is too large to remove, in which case it is left as cover to naturally decompose.

Herbicide active ingredients allowed on BLM lands in Wyoming are included in the FEIS (Table 2-2). A list of BLM approved herbicides is maintained in the RFO. All herbicide label directions would be followed. Herbicide treatment standard operating procedures listed in the FEIS (Table 2-8 See EA Appendix 1) are incorporated by reference and would be implemented, where applicable. Monitoring would follow guidance provided on page 2-35 thru 2-39 of the FEIS. Mitigation measures in the FEIS (Table 2-9 See EA Appendix 1) such as, buffer zones, minimal application rates and limited disturbing activities would also be followed, where applicable.

Herbicides would be applied by certified pesticide applicators or under their direct supervision following approved Pesticide Use Proposals (PUPs). All PUPs (current and expired) are kept on file with the RFO Weed Coordinator. The PUP is a Department of Interior form and its purpose is to enable the bureaus or agencies in the Department of the Interior to pass specific information about pesticide use on lands administered by those bureaus or agencies back to the

Department. The form is designed to provide site-specific information about chemical use on BLM lands as required in the FEIS p.2-36. One proposal may not cover all the general weed problems in one Field Office. A proposal that provides site-specific information is more likely to meet Department, Bureau, and State Office standards for pesticide use than a proposal that generalizes about weed situations and potential pesticide use. PUPs are valid for three years unless there is a change in the PUP. If a change is made then a new PUP must be completed and signed. If a pesticide is new or if a new situation occurs, then it is likely that the PUP will be valid for only one year. The PUP has to be renewed before that pesticide treatment area can be treated again.

The estimated extent of the proposed chemical control of noxious weeds and invasive species per year is up to 20,000 acres per year (mostly on rangeland, roads, and pipelines). The estimated extent of treatments on commercial sites (well pads, compressor stations, meter stations, etc) is up to 10,000 acres. Herbicide treatment is currently the most effective way to control noxious and invasive species. Most of the acreage treated would occur in Carbon and Sweetwater counties, with lesser acreage treated in Albany and Laramie Counties. Any substantial change to the proposed action treatment methods or to the approximate acreage of treatment would be subject to additional environmental analysis and documentation.

Biological control agents have been used in the past and would continue to be used for selective species control. The acreages treated are small compared to herbicide treatments and usually involve the release of insects. Occasionally, domestic livestock would be used on a project specific basis, such as goats (or sheep) to control leafy spurge or Russian knapweed in riparian habitat. Goats have also been used to control halogeton and Russian thistle along pipelines and well pads. Biological control methods are often used in places sensitive to herbicide treatments or with large infestations.

Physical treatments have been used on an average of twenty acres per year. Physical treatments are often used on small isolated infestations and only on non-rhizomatous species; this is an effective way to eradicate small patches.

The use of non-herbicide control methods is discussed in the Vegetation Treatments, Programmatic Environmental Report (PER) (BLM, 2007). This EA incorporates by reference the biological, mechanical, and physical control methods for invasive plants from that document.

The following list contains Wyoming designated noxious plants and their current known general locations (this list is not all-inclusive). Other invasive species' information is located in the RFO.

**Table 1. Noxious weed species, location, and potential treatment methods to be used.**

<b>Species</b>	<b>Location</b>	<b>Potential Treatment Methods</b>
Leafy Spurge	North Platte River corridor down to Seminoe Reservoir; Muddy Gap; and Baggs	chemical (picloram, 2,4-D, banvel, imazapic), biological
Spotted Knapweed	Saratoga Valley, Upper North Platte River, Seminoe, Arlington, Elk Mountain, Rawlins, and Cow Butte Area	chemical (picloram, 2,4-D, triclopyr, clopyralid, chlorsulfuron, metsulfuron methyl), physical
Diffuse Knapweed	Seminoe, Saratoga, Shirley Mountain foothills, and Roger Canyon by Laramie	chemical (picloram, 2,4-D, triclopyr, clopyralid, chlorsulfuron, metsulfuron methyl), physical
Russian Knapweed	Muddy Gap, Sage/Little Sage Creek south of Rawlins, Seminoe, Wamsutter, Hay Reservoir, North Platte River corridor, and Bell Springs	chemical (picloram, 2,4-D, triclopyr, clopyralid, chlorsulfuron, metsulfuron methyl), biological, physical
Musk Thistle	North Platte River Valley, Atlantic Rim, and Baggs/Battle Mountain area	chemical (picloram, 2,4-D, triclopyr, clopyralid), biological, physical
Field Bindweed	Scattered throughout the RFO	No treatments proposed at this time

Species	Location	Potential Treatment Methods
Scotch Thistle	Robbers Gulch	chemical (picloram, 2,4-D, triclopyr, clopyralid), biological, physical
Plumeless Thistle	Seminole	chemical (picloram, 2,4-D, triclopyr, clopyralid), biological, physical
Canada Thistle	Along drainages throughout the RFO	chemical (picloram, 2,4-D, triclopyr, clopyralid), biological
Dyer's Woad	Railroad corridor Tie Siding to Cheyenne	physical
Hoary Cress	Scattered throughout the RFO	chemical (2,4-D, chlorsulfuron, metsulfuron methyl)
Perennial Pepperweed	Little Sage Creek, Sugar Creek, Rawlins, Dixon, Hay Reservoir, Saratoga, Seminole Road, and Herrick Lane	chemical (2,4-D, chlorsulfuron, metsulfuron methyl)
Dalmatian Toadflax	Rawlins, Laramie, Snowy Range-Centennial, North Platte River Valley, Hanna, Seminole, Vedavoo, I-80 and railroad corridors Cheyenne to Laramie/Tie Siding	chemical (picloram, 2,4-D, imazapic, triclopyr, clopyralid), biological
Yellow Toadflax	Upper North Platte River, Encampment, Battle Mountain, and Muddy Creek southwest of Rawlins	chemical (picloram, 2,4-D, imazapic, triclopyr, clopyralid), biological
Skeletonleaf Bursage	None known	
Houndstongue	Baggs/Savery, Arlington, Ryan Park, Pennock Mtn., Flat Top Mtn., Battle Mountain-Horse Creek, Loco Creek, Lindsey Creek/Spring, Laramie Peak area, and Sybille Canyon	chemical (picloram, 2,4-D, banvel, triclopyr, clopyralid, imazapic, chlorsulfuron, metsulfuron methyl), physical
Common Burdock	Arlington, Baggs-Battle Mountain, Savery Creek, North Platte River corridor, and Sybille Canyon	chemical (picloram, 2,4-D, triclopyr, clopyralid, chlorsulfuron, metsulfuron methyl), physical
Quackgrass	Not inventoried	
Perennial Sowthistle	Little Sage Creek, North Platte River corridor	chemical (picloram, 2,4-D, triclopyr, clopyralid, dicamba), physical
Oxeye Daisy	Upper North Platte River, Baggs	chemical (picloram, 2,4-D, banvel, imazapyr, chlorsulfuron, metsulfuron methyl), physical
Purple Loosestrife	None known	
Saltcedar	Hay Reservoir, Sand Creek and Willow Creek, Baggs to Wamsutter, Sage Creek Basin south of Rawlins, Saratoga, and the North Platte River corridor from Savage Meadows to Pathfinder Reservoir	chemical (imazypr, triclopyr) combined with physical
Common Tansy	None known	
Common St. Johnswort	None known	
Russian Olive	Scattered throughout the RFO	chemical (imazypr, triclopyr) combined with physical

Commercial site vegetation control methods can incorporate chemical, biological, or physical methods. General species controlled include: halogeton, Russian thistle, goosefoot, cheatgrass, and any noxious species. Chemicals used may include: diuron, metsulfuron methyl, sulfometuron methyl, picloram, 2,4-D, chlorsulfuron, imazapic, glyphosate, bromacil, dicamba, triclopyr, and clopyralid.

RFO Interdisciplinary Team review did not identify any additional Standard Operating Procedures (SOPs), Best Management Practices (BMPs), or mitigation measures that would be required and no unresolved issues were identified.

### **Alternatives including the no action alternative**

The BLM interdisciplinary team, in review of this proposed action (as modified during internal scoping, and subsequent review), identified no unresolved resource conflicts that would necessitate development of additional alternatives.

### **Alternatives considered but not analyzed.**

The alternatives of No Aerial Herbicide Application (FEIS pg.2-19 to 2-20) and No use of Herbicides (FEIS pg.2-19) have been analyzed in the FEIS and considered in the ROD. The BLM determined that the benefits of use on BLM lands outweigh the risks to the environment because: ground based treatments would be ineffective or too costly to implement in remote areas, areas with difficult terrain, or areas with extensive coverage of invasive species. The impacts of the use of non-herbicide treatment methods are summarized in the PER. Further discussion in this EA is unnecessary since site specific conclusions and impacts would be essentially the same as those addressed in the FEIS and PER. The RFO Interdisciplinary Team review did not identify any issues not addressed by the Proposed Action and therefore no other alternatives are required.

### **Affected Environment and Environmental Impacts**

The RFO encompasses 12.5 million acres in south-central Wyoming and includes the eastern third of Sweetwater County in addition to all of Carbon, Albany and Laramie counties. It includes Sagebrush steppe, Desert shrub, Mountain Shrub and various other vegetation communities. Additional information on the affected environment may be found in the Rawlins RMP (<http://www.blm.gov/wy/st/en/programs/Planning/rmps/rawlins.html>), Chapter 3.

The proposed actions described in this assessment would cause minimal environmental impacts. These impacts are presented in more detail in Chapter 4 of the FEIS. No significant impacts to any resource were identified in the FEIS or PER. Lands are managed to meet or exceed Standards for Healthy Rangelands (Standards). Areas with noxious weeds fail Standards and removal of the weeds would help meet Standards.

On commercial sites where a sterilant is used, there is potential for soil erosion, possible water quality degradation, and adverse effects on soil flora and fauna that could hinder eventual site reclamation. For more information on short and long term impacts as well as irreversible and irretrievable commitment of resources see, chapter 4(pg.4-1) of the FEIS. The following are impacts based upon site specific analysis of the proposal.

#### **A. Soils**

Affected soils range from shallow to deep, and are dominantly located on alluvial valleys, terraces, ridges, and gentle to moderate hill slopes. Soil textures vary from sand to clay, and many are salt/alkali affected. The soils have an aridic soil moisture regime with cryic, frigid, and mesic soil temperature regimes. Average annual precipitation is between 7 and 19 inches. The average frost-free period is 90 to 135 days.

On herbicide treated sites, soil erosion may increase slightly as weeds die back and bare ground is exposed. Due to the small size (the average weed patch is less than 1 acre) of the areas treated, the short term increased erosion would likely be caught by remaining residual vegetation and litter in the treatment area or adjacent to it. Any increases in soil erosion would return to normal conditions as native plants recover and reoccupy sites that previously supported weeds.

On commercial sites where a soil sterilant is used, there is a potential for increased soil erosion over the life of the project. Gravel mulch may be required on a case-by-case basis. See discussion on pages 3-8 to 3-10 and pages 4-13 to 4-34 of the FEIS for more information about soils and herbicide interaction.

Biological control, involving insect release, usually does not result in any soil disturbance. There may be some short-term compaction of soil and bank sloughing along channels where livestock are used as a control method. However, hoof imprints from livestock may also help initiate seed germination, incorporate organic matter into soils, and leave imprints

that increase water infiltration and reduce runoff and soil erosion. See discussion on pages 4-17 to 4-18 of the PER for more information on impacts of biological treatments on soils.

Physical control methods may result in some soil disturbance as plants are pulled or otherwise removed from the ground which results in loosening of the soil structure, and exposure of the surface to wind and water erosion. These are short-term potential sources for increased erosion that would be lessened as native plants establish and repopulate the site. See discussion on pages 4-14 to 4-17 of the PER for more information on impacts of physical treatments on soils.

## B. Water

All watersheds within the RFO flow into one of the three following river basins: the Platte River Basin, the Colorado River Basin or the Great Divide Basin. A more detailed description of the water resources in the RFO can be found in the RFO RMP (2008)(p 3-123 to p 3-130). There are several major tributaries in the RFO. The North Platte, Encampment, and Medicine Bow Rivers are the major live water courses. Several other small streams, such as Savery Creek, Muddy Creek, Pass Creek, Sage Creek, and Sand Creek are included in the treatment area.

Applying vegetation treatments in close proximity to water resources (surface or groundwater) could negatively impact water quality. Chemical treatments could cause herbicides to leach into nearby surface water or groundwater causing a threat to water quality and aquatic organisms. Some of the proposed herbicides may remain in the soil for a year or more. Biological control in the form of livestock could cause soil compaction in riparian areas, leading to lower infiltration rates and a higher erosion potential. Use of livestock also increases the likelihood of organic matter and bacteria contaminates through animal defecation directly into water sources or in locations affected by flood events. Herding or the use of fencing to control the duration of animal use, and providing off-site water sources for animals to drink from would minimize most of these impacts. Physical treatments loosen the soil and also lead to a higher erosion potential. See page 3-10 and pages 4-24 to 4-36 of the FEIS for potential impacts on the surface and ground water resource.

Mitigation measures will be applied in order to reduce the effects of the proposed action to water resources (FEIS Table 2-9--See Appendix 1). Standard operating procedures (FEIS Table 2-8--See Appendix 1), such as buffer strips along riparian zones, avoidance of persistent chemicals in areas where the groundwater is shallow and considerations of weather patterns when planning treatments would minimize the risk of herbicide residue reaching both surface and groundwater.

## C. Vegetation

Sagebrush, saltbush, and grasslands dominate the areas vegetation. There are aspen and juniper woodland, conifer forest, and mountain shrub plant communities; riparian/wetland habitats are less common and occupy about one percent of the landscape. Treatments may occur in any of these types, but would occur mostly in the sagebrush or saltbush communities.

The native grass species should not be removed by the proposed herbicide use; however, normal growth and forage production may be reduced in the year of the treatment, except on commercial sites where the object is to remove all vegetation. Some native forbs, shrubs, or trees may be damaged in areas treated for weeds. Plants most likely to be affected are those actively growing at the time of chemical applications, which may result in the death, die-back that year, or just stunted annual growth. In contrast, late summer or fall chemical treatments when most native plants have stopped growing would have minimal effect on non-target species. Native species are expected to recover and reoccupy treated sites, however, in areas with high weed concentrations it may be necessary to reseed native species, particularly if specific types of plants are desired. In the areas where vegetation inhibitors are used, vegetation is not desired and is not expected to return to the treated areas during the growing season. The use of vegetation inhibitors (sterilants) could reduce the potential for successful reclamation in the future. See pages 3-22 to 3-29 and pages 4-36 to 4-75 of the FEIS for more information on impacts to the vegetation resource.

Biological control insects are species specific and do not harm non-target vegetation. Domestic livestock used as biological control agents would consume other vegetation as well as weedy species, but would be managed to minimize their consumption of native species. See pages 4-49 to 4-59 of the PER for more information on impacts of biological treatments on vegetation.

Physical control methods are targeted to the specific invasive plants and rarely results in disturbance to native species. See pages 4-49- 4-58 of the PER for more information on impacts of physical treatments on vegetation.

With all treatment methods, the removal of invasive species reduces the competition with native plants and allows a better chance for native plants to establish and colonize.

## D. Livestock

The RFO is open to livestock grazing. The majority of the grazing permits issued involve grazing by cattle, with only a few grazing permits for other kinds of livestock (primarily sheep and horses). Some invasive weeds are poisonous or detrimental to livestock (causing skin irritation, weight loss, or death, for example) and need to be controlled or removed to allow for continued grazing and reduce livestock loss to poisoning. Weeds can de-value the commodities recovered from livestock, such as wool with burs. Livestock may be temporarily displaced during any treatment application. The small size of most treatments does not require rest of entire allotments or pastures from livestock use. These small treated weed areas could be temporarily fenced for one to two years if needed to re-establish native vegetation (particularly if reseeding occurs). Any increase in native forage over unpalatable weeds would benefit livestock. See pages 4-124 to 4-136 of the FEIS for more information on potential herbicide impacts to livestock.

Weed Treatments would help to meet the goals of standards for rangeland health and watershed function.

Standard 1- Watershed Health: *Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.*

Removal of noxious and invasive species helps to aid establishment of native vegetation and reduce soil erosion.

Standard 2 – Riparian/Wetland Health: *Riparian and wetland vegetation have structural, age, and species diversity characteristic of the state of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for ground water recharge.*

The standard is considered met if riparian/wetland habitat is rated in Proper Functioning Condition (PFC) and existing management will lead to maintaining or improving resource conditions. If noxious or invasive weeds are present this standard is not met; by treating these weeds this standard can be met.

Standard 3 – Upland Vegetation Health: *Upland vegetation on each ecological site consists of plant communities appropriate to the site, which are resilient, diverse, and able to recover from natural and human disturbance.*

The standard is considered met if plant communities are sustaining themselves under existing conditions and management. The presence of weeds disrupts a community's ability to sustain itself and needs treatments to be performed to meet standards.

Standard 4 – Wildlife/Threatened and Endangered Species Habitat Health, Fisheries, Weeds: *Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, and species of special concern, or sensitive species will be maintained or enhanced.*

The standard is considered met if habitat needed to support wildlife species is being sustained under existing conditions and management. This is achievable through weed treatments.

## E. Wildlife, including special status species

There are 17 endangered, threatened, proposed and/or candidate wildlife species that may be found, or have the potential to be found, within the RFO area: black-footed ferret (*Mustela nigripes*), blowout penstemon (*Penstemon haydenii*), Canada lynx (*Lynx canadensis*), Colorado butterfly plant (*Gaura neomexicana coloradensis*), mountain plover (*Charadrius montanus*), Ute ladies' tresses (*Spriantes diluvialis*), Wyoming toad (*Bufo baxteri*), the yellow-billed cuckoo (*Coccyzus americanus*), the Colorado River species--humpback chub (*Gila cypha*), razorback sucker (*Xyrauchen texanus*), Colorado pikeminnow (*Ptychocheilus lucius*) and bonytail chub (*Gila elegans*), and the Platte River species--whooping crane (*Grus Americana*), Interior least tern (*Sterna antillarum*), pallid sturgeon (*Scaphirhynchus albus*), Western prairie fringed orchid (*Platanthera praeclara*), and the piping plover (*Charadrius melodus*).

There are nine mammals, seventeen birds, five fish, three amphibians, and seven plant BLM Wyoming State Director's Sensitive Species List (sensitive) species that have the potential to be found or be affected by projects that may occur within Rawlins Field Office area.

The area includes seasonal ranges, as well as crucial winter ranges, for big game species. In addition, greater sage-grouse habitat occurs throughout the area, as well as designated greater sage-grouse core areas.

Raptor nests are scattered throughout the area of with higher concentrations occurring in association with cottonwood riparian, cliff complexes or other preferred nesting substrates. Raptors that are commonly observed in the area include ferruginous hawk, red-tailed hawk, American kestrel, northern harrier, Swainson's hawk, and golden eagle.

Numerous habitat types support a variety of wildlife species (over 374 vertebrate species). Treatments may occur in any of these types. Short term impacts to wildlife would include temporary displacement caused by human presence and project activities. However, the direct impacts to wildlife species project activities are expected to be minimal because of the short duration of the treatments.

The loss of weeds may have a very minor impact on birds which utilize weed seed as a food source. See pages 4-99 to 4-124 of the FEIS for more information on the effects of the herbicides on animals.

Principle long-term impacts to wildlife would result from the modification of the existing habitat. Habitat conditions in the area would improve due to the removal of noxious and invasive weed species, which would allow for native species to reoccupy the treatment areas.

## F. Recreation

Many types of recreational activities occur within the RFO. The most common forms of recreation are hunting, fishing, sight-seeing, photography, hiking, and ATV use. Weed treatments can result in the removal of physical barriers within riparian areas, such as thistle patches or the removal of poisonous plants. Weeds can form dense communities which are virtually impenetrable by people or animals. Weeds are also removed within and around campgrounds.

Chemical applications would not be made while recreationists were present. Empty camp sites within campgrounds that are treated are flagged to notify the public of the treatment.

Physical weed removal is the preferred method of treatment within established campgrounds. This is the least intrusive method of control.

The removal of noxious and invasive weed species would allow ecological communities to rebound creating more pristine areas. This would also help to eliminate the spread of weeds to other recreation oriented sites by decreasing the available seed.

## G. Wilderness Study Areas

Five Wilderness Study Areas (WSAs) are present within the proposed project area with no BLM managed designated wilderness. Vegetation treatments by chemicals are acceptable for the control of noxious weeds and invasive plants, such as tamarisk and cheatgrass, when no effective alternative exists. The proposed project will meet the non-impairment criteria and will enhance the wilderness values of each WSA.

## H. Lands with Wilderness Characteristics

The Federal Land Policy Management Act (FLPMA) directed the BLM to manage the public lands and their resources under principles of multiple use and sustained yield. Wilderness is one of the multiple use values. Section 2(c) of the Wilderness Act of 1964 requires that in order to be considered to have wilderness characteristics, an area must meet all of the following criteria:

- (1) "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;" (This is commonly referred to as naturalness.)
- (2) "has outstanding opportunities for solitude or a primitive and unconfined type of recreation;"
- (3) "has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition;"

The Wilderness Act further states areas with wilderness characteristics "may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value." These are commonly referred to as supplemental values and are not required to be present.

On December 22, 2010 Secretary of the Interior Ken Salazar, signed Secretarial Order 3310, Protecting Wilderness Characteristics on Lands Managed by the BLM. The Order provides direction to the BLM regarding its obligation to maintain wilderness resource inventories on a regular and continuing basis for public lands under its jurisdiction. It further

directs the BLM to protect wilderness characteristics through land use planning and project-level decisions unless the BLM determines in accordance with this Order, that impairment of wilderness characteristics is appropriate and consistent with other applicable requirements of law and other resource management considerations.

The Rawlins Field Office began the initial inventory in the fall of 1978 and the results were announced by the Wyoming State Director on February 7, 1979. Since 2002, subsequent inventories have been conducted to update existing inventories in various units throughout the Field Office.

In accordance with BLM Manual 6303, the proposed project will not require an additional wilderness characteristics inventory. The project will be implemented in a manner that will not impair wilderness characteristics.

## I. Visual Resource Management (VRM)

Viewsheds within the RFO are ranked into four visual resource management classes; Class I areas include wilderness study areas and wild and scenic rivers, where surface disturbing activities may be restricted and/or require extensive mitigation. Class II visual resource management areas represent locations where landscape modifications should blend with surrounding environmental characteristics so as not to disturb visual quality (i.e. forest boundaries, high recreation use areas, and historical sites). Areas with existing and/or evident modification to landscape characteristics would be categorized as Class III or IV visual resource management areas, depending on the original composition and characteristics of the landscape (i.e. industrial areas, mineral activity, transportation routes, and disturbed areas). The proposed project area is located in all four management classes. The form line and texture will not be affected by the proposed treatment. Although color will weakly be affected, the temporary nature will be acceptable to all VRM classes.

## J. Social and Economic

Many of the social and economic effects of vegetation treatment programs occur as a result of changes in jobs or personal income. A reduction in the occurrence or spread of noxious weeds would have a minor beneficial impact on the availability of forage. Livestock poisoning or injury would also be reduced which would have a beneficial impact on those individuals in the livestock business. A description of the social and economic impacts is discussed on pages 4-163 to 4-174 of the FEIS. Site specific impacts are essentially the same as described in the FEIS.

## K. Human Health and Safety

A detailed chemical hazard analysis was conducted for each of the herbicides, and additionally for some surfactants proposed for use, in the FEIS (see appendixes B and D of FEIS). Human health would benefit by the reduced probability of human contact with noxious and poisonous weeds. Minor risk to human health and safety occurs more as a result of the equipment used and terrain encountered rather than from the herbicides used. The largest impact on Human Health and Safety would be temporary displacement from the treatment areas. A more complete description of the human health and safety impacts is discussed on pages 4-174 to 4-197 of the FEIS.

## L. Monitoring and Reporting

Weed treatment records pertaining to the control and management of weeds would be collected and maintained at the RFO. This includes, but is not limited to the following: inventories, treatments, monitoring, and re-infestation trends as relating to frequency of re-occurrence in specific areas, and the rate of spread of existing infestations. These reports would be provided to the BLM Authorized Officer. Monitoring would commence the first growing season after a project is initiated and yearly thereafter, in order to track vegetation trends and weed presence/absence.

- *Report Submittal*

There are three types of reports to be submitted annually—the Annual Report, Pesticide Application Records, and the Pesticide Use Report.

- *Annual Report*

An annual report would be submitted to the BLM RFO Authorized Officer—Weed Coordinator. Weed inventory information is a part of the annual reporting requirements for any Project. Included are the percent cover of invasive weeds, and the species present, as well as listing the following: weed treatment contractor, contractor license number and expiration date, date(s) treated, and the method of treatments applied (chemical, biological, mechanical).

- *Pesticide Application Records (PAR)*

These records are to be filled out within 24 hours of each application of herbicide, and completed forms submitted

to the RFO Weed Coordinator at the end of each month. These forms include information such as the date and time of herbicide application, herbicides and adjuvants used, rates applied, weather conditions, site conditions, and monitoring comments on the site.

· *Pesticide Use Report (PUR)*

A summary report of all herbicide application activity is required at the end of the treatment season, submitted with the final months' PARs. A PUR can be submitted with each month's PARs summarizing each month's herbicide usage (preferred BLM method), in lieu of submitting one annual summary at the end of the season. This report lists herbicide usage by trade names, application rates, and acres treated.

## M. Additional Mitigation Measures and Residual Impacts

Interdisciplinary team review of the impact analysis above, resulted in no additional mitigation other than those identified in the EA. Since no additional mitigation measures are proposed to reduce impacts of the proposed action, no residual impacts are anticipated other than those described above in the environmental impacts section and in the FEIS.

## N. Cumulative Impacts

This proposal presents no significant cumulative impacts. The use of an integrated program of noxious weed control would lead to a reduction in the presence of noxious weeds within the field office area. It is unlikely that the control program would ever completely eliminate noxious weeds. No other activities within the field office area, other than the noxious weed control program in cooperation with county and private weed programs, are expected to directly reduce the occurrence of noxious weeds. A more complete description of cumulative effects analysis is discussed on pages 4-197 to 4-243 of the FEIS.

### **Agencies and Individuals Consulted**

BLM Interdisciplinary Team specialists--RFO  
Carbon County Weed and Pest District Supervisor  
Albany County Weed and Pest District Supervisor  
Sweetwater County Weed and Pest District Supervisor

### **References**

United States Bureau of Land Management. 2007. Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement, June 2007.

------. 2007. Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report, June 2007.

------. 2008. Proposed Resource Management Plan and Final Environmental Impact Statement for the Rawlins Field Office.

**APPENDIX 1**  
**FEIS TABLE 2-8**  
**Standard Operating Procedures for Applying Herbicides**

BLM Final Programmatic EIS Vegetation Treatments Using Herbicides

Resource Element	Standard Operating Procedures
Guidance Documents	BLM Handbook H-9011-1 ( <i>Chemical Pest Control</i> ); and manuals 1112 ( <i>Safety</i> ), 9011 ( <i>Chemical Pest Control</i> ), 9012 ( <i>Expenditure of Rangeland Insect Pest Control Funds</i> ), 9015 ( <i>Integrated Weed Management</i> ), and 9220 ( <i>Integrated Pest Management</i> )
General	<ul style="list-style-type: none"> <li>• Prepare spill contingency plan in advance of treatment.</li> <li>• Conduct a pretreatment survey before applying herbicides.</li> <li>• Select herbicide that is least damaging to environment while providing the desired results.</li> <li>• Select herbicide products carefully to minimize additional impacts from depredates, adjuvants, inert ingredients, and tank mixtures.</li> <li>• Apply the least amount of herbicide needed to achieve the desired result.</li> <li>• Follow product label for use and storage.</li> <li>• Have licensed applicators apply herbicides.</li> <li>• Use only USEPA-approved herbicides and follow product label directions and “advisory” statements.</li> <li>• 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.</li> <li>• Consider surrounding land use before assigning aerial spraying as a treatment method and avoid aerial spraying near agricultural or densely populated areas.</li> <li>• Minimize the size of application areas, when feasible.</li> <li>• Comply with herbicide-free buffer zones to ensure that drift will not affect crops or nearby residents/landowners.</li> <li>• Post treated areas and specify reentry or rest times, if appropriate.</li> <li>• Notify adjacent landowners prior to treatment.</li> <li>• Keep copy of Material Safety Data Sheets (MSDSs) at work sites. MSDSs available for review at <a href="http://www.cdms.net/">http://www.cdms.net/</a>.</li> <li>• Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location.</li> <li>• Avoid accidental direct spray and spill conditions to minimize risks to resources.</li> <li>• Consider surrounding land uses before aerial spraying.</li> <li>• Avoid aerial spraying during periods of adverse weather conditions (snow or rain imminent, fog, or air turbulence).</li> <li>• Make helicopter applications at a target airspeed of 40 to 50 miles per hour (mph), and at about 30 to 45 feet above ground.</li> <li>• Take precautions to minimize drift by not applying herbicides when winds exceed &gt;10 mph (&gt;6 mph for aerial applications) or a serious rainfall event is imminent.</li> <li>• Use drift control agents and low volatile formulations.</li> <li>• Conduct pre-treatment surveys for sensitive habitat and special status species within or adjacent to proposed treatment areas.</li> <li>• Consider site characteristics, environmental conditions, and application equipment in order to minimize damage to non-target vegetation.</li> <li>• Use drift reduction agents, as appropriate, to reduce the drift hazard to non-target species.</li> <li>• Turn off applied treatments at the completion of spray runs and during turns to start another spray run.</li> <li>• Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide.</li> <li>• Clean OHVs to remove seeds.</li> </ul>

Resource Element	Standard Operating Procedures cont.
<p>Air Quality</p> <p>See Manual 7000 (Soil, Water, and Air Management)</p>	<ul style="list-style-type: none"> <li>• Consider the effects of wind, humidity, temperature inversions, and heavy rainfall on herbicide effectiveness and risks.</li> <li>• 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.</li> <li>• Use drift reduction agents, as appropriate, to reduce the drift hazard.</li> <li>• 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]).</li> <li>• Select proper application methods (e.g., set maximum spray heights, use appropriate buffer distances between spray sites and non-target resources).</li> </ul>
<p>Resource Element</p>	<ul style="list-style-type: none"> <li>• Minimize treatments in areas where herbicide runoff is likely, such as steep slopes when heavy rainfall is expected.</li> <li>• Minimize use of herbicides that have high soil mobility, particularly in areas where soil properties increase the potential for mobility.</li> <li>• 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.</li> </ul>
<p>Water Resources</p> <p>See Manual 7000 (Soil, Water, and Air Management)</p>	<ul style="list-style-type: none"> <li>• Consider climate, soil type, slope, and vegetation type when developing herbicide treatment programs.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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..</li> <li>• Conduct mixing and loading operations in an area where an accidental spill would not contaminate an aquatic body.</li> <li>• Do not rinse spray tanks in or near water bodies. Do not broadcast pellets where there is danger of contaminating water supplies.</li> <li>• 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.</li> <li>• Minimize the potential effects to surface water quality and quantity by stabilizing terrestrial areas as quickly as possible following treatment.</li> </ul>
<p>Wetlands and Riparian Areas</p>	<ul style="list-style-type: none"> <li>• Use a selective herbicide and a wick or backpack sprayer.</li> <li>• 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.</li> </ul>
<p>Vegetation</p> <p>See Handbook H-4410-1 (National Range Handbook), and manuals 5000 (Forest Management) and 9015 (Integrated Weed Management)</p>	<ul style="list-style-type: none"> <li>• Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide.</li> <li>• Use native or sterile species for revegetation and restoration projects to compete with invasive species until desired vegetation establishes</li> <li>• Use weed-free feed for horses and pack animals. Use weed-free straw and mulch for revegetation and other activities.</li> <li>• 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.</li> </ul>
<p><b>Resource Element</b></p>	<p><b>Standard Operating Procedures cont.</b></p>

<p>Pollinators</p>	<ul style="list-style-type: none"> <li>• Complete vegetation treatments seasonally before pollinator foraging plants bloom.</li> <li>• Time vegetation treatments to take place when foraging pollinators are least active both seasonally and daily.</li> <li>• Design vegetation treatment projects so that nectar and pollen sources for important pollinators and resources are treated in patches rather than in one single treatment.</li> <li>• Minimize herbicide application rates. Use typical rather than maximum rates where there are important pollinator resources.</li> <li>• Maintain herbicide free buffer zones around patches of important pollinator nectar and pollen sources.</li> <li>• Maintain herbicide free buffer zones around patches of important pollinator nesting habitat and hibernacula.</li> <li>• Make special note of pollinators that have single host plant species, and minimize herbicide spraying on those plants (if invasive species) and in their habitats.</li> </ul>
<p>Fish and Other Aquatic Organisms</p> <p>See manuals 6500 (Wildlife and Fisheries Management) and 6780 (Habitat Management Plans)</p>	<ul style="list-style-type: none"> <li>• Use appropriate buffer zones based on label and risk assessment guidance.</li> <li>• Minimize treatments near fish-bearing water bodies during periods when fish are in life stages most sensitive to the herbicide(s) used, and use spot rather than broadcast or aerial treatments.</li> <li>• Use appropriate application equipment/method near water bodies if the potential for off-site drift exists.</li> <li>• For treatment of aquatic vegetation, 1) treat only that portion of the aquatic system necessary to achieve acceptable vegetation management; 2) use the appropriate application method to minimize the potential for injury to desirable vegetation and aquatic organisms; and 3) follow water use restrictions presented on the herbicide label.</li> </ul>
<p>Wildlife</p> <p>See manuals 6500 (Wildlife and Fisheries Management) and 6780 (Habitat Management Plans)</p>	<ul style="list-style-type: none"> <li>• Use herbicides of low toxicity to wildlife, where feasible.</li> <li>• 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.</li> <li>• Use timing restrictions (e.g., do not treat during critical wildlife breeding or staging periods) to minimize impacts to wildlife.</li> <li>• 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 amphibians.</li> </ul>
<p>Threatened, Endangered, and Sensitive Species</p> <p>See Manual 6840 (Special Status Species)</p>	<ul style="list-style-type: none"> <li>• Survey for special status species before treating an area. Consider effects to special status species when designing herbicide treatment programs.</li> <li>• Use a selective herbicide and a wick or backpack sprayer to minimize risks to special status plants.</li> <li>• Avoid treating vegetation during time-sensitive periods (e.g., nesting and migration, sensitive life stages) for special status species in area to be treated.</li> </ul>
<p>Livestock</p> <p>See Handbook H-4120-1 (Grazing Management)</p>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• As directed by the herbicide label, remove livestock from treatment sites prior to herbicide application, where applicable.</li> <li>• Use herbicides of low toxicity to livestock, where feasible.</li> <li>• 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.</li> <li>• Avoid use of diquat in riparian pasture while pasture is being used by livestock.</li> <li>• Notify permittees of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment.</li> <li>• Notify permittees of livestock grazing, feeding, or slaughter restrictions, if necessary.</li> <li>• Provide alternative forage sites for livestock, if possible.</li> </ul>

Resource Element	Standard Operating Procedures cont.
<p>Wilderness and Other Special Areas</p> <p>See handbooks H-8550-1 (Management of Wilderness Study Areas (WSAs)), and H-8560-1 (Management of Designated Wilderness Study Areas), and Manual 8351 (Wild and Scenic Rivers)</p>	<ul style="list-style-type: none"> <li>• Encourage backcountry pack and saddle stock users to feed their livestock only weed-free feed for several days before entering a wilderness area.</li> <li>• Encourage stock users to tie and/or hold stock in such a way as to minimize soil disturbance and loss of native vegetation.</li> <li>• Revegetate disturbed sites with native species if there is no reasonable expectation of natural regeneration.</li> <li>• Provide educational materials at trailheads and other wilderness entry points to educate the public on the need to prevent the spread of weeds.</li> <li>• 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.</li> <li>• 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.</li> <li>• Give preference to herbicides that have the least impact on non-target species and the wilderness environment.</li> <li>• Implement herbicide treatments during periods of low human use, where feasible.</li> <li>• Address wilderness and special areas in management plans.</li> <li>• Maintain adequate buffers for Wild and Scenic Rivers (¼ mile on either side of river, ½ mile in Alaska).</li> </ul>
<p>Recreation</p> <p>See Handbook H-1601-1 (Land Use Planning Handbook, Appendix C)</p>	<ul style="list-style-type: none"> <li>• Schedule treatments to avoid peak recreational use times, while taking into account the optimum management period for the targeted species.</li> <li>• Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas.</li> <li>• Adhere to entry restrictions identified on the herbicide label for public and worker access.</li> <li>• Post signs noting exclusion areas and the duration of exclusion, if necessary.</li> <li>• Use herbicides during periods of low human use, where feasible.</li> </ul>
<p>Social and Economic Values</p>	<ul style="list-style-type: none"> <li>• Consider surrounding land use before selecting aerial spraying as a method, and avoid aerial spraying near agricultural or densely-populated areas.</li> <li>• Post treated areas and specify reentry or rest times, if appropriate.</li> <li>• Notify grazing permittees of livestock feeding restrictions in treated areas, if necessary, as per label instructions.</li> <li>• Notify the public of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment.</li> <li>• Control public access until potential treatment hazards no longer exist, per label instructions.</li> <li>• Observe restricted entry intervals specified by the herbicide label.</li> <li>• Notify local emergency personnel of proposed treatments.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> </ul>
<p>Rights-of-way</p>	<ul style="list-style-type: none"> <li>• Coordinate vegetation management activities where joint or multiple use of a ROW exists.</li> <li>• Notify other public land users within or adjacent to the ROW proposed for treatment.</li> <li>• Use only herbicides that are approved for use in ROW areas.</li> </ul>

Resource Element	Standard Operating Procedures cont.
Human Health and Safety	<ul style="list-style-type: none"><li>• 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.</li><li>• Use protective equipment as directed by the herbicide label.</li><li>• Post treated areas with appropriate signs at common public access areas.</li><li>• Observe restricted entry intervals specified by the herbicide label.</li><li>• Provide public notification in newspapers or other media where the potential exists for public exposure.</li><li>• Have a copy of MSDSs at work site.</li><li>• Notify local emergency personnel of proposed treatments.</li><li>• Contain and clean up spills and request help as needed.</li><li>• Secure containers during transport.</li><li>• Follow label directions for use and storage.</li><li>• Dispose of unwanted herbicides promptly and correctly.</li></ul>

**FEIS TABLE 2-9  
Mitigation Measures**

BLM Final Programmatic EIS Vegetation Treatments Using Herbicides

Resource	Mitigation Measures
Air Quality	None proposed.
Soil Resources	None proposed.
Water Resources and Quality	<ul style="list-style-type: none"> <li>• Establish appropriate (herbicide specific) buffer zones to downstream water bodies, habitats, and species/populations of interest (see Appendix C, Table C-16).</li> </ul>
Wetland and Riparian Areas	<ul style="list-style-type: none"> <li>• See mitigation for Water Resources and Quality and Vegetation.</li> </ul>
Vegetation	<ul style="list-style-type: none"> <li>• Minimize the use of terrestrial herbicides (especially bromacil, diuron, and sulfometuron methyl) in watersheds with down gradient ponds and streams if potential impacts to aquatic plants are of concern.</li> <li>• 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.</li> <li>• To protect special status plant species, implement all conservation measures for plants presented in the <i>Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Biological Assessment</i>.</li> </ul>
Fish and Other Aquatic Organisms	<ul style="list-style-type: none"> <li>• Limit the use of diquat in water bodies that have native fish and aquatic resources.</li> <li>• Limit the use of terrestrial herbicides in watersheds with characteristics suitable for potential surface runoff, that have fish-bearing streams, during periods when fish are in life stages most sensitive to the herbicide(s) used.</li> <li>• To protect special status fish and other aquatic organisms, implement all conservation measures for aquatic animals presented in the <i>Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Biological Assessment</i>.</li> <li>• Establish appropriate herbicide-specific buffer zones for water bodies, habitats, or fish or other aquatic species of interest (see Appendix C, Table C-16, and recommendations in individual ERAs).</li> <li>• Avoid using the adjuvant R-11<sup>®</sup> 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 aquatic organisms.</li> </ul>
Wildlife	<ul style="list-style-type: none"> <li>• To minimize risks to terrestrial wildlife, do not exceed the typical application rate for applications of dicamba, diuron, glyphosate, hexazinone, tebuthiuron, or tricopyr, where feasible.</li> <li>• Minimize the size of application areas, where practical, when applying 2,4-D, bromacil, diuron, and Overdrive<sup>®</sup> to limit impacts to wildlife, particularly through contamination of food items.</li> <li>• Where practical, limit glyphosate and hexazinone to spot applications in rangeland and wildlife habitat areas to avoid contamination of wildlife food items.</li> <li>• Avoid using the adjuvant R-11<sup>®</sup> 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.</li> <li>• 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.</li> <li>• Do not aerially apply diquat directly to wetlands or riparian areas.</li> <li>• 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 Biological Assessment</i>. Apply these measures to special status species (refer to conservation measures for a similar size and type of species, of the same trophic guild).</li> </ul>

Resource	Mitigation Measures cont.
Livestock	<ul style="list-style-type: none"> <li>• Minimize potential risks to livestock by applying diuron, glyphosate, hexazinone, tebuthiuron, and triclopyr at the typical application rate, where feasible.</li> <li>• 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.</li> <li>• Where feasible, limit glyphosate and hexazinone to spot applications in rangeland.</li> <li>• Do not aerially apply diquat directly to wetlands or riparian areas used by livestock.</li> <li>• 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.</li> </ul>
Wild Horses and Burros	<ul style="list-style-type: none"> <li>• Minimize potential risks to wild horses and burros by applying diuron, glyphosate, hexazinone, tebuthiuron, and triclopyr at the typical application rate, where feasible.</li> <li>• 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 livestock.</li> <li>• Apply herbicide label grazing restrictions for livestock to herbicide treatment areas that support populations of wild horses and burros.</li> <li>• Where feasible, limit glyphosate and hexazinone to spot applications in rangeland.</li> <li>• Do not apply bromacil or diuron in grazing lands within herd management areas, and use appropriate buffer zones (see Vegetation section in Chapter 4) to limit contamination of vegetation in off-site foraging areas.</li> <li>• 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.</li> </ul>
Paleontological and Cultural Resources	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Avoid applying bromacil or tebuthiuron aerially in known traditional use areas.</li> <li>• Limit diquat applications to areas away from high residential and traditional use areas to reduce risks to Native Americans and Alaska Natives.</li> </ul>
Visual Resources	None proposed.
Wilderness and Other Special Areas	Mitigation measures that may apply to wilderness and other special area resources are associated with human and ecological health and recreation. Please refer to the Vegetation, Fish and Other Aquatic Resources, Wildlife Resources, Recreation, and Human Health and Safety sections of Chapter 4.
Recreation	Mitigation measures that may apply to recreational resources are associated with human and ecological health. Please refer to the Vegetation, Fish and Other Aquatic Resources, Wildlife Resources, and Human Health and Safety sections of Chapter 4.
Social and Economic Values	None proposed.
Human Health and Safety	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Avoid applying atrazine, bromacil, diuron, or simazine aerially.</li> <li>• Limit application of chlorsulfuron via ground broadcast applications at the maximum application rate.</li> <li>• 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.</li> <li>• 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.</li> <li>• Do not apply hexazinone with an over-the-shoulder broadcast applicator.</li> </ul>