

**U.S. Department of the Interior
Bureau of Land Management**

DOI-BLM-NV-L000-2009-0010-EA

June 24, 2009

**Ely District Integrated Weed Management Plan
& Preliminary Environmental Assessment**

A PLAN FOR INTEGRATED WEED MANAGEMENT
FOR ALL FIELD OFFICES WITHIN THE ELY DISTRICT

Lincoln County

Nye County

White Pine County

Nevada

U.S. Department of the Interior
Bureau of Land Management
Ely District Office
Phone: (775) 289-1800
Fax: (775) 289-1910



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Part I

Ely District Integrated Weed Management Plan

1.0 Introduction

Noxious and invasive weeds are a major threat to the economy and the environment throughout the United States (US). These non-native plants have been introduced to the US by mistake, through contaminated seed, packing materials, and ship ballast; and, on purpose, as ornamental and potential agricultural plants. They have spread at an alarming rate because unlike native species there are no natural predators such as insects or diseases to control their growth and spread. Noxious and invasive weeds are degrading wildlife habitat and forage, threatening endangered species and native plants, increasing soil erosion and groundwater loss, limiting recreational opportunities, and increasing wildfire frequency and intensity.

The Bureau of Land Management (BLM) defines a weed as a non-native plant that disrupts or has the potential to disrupt or alter the natural ecosystem function, composition and diversity of the site it occupies (BLM 2008). A weed's presence deteriorates the health of the site, makes efficient use of natural resources difficult, and may interfere with management objectives for that site. Invasive species require a concerted effort (manpower and resources) to be completely removed from an area, if they can be removed at all. "Noxious" weeds refer to those plant species which have been legally designated as unwanted or undesirable. This includes national, state and county or local designations.

The Ely District Office (EYDO) of the BLM is preparing this document to address the introduction and spread of noxious and invasive plants, and to provide guidance for an active and aggressive District-wide integrated weed management program which would more effectively address the problem. The main philosophy of integrated weed management is to combine different treatment tools and methods in a way that minimizes economic, health, and environmental risks. The intent is to prevent further resource degradation, increase cooperation across agency boundaries, boost public awareness, and increase treatment efficacy.

This Integrated Weed Management Plan includes five development and implementation objectives for the effective control of noxious and invasive weeds:

- Education and awareness
- Prevention efforts
- Inventory procedures and schedule
- Integrated weed treatments
- Research, monitoring and evaluation procedures for treated sites

2.0 Background

Impacts associated with noxious and invasive weeds include, but are not limited to the following:

- Increased fire frequency and intensity
- Loss of ecosystem biodiversity
- Displacement of native vegetation
- Degradation of wildlife habitats
- Soil erosion and degradation
- Alteration of riparian and hydrologic function
- Reduced recreational opportunities
- Displacement of sensitive species

It is estimated that there are approximately 5,000 non-native invasive plant species in the US, compared to the 17,000 native species (Morse et al. 1995) and that these invasive plants are

spreading at a rate of 4,700 acres per day on federal lands alone (Babbitt 1998). Up to 49% of the plants and animals listed as endangered species have been negatively impacted by invasive species (Wilcove et al. 1998). In the United States non-native, invasive weeds have infested more than 890 million acres and cost the US economy over \$34 billion dollars annually (Pimentel et al. 2000).

Surface disturbance associated with road development, mining, and general recreational activities are increasing the presence of these invasive species throughout the EYDO. Studies have shown that delaying the treatment of weed infestations by as little as four years can double the initial treatment costs (Eiswerth et al. 2000). The EYDO currently has the opportunity to control these infestations before they expand to sizes that are unmanageable for manpower or budgetary reasons.

Requirements to address noxious and invasive species exist in policy and in regulation. Executive Order 13112 directs all federal agencies to address invasive species concerns and better coordinate federal weed management efforts. The State of Nevada Revised Statute (NRS) 555.150 requires that all land managers control species listed on the Nevada Noxious Weed List.

3.0 Current Situation

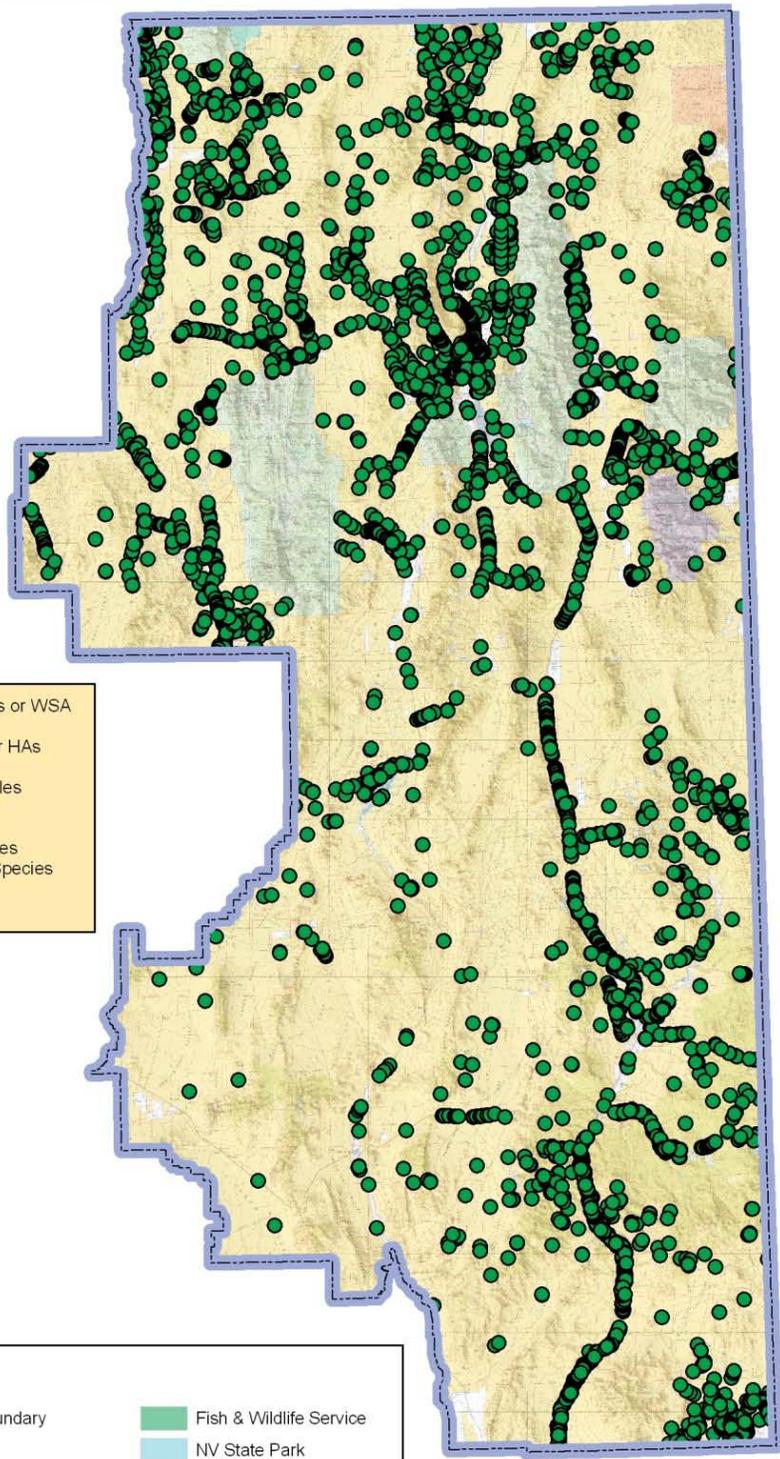
The Ely District covers approximately 12 million acres in three Nevada counties: White Pine, Nye, and Lincoln. The ecosystems range from Great Basin Desert through the Mojave transition zone into the Mojave Desert. This range of ecosystems gives the Ely District a wide variety of noxious and invasive weeds to control. Currently the weed species of concern include those listed on the Federal Noxious Weed List, Nevada Noxious Weed List and the BLM National List of Invasive Species of Concern (Appendix A, page 35).

A complete weed inventory of the District was completed in 2008 using the Tier I method of the Nevada Weed Survey Protocol (Appendix B, page 41). Infestations within the Ely District typically range from a few widely isolated plants to large areas dominated by weeds. The size and density of these infestations may vary depending on the type of weed species, geographic location, and/or any previous control efforts. During the District surveys, invasive weeds were noted but not officially documented by Global Positioning System (GPS). According to this data, there are 14,233 documented noxious weeds infestations (Map 1) covering approximately 3,514 acres of public lands within the EYDO. Of these 14,233 documented weed infestations, approximately 4,400 are visited on an annual basis as a part of the current EYDO weed management program. In addition, of the 14,233 documented weed infestations approximately 3,850 of them are infestations which have been effectively treated to a management level. This means that when the site is visited the weed species is not present. These management level sites are still visited on an annual basis to ensure that the weed species does not re-infest the site through the established seed bank.

Map 1 - Known Weed Infestations



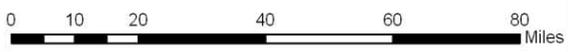
BLM



119 pts in Wilderness or WSA
 7,478 pts in HMAs or HAs
 48 pts within 0.25 miles of a sage grouse lek
 601 pts w/in 0.25 miles of a Special Status Species
 3,180 pts in ACECs

Legend

- District boundary
- BLM
- US Forest Service
- National Park Service
- Bureau of Indian Affairs
- Fish & Wildlife Service
- NV State Park
- NV Dept of Wildlife
- Private



No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.

Map Produced by: Bonnie M Millon
 Noxious & Invasive Weeds Specialist
 03/30/2009

Ely District Office

The following invasive and Nevada noxious weeds are documented within the Ely District:

| <u>Scientific Name</u> | <u>Common Name</u> | <u>Scientific Name</u> | <u>Common Name</u> |
|------------------------------|--------------------|----------------------------|--------------------|
| <i>Acroptilon repens</i> | Russian knapweed | <i>Euphorbia esula</i> | Leafy spurge |
| <i>Ailanthus altissima</i> | Tree of heaven | <i>Hyoscyamus niger</i> | Black henbane |
| <i>Brassica tournefortii</i> | Sahara mustard | <i>Isatis tinctoria</i> | Dyer's woad |
| <i>Carduus nutans</i> | Musk thistle | <i>Lepidium draba</i> | Hoary cress |
| <i>Centaurea diffusa</i> | Diffuse knapweed | <i>Lepidium latifolium</i> | Tall whitetop |
| <i>Centaurea squarrosa</i> | Squarrose knapweed | <i>Linaria dalmatica</i> | Dalmatian toadflax |
| <i>Centaurea stoebe</i> | Spotted knapweed | <i>Linaria vulgaris</i> | Yellow toadflax |
| <i>Cicuta maculata</i> | Water hemlock | <i>Onopordum acanthium</i> | Scotch thistle |
| <i>Cirsium arvense</i> | Canada thistle | <i>Sorghum halepense</i> | Johnson grass |
| <i>Cirsium vulgare</i> | Bull thistle | <i>Tamarix spp.</i> | Salt cedar |
| <i>Conium maculatum</i> | Poison hemlock | <i>Tribulus terrestris</i> | Puncturevine |

The following non-native, invasive weeds are known to occur within the Ely District:

| <u>Scientific Name</u> | <u>Common Name</u> | <u>Scientific Name</u> | <u>Common Name</u> |
|----------------------------------|--------------------|------------------------------|--------------------|
| <i>Arctium minus</i> | Common burdock | <i>Kochia scoparia</i> | Kochia |
| <i>Bromus diandrus</i> | Ripgut brome | <i>Halogeton glomeratus</i> | Halogeton |
| <i>Bromus rubens</i> | Red brome | <i>Marrubium vulgare</i> | Horehound |
| <i>Bromus tectorum</i> | Cheatgrass | <i>Salsola kali</i> | Russian thistle |
| <i>Ceratocephala testiculata</i> | Bur buttercup | <i>Sysimbrium altissimum</i> | Tumble mustard |
| <i>Convolvulus arvensis</i> | Field bindweed | <i>Tragopogon dubius</i> | Yellow salsify |
| <i>Elaeagnus angustifolia</i> | Russian olive | <i>Ulmus pumila</i> | Siberian elm |
| <i>Erodium cicutarium</i> | Filaree | <i>Verbascum thapsus</i> | Common mullein |

The majority of these infestations occur along trails, roads and highways or in riparian areas. Current as of the date of this document, the EYDO top priority weed species and infestation areas found within the District is listed in the table below. It should be noted that weed management priorities could change if new weed species or infestations are discovered.

| <u>Scientific Name</u> | <u>Common Name</u> | <u>Location</u> |
|------------------------------|--------------------|---|
| <i>Brassica tournefortii</i> | Sahara mustard | Sahara mustard has started to move north from Clark County. The priority for this species is to contain its spread in the Tule Desert and the lower Meadow Valley Wash drainage. |
| <i>Centaurea diffusa</i> | Diffuse knapweed | This species is only found in the Mt. Wilson area, mainly along the old airstrip outside of the Mt. Wilson community. The priority for this species is to contain it to this area and to eventually reach a management level. |
| <i>Centaurea squarrosa</i> | Squarrose knapweed | This species is only found at the Cherry Creek turnoff of US Highway 93. The priority for this species is to maintain it at a management level. |
| <i>Centaurea stoebe</i> | Spotted knapweed | This species is found along most of the major highways in the EYDO. The priority for this species is to maintain perimeter control to prevent further spread onto public lands. |
| <i>Euphorbia esula</i> | Leafy spurge | This species is only found at the south end of Huntington Valley. The priority for this species is to maintain it at a management level. |

| <u>Scientific Name</u> | <u>Common Name</u> | <u>Location</u> |
|----------------------------|--------------------|---|
| <i>Isatis tinctoria</i> | Dyer's woad | Only one infestation of this species has been documented in the EYDO in the town of Ruth, NV. The priority is to prevent this species from spreading onto public lands. |
| <i>Lepidium latifolium</i> | Tall whitetop | This species is widely scattered throughout the EYDO, however, there is an infestation in Railroad Valley which is a priority. This infestation covers a 40,000 acre area but it is lightly scattered throughout with on average a 2% cover. This species has the capability of forming dense monocultures so this area is a priority for treatment to try and prevent an increase in density of the infestation. |
| <i>Linaria dalmatica</i> | Dalmatian toadflax | This species is found around the Pioche, NV area and along US Highway 93. The priority for this species is to maintain perimeter control to prevent further spread onto public lands. |
| <i>Tamarix spp.</i> | Salt cedar | This species is widely scattered throughout the EYDO, however, there is an infestation along the main Meadow Valley Wash drainage which is a priority. |

According to 2006 satellite data analyzed in the Annual Grass Index (ANGRIN), infestations of invasive annual grasses, mainly cheatgrass and red brome, vary throughout the EYDO (Map 2). This data was collected and processed by the University of Reno – Cooperative Extension Service and was collected prior to the 2005 fire season, which burned just less than 600,000 acres across the District (Peterson 2008). According to preliminary analysis, many of these areas have become dominated by invasive annual grasses (Prentice 2009). Other portions of the District have annual grasses as a minor component; but are likely to see an explosion if there is a drastic disturbance such as wildfire.

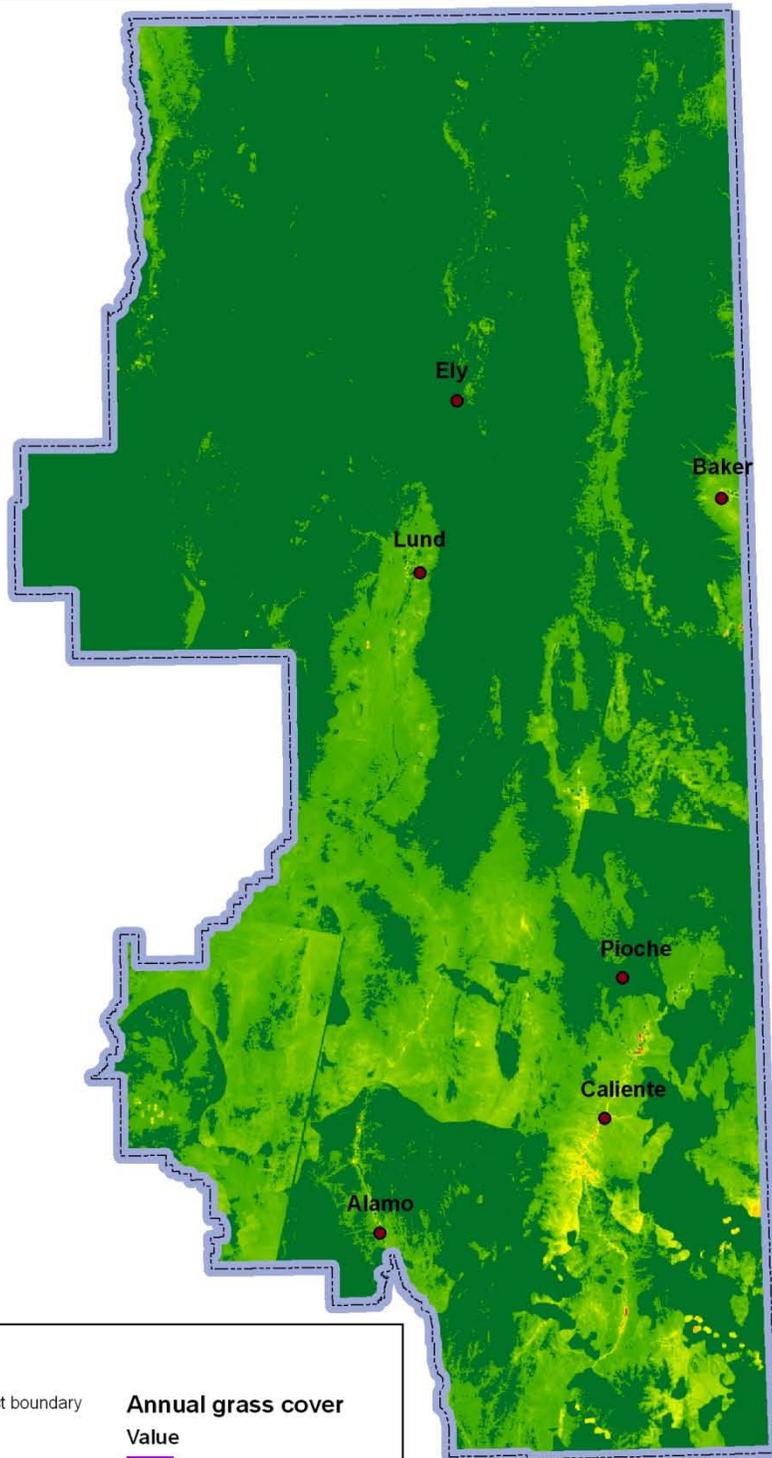
Currently, weed treatments focus on weed species that are designated as noxious by the State of Nevada (Nevada Department of Agriculture 2008). Controlling invasive species that are not listed as noxious in Nevada, such as halogeton, Russian thistle, and cheatgrass, has been a secondary focus. Treatments have been targeted along roads and washes, the main vectors for weed infestations, and on small satellite infestations which cover less than half an acre, which are easily controlled. Due to budget restrictions, larger weed infestations currently receive only containment treatments. Current treatment methods for noxious and invasive weed infestations range from hand pulling to herbicide treatment. The likelihood of new species being introduced is always present. Early detection of new weed species is critical in preventing further resource degradation and keeping control costs down.

Map 2 - Annual Grass Index Peterson, 2006

Location within
the State of Nevada



BLM



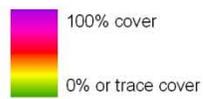
Legend

District boundary



Annual grass cover

Value



No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.

Map Produced by Bonnie M. Millon
Noxious & Invasive Weeds Specialist
03/30/2009

Ely District Office

4.0 Integrated Weed Management Plan

By focusing on not only one part of the noxious and invasive weed problem but on the larger picture, the following goals can have a greater impact on effectively managing noxious and invasive weeds. For example, focusing solely on chemical weed treatments is not as effective as teaching the public how and why noxious and invasive weeds are a problem on our public lands, implementing prevention measures on all projects, and incorporating integrated weed treatments. By actively using all of the strategies of this plan the Ely District will more effectively control weed infestations. The plan objectives are organized to include general Management Strategies, which outline overall program goals, and specific implementation items, which are drawn from the Ely District Approved Resource Management Plan (RMP).

4.1 Education & Outreach

One of the most important components of a weed management program is community involvement and public outreach. Outreach with respect to weeds is doubly important given the public's general lack of awareness about invasive plants in eastern Nevada. The objective is to generate internal and external awareness of and support for noxious and non-native invasive weed prevention and management.

MANAGEMENT STRATEGIES

- Facilitate an open door policy with the public when it comes to plant identification, questions, or information pertaining to weeds.
- Foster a sense of land stewardship with partners and publics.
- Be an active partner with Cooperative Weed Management Areas (CWMAs), local, county and state entities on weed identification, treatment methods, priority treatment areas, etc.
- Hold an annual training program for BLM staff and interested publics including information on weed ID, transportation vectors, treatment methods, etc.
- Provide noxious and invasive weed information at public gatherings such as National Public Lands Day events, county fairs, and elementary school Science Days.
- Have educational materials readily available to the public at the BLM front desks; provide informational pamphlets to the County Chamber of Commerce, State Parks Visitor Center, and local businesses; provide educational programs to local schools.
- Maintain the Ely District weeds website with up-to-date info on weed identification, pictures, infestation locations, treatment methods, etc.
- In cooperation with partners develop outreach materials, such as bumper stickers, magnets, ID booklets, brochures, posters, etc., specific to the Ely District and the Great Basin region covering eastern Nevada, western Utah, and northern Arizona.
- Coordinate with Ely District recreation staff on posting invasive weed information at recreational site kiosks.
- Provide opportunities for BLM staff to attend weed conferences, workshops, and meetings.

RMP IMPLEMENTATION ITEMS FOR THE NEXT FIVE YEARS:

- Continue participation in all CWMAs within the Ely District including attending the spring and fall meetings to report weed management activities on public lands.
- Organize at least two Noxious and Invasive Weed Management and Identification classes (one in Ely and one in Caliente) each year for BLM staff and partners.

- Keep the front desk areas of the Ely District and Caliente Offices supplied with educational materials dealing with noxious and invasive weed management and identification.
- Coordinate annually with the District Public Affairs Specialist to keep the Ely District weeds website with up-to-date info on weed identification, pictures, infestation locations, treatment methods, etc.
- Coordinate annually with the Recreation staff to participate in the National Public Lands Day events with presentations and educational materials.
- Each year, as funding allows, provide an opportunity for Ely District staff to attend the Eastern Nevada Landscape Coalition's Winter Weeds Workshop by paying for registration fees.

4.2 Prevention

The most effective and ecologically sound approach to managing invasive plants is to prevent their invasion. It is far more cost-effective to focus on prevention of new weed infestations than to try and control the weeds once they have already infested a site. The objective is to ensure that everything possible is done up front to prevent new weed infestations from establishing or new weed species from entering the Ely District.

MANAGEMENT STRATEGIES

- Ensure the Ely District Approved Resource Management Plan Noxious and Invasive Weed decisions (Ely RMP page 109) and Best Management Practices (Ely RMP Appendix A Section 1) are included in the stipulations of every District project, including proponent proposed projects and developments.
- Complete a Noxious and Invasive Weed Risk Assessment for all ground disturbing projects. A Risk Assessment template can be found in Appendix C on page 44.
- Ensure mitigation measures identified in the Noxious and Invasive Weed Risk Assessment are followed by requiring each Field Office to keep tracking information on projects to document compliance.
- Ensure BLM Ely District staff follows the Ely District Weed Prevention Schedule and Duties listed in Appendix D on page 47.
- Ensure off-District fire staff and project contractors are briefed about any SOPs, BMPs, or stipulations that are listed in the project Noxious and Invasive Weed Risk Assessment.
- Keep an up-to-date shapefile of known weed infestations within the District and share this data with the BLM national database, the Nevada Natural Heritage weed mapping program, and any other interested entities.
- Ensure BLM personnel are trained in identification of noxious and non-native invasive weed species that are likely to be introduced so that early detection & rapid response procedures can be used.
- Communicate regularly, at least annually, with surrounding BLM District offices, USDA-Forest Service and Natural Resource Conservation offices, and Great Basin National Park to keep track of weed species that are not yet in the Ely District and incorporate those species into BLM staff weed trainings.
- Communicate regularly, at least annually, with the county Cooperative Extension agents to identify new weed species of concern or other potential issues.

RMP IMPLEMENTATION ITEMS FOR THE NEXT FIVE YEARS:

- Coordinate with District specialists to ensure that noxious and invasive weeds monitoring occurs on all projects.
- Coordinate on an annual basis with the Ely District GIS Specialist to update the District weed inventory, inventory paths, and treatment shapefiles with the latest year's data.
- Organize at least two Noxious and Invasive Weed Management and Identification classes (one in Ely and one in Caliente) each year for BLM staff and partners.

4.3 Inventory

Weed inventories are an invaluable tool for assessing the extent of an infestation and planning effective weed management programs. Inventory data provides necessary baseline information such as infestation locations, infestation size and density, associated environmental conditions and disturbance factors. An inventory is defined as a complete census of an area while a survey is a structured sampling (Elzinga et al. 1998). The Ely District primarily relies on surveys due to budgetary restraints. Survey data would be used to analyze trend characteristics on infestations which have never received treatment.

MANAGEMENT STRATEGIES

- Set the Ely District on a seven year survey rotation following the Tier I method of the Nevada Invasive Weed Survey Protocol (Appendix B, page 41).
- Include noxious and invasive weed surveys and treatment funds in Wildland Fire Emergency Stabilization (ES) Plans. Request for survey funds should be included into every ES plan. Treatment funds should be requested in ES plans where documented weed infestations occur in or near the fire scar or for areas that are susceptible to invasion by cheatgrass or red brome (under 8,000 feet elevation, south facing slopes, to protect habitats sensitive to annual grass invasion, etc.).
- Use a Global Positioning System (GPS) unit and North American Weed Management Association mapping standards while conducting weed surveys.
- Keep an up-to-date GIS shapefile that is compliant with Data Standards of known weed infestations within the District and share this data with Ely District staff, the BLM national database, the Nevada Natural Heritage weed mapping program, and any other interested entity.
- Have open communication with other land managers and CWMA's to share survey data.
- Train all field going BLM staff in weed identification and provide them with inventory field cards.

RMP IMPLEMENTATION ITEMS FOR THE NEXT FIVE YEARS:

- Coordinate with the Tri-County Weed Project to develop a seven year survey rotation of the entire District.
- Coordinate on an annual basis with the Ely District GIS Specialist to update the District weed inventory, inventory paths, and treatment shapefiles with the latest year's data.
- Organize at least two Noxious and Invasive Weed Management and Identification classes (one in Ely and one in Caliente) each year for BLM staff and partners.

4.4 Integrated Weed Management (IWM)

An integrated approach to weed treatment is used to determine which treatment methods are best for the most effective approach to on the ground weed control. An active program involves the use of four general categories of management options, which include biological, physical, grazing, and chemical. IWM is best described as a decision making process that uses specific information to determine treatment options that would most effectively control weeds. IWM is based on the fact that combined strategies for weed management are more successful and economical than a single method alone.

MANAGEMENT STRATEGIES

- Maintain a list of priority weeds, starting with species that are not yet in the Ely District and moving down to ones that are more common. This list would help determine how to rank treatment areas.
- Determine which areas to treat based on priority of the species, the size of the infestation (the smaller the infestation the higher ranked it is), and the location of the infestation (whether it is located along a major weed vector such as a road, drainage, or riparian area). For example, a couple of plants of a weed species that is not found anywhere else in the EYDO will have a higher priority than a weed species which is commonly found. Similarly, a small, <1 acre infestation of a species might have a higher priority than a large >20 acre infestation of the same species.
- Cooperate with other individuals, organizations, and agencies treating weeds to ensure that management for weeds is carried out efficiently and consistently across jurisdictional and political boundaries.
- Incorporate into this plan new technologies, methods, or protocols as they are developed
- Determine which treatment areas need native plant restoration and which have the potential to naturally regenerate and implement restoration activities accordingly. Select plant species for seeding that would help inhibit the establishment of noxious weeds.
- No matter what type of control type is used, follow all standard operating procedures (SOPs), guidelines, mitigation measures, and conservations measures listed in the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement and Record of Decision (BLM 2007), Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report (BLM 2007b), and the Ely District Approved Resource Management Plan (BLM 2008) are followed.
- Determine and implement the best combination of physical, biological, grazing, or chemical controls for the infestation and the site. Examples of control types that would be implemented:

Biological control – Also known as classical biological control, this generally refers to the use of living organisms such as insects, fungi, pathogens, and nematodes that attack specific weed species. The goal is not to eradicate, but rather to control the infestation by reducing its spread and eventual abundance to acceptable levels. Results with biological controls are mixed, anywhere from zero to 90 percent of control can be expected depending on weed infestation and release site characteristics (Wilson et al., 1998).

Only the release of USDA - Animal and Plant Health Inspection Service approved insects or pathogens would be used and would be accompanied by a BLM Biological Control Agent Release Proposal, an example of which can be found in Appendix E on page 51. Goals would be to get enough of the biological control established to have an effect on the

target weed species, reduce competition with native plant species in the area, and establish an area for future collection. Collection and release sites would be accessed via existing roads only and then hiking to the area. All release sites would be monitored for biological control population levels, target weed effects, and native plant response. A complete list SOPs that would be followed with all biological control treatments can be found in Appendix H on page 64. Potential biological control agents include, but are not limited to:

| Biological Control | Target Weed Species | Biological Control | Target Weed Species |
|---|--|--|---|
| Salt cedar leaf beetle <i>Diorhabda elongata</i> | Salt cedar <i>Tamarix spp.</i> | Seed-head weevil <i>Rhinocyllus conicus</i> | Canada thistle <i>Cirsium arvense</i> |
| Stem-boring weevil <i>Mecinus janthinus</i> | Dalmatian toadflax <i>Linaria dalmatica</i> | Seed weevil <i>Microlarinus lareynii</i> | Puncturevine <i>Tribulus terrestris</i> |
| Seedhead fly <i>Urophora affinis</i> | Spotted knapweed <i>Centaurea stoebe</i> | Bindweed mite <i>Aceria malherbae</i> | Field bindweed <i>Convolvulus arvensis</i> |

Grazing control – Often listed as another type of biological control, grazing with cattle, sheep and goats can be used to selectively graze or browse certain weeds in a specific area. This technique is appropriate for weeds that are nontoxic and palatable to the livestock used. Results with grazing controls are often dependant on the weed species being grazed, but when combined with other treatment methods can be quite effective. The type of animal selected should be matched appropriately with the target species and should be adequate to meet the desired prescription of the area, be it removing a certain percentage of the inflorescences or grazing to a certain stubble height. Grazing should occur prior to seed set because weed seeds can be spread in manure and fur when animals are transferred to another area. If it is not possible for the grazing treatment to occur prior to seed set then any livestock used would be quarantined and fed weed-free forage for 48 hours after the treatment is complete. It is also possible for seeds to remain viable even after passing through certain livestock, so quarantine after a grazing control would be required. In order to achieve weed control using grazing alone, an infested area may need to be grazed several times during the growing season and for several successive years. The animals need to be cared for daily and protected from predators. The animals must be closely observed to control the intensity and duration of the grazing to avoid overgrazing or avoid grazing impacts on desirable species. Livestock used for grazing control on weed infestations would be controlled with fencing, herding, and close observation to limit impacts to native vegetation. Water hauling for livestock use during a treatment could be necessary in certain areas. No sheep or goat grazing treatments would be conducted in occupied bighorn sheep habitat. A complete list of SOPs that would be followed with all grazing treatments can be found in Appendix H on page 64.

Physical control – There are a variety of physical and mechanical means for weed management. These include pulling, mowing, cutting, and prescribed burning. Physical methods are often more effective on small infestations due to the amount of effort required. Each method has benefits, drawbacks and optimal conditions. A complete list of SOPs that would be followed with all physical, manual, mechanical, and prescribed fire treatments can be found in Appendix H on page 64. Site specific NEPA and a Minimum Decision Requirement Guide would be completed for all proposed use of motorized or mechanized control types within wilderness or Wilderness Study Areas. Wilderness conforming control types would be allowed without further analysis.

Hand pulling is most effective on annual and biannual weeds or on non-creeping perennial weeds where most of the weed's root system can be removed. When the soil is loose or moist, these non-creeping perennial weeds can be pulled more easily. Hand pulling can be very effective but often requires repeated, diligent treatments and is appropriate only for small infestations due to the time and effort involved. Depending on the time of year and weed species, the vegetative materials that are pulled and still capable of reproduction should be bagged in heavy duty black plastic bags and completely removed from the site. These removed, bagged materials would be either burned in a contained area or left out in the sun to destroy any potential reproductive materials before disposal. Infestations targeted for hand pulling are usually small and widely scattered, so no revegetation would be required. However, if a hand pulling project occurs in a sensitive area it is possible that a small amount of certified weed-free seed could be hand scattered onto the disturbed areas.

Mowing reduces seed production in some plants, especially annuals. However, caution should be used here as mowing or cutting can stimulate the growth of some plants. Stage of growth and weather following the mowing event are critical considerations when counter-planting this technique. Plants mowed during the late bud or flower stages often produce fewer seeds than those mowed later in the season. If soil moisture is sufficient, some species increase the number of seeds produced after mowing. Another note is that some species, if mowed with flowers in bloom would continue to produce seed after cutting. In that case, it is important to remove all vegetative materials after mowing. In areas of dense weed infestation, the project area would be seeded with a certified weed-free seed mix following the mowing. A cultural needs assessment would be completed prior to mowing to determine the level of cultural inventory needed to prevent damage to cultural sites.

Cutting using hand crews refers to using small crews with chainsaws to cut woody weed species, such as salt cedar or Russian olive, just above the ground. This method is labor intensive and highly ineffective if used alone, due to the plants ability to re-sprout around the base. However, used in conjunction with an herbicide treatment immediately after cutting, known as a cut/stump treatment, it can be highly effective. Treatment sites would be accessed using existing roads and then hiking to the area. Slash from a cutting treatment would be scattered around the site, piled and chipped, or piled and burned. If the slash is to be piled and burned, then a cultural needs assessment would be completed prior to the project to determine the level of cultural inventory needed to prevent damage to cultural sites.

Cutting using heavy machinery refers to using machinery such as a feller-buncher, excavator, or bobcat to remove woody weed species, such as salt cedar or Russian olive, in their entirety. This method can cause a great deal of ground disturbance both from the machinery used and from the action of pulling out extensive root systems, so it should not be used in areas with sensitive soils, areas prone to erosion, or areas with sensitive vegetation or wildlife. This treatment method would require overland travel to access the infestations. Debris from the treatment would be piled and chipped or piled and burned. Any treatment areas using this method would have a cultural needs assessment and Class III cultural survey, if necessary, completed prior to implementing the project.

Prescribed burns alone have mixed results when dealing with weed infestations. Generally, a single, low intensity fire does not effectively control weeds because the fire does not reach temperatures high enough to kill the root crowns or seeds present in the soil. Many weed species such as salt cedar and some knapweeds would actually increase in cover and density after a fire. Fire may actually enhance weed species over native plants

because of the disturbance factor and added soil nutrients. Combining prescribed burns with follow-up herbicide treatments has been proven to increase the efficacy of the herbicide treatment, especially with salt cedar. Prescribed burns can also be used to clear slash piles from a cutting treatment. Prior to any prescribed burn a prescribed burn plan and cultural needs assessment would be completed for the project area. Any mitigation identified in the plan and/or needs assessment would be followed. In addition, a smoke permit would be obtained from the Nevada Department of Environmental Protection.

Chemical control – Use of herbicides can often be one of the more economical ways to control invasive weeds. When applied according to the chemical label and by a certified pesticide applicator, herbicides can also have minimal impact to the surrounding vegetation and environment. When used in conjunction with one of the previous treatment methods, herbicide treatment of invasive weeds can be very effective. Any proposed herbicide treatment would have a Pesticide Use Report submitted to the BLM Nevada State Office prior to implementation, an example of which can be found in Appendix F on page 54. Herbicide treatments would include the potential use of all BLM approved herbicides and surfactants, both in the BLM Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement and Record of Decision (BLM 2007) and any herbicides approved in the future using the protocol for identifying, evaluating, and using new herbicides as described in that EIS. A list of approved herbicides, current to the release of this plan, can be found in Appendix G on page 57. The timing of application would be planned to allow for the most effective control of the weed species while minimizing the impacts to any non-target plants. Only Environmental Protection Agency aquatically approved herbicides would be used to treat weed infestations around surface water. A complete list SOPs that would be followed with all chemical treatments can be found in Appendix H on page 64. Site specific NEPA and a Minimum Decision Requirement Guide would be completed for all proposed use of motorized or mechanized control types within wilderness or Wilderness Study Areas. Wilderness conforming control types would be allowed without further analysis. Methods of application include:

Wipe/wick – A 3 foot long tube with a sponge at the end. The tube is filled with the herbicide mixture and the sponge is used to wipe herbicide on a basal leaf or stump surface or in a basal bark application. There is very little herbicide drift potential with this method.

Backpack application – Usually a 3-4 gallon backpack worn on an applicator used to spot apply herbicides. This allows for a more accurate application process than boom sprayers. This method is usually used to apply herbicide to stump surfaces, foliar or basal bark applications.

Pack animal tank application – Two 8 gallon tanks mounted on a pack animal. This method is usually used for foliar applications with a hand spot sprayer in designated Wilderness areas. Pack animals would follow all pack animal SOPs (feeding certified weed-free forage, etc.) and would be transported via vehicle and trailer to the Wilderness boundary on existing roads.

ATV tank application – A 25-50 gallon tank mounted on an ATV. Usually used for foliar applications with a small boom sprayer but can also be used to spot spray. This method would be involved in off-road, once pass over, situations to treat larger weed infestations which have spread out in to the rangeland.

Truck tank application – A full-sized truck outfitted with an approximately 500 gallon tank and boom sprayer. A separate nozzle could be pulled out from the sprayer and used to

spot spray areas. This method would be involved in off-road, once pass over, situations to treat larger weed infestations which have spread out in to the rangeland.

Aerial application – A fixed wing aircraft or helicopter would apply herbicide according to label directions and Ely District SOPs (Appendix H page 64) to large-scale, monotypic infestations of weeds. Spot spraying or physical control using hand crews with chainsaws would be used to clear around infestation edges and any islands of native vegetation to minimize impacts to non-target vegetation.

RMP IMPLEMENTATION ITEMS FOR THE NEXT FIVE YEARS:

- Coordinate with the Tri-County Weed Program to continue the District integrated weed treatment program, identify priority weed species and treatment areas, and identify treated areas which require native plant restoration activities.
- Coordinate with CWMAs and neighboring land management agencies to ensure that treatment efforts are complimentary so treatment efficacy is increased.
- Coordinate with the Nevada Department of Agriculture on biological control options and potential release sites.
- Organize at least two Noxious and Invasive Weed Management and Identification classes (one in Ely and one in Caliente) each year for BLM staff and partners.
- Continue working with volunteer groups to assist on hand pulling treatments in Wilderness.

4.5 Monitoring & Research

Monitoring programs are critical to a long-term weed management because these programs are the source of feedback and data on the efficacy of management activities. This data is used to evaluate management actions, to provide a basis for making informed management decisions, to assess progress towards management objectives, and to develop new and more effective management methods. Monitoring data can help land managers determine the efficacy of control efforts, whether or not weed control efforts are making progress towards stated management objectives, and suggest possible changes in management actions. Integrated Weed Management methods would be adjusted based on feedback from monitoring.

MANAGEMENT STRATEGIES

- Maintain and continue annual data collection at the 40 permanent monitoring sites within the Ely District (Map 3).
- Add new permanent monitoring plots in new long-term treatment and restoration areas as needed.
- Annually visit all treatment sites from previous years to visually determine treatment efficacy.
- Support research activities in areas such as herbicide comparison plots, biological controls, remote sensing, or restoration techniques.
- Incorporate weed monitoring activities into other Ely District monitoring programs (e.g., Range, Fuels, ES&R, Wildlife, Forestry, etc.). Include weed data dictionary on all GPS units and provide training on the proper use of the dictionary.

RMP IMPLEMENTATION ITEMS FOR THE NEXT FIVE YEARS:

- Coordinate with the Tri-County Weed Program to collect monitoring data and to install new monitoring sites where needed.

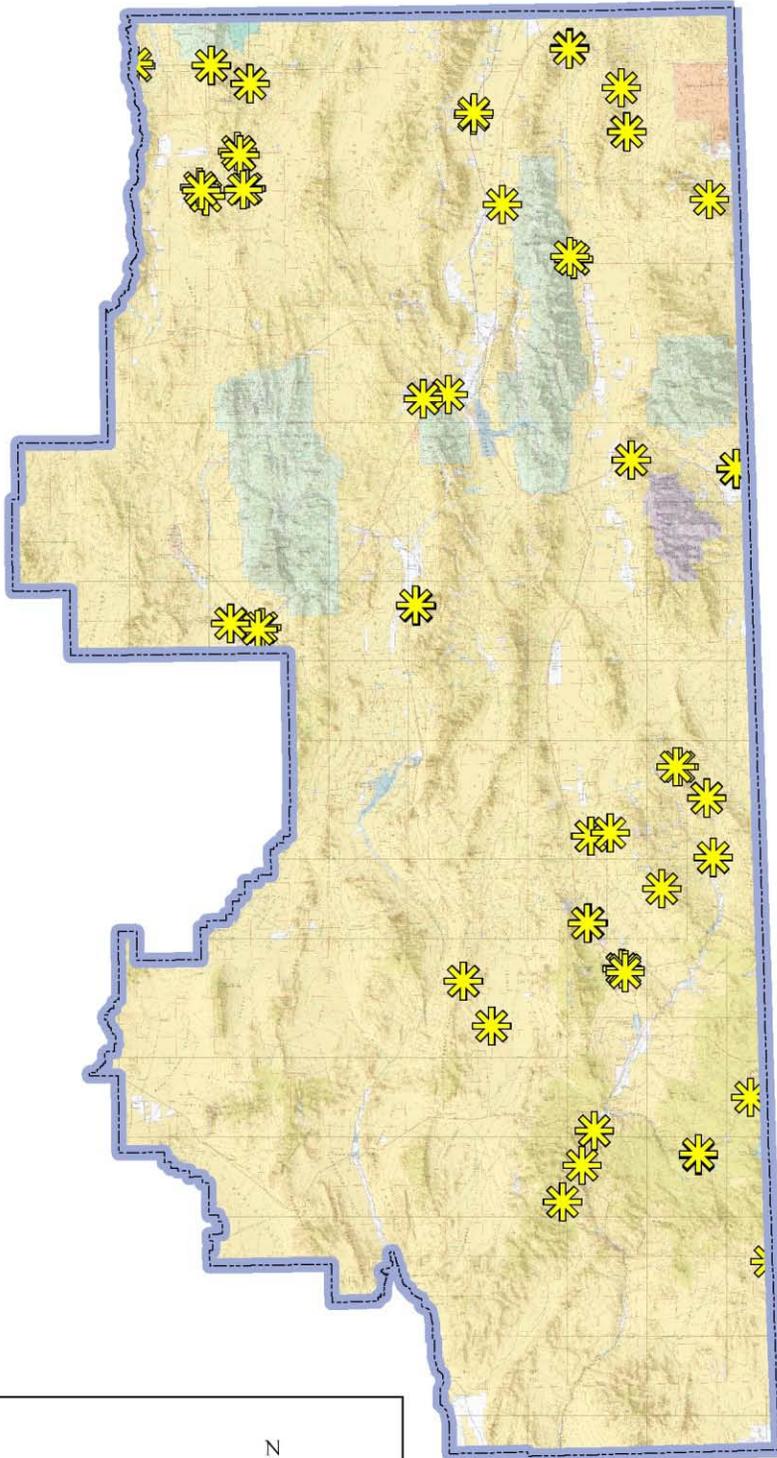
- Coordinate with the University of Nevada's Cooperative Extension State Weed Specialist, the County Extension Agents, Tri-County Weed Program, Eastern Nevada Landscape Coalition, and other research organizations to learn about new and emerging treatment and native plant restoration techniques.

Map 3 - Permanent Monitoring Points

Location within the State of Nevada



BLM



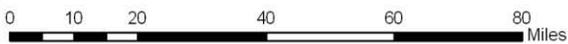
Legend



Permanent monitoring plots



District boundary



No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.

Map Produced by Bonnie M. Millon
Noxious & Invasive Weeds Specialist
03/30/2009

Ely District Office

Part II

Preliminary Environmental Assessment

1.0 – INTRODUCTION

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of the Integrated Weed Management Plan (IWMP) as proposed by Ely District Office (EYDO). The EA is an analysis of potential effects that could result with the implementation of the *Proposed Action* across public lands managed by the EYDO. The EA assists the Bureau of Land Management (BLM) in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any significant impacts could result from the analyzed actions. Significance is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of “Finding of No Significant Impact” (FONSI). If the decision maker determines that this project has “significant” impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record may be issued approving the selected alternative, whether the proposed action or another alternative. A Decision Record, including a FONSI statement, documents the reasons why implementation of the selected alternative would not result in significant environmental impacts (effects) beyond those already addressed in the Ely District Proposed Resource Management Plan/Final Environmental Impact Statement (November 2007), the Final Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic Environmental Impact Statement (June 2007), and the Final Vegetation Treatments on BLM Lands in 17 Western States Programmatic Environmental Report (June 2007).

1.1 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. “Noxious” weeds refer to those plant species which have been legally designated as unwanted or undesirable. This includes national, state and county or local designations. Invasive plants are compromising the ability to manage public lands for a healthy native ecosystem by creating a host of environmental and other effects, most of which are harmful to native ecosystem processes. Impacts associated with noxious and invasive weeds include, but are not limited to the following:

- Increased fire frequency and intensity
- Loss of ecosystem biodiversity
- Displacement of native vegetation
- Degradation of wildlife habitats
- Soil erosion and degradation
- Alteration of riparian and hydrologic function
- Reduced recreational opportunities
- Displacement of sensitive species

1.2 Purpose and Need for Action

Increased use of public land has contributed to habitat degradation as invasive plants replace native vegetation. The percentage of land infested by invasive plants is relatively low in the EYDO, thus providing an opportunity to aggressively treat new and existing infestations. In 2008 when the EYDO weed inventory was complete there were 14,233 documented Nevada noxious weed infestations (Map 1 in the IWMP) covering approximately 3,514 acres of public lands. The current treatment focus is on Nevada state listed noxious weeds; however, controlling other

invasive species (re: halogeton, Russian olive, and cheatgrass) that cause management problems related to livestock, wildlife, and human activities is a secondary focus. Surface disturbing activities associated with mining, right-of-ways, and special recreation permits are increasing the presence of these invasive species. Studies have shown that delaying the treatment of weed infestations by as little as four years can double the initial treatment costs (Eiswerth et al. 2000). One of the BLM's highest priorities is to promote ecosystem health and one of the greatest obstacles to achieving this goal is the rapid expansion of weeds across public lands.

The purpose of the action is to implement integrated pest management to address the introduction and spread of invasive and noxious plants, and to provide guidance for an active and aggressive District-wide integrated weed management program which would more effectively address the problem. The intent is to prevent further resource degradation, increase cooperation across agency boundaries, boost public awareness, and increase treatment efficacy. The main philosophy of integrated weed management is to combine different treatment tools and methods in a way that minimizes economic, health, and environmental risks.

The need for the action is to comply with Executive Order 13112, which directs all federal agencies to address invasive species concerns and better coordinate federal weed management efforts. The State of Nevada Revised Statute (NRS) 555.150 also requires that all land managers control species listed on the Nevada Noxious Weed List.

1.3 Relationship to Planning

The proposed action is in conformance with the Ely District Record of Decision and Approved Resource Management Plan (RMP) signed August 20, 2008, which states that the Noxious and Invasive Weeds goal is to "Prevent the introduction and spread of noxious and invasive weeds. Control or eradicate existing populations." In addition, the Noxious and Invasive Weeds objective is "To reduce introduction of, and the areal extent of, noxious and invasive weed populations and the spread of these populations (p. 109)."

Management Action WEED-1 states: "Continue to use integrated weed management to treat weed infestations and use principles of integrated pest management to meet objectives and to reestablish resistant and resilient native vegetation communities." (p. 110)

1.3.1 Relationship to Other Plans

The proposed action is in compliance with the following laws, regulations, Executive Orders, and county public land plans:

- The National Environmental Policy Act of 1969 (42 U.S.C. §§ 4321-4347, January 1, 1970, as amended 1975 and 1994)
- The Federal Land Policy and Management Act of 1976 (43 U.S.C. §§ 1701-1782, October 21, 1976, as amended 1978, 1984, 1986, 1988, 1990-1992, 1994 and 1996)
- The Lincoln County Conservation, Recreation and Development Act of 2004 (Public Law 108-424)
- White Pine County Conservation, Recreation, and Development Act of 2006 (Public Law 109-432)

Resource Advisory Councils

- Northeastern Great Basin Resource Advisory Council (RAC) Standards and Guidelines (February 12, 1997).

- Mojave-Southern Great Basin Resource Advisory Council (RAC) Standards and Guidelines (12 February 1997).

County Land Use Plans

- Nye County Comprehensive Plan (1994)
- Lincoln County Public Land and Natural Resource Management Plan (1997)
- White Pine County Public Lands Policy Plan (2007)

Archaeological

- Archaeological Resources Protection Act of 1979, as amended (Public Law 96-95; 16 U.S.C. 470aa-mm)
- State Protocol Agreement between the Bureau of Land Management (BLM), Nevada and the Nevada State Historic Preservation Office (1999)
- National Historic Preservation Act (Public Law 89-665; 16 U.S.C. 470 as amended through 2000)

Health & Human Safety

- Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks (1997)
- Federal Insecticide, Fungicide, and Rodenticide Act (Public Law 110-246 as amended 2008)

Noxious and Invasive Weeds

- Carson-Foley Act of 1968 (Public Law 90-583)
- Federal Noxious Weed Act, (Public Law 93-629, section 2814)
- Executive Order 13112: Invasive Species (1999)

Recreation

- Executive Order 13443: Facilitation of Hunting Heritage and Wildlife Conservation (2007)

Water Resources

- Safe Drinking Water Act, as amended (42 USC 300f *et seq.*)
- Clean Water Act of 1977
- E.O. 11990 "Protection of Wetlands" 5/24/77 (33 USC 1251 *et seq.*)

Wild Horses

- Wild Free-Roaming Horse and Burro Act of 1971 (Public Law 92-195, as amended through 1978)

Wilderness

- Management of Designated Wilderness Areas (43 CFR Part 6300)
- The Wilderness Act of 1964 (16 U.S.C. §§ 1131-1136, September 3, 1964, as amended 1978)

Wildlife, Special Status Species, and Migratory Birds

- Migratory Bird Treaty Act (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989)
- Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668-668d, June 8, 1940, as amended 1959, 1962, 1972, and 1978)

- The Endangered Species Act of 1973 (16 U.S.C. §§ 1531-1544, December 28, 1973, as amended 1976-1982, 1984, and 1988)
- Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds (2001)
- White Pine County Portion (Lincoln/White Pine Planning Area) Sage Grouse Conservation Plan (2004)
- Lincoln County Elk Management Plan (2006 revision)
- White Pine County Elk Management Plan (2007 revision)

1.3.2 Tiering

This Environmental Assessment (EA) is tiered to and incorporates by reference the Final Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic Environmental Impact Statement (Veg EIS June 2007) and the Ely Proposed Resource Management Plan/Final Environmental Impact Statement (RMP EIS November 2007). This EA also incorporates by reference the Final Vegetation Treatments on BLM Lands in 17 Western States Programmatic Environmental Report (Veg PER, June 2007).

1.4 Scoping and Issues

The Ely District Integrated Weed Management Plan proposal was scoped at each Field Office scoping meeting on the following dates:

| | |
|-----------------------|---------------|
| Schell Field Office | June 16, 2008 |
| Caliente Field Office | June 17, 2008 |
| Egan Field Office | June 23, 2008 |

Due to the potential controversy over the use of herbicides, a public scoping period was open from July 29, 2008 to August 29, 2008. Two comments were considered, one from Western Watershed Projects and one from the Sustainable Grazing Coalition, and they are addressed in the IWMP and this EA.

An interdisciplinary team (ID team) meeting was held on July 31, 2008 to review the plan outline. The ID team identified the following relevant issues: Noxious & Invasive Weeds, Wilderness, and Areas of Critical Environmental Concern (ACEC).

2.0 – DESCRIPTION OF THE PROPOSED ACTION & ALTERNATIVES

2.1 Proposed Action

The BLM proposes to manage noxious and invasive weeds throughout the entire EYDO by utilizing the Ely District Integrated Weed Management Plan (IWMP) in Part I of this document. The IWMP and this EA would be revisited on an annual basis to ensure that all weed management actions are still adequately covered in the analysis. The following is a summary of the plan.

Education & Outreach

The objective of noxious and invasive weed outreach is to generate internal and external awareness of and support for noxious and non-native invasive weed prevention and management. Education and outreach activities for the noxious and invasive weeds program would include being an active partner with all Cooperative Weed Management Areas within the District;

providing information in the form of pamphlets, booklets, and weed identification classes to BLM employees, partners, and interested publics; and having a presence at public gathering such as National Public Lands Day events, county fairs, or school Science Days.

Prevention

The objective of noxious and invasive weed prevention is to ensure that everything possible is done up front to prevent new weed infestations from establishing or new weed species from entering the Ely District. Prevention activities for the noxious and invasive weeds program would include adding weed prevention standard operating procedures to all permitted activities on public lands; completing a Noxious and Invasive Weed Risk Assessment (Appendix C page 44) for all projects occurring on public lands; and communicating regularly with surrounding land managers to keep track of weed species that are not yet in the Ely District

Inventory

An inventory is defined as a complete census of an area while a survey is a structured sampling (Elzinga et al. 1998). The Ely District primarily relies on surveys due to budgetary restraints. Survey data would be used to analyze trend characteristics on infestations which have never received treatment. Noxious and invasive weed survey activities would include setting the EYDO on a seven year inventory rotation follow the Tier I method of the Nevada Invasive Weed Survey Protocol (Appendix B, page 41); including noxious and invasive weed surveys and treatment dollars in Wildland Fire Emergency Stabilization Plans; and keeping the EYDO weed inventory shapefile up-to-date on an annual basis.

Integrated Weed Management (IWM)

IWM is based on the fact that combined strategies for weed management are more successful and economical than a single method alone. An active program involves the use of four general categories of management options, which include biological, physical, grazing, and chemical. Any Wilderness conforming control types listed would be allowed without further analysis. Any proposed use of motorized or mechanized control types within Wilderness or Wilderness Study Areas would require the completion of additional site specific NEPA and a Minimum Decision Requirement Guide.

IWM activities for the noxious and invasive weeds program would include maintaining priority treatment areas based on the invasiveness of the species, the size of the infestation, and the location of the infestation; cooperating with other individuals, organizations, and agencies when treating weeds to ensure that management for weeds is carried out efficiently and consistently across jurisdictional and political boundaries; and implementing the best combination of physical, biological, grazing, or chemical controls for the infestation and the site. Examples of control types that would be implemented:

Biological control – Also known as classical biological control, this generally refers to the use of living organisms such as insects, fungi, pathogens, and nematodes that attack specific weed species. Only the release of USDA - Animal and Plant Health Inspection Service approved insects or pathogens would be used and would be accompanied by a BLM Biological Control Agent Release Proposal, an example of which can be found in Appendix E on page 51.

Grazing control – Often listed as another type of biological control, grazing with cattle, sheep and goats can be used to selectively graze or browse certain weeds in a specific area. This technique is appropriate for weeds that are nontoxic and palatable to the livestock used. The type of animal selected should be matched appropriately with the target species and should be

adequate to meet the desired prescription of the area, be it removing a certain percentage of the inflorescences or grazing to a certain stubble height. The animals must be closely observed to control the intensity and duration of the grazing to avoid overgrazing or avoid grazing impacts on desirable species. No sheep or goat grazing treatments would be conducted in occupied bighorn sheep habitat.

Physical control – There are a variety of physical and mechanical means for weed management. These methods include hand pulling, mowing, cutting using hand or chainsaw, heavy machinery, and prescribed burns. Physical methods are often more effective on small infestations due to the amount of effort required. Each method has benefits, drawbacks and optimal conditions. A cultural needs assessment would be completed prior to mowing to determine the level of cultural inventory needed to prevent damage to cultural sites.

Chemical control – Any proposed herbicide treatment would have a Pesticide Use Report submitted to the BLM Nevada State Office prior to implementation, an example of which can be found in Appendix F on page 54. Herbicide treatments would include the potential use of all BLM approved herbicides and surfactants, both in the BLM Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement and Record of Decision (BLM 2007) and any herbicides approved in the future using the protocol for identifying, evaluating, and using new herbicides as described in that EIS. A list of approved herbicides, current to the release of this plan, can be found in Appendix G on page 57. A complete list of SOPs that would be followed can be found in Appendix H, page 64. Potential methods of application include:

Wipe/wick – A 3 foot long tube with a sponge at the end. The tube is filled with the herbicide mixture and the sponge is used to wipe herbicide on a basal leaf or stump surface or in a basal bark application. There is very little herbicide drift potential with this method.

Backpack application – Usually a 3-4 gallon backpack worn on an applicator used to spot apply herbicides. This allows for a more accurate application process than boom sprayers. This method is usually used to apply herbicide to stump surfaces, foliar or basal bark applications.

Pack animal tank application – One or two, 5-10 gallon tanks mounted on a pack animal. This method is usually used for foliar applications with a hand spot sprayer in designated Wilderness areas.

ATV tank application – A 25-50 gallon tank mounted on a 4 or 6 wheeler. Usually used for foliar applications with a small boom sprayer but can also be used to spot spray. This method would be involved in off-road, once pass over, situations to treat larger weed infestations which have spread out in to the rangeland.

Truck tank application – A full-sized truck outfitted with an approximately 500 gallon tank and boom sprayer. A separate nozzle could be pulled out from the sprayer and used to spot spray areas. This method would be involved in off-road, once pass over, situations to treat larger weed infestations which have spread out in to the rangeland.

Aerial application – A fixed wing aircraft or helicopter would apply herbicide according to label directions and Ely District SOPs to large-scale, monotypic infestations of weeds.

Monitoring & Research

Monitoring and research activities for the noxious and invasive weeds program would include continuing to collect data at the 40 permanent monitoring sites within EYDO (see Map 3 in Part

I); adding new permanent monitoring plots in new long-term treatment and restoration areas as needed; and supporting research activities in areas such as herbicide comparison plots, biological controls, remote sensing, or restoration techniques.

2.2 No Action Alternative

Under the alternative of No Action, the BLM would choose not to implement any of the goals or action items listed in the IWMP.

2.3 Alternatives Considered but Eliminated From Detailed Analysis

2.3.1 No Chemical Treatments

This alternative was fully analyzed in the Final Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic Environmental Impact Statement (June 2007). The Record of Decision (ROD) states that “this alternative would not provide avenues for integrating all vegetation methods; research has shown that the integration of all available methods provides the soundest approach to addressing invasive plant control.” Also, that “risks from herbicide use are minor if the BLM follows the SOPs and mitigation measures identified” in the ROD (page 4-10). These SOPs and mitigation measures are a part of the IWMP and are found in Appendix H on page 64.

3.0 – AFFECTED ENVIRONMENT & ENVIRONMENTAL EFFECTS

This chapter describes resource components potentially affected by the proposed action and any potential environmental effects of the proposed action for each affected resource.

Consideration of some of these items is to ensure compliance with laws, statutes or Executive Orders that impose certain requirements upon all Federal actions. Other items are relevant to the management of public lands in general, and to the Ely District BLM in particular.

| Resource/Concern Considered | Issue(s) Analyzed | Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis |
|-----------------------------|-------------------|--|
| Air Resources | No | The proposed action would contribute to ambient dust in the air due to vehicle travel to and from field sites, but the impact would be temporary and would not approach a level that would exceed any air quality standards. Impacts from IWMP activities on air resources are analyzed on page 4-5 of the Veg EIS and 4-4 of the Veg PER. |
| Wetlands and Riparian Areas | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to wetlands and riparian areas would be minimal. Impacts from IWMP activities on wetlands and riparian areas are analyzed on page 4-36 of the Veg EIS, 4-27 of the Veg PER, and page 4.3-6 of the RMP EIS. |
| Water Resources | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to water quality would be minimal. Impacts from IWMP activities on water resources are analyzed on page 4-24 of the Veg EIS, 4-20 of the Veg PER, and page 4.3-6 of the RMP EIS. |

| Resource/Concern Considered | Issue(s) Analyzed | Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis |
|---|-------------------|---|
| Soil Resources | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to soil resources would be minimal. Impacts from IWMP activities on soil resources are analyzed on page 4-13 of the Veg EIS, 4-11 of the Veg PER, and page 4.4-5 of the RMP EIS. |
| Vegetation Resources | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to vegetation would be minimal. The proper management and control of noxious and invasive weeds would in the long term be of benefit to native vegetation communities within the Ely District. Impacts from IWMP activities on soil resources are analyzed on page 4-44 of the Veg EIS, 4-33 of the Veg PER, and page 4.5-10 of the RMP EIS. |
| Fish and Wildlife | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to fish and wildlife would be minimal. Impacts from IWMP activities on fish and wildlife are analyzed on pages 4-76 through 4-124 of the Veg EIS, 4-59 through 4-94 of the Veg PER, and page 4.6-16 of the RMP EIS. |
| Migratory Birds | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to migratory birds would be minimal. |
| Special Status Species including FWS Listed or proposed for listing | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to special status species would be minimal. Impacts from IWMP activities on special status species are analyzed on pages 4-71, 4-92, and 4-118 of the Veg EIS, 4-70 and 4-91 of the Veg PER, and page 4.7-43 of the RMP EIS. |
| Wild Horses | No | There may be some temporary displacement from weed management activities in an area but the horses should return when the activity moves on. By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to wild horses would be minimal. Impacts from IWMP activities on wild horses are analyzed on page 4-136 of the Veg EIS, 4-99 of the Veg PER, and page 4.8-7 of the RMP EIS. |
| Cultural Resources | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to cultural resources would be minimal. Impacts from IWMP activities on cultural resources are analyzed on page 4-146 of the Veg EIS, 4-102 of the Veg PER, and page 4.9-6 of the RMP EIS. |
| Paleontological Resources | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to paleontological resources would be minimal. Impacts from IWMP activities on paleontological resources are analyzed on page 4-146 of the Veg EIS and 4-102 of the Veg PER. |
| Visual Resources | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to visual resources would be minimal. Impacts from IWMP activities on visual resources are analyzed on page 4-152 of the Veg EIS and 4-110 of the Veg PER. |
| Lands and Realty | No | There would be no modifications to land use authorizations through the proposed action, therefore no impacts would occur. No direct, indirect, or cumulative impacts would occur to access and land use. |

| Resource/Concern Considered | Issue(s) Analyzed | Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis |
|--|--------------------------|--|
| Recreation | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to recreation would be minimal. Impacts from IWMP activities on recreation are analyzed on page 4-159 of the Veg EIS, 4-118 of the Veg PER, and page 4.15-4 of the RMP EIS. |
| Livestock Grazing | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to livestock grazing would be minimal. Impacts from IWMP activities on livestock grazing are analyzed on page 4-124 of the Veg EIS, 4-94 of the Veg PER, and page 4.16-7 of the RMP EIS. |
| Mineral Resources | No | There would be no modifications to mineral resources through the proposed action, therefore no direct, indirect, or cumulative impacts would occur. |
| Fire Management | No | By managing and control noxious and invasive weeds, fire frequency could be reduced and post-fire rehabilitation could be improved. Impacts from IWMP activities on fire management are analyzed on page 4.20-4 of the RMP EIS. |
| Noxious and Invasive Weed Management | Yes | This IWMP would improve the noxious and invasive weed management within the Ely District. The integrated approach would increase the efficacy of weed treatments and the cooperative efforts with neighboring federal, state, and private land managers would increase education efforts. Impacts from IWMP activities on noxious and invasive weed management are analyzed on page 4.21-2 of the RMP EIS. |
| Wilderness | Yes | Needs to be analyzed Impacts from IWMP activities on Wilderness are analyzed on page 4-155 of the Veg EIS, 4-114 of the Veg PER, and page 4.22-22 of the RMP EIS. |
| Special Designations other than Designated Wilderness Areas of Critical Environmental Concern (ACEC) | Yes | Needs to be analyzed Impacts from IWMP activities on special designation areas, such as ACECs, are analyzed on page 4-155 of the Veg EIS, 4-114 of the Veg PER, and page 4.222-22 of the RMP EIS. |
| Native American Religious Concerns and other concerns | No | Tribal Coordination Letters were sent out with the public scoping letters on July 21, 2008 for the Ely District Integrated Weed Management Plan notifying the tribes of a 30 day comment period. No concerns were identified. The Ely District Office conducted an ethnographic report in 2003 for the Resource Management Plan and in the report there were no Native American traditional religious or cultural sites of importance identified within the Ely District and as a result there no potential concerns regarding this proposed action. |
| Wastes, Hazardous or Solid | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to or from hazardous materials would be minimal. Impacts from IWMP activities on health and human safety are analyzed on page 4-174 of the Veg EIS and 4-134 of the Veg PER. |
| Floodplains | No | There are no designated floodplains within the Ely District. |
| Prime and Unique Farmlands | No | There would be no modifications to prime and unique farmland soil characteristics through the proposed action, therefore no direct, indirect, or cumulative impacts would occur. |

| Resource/Concern Considered | Issue(s) Analyzed | Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis |
|-----------------------------|-------------------|---|
| Human Health & Safety | No | By following the SOPs, mitigation measures, and conservation measures listed in Appendix H on page 64 of the IWMP impacts to or from health and human safety would be minimal. Impacts from IWMP activities on health and human safety are analyzed on page 4-174 of the Veg EIS and 4-134 of the Veg PER. |
| Environmental Justice | No | No environmental justice issues are present at or near the project area. |

3.1 Noxious and Invasive Weed Management

3.1.1 Affected Environment

Infestations within the Ely District typically range from a few widely isolated plants to large areas dominated by weeds. These types of infestations may vary depending on weed species and previous control efforts. During the District surveys non-native, invasive weeds were noted but not officially documented by GPS. According to the District inventory data there are 14,233 documented noxious weeds infestations covering approximately 3,514 acres of public lands within the EYDO. That is less than 0.05% of the entire District. For a complete list of invasive and Nevada noxious weeds found within the Ely District see page 4 of the IWMP.

3.1.2 Environmental Effects

PROPOSED ACTION

Integrated treatment of invasive and Nevada noxious weeds would reduce the density and extent of current infestations allowing for better native vegetation germination, wildlife habitat, and diversity. The clearing of existing infestations could allow new weed infestations to enter the project area. Revegetation efforts would better protect the project area from becoming re-infested with non-native, invasive species. Education efforts and applying SOPs to all District projects would serve as effective prevention to future weed infestations. Inventory and monitoring efforts would help aid in improving treatment efficacy and determining high risk areas.

NO ACTION ALTERNATIVE

Under the No Action alternative no organized and integrated approach to non-native, invasive weed management would occur. Current weed infestations would expand into more monotypic stands leading to greater native vegetation loss, increased soil erosion, water consumption, and wildfire frequency.

3.2 Wilderness

3.2.1 Affected Environment

There are 22 designated Wilderness areas within the Ely District. Currently there are 119 documented infestations within 13 Wilderness boundaries.

Goshute Canyon Wilderness:

| | |
|------------------------|--|
| Bull thistle | 2 ft ² infestation at Log Cabin Spring |
| <i>Cirsium vulgare</i> | 814 ft ² infestation scattered along Carry Creek |
| | 21,888 ft ² infestation scattered along Goshute Creek |

| | |
|--|--|
| Canada thistle <i>Cirsium arvense</i> | 3,750 ft ² infestation in Carry Creek just southeast of the cherry stem 2,250 ft ² infestation in the upper reaches of Goshute Creek |
| Scotch thistle <i>Onopordum acanthium</i> | Two single plant infestations in Flat Canyon just downstream from Flat Canyon Springs and two single plant infestations in Goshute Creek just upstream from the Gaging Station |
| Water hemlock <i>Cicuta maculata</i> | 15,763 ft ² infestation scattered along Carry Creek 3,838 ft ² infestation scattered along Goshute Creek |

Becky Peak Wilderness:

| | |
|--|---|
| Bull thistle <i>Cirsium vulgare</i> | 454 ft ² infestation starting at an unnamed spring and scattered down the drainage in the southwest corner of the Wilderness |
|--|---|

Highland Ridge Wilderness:

| | |
|---|--|
| Spotted knapweed <i>Centaurea stoebe</i> | Single plant infestation in Johns Wash about 0.75 miles upstream from the end of the cherry stem |
|---|--|

Mount Grafton Wilderness:

| | |
|---|--|
| Spotted knapweed <i>Centaurea stoebe</i> | 75 ft ² infestation just inside the boundary along the North Creek reclaimed road |
|---|--|

White Rock Range Wilderness:

| | |
|--|---|
| Bull thistle <i>Cirsium vulgare</i> | 138 ft ² infestation scattered around two unnamed springs leading into White Rock Wash |
| Dalmatian toadflax <i>Linaria dalmatica</i> | Single plant infestation along the reclaimed jeep trail leading down from Lake Spring |

Parsnip Peak Wilderness:

| | |
|--|---|
| Bull thistle <i>Cirsium vulgare</i> | Single plant infestation at Buck Spring and at the drainage just north of there Single plant infestation in Buck Wash just east of the Cole Spring cherry stem 108 ft ² infestation scattered around Deer Spring and Rock Spring |
| Dalmatian toadflax <i>Linaria dalmatica</i> | 11.6 acre infestation scattered in an old fire-scar at the south end of the Wilderness not far from Pierson Summit |

Worthington Mountains Wilderness:

| | |
|-----------------------------------|---|
| Salt cedar <i>Tamarix spp.</i> | Single tree infestation one mile due north of Rose Spring |
|-----------------------------------|---|

South Pahroc Range Wilderness:

| | |
|-----------------------------------|---|
| Salt cedar <i>Tamarix spp.</i> | Single tree infestation at Twin Springs |
|-----------------------------------|---|

Tunnel Spring Wilderness:

| | |
|-----------------------------------|--|
| Salt cedar <i>Tamarix spp.</i> | 38 ft ² infestation scattered along Headwaters Wash starting at Tunnel Spring |
|-----------------------------------|--|

Clover Mountains Wilderness:

| | |
|---------------------|--|
| | 400 ft ² infestation scattered along Cottonwood Canyon |
| | 27 ft ² infestation scattered along Horse Spring Canyon |
| Salt cedar | 21 ft ² infestation scattered along the upper reaches of Pine Creek |
| <i>Tamarix spp.</i> | 21 ft ² infestation scattered downstream from Oil Spring |
| | Five single tree infestations in drainages leading into Pennsylvania Canyon |
| | Single tree infestation at Coldwater Spring |
| | Single tree infestation just downstream from Grapevine Spring |

Delamar Mountains Wilderness:

| | |
|---------------------|---|
| Salt cedar | 436 ft ² infestation at the end of the Willow Spring cherry stem |
| <i>Tamarix spp.</i> | 135 ft ² infestation at Willow Spring |

Meadow Valley Range Wilderness:

| | |
|---------------------|--|
| Salt cedar | 89 ft ² infestation at Hackberry Spring |
| <i>Tamarix spp.</i> | |

Mormon Mountains Wilderness:

| | |
|------------------------------|--|
| Salt cedar | 1.35 acre infestation along the boundary in Meadow Valley Wash |
| <i>Tamarix spp.</i> | |
| Sahara mustard | 1.5 acre infestation along the boundary in Meadow Valley Wash |
| <i>Brassica tournefortii</i> | |

The Ely District Wilderness areas were added to the National Wilderness Preservation System by the Lincoln County Conservation, Recreation, and Development Act of 2004 (Public Law 108-424, November 30, 2004) and the White Pine County Conservation, Recreation, and Development Act of 2006 (Public Law 109-432, December 20, 2006). These Wilderness areas are distributed throughout White Pine and Lincoln Counties and parts of Nye County. They encompass approximately 1,071,031 acres of public lands.

The Wilderness Act of 1964 defines wilderness and mandates that the primary management direction is to preserve wilderness character. Although wilderness character is a complex idea and was not explicitly defined in the Wilderness Act, it may be described as the combination of biophysical, experiential, and symbolic ideals that distinguish wilderness from all other lands. Wilderness areas, regardless of size, location, or any other feature, are unified by this statutory definition of wilderness. The four qualities of wilderness, related to wilderness character are:

- **Untrammeled** — area is unhindered and free from modern human control or manipulation.
- **Natural** — area appears to have been primarily affected by the forces of nature.
- **Undeveloped** — area is essentially without permanent improvements or human occupation and retains its primeval character.
- **Outstanding opportunities for solitude or a primitive and unconfined type of recreation** — area provides outstanding opportunities for people to experience solitude or primeval and unrestricted recreation, including the values associated with physical and mental inspiration and challenge.

Untrammled

Trammels are modern human controls or manipulations which hinder or restrict components or ecological processes within wilderness. The few trammeling activities that exist within the EYDO Wilderness areas include various measures in the management of wildland fire, weeds, and removal of vegetation due to livestock grazing. Additional obstructions are present in the form of authorized allotment fences and wildlife and livestock water developments.

Natural

The EYDO Wilderness areas are to a large extent free from the effects of modern civilization, having been primarily affected by the forces of nature. Impacts to the natural quality of wilderness include changes in historic vegetation patterns stemming from invasive annual grasses (i.e. cheatgrass) and the introduction of non-native chukar partridge or Rio Grande turkeys.

Undeveloped

The EYDO Wilderness areas have few permanent improvements or other evidence of modern human presence or occupation and retain their primeval character and influence. There are authorized allotment fences associated with grazing activities, and wildlife water developments for the maintenance of wildlife populations. Congressional Grazing Guidelines and LCCRDA (2004) allow these developments respectively. Several Wilderness areas contain metal pieces, roadbed remains, a railroad bed with ties, metal boiler, unconfirmed stack of processed logs, and human effects such as boots, cans, and glass which are left from sawmill or mining operation.

Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation

The wilderness provides outstanding opportunities for people to experience solitude and primitive, unconfined recreation, including the values of inspiration and physical and mental challenge. There are numerous draws, ravines, rock outcrops, ridges, and canyons that create secluded locales. These locales, the wilderness' large area, and low visitation combine to provide outstanding opportunities for solitude. However, flat topography, sparse vegetation, and periodic sights and sounds of vehicles on adjacent lands and aircraft flying overhead may decrease individual solitude experiences.

The geologic and topographic features provide for primitive recreation opportunities such as hiking, camping, climbing, caving, hunting, trapping, horseback riding, and nature study. No permits are required to visit and there are no group size limits; only the 14-day stay limit for camping confines recreation opportunities. An unknown number of trails exist that were created by wild horses and livestock. Less difficult recreational opportunities can be experienced on the lower slopes near the Wilderness's outer boundaries. Gently sloping alluvial fans present extensive vistas of the adjoining valleys and neighboring mountain ranges.

3.2.2 Environmental Effects**PROPOSED ACTION**

Wilderness values of untrammled, naturalness, undeveloped, solitude or primitive and unconfined recreation, as described below may be affected by the Proposed Action.

Untrammeled

Management of noxious and invasive weeds is considered a trammeling activity.. However, all travel within Wilderness areas would be completed via hiking or on horseback. No motorized vehicles would be used. Additional site specific NEPA and a Minimum Decision Requirement Guide would be completed for all proposed use of motorized or mechanized control types within wilderness or Wilderness Study Areas. Totalled there are 15.15 acres of documented noxious weed infestations within the EYDO Wilderness areas. Most of these infestations are easily accessed, within two miles of the Wilderness boundary. The proposed action would allow hiking or horseback access to these sites and management of the infestations, either by hand-pulling, hand tool techniques (shovels, hand saws, etc), biological control, or herbicide control with pack animal or backpack sprayers.

Natural

The naturalness of the area would be increased by the Proposed Action. By removing non-native weed infestations and restoring native plant communities the natural quality of the wilderness would become more resilient and diverse.

Undeveloped

The Proposed Action would not create any temporary or permanent developments in Wilderness.

Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation

The Proposed Action would not affect the overall opportunity for solitude or primitive and unconfined recreation. There is a possibility of visitor contact during weed management activities but overall this would be minimal in time and intensity.

NO ACTION ALTERNATIVE

Under the No Action alternative no organized and integrated approach to non-native, invasive weed management would occur. Current weed infestations would expand into more monotypic stands leading to greater native vegetation loss, increased soil erosion, water consumption, wildfire frequency, and decrease in Wilderness characteristics.

3.3 Special Designations other than Designated Wilderness***3.1.1 Affected Environment***

There are currently no documented weed infestations with the three Wilderness Study Areas in the Ely District. There are 19 Areas of Critical Environmental Concern (ACEC) within the Ely District. Currently there are 3,180 documented infestations within seven of the ACEC boundaries.

Shoshone Ponds ACEC:

| | |
|--|--|
| Bull thistle <i>Cirsium vulgare</i> | 300 ft ² infestation at the flowing well site |
|--|--|

Highland Range ACEC:

| | |
|--|---|
| Russian knapweed <i>Acroptilon repens</i> | 100 ft ² infestation along road leading to Highland Spring |
|--|---|

| | |
|--|---|
| Scotch thistle <i>Onopordum acanthium</i> | 300 ft ² lightly scattered infestation along road leading to Highland Peak |
|--|---|

Condor Canyon ACEC:

| | |
|--|--|
| Bull thistle <i>Cirsium vulgare</i> | 810 ft ² lightly scattered infestation scattered along main drainage at the southwest boundary |
| Hoary cress <i>Lepidium draba</i> | 0.9 acre infestation scattered along the entire main drainage |
| Salt cedar <i>Tamarix spp.</i> | Initial treatment of the infestations along the approximately 2.1 miles of main drainage in the ACEC was completed in 2007. Retreatment of this area would occur every two to three years. |

Pahroc Rock Art ACEC:

| | |
|--|---|
| Bull thistle <i>Cirsium vulgare</i> | 1 acre lightly scattered infestation scattered around Pahroc Spring |
|--|---|

Kane Springs ACEC:

| | |
|-----------------------------------|--|
| Salt cedar <i>Tamarix spp.</i> | 436 ft ² infestation at the end of the Delamar Wilderness Willow Spring cherry stem 135 ft ² infestation at Willow Spring |
|-----------------------------------|--|

Beaver Dam Slope ACEC:

| | |
|--|---|
| Sahara mustard <i>Brassica tournefortii</i> | 20.4 acre lightly scattered infestation throughout the ACEC |
|--|---|

Mormon Mesa ACEC:

| | |
|--|---|
| Russian knapweed <i>Acroptilon repens</i> | 4.5 acre infestation in the Rox area of Meadow Valley Wash |
| Sahara mustard <i>Brassica tournefortii</i> | 0.7 acre lightly scattered infestation along the main drainage in Meadow Valley Wash and 29.5 acre lightly scattered infestation throughout the eastern portion of the ACEC |
| Salt cedar <i>Tamarix spp.</i> | 72 acre infestation along the main drainage of Meadow Valley Wash |
| Tall whitetop <i>Lepidium latifolium</i> | 1500 ft ² infestation in the Rox area of Meadow Valley Wash |

Lower Meadow Valley Wash ACEC:

| | |
|--|--|
| Bull thistle <i>Cirsium vulgare</i> | 8 acre lightly scattered infestation along the main drainage in Clover Creek and Meadow Valley Wash |
| Poison hamlock <i>Conium maculatum</i> | 1.1 acre lightly scattered infestation scattered along main drainage in Clover Creek and in Meadow Valley Wash between Sithe and Boyd. |
| Puncturevine <i>Tribulus terrestris</i> | 0.3 acre lightly scattered infestation scattered along main drainage in Meadow Valley Wash below Carp. |
| Russian knapweed <i>Acroptilon repens</i> | 5 acre infestation in the Rox area of Meadow Valley Wash |
| Sahara mustard <i>Brassica tournefortii</i> | 0.9 acre lightly scattered infestation along the main drainage in Meadow Valley Wash between the Hackberry Spring drainage and the county line |

| | |
|--|--|
| Salt cedar <i>Tamarix spp.</i> | 586 acre infestation along the main drainage of Meadow Valley Wash. Most of the initial treatments are complete to Lyman's Crossing. |
| Scotch thistle <i>Onopordum acanthium</i> | 2700 ft ² lightly scattered infestation along the main drainage in Clover Creek and Meadow Valley Wash |
| Hoary cress <i>Lepidium draba</i> | 13.9 acre lightly scattered infestation along the main drainage in Clover Creek and Meadow Valley Wash |
| Tall whitetop <i>Lepidium latifolium</i> | 13.8 acre lightly scattered infestation along the main drainage in Clover Creek and Meadow Valley Wash |

3.1.2 Environmental Effects

PROPOSED ACTION

According to the SOPs listed in Appendix H, the least disruptive and most specific integrated weed treatment approach would be used in all ACECs. Integrated treatment of invasive and Nevada noxious weeds would reduce the density and extent of current infestations allowing for better native vegetation germination, wildlife habitat, and diversity thus protecting the values for which these ACECs were created. Treatments in ACECs which were created to protect listed threatened and endangered wildlife and plant species would require consultation with the US Fish & Wildlife Service prior to implementation. Any additional conservation measures resulting from future consultation would be followed.

NO ACTION ALTERNATIVE

Under the No Action alternative no organized and integrated approach to non-native, invasive weed management would occur. Current weed infestations would expand into more monotypic stands leading to greater native vegetation loss, increased soil erosion, water consumption, wildfire frequency, and increased risk to the resources these ACECs were created to protect.

4.0 – Cumulative Effects

Cumulative effects are the environmental consequences resulting from the incremental impacts of a proposed action, when added to other past, present, and reasonably foreseeable future actions, both Federal and nonfederal (40 CFR 1508.7). Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. The weed treatments and native vegetation restoration from the proposed action would be similar to the current management situation, and the impacts identified in the Environmental Impact Statements to which this EA is tiered. The intensity of impact (i.e. major ground disturbance, etc.) from past, present (the proposed action) and reasonably foreseeable future actions would affect only a small portion (less than 1%) of the BLM Ely District managed lands. The treatments are consistent with the afore-mentioned jurisdictional management plans and associated environmental compliance documents of the BLM.

Cumulative effects are analyzed on page 4-197 of the Veg EIS and page 4.28-1 of the RMP EIS. No additional cumulative effects to the biological or physical environment would result from the implementation of this Ely District Integrated Weed Management Plan.

5.0 – Tribes, Individuals, Organizations, or Agencies Consulted

A letter notifying the interested public of the initial scoping period was sent out on July 21, 2008, posted on the Ely District Office website, and announced in the July 30, 2008 edition of the Ely Times (local newspaper). All interested publics contacted and comments received were considered in this EA and can be found in the Administrative Record. A presentation on the proposed plan was given at the August 14, 2008 Mojave-Southern Great Basin Resource Advisory Council meeting.

This EA will be posted for a 30 day public review and comment period on the Ely BLM external website. A hard copy will also be mailed to those interested publics who have requested it and who have expressed an interest in invasive weed management, vegetation management, and Wilderness. Changes in the EA, based upon public input, will be made as appropriate.

6.0 – List of Preparers

| <u>Name</u> | <u>Resource Represented</u> |
|------------------|--|
| Kurt Braun | Cultural and Historic Resources |
| Cody Coombs | Fuels and Vegetation Management |
| Dave Jacobson | Wilderness |
| Gina Jones | Planning and Environmental Coordinator |
| Kalem Lenard | Visual Resource Management, Recreation |
| Chris Mayer | Rangeland Management |
| Gary Medlyn | Soil, Water, and Air, Floodplains, Riparian, and Wetlands |
| Doris Metcalf | Lands and Realty |
| Bonnie Million | Author, Non-Native, Invasive species including Noxious Weeds |
| Ben Noyes | Wild Horses |
| Melanie Peterson | Wastes, Hazardous and Solid, Hazmat |
| Paul Podborny | Wildlife, Migratory Birds, Special Status Animals and Plants |
| Karen Prentice | Emergency Stabilization and Rehabilitation |
| Elvis Wall | Native American Religious Concerns, Tribal Coordination |
| William Wilson | Mining and Mineral Materials |

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APPENDIX A

Federal Noxious Weed List

Nevada Noxious Weed List

BLM National List of Invasive Weed Species of Concern

Current as of 4/6/2009

Federal Noxious Weed List

| Aquatic/Wetland | | | | | | | |
|---------------------------------|------------------------|--|---------------------|--------------------------------|--|-------------------------------|--|
| Scientific Name | | Common Name | | Scientific Name | | Common Name | |
| <i>Azolla pinnata</i> | | mosquito fern, water velvet | | <i>Monochoria vaginalis</i> | | heartshape false pickerelweed | |
| <i>Caulerpa taxifolia</i> | | Mediterranean strain killer algae | | <i>Ottelia alismoides</i> | | ducklettuce | |
| <i>Eichornia azurea</i> | | anchored or rooted waterhyacinth | | <i>Sagittaria sagittifolia</i> | | arrowhead | |
| <i>Hydrilla verticillata</i> | | hydrilla | | <i>Salvinia auriculata</i> | | giant salvinia | |
| <i>Hygrophila polysperma</i> | | Miramar weed | | <i>Salvinia biloba</i> | | giant salvinia | |
| <i>Ipomoea aquatica</i> | | water-spinach, swamp morning-glory | | <i>Salvinia herzogii</i> | | giant salvinia | |
| <i>Lagarosiphon major</i> | | African elodea, oxygen weed | | <i>Salvinia molesta</i> | | giant salvinia | |
| <i>Limnophila sessiliflora</i> | | ambulia | | <i>Solanum tampicense</i> | | wetland nightshade | |
| <i>Melaleuca quinquenervia</i> | | broadleaf paper bark tree | | <i>Sparganium erectum</i> | | exotic bur-reed | |
| <i>Monochoria hastata</i> | | arrowleaf falsepickerelweed | | | | | |
| Parasitic | | | | | | | |
| Scientific Name | | Common Name | | Scientific Name | | Common Name | |
| <i>Aeginetia</i> spp. | | aeginetia | | <i>Striga</i> spp. | | witchweeds | |
| <i>Alectra</i> spp. | | alectra | | | | | |
| <i>Cuscuta</i> spp. | | dodders, other than following species: | | | | | |
| <i>americana</i> | <i>compacta</i> | <i>fasciculata</i> | <i>nevadensis</i> | <i>salina</i> | | | |
| <i>applanata</i> | <i>corylii</i> | <i>glabrior</i> | <i>obtusiflora</i> | <i>sandwichiana</i> | | | |
| <i>approximata</i> | <i>cuspidate</i> | <i>globulosa</i> | <i>occidentalis</i> | <i>squamata</i> | | | |
| <i>attenuata</i> | <i>decipiens</i> | <i>glomerata</i> | <i>odontolepis</i> | <i>suaveolens</i> | | | |
| <i>boldinghii</i> | <i>dentatasquamata</i> | <i>gronovii</i> | <i>pentagona</i> | <i>suksdorfii</i> | | | |
| <i>brachycalyx</i> | <i>denticulata</i> | <i>harperi</i> | <i>planiflora</i> | <i>tuberculata</i> | | | |
| <i>californica</i> | <i>epilinum</i> | <i>howelliana</i> | <i>plattensis</i> | <i>umbellata</i> | | | |
| <i>campestris</i> | <i>epithymum</i> | <i>indecora</i> | <i>polygonorum</i> | <i>umbrosa</i> | | | |
| <i>cassytoides</i> | <i>erosa</i> | <i>jepsonii</i> | <i>rostrata</i> | <i>vetchii</i> | | | |
| <i>ceanothii</i> | <i>europaea</i> | <i>leptantha</i> | <i>runyonii</i> | <i>warneri</i> | | | |
| <i>cephalanthii</i> | <i>exalta</i> | <i>mitriformis</i> | | | | | |
| <i>Orobancha</i> spp. | | broomrapes, other than the following species: | | | | | |
| <i>bulbosa</i> | <i>corymbosa</i> | <i>ludoviciana</i> | <i>pinorum</i> | <i>valida</i> | | | |
| <i>californica</i> | <i>dugesii</i> | <i>multicaulis</i> | <i>uniflora</i> | <i>vallicola</i> | | | |
| <i>cooperi</i> | <i>fasciculata</i> | <i>parishii</i> | | | | | |
| Terrestrial | | | | | | | |
| Scientific Name | | Common Name | | Scientific Name | | Common Name | |
| <i>Ageratina adenophora</i> | | crofton weed | | <i>Prosopis argentina</i> | | mesquite | |
| <i>Alternanthera sessilis</i> | | sessile joyweed | | <i>Prosopis articulate</i> | | velvet mesquite | |
| <i>Asphodelus fistulosus</i> | | onionweed | | <i>Prosopis burkartii</i> | | mesquite | |
| <i>Avena sterilis</i> | | animated oat, wild oat | | <i>Prosopis caldenia</i> | | mesquite | |
| <i>Carthamus oxyacantha</i> | | wild safflower | | <i>Prosopis calingastana</i> | | mesquite | |
| <i>Chrysopogon aciculatus</i> | | pilipiliula | | <i>Prosopis campestris</i> | | cusqui mesquite | |
| <i>Commelina benghalensis</i> | | Benghal dayflower | | <i>Prosopis castellanosi</i> | | mesquite | |
| <i>Crupina vulgaris</i> | | common crupina | | <i>Prosopis denudans</i> | | mesquite | |
| <i>Digitaria scalarum</i> | | African couchgrass, fingergrass | | <i>Prosopis elata</i> | | mesquite | |
| <i>Digitaria velutina</i> | | velvet fingergrass, annual conchgrass | | <i>Prosopis farcta</i> | | Syrian mesquite | |
| <i>Drymaria arenarioides</i> | | lightning weed | | <i>Prosopis ferox</i> | | mesquite | |
| <i>Emex australis</i> | | three-cornered jack | | <i>Prosopis fiebrigii</i> | | mesquite | |
| <i>Emex spinosa</i> | | devil's thorn | | <i>Prosopis hassleri</i> | | mesquite | |
| <i>Galega officinalis</i> | | goatsrue | | <i>Prosopis humilis</i> | | mesquite | |
| <i>Heracleum mantegazzianum</i> | | giant hogweed | | <i>Prosopis kuntzei</i> | | mesquite | |

| Terrestrial con't | | | |
|--------------------------------|--------------------------------|------------------------------------|-------------------------|
| Scientific Name | Common Name | Scientific Name | Common Name |
| <i>Homeria</i> spp. | Cape tulip | <i>Prosopis pallida</i> | kiawe mesquite |
| <i>Imperata brasiliensis</i> | Brazilian satintail | <i>Prosopis palmeri</i> | mesquite |
| <i>Imperata cylindrica</i> | cogongrass | <i>Prosopis reptans</i> | tornillo mesquite |
| <i>Ischaemum rugosum</i> | murainograss | <i>Prosopis rojasiana</i> | mesquite |
| <i>Leptochloa chinensis</i> | Asian sprangletop | <i>Prosopis ruizlealii</i> | mesquite |
| <i>Lycium ferocissimum</i> | African boxthorn | <i>Prosopis ruscifolia</i> | mesquite |
| <i>Melastoma malabathricum</i> | Malabar melastome | <i>Prosopis sericantha</i> | mesquite |
| <i>Mikania cordata</i> | mile-a-minute | <i>Prosopis strombulifera</i> | Argentine screwbean |
| <i>Mikania micrantha</i> | bittervine | <i>Prosopis torquata</i> | mesquite |
| <i>Mimosa invisa</i> | giant sensitive plant | <i>Rottboellia cochinchinensis</i> | itchgrass |
| <i>Mimosa pigra</i> | catclaw mimosa | <i>Rubus fruticosus</i> | wild blackberry |
| <i>Nassella trichotoma</i> | serrated tussock | <i>Rubus moluccanus</i> | wild raspberry |
| <i>Opuntia aurantiaca</i> | jointed prickly pear | <i>Saccharum spontaneum</i> | wild sugarcane |
| <i>Oryza longistaminata</i> | red rice | <i>Salsola vermiculata</i> | wormleaf salsola |
| <i>Oryza punctata</i> | red rice | <i>Senecio inaequidens</i> | South African ragwort |
| <i>Oryza rufipogon</i> | red rice | <i>Senecio madagascariensis</i> | Madagascar ragwort |
| <i>Paspalum scrobiculatum</i> | Kodo-millet | <i>Setaria pallide-fusca</i> | cattail grass |
| <i>Pennisetum clandestinum</i> | kikuyugrass | <i>Solanum torvum</i> | turkeyberry |
| <i>Pennisetum macrourum</i> | African feathergrass | <i>Solanum viarum</i> | tropical soda apple |
| <i>Pennisetum pedicellatum</i> | kyasumagrass | <i>Spermacoce alata</i> | winged false buttonweed |
| <i>Pennisetum polystachion</i> | missiongrass, thin napiergrass | <i>Tridax procumbens</i> | coat buttons |
| <i>Prosopis alata</i> | mesquite | <i>Urochloa panicoides</i> | liverseed grass |

Nevada Noxious Weed List

| Category A Weeds | | | |
|--|------------------------|--|------------------------|
| Scientific Name | Common Name | Scientific Name | Common Name |
| <i>Alhagi camelorum</i> | Camelthorn | <i>Hypericum perforatum</i> | Klamath weed |
| <i>Anthemis cotula</i> | Mayweed chamomile | <i>Isatis tinctoria</i> | Dyer's woad |
| <i>Arundo donax</i> | Giant Reed | <i>Linaria dalmatica</i> | Dalmation Toadflax |
| <i>Centaurea calcitrapa</i> | Purple Star thistle | <i>Linaria vulgaris</i> | Yellow Toadflax |
| <i>Centaurea iberica</i> | Iberian Star thistle | <i>Lythrum salicaria & cultivars</i> | Purple loosestrife |
| <i>Centaurea masculosa</i> | Spotted Knapweed | <i>Myriophyllum spicatum</i> | Eurasian water-milfoil |
| <i>Centaurea melitensis</i> | Malta Star thistle | <i>Peganum harmala</i> | African Rue |
| <i>Centaurea solstitialis</i> | Yellow Starthistle | <i>Potentilla recta</i> | Sulfur cinquefoil |
| <i>Centaurea virgata spp.squarrose</i> | Squarrose star thistle | <i>Rorippa austriaca</i> | Austrian fieldcress |
| <i>Chondrilla juncea</i> | Rush skeletonweed | <i>Salvia aethiopsis</i> | Mediterranean sage |
| <i>Crupina vulgaris</i> | Common crupina | <i>Salvinia molesta</i> | Giant Salvinia |
| <i>Cynoglossum officinale</i> | Houndstongue | <i>Sonchus arvensis</i> | Sow Thistle |
| <i>Euphorbia esula</i> | Leafy spurge | <i>Sphaerophysa salsula</i> | Austrian peaweed |
| <i>Galega officinalis</i> | Goats rue | <i>Swainsona salsula</i> | Austrian peaweed |
| <i>Hydrilla verticillata</i> | Hydrilla | <i>Zygophyllum fabago</i> | Syrian Bean Caper |
| Category B Weeds | | | |
| Scientific Name | Common Name | Scientific Name | Common Name |
| <i>Acropylon repens</i> | Russian Knapweed | <i>Onopordum acanthium</i> | Scotch Thistle |
| <i>Brassica tournefortii</i> | Sahara Mustard | <i>Solanum carolinense</i> | Carolina Horse-nettle |
| <i>Carduus nutans</i> | Musk Thistle | <i>Solanum elaeagnifolium</i> | White Horse-nettle |
| <i>Centaurea diffusa</i> | Diffuse Knapweed | <i>Taeniatherum caput-medusae</i> | Medusahead |
| Category C Weeds | | | |
| Scientific Name | Common Name | Scientific Name | Common Name |
| <i>Cardaria draba</i> | Hoary cress | <i>Lepidium latifolium</i> | Perennial pepperweed |
| <i>Cicuta maculata</i> | Water Hemlock | <i>Pennisetum setaceum</i> | Green Fountain grass |
| <i>Cirsium arvense</i> | Canada Thistle | <i>Sorghum halepense</i> | Johnson grass |
| <i>Conium maculatum</i> | Poison Hemlock | <i>Tamarix spp</i> | Salt cedar (tamarisk) |
| <i>Hyoscyamus niger</i> | Black henbane | <i>Tribulus terrestris</i> | Puncture vine |

Category A weeds generally are not found or are limited in distribution throughout the State. Such weeds are subject to:

- 1) Active exclusion from the State and active eradication wherever found.
- 2) Active eradication from the premises of a dealer of nursery stock.

Category B weeds generally established in scattered populations in some counties of the state. Such weeds are subject to:

- 1) Active exclusion where possible.
- 2) Active eradication from the premises of a dealer of nursery stock.

Category C weeds generally established and widespread in many counties of the state. Such weeds are subject to active eradication from the premises of a dealer of nursery stock.

BLM National List of Invasive Weeds Species of Concern

| Grasses | | | |
|--------------------------------|--------------------------|---|------------------------|
| Scientific Name | Common Name | Scientific Name | Common Name |
| <i>Aegilops cylindrica</i> | jointed goatgrass | <i>Ehrharta calycina</i> | veldt grass |
| <i>Ammophila arenaria</i> | European beachgrass | <i>Elytrigia repens</i> | quackgrass |
| <i>Arundo donax</i> | giant reed | <i>Eragrostis lehmanniana</i> | Lehmann lovegrass |
| <i>Bromus diandrus</i> | ripgut brome | <i>Nardus stricta</i> | matgrass |
| <i>Bromus japonicus</i> | Japanese brome | <i>Panicum miliaceum</i> | wild proso millet |
| <i>Bromus rubens</i> | red brome | <i>Pennisetum setaceum</i> | crimson fountain grass |
| <i>Bromus tectorum</i> | downy brome | <i>Schismus arabicus</i> | schismus |
| <i>Cenchrus longispinus</i> | longspine sandbur | <i>Schismus barbatus</i> | mediterranean grass |
| <i>Cortaderia jubata</i> | Andean pampas grass | <i>Sorghum halepense</i> | johnsongrass |
| <i>Cortaderia selloana</i> | pampas grass | <i>Taeniatherum caput-medusae</i> | medusa-head |
| <i>Cynodon dactylon</i> | bermudagrass | | |
| Forbs | | | |
| Scientific Name | Common Name | Scientific Name | Common Name |
| <i>Acroptilon repens</i> | Russian knapweed | <i>Digitalis purpurea</i> | foxglove |
| <i>Anthemis arvensis</i> | scentless chamomile | <i>Dipsacus fullonum</i> | common teasel |
| <i>Anthemis cotula</i> | mayweed chamomile | <i>Echium vulgare</i> | blueweed |
| <i>Arctium minus</i> | common burdock | <i>Egeria densa</i> | Brazilian waterweed |
| <i>Bassia hyssopifolia</i> | bassia Basellaceae | <i>Eichhornia crassipes</i> | water hyacinth |
| <i>Brassica nigra</i> | black mustard | <i>Erechtites glomerata</i> | Australian fireweed |
| <i>Brassica tournefortii</i> | wild turnip | <i>Euphorbia cyparissias</i> | cypress spurge |
| <i>Caesalpinia gilliesii</i> | Mexican bird-of-paradise | <i>Euphorbia esula</i> | leafy spurge |
| <i>Cardaria chalepensis</i> | lens-podded whitetop | <i>Euphorbia myrsinites</i> | myrtle spurge |
| <i>Cardaria draba</i> | hoary cress | <i>Foeniculum vulgare</i> | fennel |
| <i>Cardaria pubescens</i> | hairy whitetop | <i>Galega officinalis</i> | goats rue |
| <i>Carduus acanthoides</i> | plumeless thistle | <i>Gypsophila paniculata</i> | babys breath |
| <i>Carduus nutans</i> | musk thistle | <i>Halogeton glomeratus</i> | halogeton |
| <i>Carduus pycnocephalus</i> | Italian thistle | <i>Hesperis matronalis</i> | dames's rocket |
| <i>Carduus teniflorus</i> | slender-flowered thistle | <i>Hieracium aurantiacum</i> | orange hawkweed |
| <i>Carpobrotus edulis</i> | hottentot fig | <i>Hieracium pilosella</i> | mouseear hawkweed |
| <i>Carpobrotus chilensis</i> | sea iceplant | <i>Hieracium pratense</i> | yellow hawkweed |
| <i>Carthamus lantus</i> | distaff thistle | <i>Hydrilla verticillata</i> | hydrilla |
| <i>Carum carvi</i> | common caraway | <i>Hyoscyamus niger</i> | black henbane |
| <i>Centaurea calcitrapa</i> | purple starthistle | <i>Hypericum perforatum</i> | common St. Johnswort |
| <i>Centaurea cyanus</i> | cornflower | <i>Hyposphaeris radicata</i> | common catsear |
| <i>Centaurea diffusa</i> | diffuse knapweed | <i>Isatis tinctoria</i> | dyer's woad |
| <i>Centaurea iberica</i> | Iberian starthistle | <i>Knautia arvensis</i> | blue buttons |
| <i>Centaurea jacea</i> | brown knapweed | <i>Lathyrus latifolius</i> | everlasting peavine |
| <i>Centaurea macrocephala</i> | bighead knapweed | <i>Lepidium latifolium</i> | perennial pepperweed |
| <i>Centaurea maculosa</i> | spotted knapweed | <i>Linaria genistifolia</i> spp. <i>dalmatica</i> | dalmation toadflax |
| <i>Centaurea melitenensis</i> | malta starthistle | <i>Linaria vulgaris</i> | yellow toadflax |
| <i>Centaurea montana</i> | mountain cornflower | <i>Lysimachia vulgaris</i> | garden loosestrife |
| <i>Centaurea nigra</i> | black knapweed | <i>Lythrum salicaria</i> | purple loosestrife |
| <i>Centaurea nigrescens</i> | Vochin knapweed | <i>Lythrum virgatum</i> | wand loosestrife |
| <i>Centaurea pratensis</i> | meadow knapweed | <i>Madia sativa</i> | Chilean tarweed |
| <i>Centaurea squarrosa</i> | squarrose knapweed | <i>Myriophyllum spicatum</i> | Eurasian watermilfoil |
| <i>Centaurea solstitialis</i> | yellow starthistle | <i>Onopordum acanthium</i> | Scotch thistle |
| <i>Centaurea trichocephala</i> | feather-headed knapweed | <i>Onopordum taricum</i> | Scotch thistle |

| Forbs con't | | | |
|-----------------------------------|-----------------------|----------------------------------|-----------------------|
| Scientific Name | Common Name | Scientific Name | Common Name |
| <i>Chondrilla juncea</i> | rush skeletonweed | <i>Peganum harmala</i> | African rue |
| <i>Chrysanthemum leucanthemum</i> | ox-eye daisy | <i>Potentilla recta</i> | sulphur cinquefoil |
| <i>Cichorium intybus</i> | chicory | <i>Salvia aethiopsis</i> | Mediterranean sage |
| <i>Cirsium arvense</i> | Canada thistle | <i>Saponaria officinalis</i> | bouncing bet |
| <i>Cirsium vulgare</i> | bull thistle | <i>Senecio jacobaea</i> | tansy ragwort |
| <i>Clematis orientalis</i> | Chinese clematis | <i>Senecio mikanoides</i> | German ivy |
| <i>Conium maculatum</i> | poison hemlock | <i>Solanum dulcamara</i> | bitter nightshade |
| <i>Convolvulus arvensis</i> | field bindweed | <i>Sonchus arvensis</i> | perennial sowthistle |
| <i>Crepis setosa</i> | bristly hawkweed | <i>Sphaerophysa salsula</i> | swainsonpea |
| <i>Crupina vulgaris</i> | common crupina | <i>Tanacetum vulgare</i> | common tansy |
| <i>Cynara cardunculus</i> | artichoke thistle | <i>Zygophyllum fabago</i> | Syrian bean caper |
| <i>Cynoglossum officinale</i> | houndstongue | | |
| Shrubs and Trees | | | |
| Scientific Name | Common Name | Scientific Name | Common Name |
| <i>Ailanthus altissima</i> | tree-of-heaven | <i>Rubus discolor</i> | Himalaya blackberry |
| <i>Alhagi pseudalhagi</i> | camelthorn | <i>Schinus terebrinthifolius</i> | Brazilian pepper |
| <i>Cytisus junceum</i> | Spanish broom | <i>Tamarix aphylla</i> | athel |
| <i>Cytisus monspessulanas</i> | French broom | <i>Tamarix chinensis</i> | tamarisk |
| <i>Cytisus scoparius</i> | Scotch broom | <i>Tamarix gallica</i> | French tamarisk |
| <i>Cytisus striatus</i> | Portugese broom | <i>Tamarix parviflora</i> | small flower tamerisk |
| <i>Elaeagnus angustifolia</i> | Russian olive | <i>Tamarix pentanda</i> | tamarisk |
| <i>Ficus carica</i> | edible fig | <i>Tamarix ramosissima</i> | salt cedar |
| <i>Lespedeza cuneata</i> | Himalayan bush clover | <i>Ulex europaeus</i> | gorse |
| <i>Retama monosperma</i> | bridal veil broom | <i>Ulmus pumila</i> | Siberian elm |

APPENDIX B

Nevada Invasive Weed Survey Protocol

Invasive Weed Survey Protocol

Robert E. Wilson, UNCE White Pine Extension Educator

Ted Angle, Nevada BLM Noxious Weed Program Coordinator

The primary goal of the Nevada invasive weed survey process is to detect and map all established populations within the state. It is impossible to devote adequate resources to survey every square foot of the landscape in Nevada to fully inventory for invasive weed populations. Therefore, this protocol uses a tiered approach that relies first on the premise that the most likely place that invasive weed populations will become established or occur (the target population) are in disturbed areas. The second tier addresses other, presumably less probable areas with limited disturbance. This insures that invasive weed populations are also surveyed that might have been inadvertently started by livestock or wildlife in remote or undisturbed areas. The third tier is a random check to validate the reliability of survey done in the first and second tiers. This multi-tiered approach is designed to ensure a high degree of accuracy and reliability across the landscape.

PLANNING - Initial assessment of the problem and the necessary resources. Personnel must be trained using reliable information, standardized protocol, and adequate resources.

- a. Identify all invasive plant species of concern.
- b. Understand enough of the biology of each species to know how they are spread from an area to form new infestations.
- c. Select areas to survey that are easily definable by a natural boundary, such as a watershed or valley.
- d. Select a GPS database library compatible with your GIS system and with others that will be using the information.
- e. Insure that fields are available in the GPS database library to note not only the size and location, but also to tag information, such as infestation species, density, individual collecting the data, or any other data needed for future planning.

TIER I - The assumption is that most likely places that weeds might become established are near transportation systems, in disturbed areas, and areas near water. Therefore all of these areas are scouted. Inventory and place in a GPS database library any invasive weed infestations found.

- a. Scout all roads, trails, by-ways, railways, utility corridors, or other transportation systems.
- b. Scout all known seeps, springs, streams, dry streambeds, riparian systems, irrigation canals, stock ponds, or any wetlands.
- c. Scout any additional man-made or natural disturbed areas including, but not limited to, campgrounds, corral systems, mining disturbances, chainings, seismic exploration sites, material stockpiles, and any other disturbances.
- d. Identify all paths, routes, or ways traveled by inclusion within the GPS database library. These document places surveyed where no invasive plant populations were found.
- e. Additional areas may be specifically selected to survey based upon such issues as likely rare or endangered species presence, or for other management considerations.

TIER II - Stratified random check of areas not associated with disturbances, but potentially can be infested with invasive weed species. (Areas not necessarily considered impacted by disturbances constitute huge geographic areas in Nevada, therefore it is not feasible to survey in detail.)

- a. Random areas are selected from grid maps where no known disturbances have occurred.
- b. Stratify the area by either elevation or plant community, not both.
- c. Randomly select a representative number of field check sites within the stratified area.

TIER III - Randomly check at least 5-20% of work previously surveyed and stored in a GPS database library to establish accuracy of survey efforts.

PERSONNEL MANAGEMENT – These are suggestions which help to increase personnel safety, efficiency, and accountability. These items are important to developing a cost-effective survey of invasive weeds across the landscape.

- a. Try to find personnel with experience working alone in rural environments, familiar with local plant communities, and knowledgeable about electronic technology.
- b. Provide adequate training and supervision.
- c. Insure that all members of the team are familiar enough with the invasive plant species to be inventoried so that they can quickly and accurately identify all stages of plant growth.
- d. Insure that all members have a comprehensive knowledge of inventory procedures, GPS operation, and database management.
- e. For safety reasons, survey personnel should preferably work in crews of at least two.
- f. Travel preferably with two persons per vehicle; when traveling by foot, surveyors should maintain a reasonable distance from each other.
- g. Vehicles should stay within radio contact of each other; one vehicle should be within radio contact of base station
- h. Keep vehicles in proper condition to ensure safety and reliability during off-highway use.

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APPENDIX C

Noxious and Invasive Weed Risk Assessment Template

RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS

Project Name **County, Nevada**

This Risk Assessment is a required tool for any ground disturbing project within the Ely District to help measure the possibility and consequence of noxious or invasive weed invasion of the project area. The first paragraph serves as an introduction to the project's proposed action. Include the date of assessment, summary of project, site description, noxious and invasive weed populations in the area, and how it interlaces w/ proposed action. To be accurate, more than simply the project area should be included in the analysis. Any pertinent surrounding areas should also be included in this assessment such as: roads leading to the site, any borrow pits or fill sources, upstream in any washes or riparian areas that flow through the site, a buffer around the project site, etc. It is the same as assessing impacts to wildlife. Say you survey just the project area for mule deer and none are found. It would be incorrect to then assume that no mule deer could be impacted by the project. Weeds work in basically the same manner. The project is creating a disturbance and weeds can spread to that disturbance in several different ways (humans, wind, water, wildlife, etc.), so the assessment must address weed species in neighboring areas as well as any directly at the project site.

Factor 1 assesses the likelihood of noxious/invasive weed species spreading to the project area.

| | |
|----------------|--|
| None (0) | Noxious/invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious/invasive weed species in the project area. |
| Low (1-3) | Noxious/invasive weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious/invasive weeds into the project area. |
| Moderate (4-7) | Noxious/invasive weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious/invasive weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious/invasive weeds within the project area. |
| High (8-10) | Heavy infestations of noxious/invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious/invasive weeds on disturbed sites throughout much of the project area. |

State which level was chosen and why. Do not simply repeat what is listed in the table; tell the reader why this particular rating was chosen for this project. Take into account that weeds spread by many methods. For example if the project area is located downwash from a weed infestation or adjacent to a weed species that has wind-born seed, then the factor level should be higher. Also take into account the invasiveness of the weed species. For example, Sahara mustard is much more invasive than common mullein.

Factor 2 assesses the consequences of noxious/invasive weed establishment in the project area.

| | |
|--------------------------|--|
| Low to Nonexistent (1-3) | None. No cumulative effects expected. |
| Moderate (4-7) | Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited. |
| High (8-10) | Obvious adverse effects within the project area and probable expansion of noxious/invasive weed infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable. |

State which level was chosen and why. Do not simply repeat what is listed in the table; tell the reader why this particular rating was chosen for this project. This factor should be evaluated separately from Factor #1. For example if a site is considered totally weed free, then this factor should be evaluated as relatively high regardless of the fact that it might be incredibly unlikely that weeds would spread to the site. Another way to look at it: assume that weeds are going to infest the site, what would the consequences be and rate accordingly.

The Risk Rating is obtained by multiplying Factor 1 by Factor 2.

| | |
|------------------|---|
| None (0) | Proceed as planned. |
| Low (1-10) | Proceed as planned. Initiate control treatment on noxious/invasive weed populations that get established in the area. |
| Moderate (11-49) | Develop preventative management measures for the proposed project to reduce the risk of introduction of spread of noxious/invasive weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations. |
| High (50-100) | Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious/invasive weeds prior to project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations. |

What is the risk rating and what actions will be taken: prevention, monitoring, treatment, etc.

Reviewed by:

Name

Date

Ely District Noxious & Invasive Weeds Coordinator

Include a map of the project area with the known weed infestations nearby.

APPENDIX D

Ely District Weed Prevention Schedule

| Prevention Activity | When | Responsible Persons |
|---|----------------------------------|---------------------------------|
| General | | |
| Check vehicle body and undercarriage of District vehicles, fire suppression vehicles and ATVs before and after going into the field for plant materials and clean with best available method before entering public lands. | Year Round | All Field Going Employees |
| Evaluate weed prevention, potential invasion and treatments in all NEPA documents | Year Round | All employees working with NEPA |
| Require a specific noxious and non-native, invasive weed inventory when gathering baseline information for EA and EIS documents. | Year Round | All employees working with NEPA |
| Fill out the Noxious and Invasive Weed Risk Assessment template for each ground disturbing project and submit to the District Weed Coordinator | Year Round | All Project Leads |
| Ensure project monitoring occurs and includes noxious and invasive weed detection | Year Round | All Project Leads |
| All field personnel will have an active role in detection and inventory of noxious and non-native, invasive weeds; reporting the location and the species to the District Weed Coordinator | Year Round | All Field Going Employees |
| Weed identification and reporting procedures training for all employees. | Once per office, in early spring | District Weed Coordinator |
| Re-establish and monitor native vegetation on all disturbed sites to minimize weed spread. | Year Round | All Field Going Employees |
| If topsoil or other fill materials are brought in from another location, require a weed inventory of the borrow area. | Year Round | All Employees |
| Use only certified weed-free organic materials, such as hay, mulches, or in restoration or rehabilitation activities | Year Round | Project personnel |
| Prepare Annual Pesticide Reports and maintain both federal and state pesticide application certification | Year Round | District Weed Coordinator |
| Lands & Realty | | |
| Include noxious and invasive weed prevention in all Rights-of-Way leasing or permits and acquisition or disposal | Year Round | Realty staff |
| Coordinate with the District Weeds Specialist on all land acquisitions | Year Round | Realty staff |
| Assure permits that involve soil disturbing activities have provisions for sanitizing equipment prior to entering BLM sites | Year Round | Realty staff |
| Recreation & Wilderness | | |
| Ensure that areas under special recreation permits have on-site weed control to minimize spread of weeds to other areas | Year Round | Recreation staff |
| Monitor areas with concentrated recreational activities, such as special recreation permit areas | Year Round | Recreation staff |
| Provide information on weed free ethics and invasive weed education to all Special Recreation Permit applicants to encourage a weed-free ethic. | Year Round | Recreation staff |
| Incorporate weed prevention into transportation planning | Year Round | Recreation staff |
| Require use of weed-free feed in Wilderness and Wilderness Study Areas | Year Round | Wilderness staff |
| Pack and saddle stock should be quarantined and fed only weed-free feed for 24 hours prior to travelling off roads or in wilderness. Before quarantine, tail and mane should be thoroughly brushed to remove any weed seed. | Year Round | Recreation & Wilderness staff |
| Sign kiosks and trailheads to include information on weed free ethics and invasive weed education. | Year Round | Recreation & Wilderness staff |
| Include in guide permits information on weed free ethics and invasive weed education. | Year Round | Recreation & Wilderness staff |
| Require that all pack and saddle stock use only certified weed-free feed and straw bedding | Year Round | Recreation & Wilderness staff |
| Minerals & Reclamation | | |
| Insure that the standard BMPs and data adequacy standards developed by the District Weeds Specialist are included in all mining permits. | Year Round | Minerals staff |

| Prevention Activity | When | Responsible Persons |
|---|-------------|----------------------------|
| Minerals & Reclamation con't | | |
| For mineral activity, retain bonds for weed control until the site is returned to desired vegetative conditions. | Year Round | Minerals staff |
| Require the use of weed-free seed for all reclamation activities. | Year Round | Minerals staff |
| Include weed identification in the inspection of all gravel pits and fill sources. | Year Round | Minerals staff |
| Require that gravel and fill used on public lands be from weed-free sources. | Year Round | Minerals staff |
| Rangeland Management | | |
| Control timing of grazing livestock movement from infested to non-infested areas to minimize weed seed or propagule transport. | Year Round | Range staff |
| Consider noxious and invasive weeds in the allotment monitoring and evaluation process | Year Round | Range staff |
| Include stipulations to stop the spread and introduction of weeds in all range improvement contractual activities on public lands | Year Round | Range staff |
| Insure that weed-free seed is utilized for reclamation or rangeland reseeding; avoid grazing reclaimed areas until perennial vegetation is established. | Year Round | Range staff |
| Areas around troughs, wells, corrals, and livestock loading areas will be closely inspected for weed infestations. Any new infestations will be promptly communicated to the District Weed Specialist. | Year Round | Range staff |
| Manage grazing allotments and herd use area so as to promote perennial grass species and minimize creation of bare soil situations | Year Round | Range & Wild Horse staff |
| For riding stock, the use of weed-free forage will be encouraged. | Year Round | Range & Wild Horse staff |
| Soils | | |
| Revegetate all burned areas, where site potential permits, using weed-free seed. | Year Round | ES&R staff |
| Wild Horse & Burro | | |
| Weed-free hay should be used for contractor's domestic saddle horses and wild horse feeding during gather contracts. | Year Round | WH&B staff |
| Trap sites and holding facilities should be inspected and not set in weed infested areas | Year Round | WH&B staff |
| Clean trucks and equipment with high-pressure equipment to remove mud, dirt, and debris before moving to relatively weed-free areas during wild horse gathers. | Year Round | WH&B staff |
| Wildlife & Fisheries | | |
| Coordinate transplanting/reintroduction activities with Nevada Division of Wildlife to eliminate spread of noxious weeds by vehicles or animals. Consider quarantine of transplanted/reintroduced animals. | Year Round | Wildlife staff |
| Consider noxious and invasive weeds in all Habitat Management Plans | Year Round | Wildlife staff |
| Ensure that any threatened, endangered, or sensitive plant species are given protection and consideration in area adjacent to (or within) weed infestations and that these plants are inventoried and flagged prior to any weed treatments. | Year Round | Wildlife staff |
| Road Maintenance | | |
| Work with the construction and road maintenance schedules to avoid spreading weeds if known infested sites are to be disturbed. | Year Round | Equipment Operating staff |
| High-pressure wash all construction and maintenance equipment utilized by BLM personnel to remove dirt, mud, and debris. | Year Round | Equipment Operating staff |
| Minimize the removal of roadside vegetation during construction, reconstruction and maintenance or roads or project sites. | Year Round | Equipment Operating staff |
| BLM maintained roadsides will be closely inspected for weed infestations. Any new infestations will be promptly communicated to the District Weed Specialist. | Year Round | Equipment Operating staff |

| Prevention Activity | When | Responsible Persons |
|---|-------------|----------------------------|
| Fire | | |
| Ensure fire suppression and rehabilitation efforts minimize weed spread. | Year Round | Fire staff |
| Ensure that all off-District fire equipment is cleaned as a part of their check-in procedure. | Year Round | Fire staff |
| Ensure that all District fire vehicles are cleaned with high pressure equipment prior to going into the field. | Year Round | Fire staff |
| Include weed prevention in resource advisor duties on all overhead or fire rehab teams and ES&R planning. | Year Round | Fire staff |
| District Weeds Specialist | | |
| Coordinate and conduct noxious weed awareness and prevention programs. | Year Round | Weeds Specialist |
| Initiate cooperative weed efforts with user groups, recreationists, volunteers, and local and state government. | Year Round | Weeds Specialist |
| Maintain and update weed shapefiles, including inventory, inventory paths, and treatment data | Year Round | Weeds Specialist |
| Prepare all necessary weed program NEPA documents, Assistance Agreements, MOUs and contracts. | Year Round | Weeds Specialist |
| Conduct inventory, monitoring, and treatment evaluations and prepare and adjust treatment plans as necessary. | Year Round | Weeds Specialist |
| Prepare Pesticide Use Proposals, Biological Control Agent Release Proposals, Pesticide Use Reports, and Integrated Pest Management Reports. | Year Round | Weeds Specialist |
| Maintain pesticide application certification for both the State of Nevada and BLM | Year Round | Weeds Specialist |

APPENDIX E

Biological Control Agent Release Proposal Template

NEVADA BLM BIOLOGICAL CONTROL AGENT RELEASE PROPOSAL

PROPOSAL NUMBER: [08-NV-xxx-xx](#)
EA REFERENCE NUMBER: [NV-040-xx-xxx](#)

DISTRICT/FIELD OFFICE: [Ely District \(NV-040\)](#)

COUNTY: [Lincoln, Nye, White Pine](#)

LOCATION: [Northeast of Pioche, NV – T.03N. R.68E. Section 14](#)

COOPERATORS: [Nevada Department of Agriculture, Tri-County Weed Control](#)

I. BIOLOGICAL CONTROL AGENT(S):

| | Scientific Name: | Common Name: | Collection Origin: | Life Cycle: | Method of Release: | # Released: | Release Date(s): | Number of Releases: | Host Materials: |
|---|----------------------------------|-----------------------|--------------------|-------------|--------------------|-------------|------------------|---------------------|-----------------|
| 1 | <i>Mecinus janthinus</i> | stem-boring weevil | Western Montana | adult | Open release | 200 | 6/01-15/2010 | 2 | None |
| 2 | <i>Brachypterosus pulicarius</i> | Flower-feeding beetle | Northern Montana | adult | Open release | 300 | 7/01-15/2010 | 2 | None |

II. PEST SPECIES:

| | Scientific Name: | Common Name: | Estimated Acres Infested at Release Site: | Potential Acres that Could be Infested Near Release Site: | BLM Lands: | Other Lands: |
|---|--------------------------|--------------------|---|---|------------|--------------|
| 1 | <i>Linaria dalmatica</i> | Dalmatian toadflax | 10 acres | 100 acres | 100% | None |

III TRANSFER PERMIT

1. NEEDED: [Yes](#)
2. APPLIED: [Yes](#)
3. RECEIVED: [12/30/2009](#)
4. DATE RECEIVED: [1/30/2010](#)

IV. MAJOR DESIRED PLANT SPECIES PRESENT:

The release site is predominantly a sagebrush site with a riparian area in the southeast corner. Major plant species include:

| | | | |
|----------------------|------------------------|-----------------------|----------------------|
| bluebunch wheatgrass | Singleleaf pinyon pine | Utah juniper | antelope bitterbrush |
| big sagebrush | Mountain big sagebrush | needleandthread grass | Douglas rabbitbrush |

V. RELEASE SITE: *(Describe land type or use, size, stage of growth of target species, slope and soil type)*

The release site is predominantly a rangeland site, used by wildlife and livestock and occasionally hunters. There is a road leading to the riparian area in the southeast corner. Currently the Dalmatian toadflax infestation is roughly 10 acres in size with a 70% cover of mature, reproducing plants. The soil onsite is described as a gravelly loam 028AY066NV with a 10% slope.

ESTIMATED ACRES: Currently the Dalmatian toadflax infestation covers 10 acres.

VI. SENSITIVE ASPECTS AND PRECAUTIONS: *(Describe sensitive areas [e.g., marsh, endangered species habitat] and distance to treatment site. List measures to be taken to avoid impact to sensitive areas)*

The release site includes a functioning riparian area. Vehicles driving to and from the release site will stay on existing roads. In addition, there is an active sage grouse lek within ¼ mile. To protect the lek, the release site will not be visited during the strutting season.

VII. STEPS TAKEN TO ENSURE THAT RELEASE SITES ARE PROTECTED FROM THE USE OF PESTICIDE THAT WOULD HARM BIOLOGICAL CONTROL AGENTS:

There will be a permanent monitoring plot established in the middle of the release site. Monitoring data will be gathered on an annual basis. This data will be used to determine the effectiveness of the biological control and the potential need to integrate another treatment method to the area, such as grazing or herbicides.

Originator: Bonnie Million

Date: January 15, 2010

Phone: 775-726-8170

District Office Pesticide/Noxious Weed Coordinator _____
Date

District Office Authorized Officer _____
Date

APPROVALS (State Office Use Only):

BLM State Pest Management Specialist _____
Date

**Deputy State Director,
 Natural Resources, Lands and Planning** _____
Date

- ___ CONCUR OR APPROVED
- ___ NOT CONCUR OR DISAPPROVED
- ___ CONCUR OR APPROVED WITH
 MODIFICATIONS (SEE ATTACHED)

APPENDIX F

Pesticide Use Proposal Template

NEVADA BLM PESTICIDE USE PROPOSAL

PROPOSAL NUMBER: [08-NV-xxx-xx](#)

EA REFERENCE NUMBER: [NV-040-xx-xxx](#)

FIELD OFFICE: [Ely District \(NV-040\)](#)

COUNTY: [Lincoln, Nye, White Pine](#)

LOCATION: [Various locations throughout the EYDO. Maps of treatment areas will be prepared annually](#)

DURATION OF PROPOSAL: [May 26, 2008 to May 25, 2011 \(3 year duration\)](#)

I. PESTICIDE APPLICATION: *(including mixtures and surfactants)*

| PESTICIDES | | | | | | |
|------------|--------------------|--------------|----------------------|---------------|--------------|--|
| | Trade Name: | Common Name: | EPA Registration No. | Manufacturer: | Formulation: | Method of Application |
| 1 | Metsulfuron methyl | Escort | 352-439 | DuPont | dry flowable | Ground foliar with truck boom, ATV sprayer or backpack sprayer |
| 2 | Triclopyr | Garlon 4 | 62719-40 | Dow | liquid | Ground foliar with truck boom, ATV sprayer or backpack sprayer |

| MAXIMUM RATE OF APPLICATION: Row number corresponds to Pesticide/Surfactant rows above | |
|---|--|
| Use Unit on Label: | Pounds Acid Equivalent/Acre: |
| 1. Escort: 2 oz/acre/year | 0.075 lbs ai / acre |
| 2. Garlon 4: Basal bark treatment – 1.5 qts/acre/year Foliar treatment – 8 qts/acre/year | Basal bark treatment – 1.5 lbs ae / acre Foliar treatment – 8 lbs ae / acre |

APPLICATION DATES: [Year round](#)

NUMBER OF APPLICATIONS: [Once annually with any follow-up treatments as necessary. The total applications will not exceed the maximum rate/acre/year amounts listed in the table above.](#)

II. PEST: *(List specific pest(s) and reason(s) for application)*

Escort – This herbicide would be used to treat hoary cress (*Lepidium draba*) and tall whitetop (*Lepidium latifolium*). Each of these plants is an aggressive invader that can displace native plant communities.

Garlon 4 – This herbicide would be used to treat salt cedar (*Tamarix spp.*). Salt cedar is an aggressive small tree which invades riparian area, streamsides, and roadsides. A single plant can effectively absorb over 200 gallons of water each day. Dense stands of this weed can easily dry out riparian areas, springs, and streams. Salt cedar stores salts in its leaves which it sheds annually. This leaf litter accumulates on the surface and releases the salt into the ground thus changing the chemistry of the soils and suppressing native vegetation.

III. MAJOR DESIRED PLANT SPECIES PRESENT:

Desired vegetation communities are highly variable throughout the Ely District. The following are some examples of the dominant types of vegetation communities in the area:

| | | | |
|----------------------------------|---------------------------------|-------------------|--------------------------|
| <i>Creosote-White Bursage</i> | <i>Pinyon Juniper Woodlands</i> | <i>Sagebrush</i> | <i>Blackbrush</i> |
| <i>Mojave Mixed Desert Scrub</i> | <i>Greasewood</i> | <i>Wet Meadow</i> | <i>Salt Desert Scrub</i> |

IV. TREATMENT SITE:

Treatment areas are diverse and wide spread throughout the Ely District. Except for the Rodeo applications, all treatment areas would be restricted to mesic sites and location where herbicide could be applied without contacting surface waters. Rodeo, an aquatically approved herbicide, would be applied in riparian settings in both flowing and stagnant backwater systems. All herbicide treatments would involve plants of all sizes from seedling to mature in concentrations varying from a single plant to closed canopy dense stands.

ESTIMATED ACRES: [Up to 800 acres may be treated on lands managed by the Ely District in Nevada.](#)

V. SPECIAL STATUS SPECIES ASPECTS AND PRECAUTIONS:

Treatments in close proximity to Threatened and Endangered Species would occur following consultation with the U.S. Fish and Wildlife Service, and would be in accordance with reasonable and prudent measures indicated in the

specific biological opinions or recommendations made during informal consultation. Typically, treatments would be conducted only following surveys to determine presence or absence and areas containing sensitive species would be avoided during critical periods or treatments would incorporate buffers around critical areas during use periods. In addition the following measures will be adhered to:

- Control of noxious and invasive weeds will not be conducted within ¼ mile of active sage grouse leks during the strutting season.
- Noxious and invasive weed control will not be conducted within ½ mile of nesting areas for sensitive species during the nesting season.
- Weed management in areas of special status species will carefully consider the impacts of the treatment on the organism. Wherever possible, manual control or spot treatment using herbicides is preferred over less species specific methods.

VI. NON-TARGET VEGETATION: *(Describe the impacts, cumulative impacts, and mitigations to non target vegetation that will be lost as a result of this chemical application)*

Some non-target vegetation may be affected by proposed treatments. Spot treatments will be utilized in most circumstances, mitigating the potential for non-target control. Application rates will be tailored to the infestation and will be in compliance with label restrictions to minimize extended impacts. Cumulative impacts associated with isolated non-target species control should be minimal, as spot treatments will ensure any adversely affected areas will be small in size and easily re-established with surrounding native species.

VII. INTEGRATED PEST MANAGEMENT: *(Describe how this chemical application fits into your overall integrated pest management program for the treatment area)*

Use of chemical treatments is combined with preventative measures (i.e. use of certified weed-free seed and organic materials, vehicle wash downs, etc.), reseeding, natural regeneration of native vegetation, control of ground disturbances (i.e. livestock use in riparian areas, maintenance of wild horse AMLs, etc.), and other weed control techniques such as mechanical and classic biological controls.

Originator: Bonnie Million

Date: May 21, 2008

Phone: 775-289-1827

Certified Pesticide Applicator: Certified applicator from the Nevada Department of Agriculture or USDA Animal and Plant Health Inspection Service: Prior to beginning treatment the applicator(s) will provide to the BLM a copy of their state pesticide certificate.

District Office Pesticide/Noxious Weed Coordinator

Date

District Office Authorized Officer

Date

APPROVALS (State Office Use Only):

BLM State Pesticide Coordinator

Date

Deputy State Director,
Natural Resources, Lands and Planning

Date

- ___ CONCUR OR APPROVED
- ___ NOT CONCUR OR DISAPPROVED
- ___ CONCUR OR APPROVED WITH
MODIFICATIONS (SEE ATTACHED)

Be sure to print out copies of the Herbicide Label and MSDS and submit them with the PUP to the District Authorized Officer and BLM Nevada State Office.

APPENDIX G

Current as of 10/10/2008:

BLM Approved Herbicide Formulations

Herbicides Approved for Use on BLM Lands

Refer to the complete label prior to considering the use of any herbicide formulation. Label changes can impact the intended use through, such things as, creation or elimination of Special Local Need (SLN) or 24 (c) registrations, changes in application sites, rates and timing of application, county restrictions, etc.

| Active Ingredient | States With Approval Based Upon Current EIS/ROD & Court Injunctions | Trade Name | Manufacturer | EPA Reg. Number |
|---------------------------|---|-----------------------------|-------------------------|-----------------|
| Bromacil | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Bromacil 80DF | Alligare, LLC | 81927-4 |
| | | Hyvar X | DuPont | 352-287 |
| | | Hyvar XL | DuPont | 352-346 |
| Bromacil + Diuron | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Bromacil/Diuron 40/40 | Alligare, LLC | 81927-3 |
| | | Krovar I DF | DuPont | 352-505 |
| | | Weed Blast Res. Weed Cont. | Loveland Products Inc. | 34704-576 |
| | | DiBro 2+2 | Nufarm Americas Inc. | 228-227 |
| | | DiBro 4+4 | Nufarm Americas Inc. | 228-235 |
| | | DiBro 4+2 | Nufarm Americas Inc. | 228-386 |
| | | Weed Blast 4G | SSI Maxim | 34913-19 |
| Chlorsulfuron | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Telar DF | DuPont | 352-522 |
| | | Telar XP | DuPont | 352-654 |
| Clopyralid | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Spur | Albaugh, Inc. | 42750-89 |
| | | Pyramid R&P | Albaugh, Inc. | 42750-94 |
| | | Clopyralid 3 | Alligare, LLC | 42750-94-81927 |
| | | Cody Herbicide | Alligare, LLC | 81927-28 |
| | | Reclaim | Dow AgroSciences | 62719-83 |
| | | Stinger | Dow AgroSciences | 62719-73 |
| | | Transline | Dow AgroSciences | 62719-259 |
| | | CleanSlate | Nufarm Americas Inc. | 228-491 |
| Clopyralid + 2,4-D | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Curtail | Dow AgroSciences | 62719-48 |
| | | Commando | Albaugh, Inc. | 42750-92 |
| 2,4-D | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY | Agrisolution 2,4-D LV6 | Agriliance, L.L.C. | 1381-101 |
| | | Agrisolution 2,4-D Amine 4 | Agriliance, L.L.C. | 1381-103 |
| | | Agrisolution 2,4-D LV4 | Agriliance, L.L.C. | 1381-102 |
| | | 2,4-D Amine 4 | Albaugh, Inc./Agri Star | 42750-19 |
| | | 2,4-D LV 4 | Albaugh, Inc./Agri Star | 42750-15 |
| | | Solve 2,4-D | Albaugh, Inc./Agri Star | 42750-22 |
| | | 2,4-D LV 6 | Albaugh, Inc./Agri Star | 42750-20 |
| | | Five Star | Albaugh, Inc./Agri Star | 42750-49 |
| | | D-638 | Albaugh, Inc./Agri Star | 42750-36 |
| | | 2,4-D LV6 | Helena Chem. Co. | 4275-20-5905 |
| | | 2,4-D Amine | Helena Chem. Co. | 5905-72 |
| | | Opti-Amine | Helena Chem. Co. | 5905-501 |
| | | Barrage HF | Helena | 5905-529 |
| | | HardBall | Helena | 5905-549 |
| | | Unison | Helena | 5905-542 |
| | | Amine 4CA 2,4-D Weed Killer | Loveland Products Inc. | 34704-5 |
| | | Clean Amine | Loveland Products Inc. | 34704-120 |
| | | Low Vol 4 Ester Weed Killer | Loveland Products Inc. | 34704-124 |
| | | Low Vol 6 Ester Weed Killer | Loveland Products Inc. | 34704-125 |
| | | LV-6 Ester Weed Killer | Loveland Products Inc. | 34704-6 |
| | | Saber | Loveland Products Inc. | 34704-803 |
| | | Saber CA | Loveland Products Inc. | 34704-803 |
| | | Salvo | Loveland Products Inc. | 34704-609 |
| Savage DF | Loveland Products Inc. | 34704-606 | | |

| Active Ingredient | States With Approval Based Upon Current EIS/ROD & Court Injunctions | Trade Name | Manufacturer | EPA Reg. Number |
|---|---|----------------------------|------------------------------|-----------------|
| 2,4-D con't | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY | Aqua-Kleen | NuFarm Americas Inc. | 71368-4 |
| | | Esteron 99C | NuFarm Americas Inc. | 62719-9-71368 |
| | | Weedar 64 | NuFarm Americas Inc. | 71368-1 |
| | | Weedone LV-4 | NuFarm Americas Inc. | 228-139-71368 |
| | | Weedone LV-4 Solventless | NuFarm Americas Inc. | 71368-14 |
| | | Weedone LV-6 | NuFarm Americas Inc. | 71368-11 |
| | | Formula 40 | Nufarm Americas Inc. | 228-357 |
| | | 2,4-D LV 6 Ester | Nufarm Americas Inc. | 228-95 |
| | | Platoon | Nufarm Americas Inc. | 228-145 |
| | | WEEDstroy AM-40 | Nufarm Americas Inc. | 228-145 |
| | | Hi-Dep | PBI Gordon Corp. | 2217-703 |
| | | 2,4-D Amine | Setre (Helena) | 5905-72 |
| | | Barrage LV Ester | Setre (Helena) | 5905-504 |
| | | 2,4-D LV4 | Setre (Helena) | 5905-90 |
| | | 2,4-D LV6 | Setre (Helena) | 5905-93 |
| | | Clean Crop Amine 4 | UAP-Platte Chem. Co. | 34704-5 CA |
| | | Clean Crop Low Vol 6 Ester | UAP-Platte Chem. Co. | 34704-125 |
| | | Salvo LV Ester | UAP-Platte Chem. Co. | 34704-609 |
| | | 2,4-D 4# Amine Weed Killer | UAP-Platte Chem. Co. | 34704-120 |
| | | Clean Crop LV-4 ES | UAP-Platte Chem. Co. | 34704-124 |
| | | Savage DF | UAP-Platte Chem. Co. | 34704-606 |
| | | Cornbelt 4 lb. Amine | Van Diest Supply Co. | 11773-2 |
| | | Cornbelt 4# LoVol Ester | Van Diest Supply Co. | 11773-3 |
| | | Cornbelt 6# LoVol Ester | Van Diest Supply Co. | 11773-4 |
| Amine 4 | Wilbur-Ellis Co. | 2935-512 | | |
| Lo Vol-4 | Wilbur-Ellis Co. | 228-139-2935 | | |
| Lo Vol-6 Ester | Wilbur-Ellis Co. | 228-95-2935 | | |
| Agrisolution 2,4-D LV6 | Winfield Solutions, LLC | 1381-101 | | |
| Agrisolution 2,4-D Amine 4 | Winfield Solutions, LLC | 1381-103 | | |
| Agrisolution 2,4-D LV4 | Winfield Solutions, LLC | 1381-102 | | |
| Dicamba | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY | Dicamba DMA | Albaugh, Inc./Agri Star | 42750-40 |
| | | Vision | Albaugh, Inc. | 42750-98 |
| | | Cruise Control | Alligare, LLC | 42750-40-81927 |
| | | Banvel | Arysta LifeScience N.A.Corp. | 66330-276 |
| | | Clarity | BASF Ag. Products | 7969-137 |
| | | Rifle | Loveland Products Inc. | 34704-861 |
| | | Banvel | Micro Flo Company | 51036-289 |
| | | Diablo | Nufarm Americas Inc. | 228-379 |
| | | Vanquish Herbicide | Nufarm Americas Inc. | 228-397 |
| | | Vanquish | Syngenta | 100-884 |
| Dicamba + 2,4-D | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY | Outlaw | Albaugh, Inc./Agri Star | 42750-68 |
| | | Range Star | Albaugh, Inc./Agri Star | 42750-55 |
| | | Weedmaster | BASF Ag. Products | 7969-133 |
| | | Rifle-D | Loveland Products Inc. | 34704-869 |
| | | KambaMaster | Nufarm Americas Inc. | 71368-34 |
| | | Veteran 720 | Nufarm Americas Inc. | 228-295 |
| Dicamba + Diflufenzopyr | AZ, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Distinct | BASF Ag. Products | 7969-150 |
| | | Overdrive | BASF Ag. Products | 7969-150 |
| NOTE: In accordance with the Record of Decision for the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS), the aerial application of these herbicides is prohibited. | | | | |
| Diquat | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Reward | Syngenta Crop Prot., Inc. | 100-1091 |

| Active Ingredient | States With Approval Based Upon Current EIS/ROD & Court Injunctions | Trade Name | Manufacturer | EPA Reg. Number |
|-------------------|---|------------------------------|-------------------------|--------------------|
| Diuron | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Diuron 80DF | Agriliance, L.L.C. | 9779-318 |
| | | Diuron 80DF | Alligare, LLC | 81927-12 |
| | | Karmex DF | DuPont | 352-692 |
| | | Karmex XP | DuPont | 352-692 |
| | | Karmex IWC | DuPont | 352-692 |
| | | Direx 4L | DuPont | 352-678 |
| | | Direx 80DF | Griffin Company | 1812-362 |
| | | Direx 4L | Griffin Company | 1812-257 |
| | | Diuron 4L | Loveland Products Inc. | 34704-854 |
| | | Diuron 80 WDG | Loveland Products Inc. | 34704-648 |
| | | Diuron 4L | Makteshim Agan of N.A. | 66222-54 |
| | | Diuron 80WDG | UAP-Platte Chem. Co. | 34704-648 |
| | | Vegetation Man. Diuron 80 DF | Vegetation Man., LLC | 66222-51-74477 |
| | | Diuron-DF | Wilbur-Ellis | 00352-00-508-02935 |
| Diuron 80DF | Winfield Solutions, LLC | 9779-318 | | |
| Fluridone | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Avast! | SePRO | 67690-30 |
| | | Sonar AS | SePRO | 67690-4 |
| | | Sonar Precision Release | SePRO | 67690-12 |
| | | Sonar Q | SePRO | 67690-3 |
| | | Sonar SRP | SePRO | 67690-3 |
| Glyphosate | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY | Aqua Star | Albaugh, Inc./Agri Star | 42750-59 |
| | | Forest Star | Albaugh, Inc./Agri Star | 42570-61 |
| | | Gly Star Original | Albaugh, Inc./Agri Star | 42750-60 |
| | | Gly Star Plus | Albaugh, Inc./Agri Star | 42750-61 |
| | | Gly Star Pro | Albaugh, Inc./Agri Star | 42750-61 |
| | | Glyphosate 4 PLUS | Alligare, LLC | 81927-9 |
| | | Glyphosate 5.4 | Alligare, LLC | 81927-8 |
| | | Glyfos | Cheminova | 4787-31 |
| | | Glyfos PRO | Cheminova | 67760-57 |
| | | Glyfos Aquatic | Cheminova | 4787-34 |
| | | ClearOut 41 | Chem. Prod. Tech., LLC | 70829-2 |
| | | ClearOut 41 Plus | Chem. Prod. Tech., LLC | 70829-3 |
| | | Accord Concentrate | Dow AgroSciences | 62719-324 |
| | | Accord SP | Dow AgroSciences | 62719-322 |
| | | Accord XRT | Dow AgroSciences | 62719-517 |
| | | Accord XRT II | Dow AgroSciences | 62719-556 |
| | | Glypro | Dow AgroSciences | 62719-324 |
| | | Glypro Plus | Dow AgroSciences | 62719-322 |
| | | Rodeo | Dow AgroSciences | 62719-324 |
| | | Mirage | Loveland Products Inc. | 34704-889 |
| | | Mirage Plus | Loveland Products Inc. | 34704-890 |
| | | Aquamaster | Monsanto | 524-343 |
| | | Roundup Original | Monsanto | 524-445 |
| | | Roundup Original II | Monsanto | 524-454 |
| | | Roundup Original II CA | Monsanto | 524-475 |
| | | Honcho | Monsanto | 524-445 |
| | | Honcho Plus | Monsanto | 524-454 |
| | | Roundup PRO | Monsanto | 524-475 |
| | | Roundup PRO Concentrate | Monsanto | 524-529 |
| | | Roundup PRO Dry | Monsanto | 524-505 |
| | | Roundup PROMAX | Monsanto | 524-579 |
| | | GlyphoMate 41 | PBI Gordon Corp. | 2217-847 |
| | | Aqua Neat | Nufarm Americas Inc. | 228-365 |
| Foresters | Nufarm Americas Inc. | 228-381 | | |

| Active Ingredient | States With Approval Based Upon Current EIS/ROD & Court Injunctions | Trade Name | Manufacturer | EPA Reg. Number |
|--|---|---|-------------------------|-----------------|
| Glyphosate - cont. | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY | Razor | Nufarm Americas Inc. | 228-366 |
| | | Razor Pro | Nufarm Americas Inc. | 228-366 |
| | | AquaPro Aquatic Herbicide | SePRO Corporation | 62719-324-67690 |
| | | Rattler | Setre (Helena) | 524-445-5905 |
| | | Buccaneer | Tenkoz | 55467-10 |
| | | Buccaneer Plus | Tenkoz | 55467-9 |
| | | Mirage Herbicide | UAP-Platte Chem. Co. | 524-445-34704 |
| | | Mirage Plus Herbicide | UAP-Platte Chem. Co. | 524-454-34704 |
| | | Glyphosate 4 | Vegetation Man., LLC | 73220-6-74477 |
| Glyphosate + 2,4-D | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY | Landmaster BW | Albaugh, Inc./Agri Star | 42570-62 |
| | | Campaign | Monsanto | 524-351 |
| | | Landmaster BW | Monsanto | 524-351 |
| Glyphosate + Dicamba | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY | Fallowmaster | Monsanto | 524-507 |
| Hexazinone | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Velpar ULW | DuPont | 352-450 |
| | | Velpar L | DuPont | 352-392 |
| | | Velpar DF | DuPont | 352-581 |
| | | Pronone MG | Pro-Serve | 33560-21 |
| | | Pronone 10G | Pro-Serve | 33560-21 |
| | | Pronone 25G | Pro-Serve | 33560-45 |
| Hexazinone + Sulfometuron methyl | AK, AZ, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Westar | DuPont Crop Protection | 352-626 |
| | | Oustar | DuPont Crop Protection | 352-603 |
| NOTE: In accordance with the Record of Decision for the <i>Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS)</i>, the aerial application of these herbicides is prohibited. | | | | |
| Imazapic | AZ, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Panoramic 2SL | Alligare, LLC | 66222-141-81927 |
| | | Plateau | BASF | 241-365 |
| | | Imazapic E 2 SL | Etigra, LLC | 79676-65 |
| Imazapic + Glyphosate | AZ, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Journey | BASF | 241-417 |
| Imazapyr | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Imazapyr 2SL | Alligare, LLC | 81927-23 |
| | | Imazapyr 4SL | Alligare, LLC | 81927-24 |
| | | Ecomazapyr 2SL | Alligare, LLC | 81927-22 |
| | | Arsenal Railroad Herbicide | BASF | 241-273 |
| | | Chopper | BASF | 241-296 |
| | | Arsenal Applicators Conc. | BASF | 241-299 |
| | | Arsenal | BASF | 241-346 |
| | | Arsenal PowerLine | BASF | 241-431 |
| | | Stalker | BASF | 241-398 |
| | | Habitat | BASF | 241-426 |
| | | Imazapyr E-Pro 2 - VM & Aquatic Herbicide | Etigra, LLC | 81959-8 |
| | | Imazapyr E-Pro 4 - Forestry | Etigra, LLC | 81959-9 |
| | | Imazapyr E-Pro 2E - Site Prep & Basal | Etigra, LLC | 81959-7 |
| | | Polaris RR | Nufarm Americas Inc. | 241-273-228 |
| | | Polaris SP | Nufarm Americas Inc. | 241-296-228 |
| | | Polaris AC | Nufarm Americas Inc. | 241-299-228 |
| | | Polaris AQ | Nufarm Americas Inc. | 241-426-228 |
| | | Polaris Herbicide | Nufarm Americas Inc. | 241-346-228 |
| | | SSI Maxim Arsenal 0.5G | SSI Maxim Co., Inc. | 34913-23 |
| Ecomazapyr 2 SL | Vegetation Man., LLC | 74477-6 | | |
| Imazapyr 2 SL | Vegetation Man., LLC | 74477-4 | | |
| Imazapyr 4 SL | Vegetation Man., LLC | 74477-5 | | |

| Active Ingredient | States With Approval Based Upon Current EIS/ROD & Court Injunctions | Trade Name | Manufacturer | EPA Reg. Number |
|---|---|---------------------------|-------------------------|-----------------|
| Imazapyr + Diuron | AK, AZ, CA, CO, NM, NV, OK, SD, TX, UT, WA, WY ID, MT, ND, NE, | Mojave 70 EG | Alligare, LLC | 74477-9-81927 |
| | | Sahara DG | BASF | 241-372 |
| | | Imazuron E-Pro | Etigra, LLC | 79676-54 |
| | | SSI Maxim Topsite 2.5G | SSI Maxim Co., Inc. | 34913-22 |
| Imazapyr + Metsulfuron methyl | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Lineage Clearstand | DuPont | 352-766 |
| Imazapyr + Sulfometuron methyl + Metsulfuron methyl | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Lineage HWC | DuPont | 352-765 |
| | | Lineage Prep | DuPont | 352-767 |
| NOTE: In accordance with the Record of Decision for the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS), the aerial application of these herbicides is prohibited. | | | | |
| Metsulfuron methyl | AK, AZ, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | MSM 60 | Alligare, LLC | 81927-7 |
| | | Escort DF | DuPont | 352-439 |
| | | Escort XP | DuPont | 352-439 |
| | | MSM E-AG 60 EG Herbicide | Etigra, LLC | 81959-14 |
| | | MSM E-Pro 60 EG Herbicide | Etigra, LLC | 81959-14 |
| | | Patriot | Nufarm Americas Inc. | 228-391 |
| | | PureStand | Nufarm Americas Inc. | 71368-38 |
| | | Metsulfuron Methyl DF | Vegetation Man., L.L.C. | 74477-2 |
| Metsulfuron methyl + Chlorsulfuron | AK, AZ, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Cimarron Extra | DuPont | 352-669 |
| | | Cimarron Plus | DuPont | 352-670 |
| Metsulfuron methyl + Dicamba + 2,4-D | AK, AZ, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Cimarron MAX | DuPont | 352-615 |
| Picloram | AZ, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY | Triumph K | Albaugh, Inc. | 42750-81 |
| | | Triumph 22K | Albaugh, Inc. | 42750-79 |
| | | Picloram K | Alligare, LLC | 42750-81-81927 |
| | | Picloram K | Alligare, LLC | 81927-17 |
| | | Picloram 22K | Alligare, LLC | 42750-79-81927 |
| | | Picloram 22K | Alligare, LLC | 81927-18 |
| | | Grazon PC | Dow AgroSciences | 62719-181 |
| | | OutPost 22K | Dow AgroSciences | 62719-6 |
| | | Tordon K | Dow AgroSciences | 62719-17 |
| | | Tordon 22K | Dow AgroSciences | 62719-6 |
| Picloram +2,4-D | AZ, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY | GunSlinger | Albaugh, Inc. | 42750-80 |
| | | Picloram + D | Alligare, LLC | 42750-80-81927 |
| | | Picloram + D | Alligare, LLC | 81927-16 |
| | | Tordon 101M | Dow AgroSciences | 62719-5 |
| | | Tordon 101 R Forestry | Dow AgroSciences | 62719-31 |
| | | Tordon RTU | Dow AgroSciences | 62719-31 |
| | | Grazon P+D | Dow AgroSciences | 62719-182 |
| | | HiredHand P+D | Dow AgroSciences | 62719-182 |
| | | | | Pathway |
| Sulfometuron methyl | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | SFM 75 | Alligare, LLC | 81927-26 |
| | | Oust DF | DuPont | 352-401 |
| | | Oust XP | DuPont | 352-601 |
| | | SFM E-Pro 75EG | Etigra, LLC | 79676-16 |
| | | Spyder | Nufarm Americas Inc. | 228-408 |
| | | SFM 75 | Vegetation Man., L.L.C. | 72167-11-74477 |
| NOTE: In accordance with the Record of Decision for the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS), the aerial application of these herbicides is prohibited. | | | | |

| Active Ingredient | States With Approval Based Upon Current EIS/ROD & Court Injunctions | Trade Name | Manufacturer | EPA Reg. Number |
|---|---|------------------------|----------------------|-----------------|
| Sulfometuron methyl + Chlorsulfuron | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Landmark XP | DuPont | 352-645 |
| NOTE: In accordance with the Record of Decision for the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS), the aerial application of this herbicide is prohibited. | | | | |
| Sulfometuron methyl + Metsulfuron methyl | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Oust Extra | DuPont | 352-622 |
| NOTE: In accordance with the Record of Decision for the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS), the aerial application of this herbicide is prohibited. | | | | |
| Tebuthiuron | AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Spike 20P | Dow AgroSciences | 62719-121 |
| | | Spike 80DF | Dow AgroSciences | 62719-107 |
| | | SpraKil S-5 Granules | SSI Maxim Co., Inc. | 34913-10 |
| Tebuthiuron + Diuron | AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | SpraKil SK-13 Granular | SSI Maxim Co., Inc. | 34913-15 |
| | | SpraKil SK-26 Granular | SSI Maxim Co., Inc. | 34913-16 |
| Triclopyr | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Triclopyr 4EC | Alligare, LLC | 72167-53-74477 |
| | | Triclopyr 3 | Alligare, LLC | 81927-13 |
| | | Triclopyr 4 | Alligare, LLC | 81927-11 |
| | | Element 3A | Dow AgroSciences | 62719-37 |
| | | Element 4 | Dow AgroSciences | 62719-40 |
| | | Forestry Garlon XRT | Dow AgroSciences | 62719-553 |
| | | Garlon 3A | Dow AgroSciences | 62719-37 |
| | | Garlon 4 | Dow AgroSciences | 62719-40 |
| | | Garlon 4 Ultra | Dow AgroSciences | 62719-527 |
| | | Remedy | Dow AgroSciences | 62719-70 |
| | | Remedy Ultra | Dow AgroSciences | 62719-552 |
| | | Pathfinder II | Dow AgroSciences | 62719-176 |
| | | Tahoe 3A | Nufarm Americas Inc. | 228-384 |
| | | Tahoe 3A | Nufarm Americas Inc. | 228-518 |
| | | Renovate 3 | SePRO Corporation | 62719-37-67690 |
| Renovate OTF | SePRO Corporation | 67690-42 | | |
| Ecotriclopyr 3 SL | Vegetation Man., LLC | 72167-49-74477 | | |
| | | Triclopyr 3 SL | Vegetation Man., LLC | 72167-53-74477 |
| Triclopyr + 2,4-D | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Everett | Alligare, LLC | 81927-29 |
| | | Crossbow | Dow AgroSciences | 62719-260 |
| Triclopyr + Clopyralid | AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY | Prescott Herbicide | Alligare, LLC | 81927-30 |
| | | Redeem R&P | Dow AgroSciences | 62719-337 |

APPENDIX H

Ely District Noxious and Invasive Weed Standard Operating Procedures from the *Ely District Record of Decision and Approved Resource Management Plan*

Ely District Noxious and Invasive Weed Standard Operating Procedures from the Fish & Wildlife Service for Weed Treatments in Desert Tortoise and Southwest Willow Flycatcher Habitats

Weed Prevention Measures from the *Final Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report*

Vegetation Treatment Methods Standard Operating Procedures and Guidelines from the *Final Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report*

Mitigation Measures, Standard Operating Procedures, and Conservation Measures from the *Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement*

Ely District Noxious and Invasive Weed Standard Operating Procedures from the *Ely District Record of Decision and Approved Resource Management Plan*

- Continue to use integrated weed management to treat weed infestations and use principles of integrated pest management to meet management objectives and to reestablish resistant and resilient native vegetation communities.
- Develop weed management plans that address weed vectors, minimize the movement of weeds within public lands, consider disturbance regimes, and address existing weed infestations.
- When manual weed control is conducted, remove the cut weeds and weed parts and dispose of them in a manner designed to kill seeds and weed parts.
- All straw, hay, straw/hay, or other organic products used for reclamation or stabilization activities, must be certified that all materials are free of plant species listed on the Nevada noxious weed list or specifically identified by the Ely District Office.
- Where appropriate, inspect source sites such as borrow pits, fill sources, or gravel pits used to supply inorganic materials used for construction, maintenance, or reclamation to ensure they are free of plant species listed on the Nevada noxious weed list or specifically identified by the Ely District Office. Inspections will be conducted by a weed scientist of qualified biologist.
- Where appropriate, vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities; for emergency fire suppression; or for authorized off-road driving will be free of soil and debris capable of transporting weed propagules. Vehicles and equipment will be cleaned with power or high pressure equipment prior to entering or leaving the work site or project area. Vehicles used for emergency fire suppression will be cleaned as a part of check-in and demobilization procedures. Cleaning efforts will concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis will be applied to axels, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. Cleaning sites will be recorded using global positioning systems or other mutually acceptable equipment and provided to the Ely District Office Weed Coordinator or designated contact person.
- Animals used on public lands by special recreation permittees or by contractors for weed control or reclamation will be cleaned, quarantined, and fed weed-free feed prior to being used or released on public lands. The length of this quarantine will be specified in the special recreation permit or contract.
- Prior to entry of vehicles and equipment to a planned disturbance area, a weed scientist or qualified biologist will identify and flag areas of concern. The flagging will alert personnel or participants to avoid areas of concern.
- To minimize the transport of soil-borne noxious weed seeds, roots, or rhizomes, infested soils or materials will not be moved and redistributed on weed-free or relatively weed-free areas. In areas where infestations are identified or noted and infested soils, rock, or overburden must be moved, these materials will be salvaged and stockpiled adjacent to the area from which they were stripped. Appropriate measures will be taken to minimize wind and water erosion of these stockpiles. During reclamation, the materials will be returned to the area from which they were stripped.

- Prior to project approval a site-specific weed survey will occur and a weed risk assessment will be completed. Monitoring will be conducted for a period no shorter than the life of the permit or until bond release and monitoring reports will be provided to the Ely District Office. If the presence and/or spread of noxious weeds is noted, appropriated weed control procedures will be determined in consultation with Ely District Office personnel and will be in compliance with the appropriate BLM Handbook sections and applicable laws and regulations. All weed control efforts on BLM-administered lands will be in compliance with BLM Handbook H-9011, H-9011-1 Chemical Pest Control, H-9014 Use of Biological Control Agents of Pests on Public Lands, and H-9015 Integrated Pest Management. Submission of Pesticide Use Proposals and Pesticide Application Records will be required.
- Determine seed mixes on a site specific basis dependant on the probability of successful establishment. Use native and adapted species that compete with annual invasive species or meet other objectives.
- For soil disturbing actions which will require reclamation, salvage and stockpile all available growth medium prior to surface disturbances. Seed stockpiles if they are to be left for more than one growing season. Re-contour all disturbance areas to blend as nearly as possible with the natural topography prior to re-vegetation. Rip all compacted portions of the disturbance to an appropriate depth based on site characteristics. Establish an adequate seed bed to provide good seed-to-soil contact.
- Prior to the acquisition of non-federal lands, conduct assessments (e.g. noxious weeds) to enable the authorized officer to factor the cost of weed control into the acquisition decision.
- Prior to use on lands administered by the Ely District Office, all fire suppression equipment from outside the planning area utilized to extract water from lakes, streams, ponds, or spring sources (e.g. helicopter buckets, draft hoses, and screens) will be thoroughly rinsed to remove mud and debris and then disinfested to prevent the spread of invasive aquatic species. Rinsing equipment with disinfectant solution will not occur within 100 feet of natural water sources (i.e. lakes, streams, or springs). Ely suppression equipment utilized to extract water from water sources known to be contaminated with invasive aquatic species, as identified by the U.S. Fish and Wildlife Service and Nevada Department of Wildlife, also will be disinfested prior to use elsewhere on lands administered by the Ely District Office.
- Conduct mixing of herbicides and rinsing of herbicide containers and spray equipment only in areas that are a safe distance from environmentally sensitive areas and points of entry to bodies of water (storm drains, irrigation ditches, streams, lakes, or wells).
- Keep removal and disturbance of vegetation would be kept to a minimum through construction site management (e.g. using previously disturbed areas and existing easements, limiting equipment/materials storage and staging area sites, etc.)
- Generally, conduct reclamation with native seeds that are representative of the indigenous species present in the adjacent habitat. Document rationale for potential seeding with selected nonnative species. Possible exceptions would include use of nonnative species for a temporary cover crop to out-compete weeds. In all cases, ensure seed mixes are approved by the BLM Authorized Officer prior to planting.
- Certify that all interim and final seed mixes, hay, straw, and hay/straw products are free of plant species listed on the Nevada noxious weed list.
- Respread weed-free vegetation removed from the right-of-way to provide protection, nutrient recycling, and seed source.

- When managing in areas of special status species, carefully consider the impacts of the treatment on such species. Wherever possible, hand spraying of herbicides is preferred over other methods.
- Do not conduct noxious and invasive weed control within 0.5 mile of nesting and brood rearing areas for special status species during the nesting and brood rearing season.
- Control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.
- When maintaining unpaved roads on BLM-administered lands, avoid the unnecessary disturbance of adjacent native vegetation and spread of weeds. Grade roads shoulders or barrow ditches only when necessary to provide for adequate drainage. Minimize the width of grading operations. The BLM Authorized Officer will meet with equipment operators to ensure that they understand this objective.
- Consider nozzle type, nozzle size, boom pressure, and adjuvant use and take appropriate measures for each herbicide application project to reduce the chance of chemical drift.
- All applications of approved pesticides will be conducted only by certified pesticide applicators or by personnel under the direct supervision of a certified applicator.
- Prior to commencing any chemical control program, and on a daily basis for the duration of the project, the certified applicator will provide a suitable safety briefing to all personnel working with or in the vicinity of the herbicide application. This briefing will include safe handling, spill prevention, cleanup, and first aid procedures.
- Store all pesticides in areas where access can be controlled to prevent unauthorized/untrained people from gaining access to chemicals.
- Do not apply pesticides within 440 yards (0.25 mile) of residences without prior notification of the resident.
- Areas treated with pesticides will be adequately posted to notify the public of the activity and of safe re-entry dates, if a public notification requirement is specified on the label of the product applied. The public notice signs will be at least 8 ½" x 11" in size and will contain the date of application and the date of safe re-entry.
- No noxious weeds will be allowed on the site at the time of reclamation release. Any noxious weeds that become established will be controlled.
- Prior to entering public lands, the contractor, operator, or permit holder will provide information and training regarding noxious weed management and identification to all personnel who will be affiliated with the implementation of the project. The importance of preventing the spread of weeds to uninfested areas and importance of controlling existing populations of weeds will be explained.
- Whenever possible, hand spraying of herbicides is preferred over other methods at heavily used recreation sites (i.e. campgrounds, trailheads, etc.).

Ely District Noxious and Invasive Weed Standard Operating Procedures from the Fish & Wildlife Service for Weed Treatments in Desert Tortoise and Southwest Willow Flycatcher Habitats

Desert Tortoise

- A litter-control program shall be implemented to minimize predation on tortoises by ravens drawn to the project site. This program will include the use of covered, raven-proof trash receptacles, removal of trash from project areas to the trash receptacles following the close of each work day, and proper disposal of trash in a designated solid waste disposal facility. Appropriate precautions must be taken to prevent litter from blowing out along the road when trash is removed from the site. The litter-control program should apply to all actions covered under this biological opinion. A litter-control program shall be implemented by the responsible federal agency or its contractors, to minimize predation on tortoises by ravens and other predators drawn to the project site.
- The Bureau shall present a tortoise-education program to all personnel working on projects or activities occurring in desert tortoise habitat. This program shall be presented by a qualified tortoise biologist for those projects with the greatest potential impacts to desert tortoises. A video or fact sheet, as approved by the Service, may be presented or provided in lieu of a presentation for those projects with low potential impacts. The program will include information on the life history of the desert tortoise, legal protection for desert tortoises, penalties for violations of federal and state laws, general tortoise-activity patterns, reporting requirements, measures to protect tortoises, terms and conditions of this biological opinion, and personal measures employees can take to promote the conservation of desert tortoises. The definition of take will also be explained. Specific and detailed instructions will be provided on the proper techniques to capture and move tortoises which appear onsite, in accordance with this biological opinion and Service-approved protocol. Currently, the Service-approved protocol is Desert Tortoise Council 1994, revised 1999. Workers will be encouraged to carpool to and from project sites.
- The Bureau (775/726-8100- Caliente, or 775/289-1800- Ely), and the Service's Southern Nevada Field Office (702/647-5230) must be notified of any desert tortoise death or injury due to the project implementation by close of business on the following work day. In addition, the Service's Division of Law Enforcement shall be notified in accordance with the reporting requirements of this biological opinion.
- All appropriate NDOW permits or letters of authorization shall be acquired prior to handling desert tortoises and their parts, and prior to initiation of any activity which may require handling tortoises.
- In accordance with Procedures for Endangered Species Act Compliance for the Mojave Desert Tortoise (FWS 1992), a qualified desert tortoise biologist should possess a bachelor's degree in biology, ecology, wildlife biology, herpetology, or closely related fields as determined by the Bureau. The biologist must have demonstrated prior field experience using accepted resource agency techniques to survey for desert tortoises and tortoise sign, which should include a minimum of 60 days field experience. All tortoise biologists shall comply with the Service- approved handling protocol (Desert Tortoise Council 1994, revised 1999) prior to conducting tasks in association with terms and conditions of this biological opinion. In

addition, the biologist shall have the ability to recognize tortoise sign and accurately record survey results.

- If a desert tortoise is seen aboveground in or adjacent to a patch of noxious weeds, herbicide application would not occur until the tortoise moves on its own volition or is moved by a qualified desert tortoise biologist or monitor more than 150 feet beyond the treatment area.
- Project personnel would exercise caution when traveling to the treatment areas and obey speed limits to minimize any chance for the inadvertent injury or mortality of species encountered on roads leading to and from the treatment areas. All desert tortoise observations, including mortalities, would be reported directly to a BLM wildlife biologist and the Service.
- Any vehicle parked in desert tortoise habitat would be checked underneath for tortoises before moving. If a desert tortoise is observed, an authorized biologist or monitor would be contacted.
- Project activities that may endanger a desert tortoise would cease until the desert tortoise moves out of harm's way or is moved out of harm's way by an authorized desert tortoise biologist or monitor.
- To prevent mortality, injury, and harassment of desert tortoise and damage to their burrows and coversites, no pets would be permitted in any treatment area.
- All project activities in desert tortoise habitat would be conducted from dawn until dusk.
- Off-road vehicle travel would be prohibited.
- Tortoises would be handled and relocated by an authorized tortoise biologist or monitor in accordance with the Service-approved protocol (Desert Tortoise Council 1994, revised 1999). If the Service of Desert Tortoise Council releases a revised protocol for handling of desert tortoise before the initiation of project activities, the revised protocol would be implemented for the project area. A pair of new, disposable, latex gloves would be used for each tortoise that must be handled. After use, the gloves would be properly disposed. Desert tortoises moved during the tortoises less active season or those in hibernation, regardless of date, must be placed into an adequate burrow; if one is not available, one would be constructed in accordance with Desert Tortoise Council (1994, revised 1999) criteria. Desert tortoises that are located aboveground and need to be moved from the project area would be placed in the shade of a shrub.
- Special precautions would be taken to ensure that desert tortoises are not harmed as a result of their capture and movement during the extreme temperatures (i.e. air temperatures below 55° Fahrenheit (F) or above 95° F). Under such adverse conditions, tortoises captured would be monitored continually by an authorized biologist until the tortoise exhibits normal behavior. If a desert tortoise show signs of heat stress, procedures would be implemented as identified in the Service-approved protocol (Desert Tortoise Council 1994, revised 1999).
- A biologist or monitor would record each observation of handled tortoise. Information would include the following: location, date & time of observation, whether the tortoise was handled, general health and whether it voided its bladder, location tortoise was moved from and location moved to, and unique physical characteristics of each tortoise.

Southwestern Willow Flycatcher

- Salt cedar treatments would occur outside the southwestern willow flycatcher breeding season (May 1 through August 31) to avoid impacts to any nesting southwestern willow flycatchers.
- No treatments for tall whitetop or hoary cress would occur in suitable habitat during the breeding season (May 1 through August 31).
- BLM would ensure that salt cedar removed from suitable of potentially suitable flycatcher habitat is replaced with appropriated native riparian vegetation to assure no net loss of habitat. If soil and hydrological conditions are conducive to survival of native species, riparian vegetation restoration efforts, if determined appropriate, would commence no later than one year after removal of salt cedar.
- BLM and the Service would cooperatively develop a riparian vegetation monitoring program to determine the overall habitat condition including success of restoration efforts. The program would incorporate monitoring into the Lower Meadow Valley Wash Care of Critical Environmental Concern (ACEC) management plan.
- BLM of an authorized contractor would conduct southwestern willow flycatcher surveys in suitable habitat. Where restoration projects have been conducted, surveys would be initiated once the vegetation has reached a mid-to-late seral stage of development (approximately three to five years after project completion). Surveys must be conducted by a biologist using Service-approved flycatcher survey protocol (Sogge et al. 1997). Conducting presence/absence surveys for flycatchers requires obtaining a section 10(a)(1)(A) recovery permit from the Service.
- If possible, BLM shall adjust spatial and temporal scales of treatments so not all suitable habitat is affected in any given year.
- BLM shall summarize on an annual basis the number of acres of each noxious weed treated, the locations of each treatment, and restoration action taken if any. BLM shall also report on the success of the weed treatments and on the recruitment and or restoration of native riparian vegetation in treated areas along Meadow Valley Wash to insure that there is no net-long term loss of southwestern willow flycatcher habitat. This information shall be provided in the annual report for the Programmatic Biological Opinion.

Weed Prevention Measures from the *Final Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report*

| BLM Activity | PREVENTION MEASURE |
|----------------------------|--|
| Project Planning | <ul style="list-style-type: none"> • Incorporate prevention measures into project layout and design, alternative evaluation, and project decisions to prevent the introduction or spread of weeds. • Determine prevention and maintenance needs, including the use of herbicides, at the onset of project planning. • Before ground-disturbing activities begin, inventory weed infestations and prioritize areas for treatment in project operating areas and along access routes. • Remove sources of weed seed and propagules to prevent the spread of existing weeds and new weed infestations. • Pre-treat high-risk sites for weed establishment and spread before implementing projects. • Post weed awareness messages & prevention practices at strategic locations such as trailheads, roads, boat launches, & public land kiosks. • Coordinate project activities with nearby herbicide applications to maximize the cost-effectiveness of weed treatments. |
| Project Development | <ul style="list-style-type: none"> • Minimize soil disturbance to the extent practical, consistent with project objectives. • Avoid creating soil conditions that promote weed germination and establishment. • To prevent weed germination and establishment, retain native vegetation in and around project activity areas and keep soil disturbance to a minimum, consistent with project objectives. • Locate and use weed-free project staging areas. Avoid or minimize all types of travel through weed-infested areas, or restrict travel to periods when the spread of seeds or propagules is least likely. • Prevent the introduction and spread of weeds caused by moving weed-infested sand, gravel, borrow, and fill material. • Inspect material sources on site, and ensure that they are weed-free before use and transport. Treat weed-infested sources to eradicate weed seed and plant parts, and strip and stockpile contaminated material before any use of pit material. • Survey the area where material from treated weed-infested sources is used for at least 3 years after project completion to ensure that any weeds transported to the site are promptly detected and controlled. • Prevent weed establishment by not driving through weed-infested areas. • Inspect and document weed establishment at access roads, cleaning sites, and all disturbed areas; control infestations to prevent spread within the project area. • Avoid acquiring water for dust abatement where access to the water is through weed-infested sites. • Identify sites where equipment can be cleaned. Clean equipment before entering public lands. • Clean all equipment before leaving the project site if operating in areas infested with weeds. • Inspect and treat weeds that establish at equipment cleaning sites. • Ensure that rental equipment is free of weed seed. • Inspect, remove, and properly dispose of weed seed and plant parts found on workers' clothing and equipment. Proper disposal entails bagging the seeds and plant parts and incinerating them. |
| Revegetation | <ul style="list-style-type: none"> • Include weed prevention measures, including project inspection and documentation, in operation and reclamation plans. • Retain bonds until reclamation requirements, including weed treatments, are completed, based on inspection and documentation. • To prevent conditions favoring weed establishment, re-establish vegetation on bare ground caused by project disturbance as soon as possible using either natural recovery or artificial techniques. • Maintain stockpiled, uninfested material in a weed-free condition. • Revegetate disturbed soil (except travel ways on surfaced projects) in a manner that optimizes plant establishment for each specific project site. For each project, define what constitutes disturbed soil and objectives for plant cover revegetation. Revegetation may include topsoil replacement, planting, seeding, fertilization, liming, and weed-free mulching, as necessary. • Where practical, stockpile weed-seed-free topsoil and replace it on disturbed areas (e.g., road embankments or landings). • Inspect seed and straw mulch to be used for site rehabilitation (for wattles, straw bales, dams, etc.) and certify that they are free of weed seed and propagules. • Inspect and document all limited term ground-disturbing operations in noxious weed infested areas for at least 3 growing seasons following completion of the project. • Use native material where appropriate and feasible. Use certified weed-free or weed-seed-free hay or straw where certified materials are required and/or are reasonably available. • Provide briefings that identify operational practices to reduce weed spread (for example, avoiding known weed infestation areas when locating fire lines). • Evaluate options, including closure, to regulate the flow of traffic on sites where desired vegetation needs to be established. Sites could include road and trail ROW, and other areas of disturbed soils. |

Vegetation Treatment Methods Standard Operating Procedures and Guidelines
from the *Final Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report*

| Resource Element | Treatment Method | | | | |
|--|---|--|---|---|---|
| | Fire Use | Mechanical | Manual | Biological | Chemical |
| Guidance Documents | BLM handbooks H-9211-1 (<i>Fire Management Activity Planning Procedures</i>) and H-9214-1 (<i>Prescribed Fire Management</i>), and manuals 1112 (<i>Safety</i>), 9210 (<i>Fire Management</i>), 9211 (<i>Fire Planning</i>), 9214 (<i>Prescribed Fire</i>), and 9215 (<i>Fire Training and Qualifications</i>). | BLM Handbook H-5000-1 (<i>Public Domain Forest Management</i>), and manuals 1112 (<i>Safety</i>) and 9015 (<i>Integrated Weed Management</i>). | BLM <i>Domain Forest Management</i> , and manuals 1112 (<i>Safety</i>), and 9015 (<i>Integrated Weed Management</i>). | BLM manuals 1112 (<i>Safety</i>), 4100 (<i>Grazing Administration</i>), 9014 (<i>Use of Biological Control Agents on Public Lands</i>), and 9015 (<i>Integrated Weed Management</i>) and Handbook H-4400-1 (<i>Rangeland Health Standards</i>). | BLM Handbook H-9011-1 (<i>Chemical Pest Control</i>), and manuals 1112 (<i>Safety</i>), 9011 (<i>Chemical Pest Control</i>), 9015 (<i>Integrated Weed Management</i>), and 9220 (<i>Integrated Pest Management</i>). |
| General | <ul style="list-style-type: none"> • Prepare fire management plan. • Use trained personnel with adequate equipment. • Minimize frequent burning in arid environments. • Avoid burning herbicide-treated vegetation for at least 6 months. | <ul style="list-style-type: none"> • Ensure that power cutting tools have approved spark arresters. • Ensure that crews have proper fire-suppression tools during the fire season. • Wash vehicles and equipment before leaving weed infested areas to avoid infecting weed-free areas. • Keep equipment in good operating condition. | <ul style="list-style-type: none"> • Ensure that crews have proper fire-suppression tools during fire season. • Minimize soil disturbance, which may encourage new weeds to develop. | <ul style="list-style-type: none"> • Use only biological control agents that have been tested and approved to ensure they are host specific. • If using domestic animals, select sites with weeds that are palatable and non-toxic to the animals. • Manage the intensity and duration of containment by domestic animals to minimize overutilization of desirable plant species. • Utilize domestic animals to contain the target species in the treatment areas prior to weed seed set. Or if seed set has occurred, do not move the domestic animals to uninfested areas for a period of 7 days. | <ul style="list-style-type: none"> • Prepare a spill contingency plan in advance of treatment. • Select herbicides that are least dangerous to the environment while providing the desired results. • Minimize the size of treatment areas, where feasible. • Use the least amount of herbicide necessary to achieve the desired result. • Follow product label for use and storage. • Have a licensed applicator apply herbicides. • Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location. • Dispose of unwanted herbicides promptly and correctly. |
| Land Use | <ul style="list-style-type: none"> • Carefully plan fires in the WUI to avoid or minimize loss of structures and property. • Notify nearby residents and landowners who could be affected by smoke intrusions or other fire effects. | <ul style="list-style-type: none"> • Collaborate on project development with nearby landowners and agencies. | <ul style="list-style-type: none"> • Collaborate on project development with nearby landowners and agencies. | <ul style="list-style-type: none"> • Notify nearby residents and landowners who could be affected by biological control agents. | <ul style="list-style-type: none"> • Consider surrounding land uses before aerial spraying. • Comply with herbicide-free buffer zones to ensure that drift will not affect crops or nearby residents and landowners. • Post treated areas and specify reentry times, if appropriate. |
| Air Quality See Manual 7000 - <i>Soil, Water, & Air Management</i> | <ul style="list-style-type: none"> • Have clear smoke management objectives. • Evaluate weather conditions, including wind speed and atmospheric stability, to predict effects of burn and impacts from smoke. • Burn when weather conditions favor rapid combustion and dispersion. • Burn under favorable moisture conditions. • Use backfires, when applicable. • Burn small vegetation blocks, when appropriate. • Manage smoke to prevent air quality violations and minimize impacts to smoke-sensitive areas. • Coordinate with air pollution and fire control officials, and obtain all applicable smoke management permits, to ensure that burn plans comply with federal, state, and local regulations | <ul style="list-style-type: none"> • Maintain equipment in optimal working order. • Conduct treatment activities during the wetter seasons. • Use heavy equipment under adequate soil moisture conditions to minimize soil erosion. • Minimize vehicle speeds on unpaved roads. • Minimize dust impacts to the extent practicable. | <ul style="list-style-type: none"> • Maintain equipment in optimal working order. • Conduct treatment activities during the wetter seasons. • Minimize vehicle speeds on unpaved roads. • Minimize dust impacts to the extent practicable. | | <ul style="list-style-type: none"> • Consider 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. • Apply herbicides consistent with label directions. • Use drift reduction agents, as appropriate, to reduce the drift hazard. • Select proper application equipment (e.g., equipment that produces 200- to 800-micron diameter droplets). • Select proper application methods and use appropriate buffer distances between spray sites and non-target resources. |
| Soil Resources See Manual 7000 - <i>Soil, Water, & Air Management</i> | <ul style="list-style-type: none"> • Assess the susceptibility of the treatment site to soil damage and erosion prior to treatment. • Prescribe broadcast and other burns that are consistent with soil management activities. • Plan burns so as to minimize damage to soil resources. • Conduct burns when moisture content of large fuels, surface organic matter, and soil is high to limit the amount of heat penetration into lower soil surfaces and protect surface organic matter. • Time treatments to encourage rapid recovery of vegetation. • Further facilitate revegetation by seeding or planting following treatment. • When appropriate, reseed following burning to re-introduce species, or to convert a site to a less flammable plant association, rather than to specifically minimize erosion. | <ul style="list-style-type: none"> • Assess the susceptibility of the treatment site to soil damage and erosion prior to treatment. • Time treatments to avoid intense rainstorms. • Time treatments to encourage rapid recovery of vegetation. • Further facilitate revegetation by seeding or planting following treatment. • Use equipment that minimizes soil disturbance and compaction. • Minimize use of heavy equipment on slopes >20%. • Conduct treatments when the ground is sufficiently dry to support heavy equipment. • Implement erosion control measures in areas where heavy equipment use occurs. • Minimize disturbances to biological soil crusts (e.g., by timing treatments when crusts are moist). | <ul style="list-style-type: none"> • Assess the susceptibility of the treatment site to soil damage and erosion prior to treatment. • Time treatments to avoid intense rainstorms. • Time treatments to encourage rapid recovery of vegetation. • Further facilitate revegetation by seeding or planting following treatment. • Minimize soil disturbance and compaction. • Minimize disturbance to biological soil crusts (e.g., by timing treatments when crusts are moist). • Reinoculate biological crust organisms to aid in their recovery, if possible. • When appropriate, leave plant debris on site to retain moisture, supply nutrients, and reduce erosion. • Prevent oil and gas spills to minimize damage to soil. | <ul style="list-style-type: none"> • Assess the susceptibility of the treatment site to soil damage and erosion prior to treatment. • Minimize use of domestic animals if removal of vegetation may cause significant soil erosion or impact biological soil crusts. • Closely monitor timing and intensity of biological control with domestic animals. • Avoid grazing on wet soil to minimize compaction and shearing. | <ul style="list-style-type: none"> • Assess the susceptibility of the treatment site to soil damage and erosion prior to treatment. • Minimize treating areas where herbicide runoff is likely, such as steep slopes when heavy rainfall is expected. • Minimize the use of herbicides that have high soil mobility, particularly in areas where soil properties increase the potential for mobility. • Time treatments to encourage rapid recovery of desirable vegetation. • Further facilitate revegetation by seeding or planting following treatment. |

| Resource Element | Treatment Method | | | | |
|---|---|--|---|--|---|
| | Fire Use | Mechanical | Manual | Biological | Chemical |
| Soil Resources con't | | <ul style="list-style-type: none"> Reinoculate biological crust organisms to aid in their recovery, if possible. Conduct mechanical treatments along topographic contours to minimize runoff and erosion. When appropriate, leave plant debris on site to retain moisture, supply nutrients, and reduce erosion. Consider chaining when soils are frozen and plants are brittle to minimize soil disturbance. | | | |
| Water Resources See Manual 7000 - <i>Soil, Water, & Air Management</i> | <ul style="list-style-type: none"> Prescribe burns that are consistent with water management objectives. Plan burns to minimize negative impacts to water resources. Minimize burning on hillslopes, or revegetate hillslopes shortly after burning. Maintain a vegetated buffer between treatment areas and water bodies. | <ul style="list-style-type: none"> Minimize removal of desirable vegetation near residential and domestic water sources. Do not wash equipment or vehicles in water bodies. Maintain minimum 25- foot wide vegetated buffer near streams and wetlands. | <ul style="list-style-type: none"> Maintain vegetated buffer near residential and domestic water sources. Minimize removal of desirable vegetation near residential and domestic water sources. Minimize removal of desirable vegetation near water bodies. | <ul style="list-style-type: none"> Minimize use of domestic animals near residential or domestic water sources. Minimize use of domestic animals adjacent to water bodies if trampling or other activities are likely to cause soil erosion or impact water quality. | <ul style="list-style-type: none"> Consider climate, soil type, slope, and vegetation type when developing herbicide treatment programs. Do not rinse spray tanks in or near water bodies. Do not broadcast herbicide pellets where there is danger of contaminating water supplies. Minimize treating areas with a high risk for groundwater contamination. Maintain buffers between the treatment area and water bodies. Buffer widths should be developed based on herbicide- and site-specific criteria to minimize impacts to water bodies. |
| Wetlands and Riparian Areas | <ul style="list-style-type: none"> Following treatment, reseed or replant with native vegetation if the native plant community cannot recover and occupy the site sufficiently. | <ul style="list-style-type: none"> Manage riparian areas to provide adequate shade, sediment control, bank stability, and recruitment of wood into stream channels. Following treatment, reseed or replant with native vegetation if the native plant community cannot recover and occupy the site sufficiently. | <ul style="list-style-type: none"> Following treatment, reseed or replant with native vegetation if the native plant community cannot recover and occupy the site sufficiently. | <ul style="list-style-type: none"> Manage animals to prevent overgrazing and minimize damage to wetlands. Following treatment, reseed or replant with native vegetation if the native plant community cannot recover and occupy the site sufficiently. | <ul style="list-style-type: none"> Use appropriate herbicide-free buffer zone 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. Following treatment, reseed or replant with native vegetation if the native plant community cannot recover and occupy the site sufficiently. |
| Vegetation See Handbook H- 4410-1 (<i>National Range Handbook</i>), and manuals 5000 (<i>Forest Management</i>) and 9015 (<i>Integrated Weed Management</i>). | <ul style="list-style-type: none"> Keep fires as small as possible to meet the treatment objectives. Conduct low intensity burns to minimize adverse impacts to large vegetation. Limit area cleared for fire breaks and clearings to reduce potential for weed infestations. Where appropriate, use mechanical treatments to prepare forests for the reintroduction of fire. 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, including the application of state or regional grazing administration guidelines, needed to maintain desirable vegetation on the treatment site. Use plant stock or seed from the same seed zone and from sites of similar elevation when conducting revegetation activities. | <ul style="list-style-type: none"> Power wash vehicles and equipment to prevent the introduction and spread of weed and exotic species. Remove damaged trees and treat woody residue to limit subsequent mortality by bark beetles. Use plant stock or seed from the same seed zone and from sites of similar elevation when conducting revegetation activities. Use lighter chains with 40 to 60 pound links where the objective is to minimize disturbance to the understory species. As appropriate, use two chainings to reduce tree competition and prepare the seedbed. Carry out the second chaining at the most advantageous time for seeding (late fall or early winter, in most cases). Do not chain in areas where annual rainfall is less than 6-9 inches, especially if downy brome is present. 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, including the application of state or regional grazing administration guidelines, needed to maintain desirable vegetation on the treatment site. | <ul style="list-style-type: none"> Remove damaged trees and treat woody residue to limit subsequent mortality by bark beetles. 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, including the application of state or regional grazing administration guidelines, needed to maintain desirable vegetation on the treatment site. Use plant stock or seed from the same seed zone and from sites of similar elevation when conducting revegetation activities. | <ul style="list-style-type: none"> Use domestic animals at the time they are most likely to damage invasive species. Manage animals to prevent overgrazing and minimize damage to sensitive areas. 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, including the application of state or regional grazing administration guidelines, needed to maintain desirable vegetation on the treatment site. Use plant stock or seed from the same seed zone and from sites of similar elevation when conducting revegetation activities. | <ul style="list-style-type: none"> Use drift reduction agents, as appropriate, to reduce the drift hazard to non-target species. Use the appropriate application rate to treat weeds and other noxious vegetation to minimize effects to non-target vegetation. Conduct pre-treatment surveys for sensitive habitat and species of concern within and adjacent to proposed treatment areas. 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, including the application of state or regional grazing policies and administration guidelines, needed to maintain desirable vegetation on the treatment site. Use plant stock or seed from the same seed zone and from sites of similar elevation when conducting revegetation activities. |
| Fish and Other Aquatic Resources See Manual 6500 (<i>Wildlife and Fisheries Management</i>). | <ul style="list-style-type: none"> Maintain vegetated buffers near fish-bearing streams to minimize soil erosion and soil runoff into streams. Minimize treatments near fish-bearing streams during periods when fish are in sensitive life stages (e.g., embryo). | <ul style="list-style-type: none"> Minimize treatments adjacent to fish-bearing waters. Do not wash vehicles in streams or wetlands. Refuel and service equipment at least 100 feet from water bodies to reduce the chance for pollutants to enter water. Maintain adequate vegetated buffer between treatment area and water body to reduce the potential for sediments and other pollutants to enter the water body. | <ul style="list-style-type: none"> Refuel and service equipment at least 100 feet from water bodies to reduce the chance for pollutants to enter water. Minimize removal of desirable vegetation near fish-bearing streams and wetlands. | <ul style="list-style-type: none"> Limit access of domestic animals to streams and other water bodies to minimize sediments entering water and potential for damage to fish habitat. | <ul style="list-style-type: none"> Use appropriate buffer zones based on label and risk assessment guidance. Minimize treatments near fish-bearing streams during periods when fish are in life stages most sensitive to the herbicide(s) used. Use spot, rather than aerial treatments, near water bodies. Use herbicides that are least toxic to fish and still effective. |

| Resource Element | Treatment Method | | | | |
|---|--|---|--|--|---|
| | Fire Use | Mechanical | Manual | Biological | Chemical |
| Wildlife Resources | <ul style="list-style-type: none"> Minimize treatments during nesting and other important periods for birds and other wildlife. Minimize treatments of important forage areas immediately prior to important use period(s), unless the burn is designed to stimulate forage growth. | <ul style="list-style-type: none"> Minimize treatments during nesting and other important periods for birds and other wildlife. Retain wildlife trees and other unique habitat features where practical. Design chaining treatments to provide a mosaic of treated and nontreated sites. No more than 50% of an area should be chained at one time. Provide natural travel lanes, resting and thermal cover areas, snags, and corridors (>30 feet wide) connecting non-chained areas. Size of clearing should not exceed 100 yards at its widest point. | <ul style="list-style-type: none"> Minimize treatments during nesting and other important periods for birds and other wildlife. Retain wildlife trees and other unique habitat features where practical. | <ul style="list-style-type: none"> Minimize the use of livestock grazing as a vegetation control measure where and/or when it could impact nesting and/or other important periods for birds and other wildlife. Consider and minimize potential adverse impacts to wildlife habitat and minimize the use of livestock grazing as a vegetation control measure where it is likely to result in removal or physical damage to vegetation that provides a critical source of food or cover for wildlife. | <ul style="list-style-type: none"> Minimize treatments during nesting and other important periods for wildlife. Use herbicides of low toxicity to wildlife, where feasible. Conduct pre-treatment surveys for sensitive habitat and wildlife species of concern. 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. Minimize use of herbicides near wetlands and riparian areas with amphibians. |
| Threatened and Endangered Species See Manual 6840 (<i>Special Status Species</i>) and <i>Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic Biological Assessment</i> . | <ul style="list-style-type: none"> Survey for special status species of concern if project may impact federally- and state-listed species. Minimize direct impacts to species of concern, unless studies show that species will benefit from fire. | <ul style="list-style-type: none"> Minimize use of ground-disturbing equipment near special status species of concern. Survey for species of concern if project could impact these species. Use temporary roads when long-term access is not required. | <ul style="list-style-type: none"> Survey for special status species of concern if project could impact these species. | <ul style="list-style-type: none"> Survey for special status species of concern if project could impact these species. | <ul style="list-style-type: none"> Survey for special status species before treating an area. |
| Livestock See Handbook H-4120-1 (<i>Grazing Management</i>). | <ul style="list-style-type: none"> Notify permittees of proposed treatments and identify any needed livestock grazing, feeding, or slaughter restrictions. Design treatments to take advantage of normal livestock grazing rest periods, when possible, and minimize impacts to livestock grazing permits. Provide alternative forage sites for livestock, if possible. Notify permittees of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. | <ul style="list-style-type: none"> Notify permittees of proposed treatments and identify any needed livestock grazing, feeding, or slaughter restrictions. Design treatments to take advantage of normal livestock grazing rest periods, when possible, and minimize impacts to livestock grazing permits. Provide alternative forage sites for livestock, if possible. Notify permittees of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. | <ul style="list-style-type: none"> Notify permittees of proposed treatments and identify any needed livestock grazing, feeding, or slaughter restrictions. Design treatments to take advantage of normal livestock grazing rest periods, when possible, and minimize impacts to livestock grazing permits. Provide alternative forage sites for livestock, if possible. Notify permittees of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. | <ul style="list-style-type: none"> Notify permittees of proposed treatments and identify any needed livestock grazing, feeding, or slaughter restrictions. Design treatments to take advantage of normal livestock grazing rest periods, when possible, and minimize impacts to livestock grazing permits. Provide alternative forage sites for livestock, if possible. Notify permittees of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. | <ul style="list-style-type: none"> Notify permittees of proposed treatments and identify any needed livestock grazing, feeding, or slaughter restrictions. Design treatments to take advantage of normal livestock grazing rest periods, when possible, and minimize impacts to livestock grazing permits. Provide alternative forage sites for livestock, if possible. Use herbicides of low toxicity to livestock, where feasible. As directed by the herbicide label, remove livestock from treatment sites prior to herbicide application, where applicable. 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. Notify permittees of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. |
| Wild Horses and Burros | <ul style="list-style-type: none"> Minimize potential hazards to horses and burros by ensuring adequate escape opportunities. Avoid critical periods and minimize impacts to critical habitat that could adversely affect wild horse or burro populations. | <ul style="list-style-type: none"> Avoid critical periods and minimize impacts to habitat that could adversely affect wild horse or burro populations. | <ul style="list-style-type: none"> Avoid critical periods and minimize impacts to habitat that could adversely affect wild horse or burro populations. | <ul style="list-style-type: none"> Avoid critical periods and minimize impacts to habitat that could adversely affect wild horse or burro populations. | <ul style="list-style-type: none"> Minimize use of herbicides in project areas actively grazed by wild horses and burros, and/or use herbicides with low toxicity to reduce potential impacts. 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 limit the probability of contaminating non-target food and water sources. Avoid critical periods and minimize impacts to habitat that could adversely affect wild horse or burro populations. |

| Resource Element | Treatment Method | | | | |
|---|---|---|---|--|---|
| | Fire Use | Mechanical | Manual | Biological | Chemical |
| <p>Paleontological and Cultural Resources</p> <p>See handbooks H-8120-1 (<i>Guidelines for Conducting Tribal Consultation</i>) and H-8270-1 (<i>General Procedural Guidance for Paleontological Resource Management</i>) See also:</p> <p>The manuals 8100 (<i>The Foundations for Managing Cultural Resources</i>), 8120 (<i>Tribal Consultation Under Cultural Resource Authorities</i>), and 8270 (<i>Paleontological Resource Management</i>), <i>rogrammatic 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 (1997)</i>.</p> | <ul style="list-style-type: none"> Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the National Programmatic Agreement and state protocols or 36 CFR Part 800, including necessary consultations with the State Historic Preservation Officers and affected tribes. Follow BLM Handbook H-8270-1 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. Identify cultural resource types at risk from fire use and design inventories that are sufficient to locate these resources. Provide measures to minimize impacts. Identify opportunities to meet tribal cultural use plant objectives for projects on public lands. Monitor significant paleontological and cultural resources for potential looting of materials where they have been exposed by fire. | <ul style="list-style-type: none"> Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the National Programmatic Agreement and state protocols or 36 CFR Part 800, including necessary consultations with the State Historic Preservation Officers and interested tribes. Follow BLM Handbook H-8270-1 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. Identify cultural resource types at risk from mechanical treatments and design inventories that are sufficient to locate these resources. Provide measures to minimize impacts. Identify opportunities to meet tribal cultural use plant objectives for projects on public lands. Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected, adversely or beneficially, by mechanical treatments. | <ul style="list-style-type: none"> Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the National Programmatic Agreement and state protocols or 36 CFR Part 800, including necessary consultations with the State Historic Preservation Officers and interested tribes. Follow BLM Handbook H-8270-1 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. Identify cultural resource types at risk from manual treatments and design inventories that are sufficient to locate these resources. Provide measures to minimize impacts. Identify opportunities to meet tribal cultural use plant objectives for projects on public lands. Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected, adversely or beneficially, by manual treatments. | <ul style="list-style-type: none"> Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the National Programmatic Agreement and state protocols or 36 CFR Part 800, including necessary consultations with the State Historic Preservation Officers and interested tribes. Follow BLM Handbook H-8270-1 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. Identify opportunities to meet tribal cultural use plant objectives for projects on public lands. Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected, adversely or beneficially, by biological treatments. | <ul style="list-style-type: none"> Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the National Programmatic Agreement and state protocols or 36 CFR Part 800, including necessary consultations with the State Historic Preservation Officers and interested tribes. Follow BLM Handbook H-8270-1 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. Identify opportunities to meet tribal cultural use plant objectives for projects on public lands. Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected, adversely or beneficially, by herbicide treatments. |
| <p>Visual Resources</p> <p>See handbooks H-8410-1 (<i>Visual Resource Inventory</i>) and H-8431-1 (<i>Visual Resource Contrast Rating</i>), and Manual 8400 (<i>Visual Resource Management</i>).</p> | <ul style="list-style-type: none"> Minimize use of fire in sensitive watersheds to reduce the creation of large areas of browned vegetation. Consider the surrounding land use before assigning fire as a treatment method. At areas such as visual overlooks, leave sufficient vegetation in place, where possible, to screen views of vegetation treatments. Avoid use of fire near agricultural or densely populated areas, where feasible. Lessen visual effects in Class I and Class II visual resource areas. Design activities to repeat the form, line, color, texture of the natural landscape conditions to meet established Visual Resource Management (VRM) objectives. | <ul style="list-style-type: none"> Minimize dust drift, especially near recreational or other public use areas. Minimize loss of desirable vegetation near high public use areas. At areas such as visual overlooks, leave sufficient vegetation in place, where possible, to screen views of vegetation treatments. Minimize earthwork and locate away from prominent topographic features. Revegetate treated sites. Lessen visual effects in Class I and Class II visual resource areas. Design activities to repeat the form, line, color, and texture of the natural landscape character conditions to meet established VRM objectives. | <ul style="list-style-type: none"> Minimize dust drift, especially near recreational or other public use areas. Minimize loss of desirable vegetation near high public use areas. At areas such as visual overlooks, leave sufficient vegetation in place, where possible, to screen views of vegetation treatments. Lessen visual effects in Class I and Class II visual resource areas. Design activities to repeat the form, line, color, and texture of the natural landscape character conditions to meet established VRM objectives. | <ul style="list-style-type: none"> At areas such as visual overlooks, leave sufficient vegetation in place, where possible, to screen views of vegetation treatments. Lessen visual effects in Class I and Class II visual resource areas. Design activities to repeat the form, line, color, and texture of the natural landscape character conditions to meet established VRM objectives. | <ul style="list-style-type: none"> At areas such as visual overlooks, leave sufficient vegetation in place, where possible, to screen views of vegetation treatments. Minimize 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. Avoid aerial spraying near agricultural or densely populated areas, where feasible. Minimize off-site drift and mobility of herbicides (e.g., do not treat when winds exceed 10 mph; avoid treating areas where herbicide runoff is likely; establish appropriate buffer widths between treatment areas and residences). Lessen visual effects in Class I and Class II visual resource areas. When restoring treated areas, design activities to repeat the form, line, color, and texture of the natural landscape character conditions to meet established VRM objectives. |
| <p>Wilderness and Other Special Areas</p> <p>See handbooks H-8550-1 (<i>Management of Wilderness Study Areas (WSAs)</i>), and H-8560-1 (<i>Management of Designated Wilderness Study Areas</i>), and Manual 8351 (<i>Wild and Scenic Rivers</i>).</p> | <ul style="list-style-type: none"> Minimize soil-disturbing activities during fire control or prescribed fire activities. Revegetate sites with native species if there is no reasonable expectation of natural regeneration. Maintain adequate buffers for Wild and Scenic Rivers. | <ul style="list-style-type: none"> Use the least intrusive methods possible to achieve objectives, and use non-motorized equipment in wilderness and off existing routes in wilderness study areas, and where possible in other areas. If mechanized equipment is required, use the minimum amount of equipment needed. Time the work for weekdays or off-season. Require shut down of work before evening if work is located near campsites. If aircraft are used, plan flight paths to minimize impacts on visitors and wildlife. Revegetate sites with native species if there is no reasonable expectation of natural regeneration. Maintain adequate buffers for Wild and Scenic Rivers. | <ul style="list-style-type: none"> Use the least intrusive methods possible to achieve objectives, and use non-motorized equipment in wilderness and off existing routes in wilderness study areas, and where possible in other areas. Revegetate sites with native species if there is no reasonable expectation of natural regeneration. Maintain adequate buffers for Wild and Scenic Rivers. | <ul style="list-style-type: none"> Use the least intrusive methods possible to achieve objectives, and use non-motorized equipment in wilderness and off existing routes in wilderness study areas, and where possible in other areas. Maintain adequate buffers for Wild and Scenic Rivers. | <ul style="list-style-type: none"> Revegetate disturbed sites with native species if there is no reasonable expectation of natural regeneration. Use chemicals only when they are the minimum method necessary to control weeds that are spreading within the wilderness or threaten lands adjacent to the wilderness. Give preference to herbicides that have the least effect on non-target species and the wilderness environment. Implement herbicide treatments during periods of low human use, where feasible. Maintain adequate buffers for Wild and Scenic Rivers. |

| Resource Element | Treatment Method | | | | |
|--|---|--|--|--|---|
| | Fire Use | Mechanical | Manual | Biological | Chemical |
| Recreation See Handbook H-1601-1 (<i>Land Use Planning Handbook</i>). | <ul style="list-style-type: none"> Control public access to potential burn areas. Schedule treatments to avoid peak recreational use times, unless treatments must be timed during peak times to maximize effectiveness. Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas. | <ul style="list-style-type: none"> Control public access until potential treatment hazards no longer exist. Schedule treatments to avoid peak recreational use times, unless treatments must be timed during peak times to maximize effectiveness. Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas. | <ul style="list-style-type: none"> Control public access until potential treatment hazards no longer exist. Schedule treatments to avoid peak recreational use times, unless treatments must be timed during peak times to maximize effectiveness. Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas. | <ul style="list-style-type: none"> Control public access in areas with control agents to ensure that agents are effective. Schedule treatments to avoid peak recreational use times, unless treatments must be timed during peak times to maximize effectiveness. Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas. | <ul style="list-style-type: none"> Adhere to entry restrictions identified on the herbicide label for public and worker access. Post signs noting exclusion areas and their duration. Schedule treatments to avoid peak recreational use times, unless treatments must be timed during peak times to maximize effectiveness. Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas. |
| Social and Economic Values | <ul style="list-style-type: none"> Post treatment areas. Notify adjacent landowners, grazing permittees, the public, and emergency personnel of treatments. Control public access to treatment areas. Consult with Native American tribes and Alaska Natives whose health and economies might be affected by the project. To the extent feasible, hire local contractors and purchase supplies locally. | <ul style="list-style-type: none"> Post treatment areas. Notify adjacent landowners, grazing permittees, the public, and emergency personnel of treatments. Control public access to treatment areas. Consult with Native American tribes and Alaska Natives whose health and economies might be affected by the project. To the extent feasible, hire local contractors and purchase supplies locally. | <ul style="list-style-type: none"> Post treatment areas. Notify adjacent landowners, grazing permittees, the public, and emergency personnel of treatments. Control public access to treatment areas. Consult with Native American tribes and Alaska Natives whose health and economies might be affected by the project. To the extent feasible, hire local contractors and purchase supplies locally. | <ul style="list-style-type: none"> Post treatment areas. Notify adjacent landowners, grazing permittees, the public, and emergency personnel of treatments. Control public access to treatment areas. Consult with Native American tribes and Alaska Natives whose health and economies might be affected by the project. To the extent feasible, hire local contractors and purchase supplies locally. | <ul style="list-style-type: none"> Observe restricted entry intervals given on herbicide labels. Post treated areas and specify reentry or rest times, if appropriate. Notify adjacent landowners, grazing permittees, the public, and emergency personnel of treatments. Control public access until potential treatment hazards no longer exist. Consult with Native American tribes and Alaska Natives whose health and economies might be affected by the project. To the degree possible within the law, hire local contractors and purchase supplies locally. |
| Rights-of-way | <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. Manage burns under powerlines so as to avoid negative impacts to the powerline. | <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. Apply appropriate safety measures when operating equipment within utility ROW corridors. Minimize exposed soil areas during treatment. Keep operations within prescribed ROW. | <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. Always use appropriate safety equipment and operating procedures. Utilize methods for disposal of vegetation that prevent spreading or reinfestation of unwanted vegetation. | <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. | <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. Take precautions to minimize drift by not applying herbicides when winds exceed > 10 mph (6 mph for aerial applications) or a serious rainfall event is imminent. Use drift control agents and low volatile formulations. |
| Human Health and Safety | <ul style="list-style-type: none"> Use some form of pretreatment, such as mechanical or manual treatment, in areas where fire cannot be safely introduced because of hazardous fuel buildup. Wear appropriate safety equipment and clothing, and use equipment that is properly maintained. Notify nearby residents who could be affected by smoke. Maintain adequate safety buffers between treatment area and residences/structures. Burn vegetation debris off ROWs to ensure that smoke does not provide a conductive path from the transmission line or electrical equipment to the ground. | <ul style="list-style-type: none"> Wear appropriate safety equipment and clothing, and use equipment that is properly maintained. Cut all brush and tree stumps flat, where possible, to eliminate sharp points that could injure a worker or the public. Ensure that only qualified personnel cut trees near powerlines. | <ul style="list-style-type: none"> Wear appropriate safety equipment and clothing, and use equipment that is properly maintained. Cut all brush and tree stumps flat, where possible, to eliminate sharp points that could injure a worker or the public. | <ul style="list-style-type: none"> Wear appropriate safety equipment and clothing, and use equipment that is properly maintained. | <ul style="list-style-type: none"> Use protective equipment as directed by the herbicide label. Maintain adequate buffer widths between treatment area and residences, municipal water supplies, and recreation areas. Post treated areas with appropriate signs at common public access areas. Provide public notification in newspapers or other media where the potential exists for public exposure. Have a copy of Material Safety Data Sheets at work sites. Notify local emergency personnel of proposed treatments. Contain and clean up spills and request help as needed. Secure containers during transport. |

Mitigation Measures (ROD), Standard Operating Procedures (ROD) and Conservation Measures (BA)

from the *Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement*

| 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) or a serious rainfall event is imminent. • 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 | 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. |
| 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. • 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. | | |

| Resource | Mitigation Measure | Standard Operating Procedure | Species/Site Identification as Listed in the Biological Assessment | Conservation Measure |
|-----------------------|--|---|--|--|
| 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 <u>management plans</u> 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> <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. |

| Resource | Mitigation Measure | Standard Operating Procedure | Species/Site Identification as Listed in the Biological Assessment | Conservation Measure |
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| Vegetation – cont. | | | Plants – cont. | <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. 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. • 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 spp • 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. • 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. |

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| 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, 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>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 mile of terrestrial TEP plant species. 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 rehabilitation is appropriate. Straw and hay bales used for erosion control in suitable habitat must be certified weed- and seed-free. Vehicles and heavy equipment used during treatment activities should be washed prior to arriving at a new location to avoid the transfer of noxious weeds. <p>When BAs are drafted at the local level for treatment programs, additional conservation measures may be added to this list. Where BLM plans that consider the effects of vegetation treatments on TEP plant species already exist, these plans should be consulted, and incorporated (e.g., any guidance or conservation measures they provide) into local level BAs for vegetation treatments.</p> |

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| Polinators | <ul style="list-style-type: none"> Resource Not Listed in Table | <ul style="list-style-type: none"> Complete vegetation treatments seasonally before pollinator foraging plants bloom. Time vegetation treatments to take place when foraging pollinators are least active both seasonally and daily. 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. Minimize herbicide application rates. Use typical rather than maximum rates where there are important pollinator resources. Maintain herbicide free buffer zones around patches of important pollinator nectar and pollen sources. Maintain herbicide free buffer zones around patches of important pollinator nesting habitat and hibernacula. 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. | | |
| Fish and Other Aquatic Organisms | <ul style="list-style-type: none"> Limit the use of diquat in water bodies that have native fish and aquatic resources. 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. 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>. 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). Consider the proximity of application areas to salmonid habitat and the possible effects of herbicides on riparian and aquatic vegetation. Maintain appropriate buffer zones around salmonid-bearing streams (see Appendix C, Table C-16, of the Final PEUS, and recommendations in the individual ERAs). 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 aquatic organisms. At the local level, consider effects to special status fish and other aquatic organisms when designing treatment programs. | <ul style="list-style-type: none"> Use appropriate buffer zones based on label and risk assessment guidance. 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. Use appropriate application equipment/method near water bodies if the potential for off-site drift exists. 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. | <p>Aquatic Animals:</p> <p>Conservation Measures for Site Access and Fueling/Equipment Maintenance</p> <ul style="list-style-type: none"> For treatments occurring in watersheds with TEP species or designated or undesignated critical habitat (i.e., unoccupied habitat critical to species recovery): | <ul style="list-style-type: none"> Where feasible, access work site only on existing roads, and limit all travel on roads when damage to the road surface will result or is occurring. Where TEP aquatic species occur, consider ground-disturbing activities on a case by case basis, and implement SOPs to ensure minimal erosion or impact to the aquatic habitat. Within riparian areas: <ul style="list-style-type: none"> Do not use vehicle equipment off of established roads. Outside of riparian areas: <ul style="list-style-type: none"> Allow driving off of established roads only on slopes of 20% or less. Except in emergencies, land helicopters outside of riparian areas. Within 150 feet of wetlands or riparian areas, do not fuel/refuel equipment, store fuel, or perform equipment maintenance (locate all fueling and fuel storage areas, as well as service landings outside of protected riparian areas). Prior to helicopter fueling operations prepare a transportation, storage, and emergency spill plan and obtain the appropriate approvals; for other heavy equipment fueling operations use a slip-tank not greater than 250 gallons; Prepare spill containment and cleanup provisions for maintenance operations. Do not conduct biomass removal (harvest) activities that will alter the timing, magnitude, duration, and spatial distribution of peak, high, and low flows outside the range of natural variability. |
| Fish and Other Aquatic Organisms – cont. | <ul style="list-style-type: none"> | | <p>Aquatic Animals:</p> <p>Conservation Measures Related to Revegetation Treatments</p> | <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. | | | <p>Aquatic Animals:</p> <p>Conservation Measures Related to Herbicide Treatments</p> | <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>). |

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| Fish and Other Aquatic Organisms – cont. | | | Aquatic Animals: Conservation Measures Related to Herbicide Treatments - cont. | <ul style="list-style-type: none"> 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. 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 suflometuron 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. | | | Aquatic Animals: Conservation Measures Related to Prescribed Fire | <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. Consult with a local fisheries biologist prior to helicopter dipping in order to avoid entrainment and harassment of TEP species. |
| Fish and Other Aquatic Organisms – cont. | | | Aquatic Animals: Conservation Measures Related to Mechanical Treatments | <p>Note: these measures apply only to treatments occurring in watersheds that support TEP species or in unoccupied habitat critical to species recovery (including but not limited to critical habitat, as designated by USFWS).</p> <p>Outside riparian areas in watersheds with TEP species or designated or undesignated critical habitat (i.e., unoccupied habitat critical to species recovery):</p> <ul style="list-style-type: none"> Conduct soil-disturbing treatments only on slopes of 20% or less, where feasible. Do not conduct log hauling activities on native surface roads prone to erosion, where feasible. <p>Within riparian areas in these watersheds, more protective measures will be required to avoid negatively affecting TEP species or their habitat:</p> <ul style="list-style-type: none"> Do not use vehicles or heavy equipment, except when crossing at established crossings. Do not remove large woody debris or snags during mechanical treatment activities. Do not conduct ground disturbing activities (e.g., disking, drilling, chaining, and plowing). Ensure that all mowing follows guidance to avoid negative effects to streambanks and riparian vegetation and major effects to streamside shade. Do not use equipment in perennial channels or in intermittent channels with water, except at crossings that already exist. Leave suitable quantities (to be determined at the local level) of excess vegetation and slash on site. Do not apply fertilizers or seed mixtures that contain chemicals by aerial methods. |

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| Fish and Other Aquatic Organisms – cont. | | | Aquatic Animals: Conservation Measures Related to Mechanical Treatments – cont. | <ul style="list-style-type: none"> Do not apply fertilizer within 25 feet of streams and supersaturated soils; apply fertilizer following labeling instructions. Do not apply fertilizer in desert habitats. Do not completely remove trees and shrubs. |
| Fish and Other Aquatic Organisms – cont. | | | Aquatic Animals: Conservation Measures Related to Biological Control Treatments using Livestock | <p>For treatments occurring in watersheds that support TEP species or in critical habitat:</p> <ul style="list-style-type: none"> Where terrain permits, locate stock handling facilities, camp facilities, and improvements at least 300 feet from lakes, streams, and springs. Educate stock handlers about at-risk fish species and how to minimize negative effects to the species and their associated habitat. Employ appropriate dispersion techniques to range management, including judicious placement of saltblocks, troughs, and fencing, to prevent damage to riparian areas but increase weed control. Equip each watering trough with a float valve. <p>Within riparian areas of these watersheds, more protective measures are required:</p> <ul style="list-style-type: none"> Do not conduct weed treatments involving domestic animals, except where it is determined that these treatments will not damage the riparian system, or will provide long-term benefits to riparian and adjacent aquatic habitats. Do not locate troughs, storage tanks, or guzzlers near streams with TEP species, unless their placement will enhance weed-control effectiveness without damaging the riparian system. <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 Biological Assessment</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. | Terrestrial Animals: Terrestrial Mollusks | <ul style="list-style-type: none"> Do not burn, conduct mechanical treatments, or use broad-spectrum herbicides in habitats occupied by snails. Do not perform herbicide treatments in habitats occupied by snails that will result in a substantial reduction of plant (and especially native plant) cover; where feasible, spot treat vegetation rather than spraying. |
| Wildlife – cont. | | | Terrestrial Animals: Arthropods: <ul style="list-style-type: none"> Butterflies and Moths | <p>Management plans should, at a minimum, follow this general guidance:</p> <ul style="list-style-type: none"> Use an integrated pest management approach when designing programs for managing pest outbreaks. Survey treatment areas for TEP butterflies/moths and their host/nectar plants (suitable habitat) at the appropriate times of year. Minimize the disturbance area with a pre-treatment survey to determine the best access routes. Areas with butterfly/moth host plants and/or nectar plants should be avoided. Minimize mechanical treatments and OHV activities on sites that support host and/or nectar plants. Carry out vegetation removal in small areas, creating openings of 5 acres or less in size. |

| Resource | Mitigation Measure | Standard Operating Procedure | Species/Site Identification as Listed in the Biological Assessment | Conservation Measure |
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| Wildlife – cont. | | | Terrestrial Animals: Arthropods: Butterflies and Moths – cont. | <ul style="list-style-type: none"> • Avoid burning all of a species’ habitat in any 1 year. Limit area burned in butterfly/moth habitat in such a manner that the unburned units are of sufficient size to provide a refuge for the population until the burned unit is suitable for re-colonization. Burn only a small portion of the habitat at any one time, and stagger timing so that there is a minimum 2-year recovery period before an adjacent parcel is burned. • Where feasible, mow or wet around patches of larval host plants within the burn unit to reduce impacts to larvae. • In TEP butterfly/moth habitat, burn while butterflies and/or moths of concern are in the larval stage, when the organisms would receive some thermal protection. • Wash equipment before it is brought into the treatment area. • Use a seed mix that contains host and/or nectar plant seeds for road/site reclamation. • To protect host and nectar plants from herbicide treatments, follow recommended buffer zones and other conservation measures for TEP plants species when conducting herbicide treatments in areas where populations of host and nectar plants occur. • Do not broadcast spray herbicides in habitats occupied by TEP butterflies or moths; do not broadcast spray herbicides in areas adjacent to TEP butterfly/moth habitat under conditions when spray drift onto the habitat is likely. • Do not use 2,4-D in TEP butterfly/moth habitat. • When conducting herbicide treatments in or near habitat used by TEP butterflies or moths, avoid use of the following herbicides, where feasible: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, picloram, tebuthiuron, and triclopyr. • If conducting manual spot applications of diquat, diuron, glyphosate, hexazinone, tebuthiuron, or triclopyr to vegetation in TEP butterfly or moth habitat, utilize the typical, rather than the maximum, application rate. |
| Wildlife – cont. | | | Terrestrial Animals: Amphibians and Reptiles: | <p>Many local BLM offices already have management plans in place that ensure the protection of these species during activities on public lands. In addition, the following conservation measures are the minimum steps required of the BLM to ensure that treatment methods would be unlikely to negatively affect TEP species.</p> <ul style="list-style-type: none"> • Survey all areas that may support TEP amphibians and/or reptiles prior to treatments. • Conduct burns during periods when the animals are in aquatic habitats or are hibernating in burrows. • For species with extremely limited habitat, such as the desert slender salamander, avoid prescribed burning in known habitat. • Do not use water from aquatic habitats that support TEP amphibians and/or reptiles for fire abatement. • Install sediment traps upstream of aquatic habitats to minimize the amount of ash and sediment entering aquatic habitats that support TEP species. • Do not conduct prescribed burns in desert tortoise habitat. • In habitats where aquatic herpetofauna occur, implement all conservation measures identified for aquatic organisms in Chapter 4. • Within riparian areas, wetlands, and aquatic habitats, conduct herbicide treatments only with herbicides that are approved for use in those areas. • Do not broadcast spray herbicides in riparian areas or wetlands that provide habitat for TEP herpetofauna. • Do not use diquat, fluridone, glyphosate, or triclopyr BEE to treat aquatic vegetation in habitats where TEP amphibians occur or may potentially occur. • In desert tortoise habitat, conduct herbicide treatments during the period when desert tortoises are less active. • To the greatest extent possible, avoid desert tortoise burrows during herbicide treatments. • 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. |
| Wildlife – cont. | | | Terrestrial Animals: Amphibians and Reptiles – cont. | <ul style="list-style-type: none"> • 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 <p>• 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.</p> |
| Wildlife – cont. | | | Terrestrial Animals: Bird Species: <ul style="list-style-type: none"> • Sand Nesters: <ul style="list-style-type: none"> ○ Western Snowy Plover ○ Piping Plover ○ Least Tern | <ul style="list-style-type: none"> • Survey for western snowy plovers, piping plovers, and interior least terns (and their nests) in suitable areas on proposed treatment areas, prior to developing treatment plans. • Do not treat vegetation in nesting areas during the breeding season (as determined by a qualified biologist). • Do not allow human (or domestic animal) disturbance within ¼ mile of nest sites during the nesting period. • Ensure that nest sites are at least 1 mile from downwind smoke effects during the nesting period. • Conduct beachgrass treatments during the plant’s flowering stage, during periods of active growth. • Closely follow all application instructions and use restrictions on herbicide labels; in wetland habitats use only those herbicides that are approved for use in wetlands. • Do not use 2,4-D in western snowy plover, piping plover, or interior least tern habitats; do not broadcast spray 2,4-D within ¼ mile of western snowy plover, piping plover, or interior least tern habitat. • Where feasible, avoid use of the following herbicides in western snowy plover and piping plover habitat: clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, and triclopyr; in interior least tern habitat avoid the use of clopyralid, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, and triclopyr. • Do not broadcast spray clopyralid, diquat, diuron, glyphosate, hexazinone, picloram, or triclopyr in western snowy plover or piping plover habitat; do not broadcast spray these herbicides in areas adjacent to western snowy plover or piping plover habitat under conditions when spray drift onto the habitat is likely. • Do not broadcast spray clopyralid, glyphosate, hexazinone, picloram, or triclopyr in interior least tern habitat; do not broadcast spray these herbicides in areas adjacent least tern habitat under conditions when spray drift onto the habitat is likely. • If broadcast spraying imazapyr or metsulfuron methyl in or adjacent to western snowy plover, piping plover, or interior least tern habitat, apply at the typical, rather than the maximum, application rate. • If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in western snowy plover, piping plover, or interior least tern habitat, utilize the typical, rather than the maximum, application rate. <p>Additional, project-specific conservation measures would be developed at the local level, as appropriate.</p> |
| Wildlife – cont. | | | Terrestrial Animals: Bird Species: <ul style="list-style-type: none"> • Riparian Bird Species: <ul style="list-style-type: none"> ○ Southwestern Willow Flycatcher | <ul style="list-style-type: none"> • Conduct surveys prior to vegetation treatments within potential or suitable habitat. • Where surveys detect birds, do not burn, broadcast spray herbicides, use domestic animals to control weeds, or conduct mechanical treatments. • Do not conduct vegetation treatments within ½ mile (or further if deemed necessary to prevent smoke from inundating the nest area) of known nest sites or unsurveyed suitable habitat during the breeding season (as determined by a qualified wildlife biologist). • Adjust spatial and temporal scales of treatments to that not all suitable habitat is affected in any given year. • Following treatments, replant or reseed treated areas with native species, if needed. • Closely follow all application instructions and use restrictions on herbicide labels; in wetland habitats use only those herbicides that are approved for use in wetlands. • Do not use 2,4-D in southwestern willow flycatcher habitats; do not broadcast spray 2,4-D within ¼ mile of southwestern willow flycatcher habitat. • Where feasible, avoid use of the following herbicides in southwestern willow flycatcher 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 southwestern willow flycatcher habitat; do not broadcast spray these herbicides in areas adjacent to southwestern willow flycatcher habitat under conditions when spray drift onto the habitat is likely. • If broadcast spraying imazapyr or metsulfuron methyl in or adjacent to southwestern willow flycatcher habitat, apply at the typical, rather than the maximum, application rate. • If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in southwestern willow flycatcher habitat, utilize 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 |
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| 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"> ○ Pygmy Rabbit | <p>Although only the Columbia Basin Distinct Population Segment of the pygmy rabbit is currently listed, these mitigation measures should be considered for treatments throughout the species’ entire range, and implemented as appropriate.</p> <ul style="list-style-type: none"> • Prior to treatments, survey all suitable habitat for pygmy rabbits. • Address pygmy rabbits in all management plans prepared for treatments within the range of the species’ historical habitat. • Do not burn, graze, or conduct mechanical treatments within 1 mile of known pygmy rabbit habitat. • Do not use 2,4-D, diquat, or diuron in pygmy rabbit habitats; do not broadcast spray these herbicides within ¼ mile of pygmy rabbit habitat. • Where feasible, avoid use of the following herbicides in pygmy rabbit habitat: bromacil, clopyralid, fluridone, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, tebuthiuron, and triclopyr. • Where feasible, spot treat vegetation in pygmy rabbit habitat rather than broadcast spraying. • Do not broadcast spray clopyralid, glyphosate, hexazinone, picloram, or triclopyr in pygmy rabbit habitat; do not broadcast spray these herbicides in areas adjacent to pygmy rabbit habitat under conditions when spray drift onto the habitat is likely. • If broadcast spraying bromacil, imazapyr, fluridone, metsulfuron methyl, or tebuthiuron in or near pygmy rabbit habitat, apply at the typical, rather than the maximum, application rate. • If conducting manual spot applications of bromacil, glyphosate, hexazinone, tebuthiuron, or triclopyr to vegetation in pygmy rabbit habitat, utilize the typical, rather than the maximum, application rate. <p>In addition, project-level conservation measures would also be developed by local BLM offices during the development of NEPA documents for site-specific treatment projects.</p> |
| Wildlife – cont. | | | Terrestrial Animals: Mammals: <ul style="list-style-type: none"> ○ Bats | <ul style="list-style-type: none"> • Prior to treatments, survey all potentially suitable habitat for the presence of bats or their nectar plants. • Instruct all field personnel on the identification of bat nectar plants and the importance of their protection. • Protect nectar plants from modification by treatment activities to the greatest extent possible. Do not remove nectar plants during treatments. Avoid driving over plants, piling slash on top of plants, burning, and using domestic animals to control weeds. • Do not burn within a mile upwind of known bat roosts. • To protect nectar plants and roost trees from herbicide treatments, follow recommended buffer zones and other conservation measures for TEP plant species in areas where populations of nectar plants and roost trees occur. |
| Wildlife – cont. | | | Terrestrial Animals: Mammals: <ul style="list-style-type: none"> ○ Bighorn Sheep | <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. • 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. |
| T&E & 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. | | |

| Resource | Mitigation Measure | Standard Operating Procedure | Species/Site Identification as Listed in the Biological Assessment | Conservation Measure |
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| 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 typical application rate, where feasible, in areas associated with wild horse and burro use. 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. | <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 feasible. 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 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). 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). | | |

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| 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. | | |
| 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. | | |
| 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. | | | |