

ENVIRONMENTAL ASSESSMENT INVASIVE PLANT MANAGEMENT

United States Department of the Interior
Bureau of Land Management
Bishop Field Office
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INTRODUCTION

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PROPOSED ACTION TITLE/TYPE: Integrated Pest Management

LOCATION OF PROPOSED ACTION: Field Office Wide (APPENDIX 1)

APPLICANT (IF ANY): Bureau of Land Management (BLM) Bishop Field Office Project

BACKGROUND

Invasive plants are plants that have been introduced into an environment in which they did not evolve and thus usually have no natural enemies to limit their reproduction and spreading. Executive Order 13112 of February 3, 1999, directs federal agencies whose actions may affect the status of invasive species to prevent their introduction and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.

Invasive plants inhibit the ability of the BLM to manage public lands for healthy native ecosystems because invasive plants create numerous adverse impacts to native ecosystem processes. These impacts include: displacement of native plants; reduction in functionality of habitat and forage for wildlife and livestock; increased potential for soil erosion and reduced water quality; alteration of physical and biological properties of soil; loss of long-term riparian area function; loss of habitat for culturally significant plants; high economic cost of controlling invasive plants; alteration of natural fire regimes; and increased cost of keeping systems and recreational sites free of invasive species.

Several species of invasive plant are known to exist on the public lands managed by the Bureau of Land Management (BLM) Bishop Field Office, including tamarisk (*Tamarix ramosissima*), Russian thistle (*Salsola tragus*), white top (*Lepidium appelianum*), perennial pepperweed (*Lepidium latifolium*), Russian olive (*Elaeagnus angustifolia*), woolly mullein (*Verbascum thapsus*), and bull thistle (*Cirsium vulgare*) (Appendix 1, Maps 1 thru 7). Past invasive plant projects in the Bishop Field Office have focused on tamarisk, Russian thistle, white top, and

perennial pepperweed eradication from numerous isolated locations. Monitoring of these past treatments has shown to have successfully killed the target plants with minimal to no re-sprouting. Some treatment sites have had new plants emerge requiring re-treatment and new locations of these invasive plant species are regularly discovered.

This environmental assessment (EA) tiers to the 2007 *Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* Record of Decision (PEIS ROD, 2007). The PEIS ROD approved: 1) a specified set of herbicide active ingredients for use on public lands administered by the BLM, and 2) the use of a scientific assessment protocol to guide the analytical methodology for consideration of the use or non-use of herbicides by the BLM. These decisions are supported by Standard Operating Procedures (SOPs) for Applying Herbicides and mitigation measures to ensure that the natural and human environments are protected during implementation of herbicide treatments.

Specific relevant sections of the PEIS and PEIS ROD that this EA tiers to include:

- Standard Operating Procedures for Applying Herbicides (PEIS ROD Appendix B, Table B-2, pp. B-9 thru B-14), a listing of steps to be taken to minimize the risk of herbicide impact to non-target resources, including; soil, air, water, wildlife, livestock, cultural resources, human health and safety, etc.
- Additional measures to mitigate potential adverse environmental effects as a result of vegetation treatment activities using herbicides (PEIS ROD Table 2, pp. 2-4 thru 2-6), to avoid or further reduce the potential of adverse impacts to non-target resources.
- Human Health Risk Assessment (PEIS Appendix B) and Ecological Risk Assessment (PEIS Appendix C), an evaluation of the potential impacts to human health and resources from specific herbicide use.

PURPOSE AND NEED FOR ACTION

The BLM Bishop Field Office proposes to implement an invasive plant species treatment program to control and/or eradicate existing and future invasive plant populations occurring on public lands. This action is needed to comply with Executive Order 13112 and because these invasive plants adversely impact biologic and hydrologic systems, as well as detract from recreational opportunities and the naturalness of designated Wilderness and Wilderness Study Areas. Currently, many of the known invasive plant infestations that would be targeted for treatment are very small in extent and their impacts are highly localized. However, these infestations have the potential to spread and cause greater harmful impacts to resources on public lands administered by the BLM, as well as other nearby public and private lands.

Decision to be Made

This EA will identify and disclose the environmental impacts that could result from implementation of an invasive plant species treatment program to control and/or eradicate existing and future invasive plant populations occurring on BLM administered public lands. Based on the analysis in the EA, the Bishop Field Manager will decide whether to implement the

treatment program as proposed, to implement an alternative to the proposed treatment program, or to take no action.

Analysis Process for Subsequent Tiered Decisions on New Invasive Plant Species and Locations

This EA has been prepared to disclose and analyze the environmental impacts of invasive plant management activities as proposed by the BLM on known existing species of invasive plant at site-specific locations. Identification of new invasive plant species or new site locations for existing or new invasive plant species cannot be predicted in advance, however it is anticipated that for many potential new species of invasive plants or new site locations for existing or new invasive plants, the effects analysis for the proposed action and alternatives would be the same.

If the Bishop Field Manager selects one of the action alternatives evaluated in this EA, subsequent environmental review will follow the policies and procedures in the BLM National Environmental Policy Handbook (H-1790-1) to determine the appropriate level of public input and analysis to be conducted for subsequent decisions on new invasive plant species or new site locations for existing or new invasive plant species. At a minimum, a Determination of NEPA Adequacy (DNA) will be conducted for new invasive plant species or new site locations for existing or new invasive plant species to determine if the effects of the action are adequately analyzed in this document. The BLM would also consult with the appropriate tribes consistent with Section 106 of the National Historic Preservation Act (NHPA).

The BLM has the discretion to do public scoping during a DNA review to identify potential additional issues to be considered if the Bishop Field Manager determines that public input opportunities completed as a part of this EA were not adequate for the attributes of new invasive plant species or new site locations for existing or new invasive plant species (H-1790-1). Where a DNA finds that all issues have already been adequately analyzed in this EA, a decision will be made without further analysis. Any such decision will be subject to appeal pursuant to 43 CFR Part 4.

Where concerns are identified which were not considered in this EA, such as for a new invasive plant location with unique environmental or cultural considerations, a separate site-specific NEPA analysis will be conducted to ensure all potential effects to environmental and cultural resources are thoroughly evaluated. Public input opportunities associated with that NEPA analysis will be offered. Any decision based on that NEPA analysis would also be subject to appeal pursuant to 43 CFR Part 4.

SCOPING, PUBLIC INVOLVEMENT AND ISSUES

Scoping and public involvement began on December 31, 2012 with the mailing of a Notice of Proposed Action (NOPA) to state and local government agencies, other federal agencies, tribes, permittees, conservation organizations, and other individuals with potential interest in the proposed project. The NOPA was also posted electronically on the Bishop Field Office website for review. The NOPA provided a brief description of the proposed action and alternatives, the

purpose and need for the proposed action, and other background information on invasive plant management. The NOPA requested that scoping comments on the proposed project be received by February 1, 2013. Three comment letters were received. Overall, comments were supportive of the treatment of invasive plant species on public lands. From the letters received, issues and concerns included:

Comment 1: Concern for potential use of motorized vehicles in designated Wilderness and WSAs.

BLM Response: No off-road use of motorized vehicles (e.g. ATVs) is authorized in any designated Wilderness or WSA under any alternative proposed in this EA.

Comment 2: Concern about how treatment areas would be selected, the size of treatment areas, and if post-treatment monitoring would occur.

BLM Response: The description of the proposed action includes how treatment areas would be selected, which includes consideration for the size of the treatment area, and the invasiveness of the particular species. Post-treatment monitoring is included as part of the proposed action.

PLAN CONFORMANCE

The proposed action is subject to the Bishop Resource Management Plan (RMP), approved March 25, 1993 (USDI BLM, 1993). Although the proposed action is not specifically provided for in the RMP, the proposed action is found to be consistent because it is clearly following RMP policy and direction.

- Area Manager's Guidelines (pg. 9): "4. Vegetation will be a key element in the plan and management will be directed toward the achievement of desired plant community goals." Desired plant community goals throughout the Bishop Field Office are for native vegetation, not invasive species. The proposed action is designed to improve and maintain the ecological condition of the native vegetation and minimize or eliminate invasive species.
- Area-Wide Decisions (pg. 17), the RMP states: "Protect and enhance unique or important vegetation communities and wildlife habitats." Invasive plant species create adverse impacts to native ecosystem processes, including direct competition and replacement of native plants, alteration of physical and biological properties of soil, loss of long-term riparian area function, and alteration of natural fire regimes.

PROPOSED ACTION AND ALTERNATIVES

ALTERNATIVE 1 (PROPOSED ACTION) - INTEGRATED PEST MANAGEMENT

The BLM proposes to use an Integrated Pest Management (IPM) approach to controlling invasive plants. The U.S. Environmental Protection Agency (EPA) describes IPM as “an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices. IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means and with the least possible hazard to people, property, and the environment” (U.S. EPA, 2012).

The proposed action is to eradicate or control the invasive plant species known to occur on public lands managed by the BLM, including; tamarisk (*Tamarix ramosissima*), Russian thistle (*Salsola tragus*), white top (*Lepidium appelianum*), perennial pepperweed (*Lepidium latifolium*), Russian olive (*Elaeagnus angustifolia*), woolly mullein (*Verbascum thapsus*), and bull thistle (*Cirsium vulgare*). Identification of new invasive plant species or new site locations for existing or new invasive plant species cannot be predicted in advance, however it is anticipated that for many potential new species of invasive plants or new site locations for existing invasive plants, the effects analysis for the proposed action and alternatives would be the same. However, treatment of new invasive plant species or new site locations for existing invasive species would only be conducted after completing the analysis process for subsequent tiered decisions outlined above.

The objective of invasive plant treatments is to locate and control/eradicate infestations while they are small in extent. Controlling/eradicating infestations while they are small would reduce the potential for the invasive plants to spread and cause adverse impacts to the surrounding habitat, as well as minimize the potential for impacts to occur to non-target resources during the treatment process.

Treatment would be conducted using an Integrated Pest Management (IPM) approach including the use of manual and chemical treatment methods which are described below. No aerial application of herbicides would be authorized under this alternative in this environmental assessment.

Treatment Methods and Treatment Method Selection

The range of treatment methods includes:

- **Manual treatment** - Manual treatment would include the use of hand tools and hand-operated power tools to cut the target plant near the ground surface or remove the flowering portion of the plant. Manual treatment may also include hand pulling or digging out smaller plants. Examples of species that may be treated with only manual treatment include isolated individuals of bull thistle or woolly mullein. Plants that have

not flowered can often be left at the site. However, plants that have already flowered with viable seed that are manually treated would be properly disposed of (i.e. bagged) in order to remove the seed source.

- **Chemical treatment** - Chemical treatment would involve the application of the most suitable herbicide for the target plant based on the approved active ingredient. Herbicide application would be done via a hand/backpack sprayer or applied directly to a cut stump using a brush. No aerial application of herbicide would be authorized. An example of a species that may be treated with chemical treatment only is perennial pepperweed. Chemical treatment would be conducted consistent with the specifications on the herbicide label. Only the thirteen (13) herbicide active ingredients approved in the PEIS ROD (Table 1, pp. 2-3) and registered for use in the state of California would be considered.

The PEIS ROD approved thirteen (13) herbicide active ingredients (PEIS ROD, Table 1, pp. 2-3) for use in California. The active ingredient applied would depend on the invasive plant species and location. While all 13 herbicide active ingredients would be available for use in eradicating and/or controlling invasive plants, it is anticipated that triclopyr will be the primary active ingredient used for cut stump, direct application treatments of woody invasive plants and Chlorsulfuron, Imazapyr, 2-4D, and Glyphosate will be the primary active ingredients applied to annual and perennial invasive plants.

- **Combined Manual and Chemical treatment** - Some invasive species may require a combination of manual and chemical methods. This could be due to both the growth stage of the plant at time of treatment or the nature of the prescribed treatment. An example of this method would be a cut stump treatment of tamarisk where the woody stem(s) is cut near the ground and herbicide is applied to the remaining cut stump surface to prevent re-sprouting.

Treatment method selection would be based on plant phenology, size and extent of the infestation, site characteristics, and potential for treatment success. The treatment method that minimizes the potential for adverse effects but is most likely to achieve control would be the selected treatment method. For example, if the BLM determines an infestation could be controlled without the use of herbicide (e.g. ten (10) bull thistle plants), the infestation would most likely be treated by simply uprooting the individual plants (manual treatment only). For some invasive plants (i.e. tamarisk or perennial pepperweed) manual treatment alone is often not successful and therefore the use of a PEIS ROD-approved herbicide is needed for control. Herbicides would not be used in areas where the BLM determines that herbicide use would pose unnecessary risks or cause inadvertent impacts to non-target resources. All treated infestations would be monitored for effectiveness of treatment within three (3) years of treatment application. It is anticipated that some infestations may need one or more re-treatments to obtain full control or eradication.

Standard Operating Procedures (SOPs) for Applying Herbicides

The SOPs for Applying Herbicides (PEIS ROD Appendix B, Table B-2, pp. B-9 thru B-14) would be followed to ensure that risks to human health and the environment from herbicide treatment actions are kept to a minimum. Numerous resource elements are specifically provided for by the SOPs, including; air quality, soil, water resources, wetlands and riparian areas, vegetation, wildlife, livestock, cultural resources, recreation, and human health and safety. Several of the SOPs found in the PEIS ROD would not apply to this project (e.g. those specific to the aerial or motorized equipment application of herbicide) and the condensed list of applicable SOPs for Applying Herbicides specific to this project can be found in Appendix 2.

Mitigation Measures

The additional protection measures found in the PEIS ROD (Table 2, pp. 2-4 thru 2-6) would be followed to ensure all practicable means to avoid or minimize adverse environmental effects resulting from herbicide application are in place. These additional protection measures include the same list resource elements provided for in the SOPs and the condensed listing of additional protection measures applicable to this project can be found in Appendix 3.

ALTERNATIVE 2 – NO ACTION

The no action alternative would be the continuation of current invasive plant management. There is no authorization allowing for the application of an IPM approach to invasive plant species known to occur on public lands administered by the BLM Bishop Field Office. Therefore, no invasive plant infestations would be treated using an IPM approach under this alternative.

ALTERNATIVE 3 – NO HERBICIDE USE

This alternative would only authorize the use of manual treatment methods to control/eradicate invasive plant species. The manual treatment method would be the same as described in Alternative 1 (proposed action). Invasive plant species or infestations where control/eradication is not likely to be achieved through the use of manual treatment methods alone would not be treated. For example, populations of perennial pepperweed would not be treated due to the lack of control provided by manual treatment alone. However, small populations of other invasive plant species such as woolly mullein would be treated manually.

ENVIRONMENTAL ANALYSIS

The Human Health Risk Assessment (PEIS Appendix B) and Ecological Risk Assessment (PEIS Appendix C), provide an evaluation of the potential beneficial and adverse impacts to human health and resources from specific herbicide use. In general, the PEIS concluded herbicide treatments would have short-term negative effects and long-term positive effects on most resource elements and in most cases posed few or no risks to workers or the general public. Specific findings of these assessments are briefly summarized in this section as needed.

ALTERNATIVE 1 (PROPOSED ACTION) – INTEGRATED PEST MANAGEMENT

Air Quality

The Bishop Field Office manages public lands within two areas currently classified as federal non-attainment areas for PM-10 under the National Ambient Air Quality Standards: The Mono Basin non-attainment area (classified as in “Moderate” non-attainment) in Mono County and the Owens Valley non-attainment area (classified as in “Serious” non-attainment) in Inyo County. The project area includes public lands in both of these non-attainment areas, plus all other areas of the Bishop Field Office not within a federal non-attainment area.

The U.S. Environmental Protection Agency’s (USEPA) General Conformity *De Minimus* Level for PM-10 emissions in “Serious” non-attainment areas is < 70 tons per year (< 100 tons per year for “Moderate” non-attainment areas) and < 10% of a non-attainment or maintenance area’s total emissions for that pollutant per year. Other than driving on existing dirt roads during the estimated 4-6 days of project implementation and monitoring per year, no other significant surface disturbing activity would take place. The PM-10 emissions from this alternative would be extremely small (estimated at < 50 pounds per year) and well below threshold levels defined by EPA. Emissions from vehicles, hand-operated power tools, and herbicide application would be minimal, of short duration, and would not produce a noticeable or measurable change in air quality.

Outside of the federal non-attainment areas, federal actions are not subject to any conformity determinations. Driving on dirt roads during the estimated 4-6 days of project implementation and monitoring would likely raise dust, but this impact to air quality would be minimal and of short duration, and would not produce a noticeable or measurable change in air quality. Emissions from vehicles, hand-operated power tools, and herbicide application would be minimal, of short duration, and would not produce a noticeable or measurable change in air quality.

The proposed action alternative would not result in emissions that exceed any National Ambient Air Quality Standards regulating lands within the Bishop Field Office and air quality would not be affected under this alternative.

Area of Critical Environmental Concern

Area of Critical Environmental Concern (ACEC) is defined as an area where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect human life and safety from natural hazards. Table 1 lists the size and management goals for each of the ACEC in the project area.

Table 1. ACEC, Acres and Goals

ACEC Name	Acres	Goals
Slinkard Valley	10,520	Protect wildlife habitat and scenic values and to enhance recreation opportunities
Travertine Hot Springs	160	Enhance recreation opportunities and protect candidate species habitats, unique geologic features and cultural resources
Conway Summit	2,700	Protect scenic values and to enhance dispersed recreation opportunities
Bodie Bowl	7,280	Preserve existing historical integrity of the Bodie National Historic Landmark and to protect scenic values
Fish Slough	39,426	Protect endangered fish and sensitive plant habitats, wetlands, cultural properties, geologic features and scenic values
Crater Mountain	5,828	Protect scenic values, enhance recreation opportunities and provide for interpretation of geologic features
Keynot Peak	2,162	Protect scenic and aesthetic values of the bristlecone pine and limber pine stands

The proposed action to control or eradicate invasive plants would be a beneficial action to all ACECs in the project area. Invasive plant species detract from scenic values and alter native vegetation communities important to wildlife. Invasive plants can also occupy or alter habitat important to sensitive plant and animal species and change fire frequency and intensity, increasing the risk of loss to important historic structures, cultural properties, and recreational opportunities.

The treatments proposed would have only minor, short-term adverse impacts because the scope and scale of current invasive plant infestations in ACECs is limited and because of the inclusion of SOPs and other project mitigation measures. Cut stumps, small patches of dead vegetation, or small patches devoid of vegetation would quickly blend in or re-vegetate so as to be unnoticeable in one or two growing seasons. The proposed action would be especially beneficial to meeting ACEC goals in the event of discovery of certain highly invasive plants in more vulnerable ACECs. As an example, if perennial pepperweed were discovered in the Fish Slough ACEC, rapid treatment would likely keep the infestation to a minimum and would prevent adverse impacts to sensitive plant and animal habitats.

Cultural Resources/ Native American Cultural Values

Invasive weed infestations occur in locations known to contain cultural resources, including historic properties and traditional gathering areas. The proposed action is designed to avoid negatively affecting these resource types through the use of minimally intrusive methods, the Standard Operating Procedures (SOPs) for Applying Herbicides, and other mitigation measures. Hand treating weeds is a non-ground disturbing activity with no potential to negatively affect historic properties. This type of undertaking is exempt from further Section 106 compliance under the 2014 California State Protocol Agreement (Appendix D; A1) and requires no further review.

Traditional native practitioners rely on public lands to sustain their traditions and meet their cultural needs. One of these traditions is the collection of natural resources for food, craft, and medicine. The removal of invasive species from public lands benefits traditional gathering practices by restoring ecosystem health and increasing the available water in a desert setting. This undertaking is consistent with the Bureau of Land Management policy on traditional gathering as detailed in the April 10, 2007 IM No. CA-2007-017.

Where the invasive plant species are relatively small, hand-pulling of individual plants would often be the preferred treatment method. Effective treatment of large woody invasive plants species often requires the use of both hand-tools and herbicide. Both of these treatment methods would result in only minor ground disturbance, well below the one-square-meter of continuous disturbance, which is the threshold for Section 106 review under the CA State Protocol Agreement (Appendix D; A1).

The use of herbicides in the treatment of invasive plants has the potential to unintentionally affect traditional native practitioners by accidentally contaminating nearby native plants which could be targeted for harvest. There is risk that residual herbicides on native plant material may inadvertently be ingested during Native American traditional practices such as basketry or when using baskets made from materials collected on BLM lands. The Human Health Risk Assessment (PEIS Appendix B) to evaluate the potential impacts to human health from specific herbicide use determined that herbicide treatments could impact plants used by Native Americans for traditional lifeway uses, and ultimately the health of Native peoples if they were unaware treatment had occurred or the treatment was carelessly implemented.

The IPM approach of the proposed action, plus the inclusion of the Standard Operating Procedures (SOPs) for Applying Herbicides and other project mitigation measures ensures pesticide contamination risks to traditional native practitioners are minimized. The following protection measures, plus the SOPs and other project mitigation measures for herbicide application, would safeguard cultural resources and minimize risks to Native Americans and their cultural values.

- If previously unidentified cultural resources are discovered during project implementation, the Field Office Archaeologist would be notified and work in the area would cease until the resource can be evaluated.
- If project activities exceed two square meters of ground disturbance per acre, then compliance with Section 106 through the BLM CA State Protocol Agreement will be initiated.
- When weed treatments require that herbicides be applied via a sprayer, the appropriate tribal governments will be formally notified 30 days prior to project implementation in order to inform traditional gatherers and to eliminate the risk of accidental exposure.

Global Climate Change

United States Department of the Interior, Order Number 3226, signed January 19, 2001, *Evaluating Climate Change Impacts in Management Planning*, ensures that climate change impacts are taken into account in connection with planning and decision making. Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity. Human influence on the climate system is clear and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems (IPCC, 2014).

The proposed action would result in minor contributions of GHG emissions associated with the operation of vehicles and equipment required for project implementation. These contributions would not have a noticeable or measurable effect, independently or cumulatively, on a phenomenon occurring at the global scale and believed to be due to more than a century of human activities.

Invasive, Non-Native Species

As indicated earlier in this analysis, several species of invasive plant are known to exist on the public lands managed by the Bishop Field Office, including tamarisk (*Tamarix ramosissima*), Russian thistle (*Salsola tragus*), white top (*Lepidium appelianum*), perennial pepperweed (*Lepidium latifolium*), Russian olive (*Elaeagnus angustifolia*), woolly mullein (*Verbascum thapsus*), and bull thistle (*Cirsium vulgare*). The presence of invasive plant species inhibits the ability of the BLM to manage public lands for healthy native ecosystems because invasive plants create numerous adverse impacts to native ecosystem processes. The specific purpose of this alternative is to implement an invasive plant species treatment program to control and/or eradicate existing and future invasive plant populations occurring on public lands. As such, this alternative would have a wholly beneficial effect on minimizing or eliminating invasive plant species within the Bishop Field Office.

Recreation

Recreational use of public lands managed by the Bishop Field Office is a common, but highly variable use, with many areas receiving little or very light seasonal use and other areas receiving moderate to heavy seasonal or year-round recreational use. For example, in places where tamarisk is currently known to occur, recreational use is characterized by light, infrequent dispersed use, including exploration of semi-primitive backcountry roads and trails, camping, general sightseeing, hiking, hunting, rock climbing and wildlife viewing. Known *Lepidium* ssp. populations and similar species generally occur in roadside disturbance areas that are highly accessible, but not likely valuable recreational assets that would be affected by treatment. Known Russian thistle locations include heavily used parking and staging areas, such as the Happy Boulders climbing area. Recreational use of lands infested with invasive plant species can contribute to the spread of these undesirable plants through the inadvertent spread of seed and/or new soil disturbance which may be favorable to colonization by invasive plant species.

The proposed action has the potential to create short periods of disturbance and/or disruption to recreationists in the immediate vicinity of any proposed treatments. At some locations, some treatment methods could require temporary closures to public access or use. Other treatment methods may create small areas of dead vegetation, slash, or areas devoid of vegetation which may detract from the overall recreational experience. These impacts would be temporary however, and over time decomposition and native vegetation re-growth would render the invasive plant treatment virtually unnoticeable.

The PEIS acknowledges that recreationists could be exposed to herbicides on public lands. The IPM approach of the proposed action alternative, plus the inclusion of the Standard Operating Procedures (SOPs) for Applying Herbicides and other project mitigation measures ensures that recreationist's exposure to herbicides and disruption of recreational activities is minimized.

Soils

A variety of soil groups can be found throughout the Bishop Field Office, but at known infestation sites they are generally comprised of granitic, sedimentary, mixed alluvium or volcanic parent material. Most soils are sandy loam in texture and well-drained. Removal of vegetative cover could lead to increased erosion.

The proposed action may result in minor soil disturbance when accessing treatment sites. If small plants are manually removed this would result in minor, localized soil disturbance. Currently, all known populations are small or very low density and their treatment is not likely to cause adverse impacts to soils. The IPM approach of this alternative, the Standard Operating Procedures (SOPs) for Herbicide Application and other mitigation measures ensure any adverse impacts to soils at minimal and highly localized.

Vegetation, including Threatened, Endangered, and Special Status Species

The Bishop Field Office spans the length of the eastern Sierra from Topaz Lake to Owens Lake and therefore encompasses the Northern Mojave and Great Basin floristic Provinces. The two floristic Provinces comprise a biologically diverse landscape and are home to an abundant range of native plant communities. Only one federally listed plant species is known to exist within the Bishop Field Office and approximately 20 BLM sensitive plant species are known or suspected to occur.

Some native plant communities and ecosystems are more susceptible to invasive plants than others. Invasive plants compete with and displace native vegetation for growing space and resources. Introduction and establishment of invasive plants often comes from ground disturbing activity, such as Russian thistle found along a recently maintained roadway. Other invasive plants out-compete native vegetation without disturbance, such as salt cedar at a spring site. Protected plant species are generally more vulnerable to loss of habitat and

competition from invasive plant species because their population size is usually small and their range often highly limited.

There is potential for localized, small-scale adverse effect to native vegetation from both manual and chemical treatment methods. Nearby vegetation could be cut or uprooted as a result of manual treatments or damaged by herbicide drift or overspray. The treatments proposed would have only minor, short-term adverse impacts overall, because the scope and scale of the project is so limited and because of the inclusion of SOPs and other project mitigation measures would minimize or eliminate the risk to native vegetation.

The SOPs require pre-treatment surveys for threatened and endangered and special status plant species. There would be no impact to these protected species because they would be identified and avoided or otherwise protected during implementation.

Overall, native vegetation and Threatened, Endangered, and Sensitive plant species would benefit from the proposed action due to increased space for vegetation growth and reduced competition from invasive plants.

Visual Resources

BLM policy requires that every acre of BLM land be inventoried and assigned a Visual Resource Management (VRM) class ranging from Class I to Class IV. Bureau policy requires all management activities to be designed to meet the assigned classes. Class IV allows for the most visual change to the existing landscape, while Class I allows the least. Table 2 provides an overview of the VRM classification system.

Table 2. Visual Resource Management (VRM) Classes, Objectives, and Appropriate Management Activities

VRM Class	Visual Resource Objective	Change Allowed (Relative Level)	Relationship to the Casual Observer
I	Preserve the existing character of the landscape. Manage for natural ecological changes.	Very Low	Activities should not be visible and must not attract attention.
II	Retain the existing character of the landscape.	Low	Activities may be visible, but should not attract attention.
III	Partially retain the existing character of the landscape.	Moderate	Activities may attract attention, but should not dominate the view.
IV	Provide for management activities which require major modification of the existing character of the landscape.	High	Activities may attract attention, may dominate the view, but are still mitigated.

The basic landscape design elements of form, line, color, and texture vary widely throughout the Bishop Field Office and invasive plant species are known to occur in all four VRM classes. Activities or modifications in a landscape that repeat these elements are thought to be in harmony with their surroundings and modifications that do not harmonize are said to be in contrast with their surroundings.

The manual and chemical treatment methods proposed in this alternative would have minimal potential to affect visual resources in the short-term, as cut or dead vegetation or areas devoid of vegetation would only be noticeable when on-site. Because the current known invasive plant infestations are very small in extent and their impacts are highly localized, the scope and scale of the anticipated treatments is so focused and small that all treatments are anticipated to easily blend in with the surrounding landscape and even those within VRM Class I would easily conform to the established standards. The PEIS ROD included SOPs and mitigation measures for visual resources that further ensure no adverse impacts.

The objective of the proposed invasive plant treatments is to locate and control/eradicate infestations while they are small in extent. Controlling/eradicating infestations while they are small would minimize the potential for the invasive plants to spread and cause adverse impacts to the surrounding landscape, including visual resources. Long-term, this proposed action alternative is wholly beneficial to visual resources as it helps preserve or retain the existing character of the landscape, as required in VRM Classes I - III. Short-term, temporary impacts to very minor portions of a landscape and that are noticeable only when viewed at close range and not from any key observation point would help achieve the long-term VRM goals required by the Bishop RMP and BLM policy.

Water Quality

Water quality is defined in relation to its specified and/or beneficial uses, such as human consumption, irrigation, fisheries, livestock, recreation, etc. Under the Clean Water Act and Safe Drinking Water Act, the BLM has an obligation to maintain waters that meet or surpass designated beneficial uses and to restore impaired water resources in support of their beneficial uses. Section 303(d) of the Clean Water Act requires that water bodies violating state water quality standards and failing to protect beneficial uses be identified and placed on the 303(d) list (USEPA, 2003). Bodie Creek and Clearwater Creek are the only two water bodies on the 303(d) list within the Bishop Field Office.

Surface water is present throughout the field office area in the form of streams, springs, and small lakes or ponds. There are 69 streams with 146 miles of riparian/aquatic habitat and a total of 325 springs have been identified (Bishop RMP, 1993). Periodic ground and surface water quality testing has occurred throughout the public lands managed by the Bishop Field Office and there are no known water quality issues.

Only a few scatter tamarisks are currently known to occur in water and would likely need to be treated with an aquatic formulation of triclopyr. Other invasive plant species, such as perennial pepperweed can be expected to be found near water sources in the future. An aquatic formulation of glyphosphate, triclopyr, or imazapyr would likely need to be used in this situation. The objective of the proposed invasive plant treatments is to locate and control/eradicate infestations while they are small in extent. Quickly and effectively

controlling/eradicating infestations while they are small would reduce the potential for the invasive plants to spread and then require larger amounts of herbicide to be used.

The PEIS identifies herbicide contamination as a possible adverse impact to water quality. However, the IPM approach, SOPs, and other mitigation measures used in this alternative would greatly reduce the risk of impacts to water quality from herbicide contamination. The limited scope and scale of the invasive plant problem, proximity to water sources, and general scarcity of water sources in the Bishop Field Office further reduce the risk of impacts to water quality to minimal levels.

Wetland and Riparian Areas

Wetland and riparian areas make up only a very small portion (< 1%) of the public lands administered by the Bishop Field Office. The benefits of these vital areas, however, far exceed their relatively small acreage. The functions of wetland and riparian areas include water purification, stream shading, groundwater recharge, and habitat for aquatic, semiaquatic, and terrestrial plants and animals (USEPA, 2001).

In the Bishop Field office, invasive plant species such as tamarisk, woolly mullein and bull thistle can be found in seasonal washes, seeps and streams, and areas adjacent to perennial water sources. Generally the riparian zone extends only a few feet away from the water source and riparian zones with known infestations of invasive plants occur as small islands less than a half-acre in size.

Treatment of invasive plants under the proposed action would be beneficial to wetland and riparian areas because it would contribute to control or eradication of invasive species and replacement with native species. Controlling/eradicating infestations while they are small would reduce the potential for the invasive plants to spread and then require larger amounts of treatment (including herbicides) to be used in the future. Furthermore, on a regional scale, native vegetation generally uses less water than tamarisk (Sala et al. 1996), therefore more water may be available to support the riparian zone.

Potential adverse impacts to wetland and riparian areas would be negligible because the scope and scale of the current invasive plant problem is so limited. The risk of these impacts is further reduced by the IPM approach used in this alternative, and the inclusion of SOPs and mitigation measures for herbicide application.

Wild and Scenic Rivers

No river segments or waterways within the Bishop Field Office have been designated by Congress under the Wild & Scenic Rivers Act of 1968. Portions of the Mill Creek, Virginia Creek, Green Creek, Dog Creek, Rough Creek, Atastra Creek, Fish Slough, Hot Creek, Rock Creek, George Creek, and Independence Creek were determined to be eligible for further study and possible inclusion as components of the National Wild & Scenic Rivers System.

Eligible river segments and waterways must be afforded adequate interim protection until the study process is complete and a suitability or non-suitability decision is made. *Appendix 2, Interim Management Guidelines for Study Rivers*, of the Bishop RMP (USDI BLM, 1993), provides guidance for numerous land management activities, including controlling invasive plants. The guideline for invasive plant infestations allows for control “in a manner compatible with the intent of the Act and management objectives of contiguous Federal lands.”

The current known invasive plant infestations within creek portions eligible for further study and possible inclusion in the National Wild & Scenic Rivers System include: woolly mullein along Green Creek; perennial pepperweed and whitetop along Virginia Creek; tamarisk along Independence Creek; and perennial pepperweed at Fish Slough.

The proposed action alternative is compatible with the values associated with eligible rivers under study. Native vegetation is preferable and any increase in invasive plants would degrade the values of wild and scenic rivers, including; fish and wildlife habitat, visual resources, and recreation. The treatments proposed would have only minor, short-term adverse impacts, because the scope and scale of the project is so limited and because the inclusion of SOPs and other project mitigation measures would minimize or eliminate the risk to wild and scenic river values.

Wilderness/Wilderness Study Areas/Lands with Wilderness Characteristics

The Bishop Field Office manages designated wilderness areas, wilderness study areas and land with wilderness characteristics.

Wilderness areas are designated by Congress and defined by the Wilderness Act of 1964. Section 4(b) of the Wilderness Act sets forth agencies’ responsibilities in administering wilderness areas and states that the preservation of wilderness character is the primary management mandate. Section 4(c) provides a definition of wilderness character that includes four mandatory qualities of wilderness character generally referred to as; untrammeled, natural, undeveloped, and outstanding opportunities for solitude or primitive and unconfined recreation. The two wilderness areas are the Granite Mountain Wilderness and a portion of the Inyo Mountains Wilderness. Total designated wilderness acreage managed is approximately 79,000 acres.

The Bishop Field Office manages 14 Wilderness Study Areas (WSAs) with a total acreage of approximately 161,000 acres. The WSAs were identified by the wilderness review required by Section 603 of Federal Land Policy Management Act of 1976 (FLPMA). The BLM’s policy is to protect and manage WSAs to preserve wilderness characteristics, consistent with relevant law, so as not to impair the suitability of such areas for designation by Congress as wilderness.

Section 201 of FLPMA requires the BLM to maintain an inventory of all public lands and their resources and other values, including wilderness characteristics. Managing the wilderness

resource is part of BLM's multiple use mission. The Bishop Field Office manages several known areas of land with wilderness characteristics.

Federal policy and BLM guidance permit the treatment of invasive plants in designated wilderness and WSAs. For designated wilderness, 43 CFR 6304.22 states: "BLM may prescribe measures to control fire, noxious weeds, non-native invasive plants, insects, and diseases." BLM Manual 6340 – *Management of Designated Wilderness Areas* further describes, as one of the appropriate types of restoration for the preservation of wilderness character, "restoration of native vegetative communities and control of non-native species may be controlled using the method or combination of methods known to be effective while causing the least damage to non-target species." For WSAs, BLM Manual 6330 – *Management of Wilderness Study Areas* states: "Non-native vegetation that interferes, or has the potential to interfere, with ecosystem processes or function (e.g. non-native annual grasses), or illegally cultivated plants (e.g. marijuana), may be controlled using the method or combination of methods known to be effective, while causing the least damage to non-target species."

All wilderness areas, WSAs, and lands with wilderness characteristics likely contain some of the invasive plant species proposed for treatment in this analysis. Tamarisk is known to occur in the Inyo Mountains Wilderness. In WSAs and land inventoried for wilderness characteristics, tamarisk is presently known to occur in the Symmes Creek WSA. Other WSAs where tamarisk may occur are; Chidago Canyon, Casa Diablo, Fish Slough, Volcanic Tableland, Crater Mountain, Independence Creek and Southern Inyo WSA .

The proposed action alternative is compatible with the values associated with designated wilderness, WSAs, and lands with wilderness characteristics. Native vegetation is desirable in these areas and any increase in invasive plants would degrade their natural values. The treatments proposed would have only minor, short-term adverse impacts, because the scope and scale of the project is limited and because of the inclusion of SOPs and other project mitigation measures would minimize or eliminate the risk. Over the long-term, this action would be highly beneficial because it would tend to keep invasive plant infestation small and require less intrusive methods to control or eradicate. This would ensure adverse impacts to designated wilderness, WSAs, and lands with wilderness characteristics are minimized.

In designated wilderness areas, the activities in the proposed action would preserve or enhance the area's wilderness character, although such activities would impact the untrammeled quality. If a non-urgent project is proposed within designated wilderness, the Minimum Requirements Decision Guide would be used to determine whether restoration action is warranted and what method would be most appropriate to use to minimize impacts to wilderness qualities.

In WSAs and on lands with wilderness characteristics, the proposed action would protect and/or enhance wilderness characteristics or values. The proposed methods meet the non-impairment standard as described in BLM Manual 6330.

Wildlife, including Endangered, Threatened, and Special Status Species

The Bishop Field Office spans the length of the eastern Sierra from Topaz Lake to Owens Lake and therefore encompasses the Northern Mojave and Great Basin floristic Provinces. Because of this expanse, a variety of wildlife ranging from fish and reptiles, to birds and mammals inhabit public lands and likely exist at project sites. Larger invasive plant species, such as tamarisk, could be used by birds, and other animals for cover and nesting. Other species of invasive plants that are interspersed in native vegetation could be utilized as forage or cover.

Due to the diversity of habitat found within the field office area, a number of special status species could occur at project sites (see Table 3 for a listing). Project sites would likely represent a minor portion of habitat for any species, based on the limited distribution and size of the invasive plant infestation sites to be treated. Furthermore, treatment sites would often occur in habitat that has been previously altered and would therefore be of decreased value for wildlife.

Table 3. Threatened and Endangered, and Special Status Species that may occur in the Bishop Field Office

Common Name	Scientific Name	Status
Mammals		
Desert bighorn sheep	<i>Ovis canadensis nelsoni</i>	BLM Sensitive
Fringed myotis	<i>Myotis thysanodes</i>	BLM Sensitive
Long-eared myotis	<i>Myotis evotis</i>	BLM Sensitive
Mohave ground squirrel	<i>Spermophilus mohavensis</i>	BLM Sensitive
Owens Valley vole	<i>Microtus californicus vallicola</i>	BLM Sensitive
Pallid bat	<i>Antrozous pallidus</i>	BLM Sensitive
Pygmy rabbit	<i>Brachylagus idahoensis</i>	BLM Sensitive
Sierra Nevada bighorn sheep	<i>Ovis canadensis sierrae</i>	Federally Endangered
Small-footed myotis	<i>Myotis ciliolabrum</i>	BLM Sensitive
Spotted bat	<i>Euderma maculatum</i>	BLM Sensitive
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	BLM Sensitive
Yuma myotis	<i>Myotis yumanensis</i>	BLM Sensitive
Birds		
Bald eagle	<i>Haliaeetus leucocephalus</i>	BLM Sensitive
Bank swallow	<i>Riparia riparia</i>	BLM Sensitive
Bi-State distinct population segment of greater sage-grouse	<i>Centrocercus urophasianus</i>	BLM Sensitive
Burrowing owl	<i>Athene cunicularia</i>	BLM Sensitive
Golden eagle	<i>Aquila chrysaetos</i>	BLM Sensitive
Least Bell's vireo	<i>Vireo bellii pusilus</i>	Federally Endangered
Northern goshawk	<i>Accipiter gentilis</i>	BLM Sensitive
Swainson's hawk	<i>Buteo swainsoni</i>	BLM Sensitive

Common Name	Scientific Name	Status
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Federally Endangered
Reptiles and Amphibians		
Black toad	<i>Anaxyrus exsul</i>	BLM Sensitive
Desert tortoise	<i>Gopherus agassizii</i>	BLM Sensitive
Inyo Mountains slender salamander	<i>Batrachoseps campi</i>	BLM Sensitive
Northern sagebrush lizard	<i>Sceloporus graciosus graciosus</i>	BLM Sensitive
Panamint alligator lizard	<i>Elgaria panamintinus</i>	BLM Sensitive
Fish		
Lahontan cutthroat trout	<i>Oncorhynchus clarkii henshawi</i>	Federally Endangered
Owens pupfish	<i>Cyprindon radiosus</i>	Federally Endangered
Owens speckled dace	<i>Rhinichthys osculus ssp</i>	BLM Sensitive
Owens tui chub	<i>Gila bicolor snyderi</i>	Federally Endangered

Potential impacts from implementing the proposed action include loss of habitat, species displacement during treatment and physiological symptoms from ingesting chemicals. Loss of habitat is not expected from implementation of this project. There are currently no large monotypic invasive plant infestations that provide resources such as food or cover in a proportion where its loss would have an impact to wildlife. Native wildlife did not evolve with invasive plants, so removal of invasive species would improve the health and abundance of native species and systems, and in turn would benefit native wildlife and their habitats.

Wildlife could be impacted by temporary displacement during treatment of invasive plants. These impacts are expected to be of short duration due to the anticipated small size of the treatment areas. Additionally, these areas represent only a small proportion of habitat available to wildlife; therefore there would be sufficient habitat for species to use during treatment. Mitigation measures such as surveying for special status species prior to treatment and either avoiding treatments during critical periods or buffering these areas from treatment during these periods ensure that disturbance related impacts would either be minimized or eliminated.

No adverse impacts from wildlife ingesting chemicals related to herbicide application are expected. The scope and scale of the project is so limited and the inclusion of SOPs and other project mitigation measures would minimize or eliminate the risk to wildlife, including threatened and endangered and special status species.

Ultimately, wildlife would be expected to benefit from the proposed action because increased native vegetation growth and diversity is beneficial to wildlife habitat. Protected wildlife species are generally more vulnerable to loss of habitat and competition from invasive plant species because their population size is usually small and their range often limited. Protecting these habitats from invasive plant species infestation is critical to the maintenance and recovery of

threatened and endangered and special status wildlife species. Early detection and treatment while invasive plant infestations are small would be highly beneficial and the least disruptive to all wildlife species.

ALTERNATIVE 2 – NO ACTION

Air Quality

The no action alternative would not result in emissions that exceed any National Ambient Air Quality Standards regulating lands within the Bishop Field Office and air quality would not be affected under this alternative.

ACEC

The No Action Alternative may result in impacts to ACECs. If invasive plant infestations become established and spread in any ACEC, they could negatively affect ACEC values and goals.

Cultural Resources and Native American Cultural Values

The no action alternative would have any direct effect on cultural resources. Continued degradation of natural habitat by the introduction and spread of invasive plant species could reduce the availability of desirable plant materials to native practitioners over time.

Global Climate Change

The no action alternative would not contribute to greenhouse gas emissions and would have no impact on climate change at either the local or global scale.

Invasive, Non-Native Species

Several invasive plant species are known to exist in the Bishop Field Office and there is potential for introduction of additional species and spread of existing species. This alternative would not allow for any control of these species and it is likely that over time, invasive species would dominate larger portions of the area, and/or spread to new areas.

Recreation

The no action alternative would detract from recreational values, such as scenery, if invasive plant infestations become more numerous and spread. The failure to treat infestations around popular parking and staging areas would likely lead to further spread of invasive plants by recreationists.

Soils

The no action alternative would have little short-term impact, but long-term adverse impacts could result. Left untreated, invasive plant infestation sites would likely expand in both size and density potentially leading to vegetative type conversion, leaving the site more vulnerable to stochastic events that could cause soil erosion.

Vegetation, including Endangered, Threatened, and Special Status Species

The no action alternative would likely lead to degradation of plant communities over the long-term. Invasive plant populations left un-checked would likely spread and begin to reduce native plant habitat, thereby degrading the health of the greater landscape. Impacts to special status plants and threatened and endangered species would be the same under this alternative.

Visual Resources

The no action alternative would leave invasive plants untreated. These infestations may increase in density and area, displace native vegetation and potentially become large monotypic stands which would detract from the visual resource. All VRM classes would likely be negatively impacted by the no action alternative.

Water Quality

There would be no impact to water quality under this alternative.

Wetland and Riparian Areas

The no action alternative would likely cause a long term decline in wetland/riparian health due to the potential unchecked spread of invasive plants.

Wild and Scenic Rivers

The no action alternative would result in negative impacts to wild and scenic study rivers. Native vegetation would be compromised if infestations of native plants go untreated. Rapid detection and early response would help maintain these areas in their natural condition.

Wilderness/Wilderness Study Areas/Lands with Wilderness Characteristics

The no action alternative would likely lead to long-term degradation of wilderness, WSAs, and wilderness characteristics, as invasive plant infestations would not be treated and would be allowed to grow and spread and detract from the “naturalness” values associated with these areas.

Wildlife, including Endangered, Threatened, and Special Status Species

The no action alternative would likely lead to degradation of wildlife habitat over the long term. Invasive plant populations going un-checked would likely spread and begin to reduce diversity of habitat and health of the landscape.

ALTERNATIVE 3 – NO HERBICIDE USE

Air Quality

This alternative would not result in emissions that exceed any National Ambient Air Quality Standards regulating lands within the Bishop Field Office and air quality would not be affected under this alternative.

ACEC

The inability to treat certain invasive plant species (e.g. perennial pepperweed) with herbicide would likely cause long-term adverse impacts to management goals for most ACEC in the Bishop Field Office.

Cultural Resources and Native American Cultural Values

This alternative would not have any direct effect on cultural resources. Continued degradation of natural habitat by the ineffective treatment of invasive plant species could reduce the availability of desirable plant materials to native practitioners over time.

Global Climate Change

This alternative would result in minor contributions of GHG emissions associated with the operation of vehicles and equipment required for project implementation. These contributions would not have a noticeable or measurable effect, independently or cumulatively, on a phenomenon occurring at the global scale and believed to be due to more than a century of human activities.

Invasive, Non-Native Species

Several invasive plant species are known to exist in the Bishop Field Office and there is potential for introduction of additional species and spread of existing species. This alternative would only allow for effective control of some of these species and it is likely that over time, the invasive species that cannot be effectively controlled or eradicated without herbicide application would dominate larger portions of the area.

Recreation

This alternative would likely have mixed impacts on recreation, depending on the invasive plant species in question. For invasive plant species requiring herbicide treatment to achieve eradication or control, impacts would be the same as the no action alternative. For invasive plant species not needing herbicide application for eradication or control, the impact would be the same as the proposed action.

Soils

This alternative would result in greater short-term adverse impacts to soils if certain invasive plant species (e.g. Russian thistle) are treated by manual means only. Repeated attempts to control this invasive plant species would result in both direct and indirect impacts. Direct soil disturbance from the grubbing effort, as well as indirect impacts caused by repeated trips to the site would occur. For invasive plant infestations that would not be treated because herbicide is the only known effective means of control or eradication, impacts would be the same as the no action alternative.

Vegetation, including Endangered, Threatened, and Special Status Species

This alternative would likely lead to degradation of plant communities over the long-term. Invasive plant populations requiring herbicide for effective control or eradication would spread and begin to reduce native plant habitat, thereby degrading the health of the greater landscape. Impacts to special status plants and threatened and endangered species would be the same under this alternative.

Visual Resources

This alternative would likely result in both short- and long-term impacts to visual resources. Short term effects would be the same as those listed in the proposed action, but would be extended over time due to repeated attempts to control the invasive plant infestation without the use of herbicide. Some species (e.g. perennial pepperweed), would go un-treated and would spread and expand over time, degrading the visual quality of all VRM classes.

Water Quality

There would be no impact to water quality under this alternative.

Wetland and Riparian Areas

Impacts would be the same as those of the no action alternative because certain invasive plant species (e.g. tamarisk and perennial pepperweed) are often found in or adjacent to wetland and riparian areas and would require herbicide for effective control or eradication.

Wild and Scenic Rivers

This alternative would have the same impacts as the no action alternative because currently, the two known invasive plant infestations (e.g. tamarisk and perennial pepperweed) within wild and scenic study rivers in the Bishop Field Office are species that would not be considered for treatment without the use of herbicides.

Wilderness/Wilderness Study Areas/Lands with Wilderness Characteristics

This alternative would likely lead to long-term degradation of wilderness, WSAs, and wilderness characteristics, as invasive plant infestations requiring the use of herbicides for effective control or eradication would not be treated and would be allowed to grow and spread and detract from the “naturalness” values associated with these areas.

Wildlife, including Endangered, Threatened, and Special Status Species

Riparian areas would likely degrade over the long-term due to the inability to treat certain species (e.g. tamarisk and perennial pepperweed) of invasive plants. This has the potential to impact riparian obligate wildlife, as the habitat they depend on degrades. While mechanical treatments could still occur, it is likely that impacts from this alternative would be the same as those of the no action.

CUMULATIVE IMPACTS

Other federal agencies, state and local governments, and private landowners throughout the eastern Sierra region are engaged in invasive plant management efforts similar to or substantially larger than those described in this proposed action. The Inyo County Water Department alone has surveyed and treated thousands of acres in the Owens Valley for tamarisk over the past 25 years. The Inyo and Mono County Agricultural Commissioner’s Office has been treating invasive plant species across both counties for decades.

The limited scope and scale of this proposed project would not add to, or cross a threshold of, impacts that would result in any measurable effects on the human environment. There are no identified incremental or long-term adverse impacts associated with the proposed action that would significantly contribute to cumulative impacts within or beyond the immediate project vicinity. The cumulative impacts of conducting inventories and treating invasive plant infestations while they are small would improve conditions for native plants and animal, including special status species, recreation, wetland and riparian areas, and other important resource elements, resulting in overall positive cumulative impacts at the local and regional scale.

RESOURCES WITH NO POTENTIAL FOR EFFECTS

The proposed project has no potential to impact the following resources because they are not found in or near the project area: essential fish habitat, flood plains, and prime or unique

farmlands. There are no known hazardous waste sites and the scope and scale of anticipated herbicide use, SOPs for herbicide application, and other project mitigation measures ensure no impacts from the containment, use, and disposal of all hazardous materials. Similarly, the scope and scale of the project, SOPs for herbicide application, and other project mitigation measures, ensure there would be no impacts to wild horse and burro populations.

There would be no disproportionate impacts to low-income or minority populations, per Executive Order 12898 (February 11, 1994), because the Cultural Resources/Native American Cultural Values section of this analysis identified the Standard Operating Procedures (SOPs) for Applying Herbicides and other project mitigation measures which would ensure potential pesticide contamination impacts to traditional native practitioners are minimized. Social and economic values would not be impacted because the scope and scale of the proposed project is so limited.

IMPLEMENTATION AND EFFECTIVENESS MONITORING

BLM Bishop Field Office staff would be on-site during project implementation and would conduct all follow-up treatment effectiveness monitoring.

CONSULTATION AND COORDINATION

List of Agencies, Organizations, and Individuals Consulted

Inyo County Planning Department
Mono County Planning Department
Inyo - Mono County Agricultural Commissioner's Office
California Department of Fish & Wildlife
California Department of Parks & Recreation
Benton Paiute Tribe
Big Pine Indian Tribe
Bishop Paiute Tribe
Bridgeport Indian Colony
Fort Independence Band of Paiute Indians
Lone Pine Paiute-Shoshone Tribe
Timbisha Shoshone Tribe
Washoe Tribe of Nevada and California
Mono Lake Indian Community
Antelope Valley Indian Community
Washoe Paiute of the Antelope Valley
Mono Lake Kutzedikaa
Bureau of Land Management – Ridgecrest Field Office
Inyo National Forest
Humboldt-Toiyabe National Forest
Los Angeles Department of Water & Power

LIST OF PREPARERS

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Kirstin Heins	Outdoor Recreation Planner
Sherri Lisius	Wildlife Biologist
Martin Oliver	Botanist
Collin Reinhardt	Geologist
Jeff Starosta	Rangeland Management Specialist

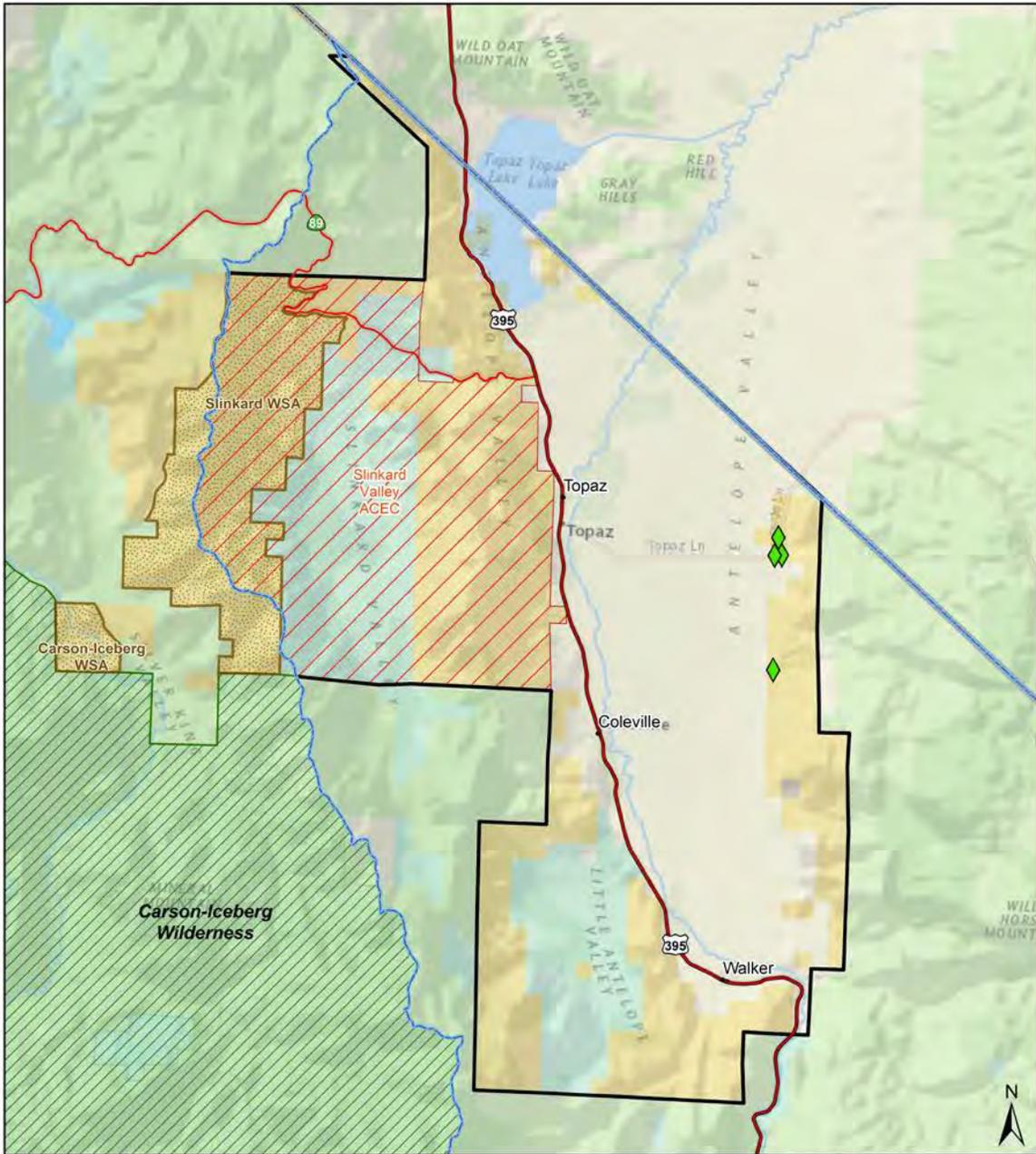
REVIEWED BY

Environmental Coordinator

Date

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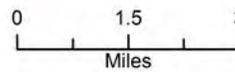


- Land Status**
- Bishop Field Office Boundary
 - Bureau of Land Management
 - Forest Service
 - Bureau of Indian Affairs
 - State
 - Local Government

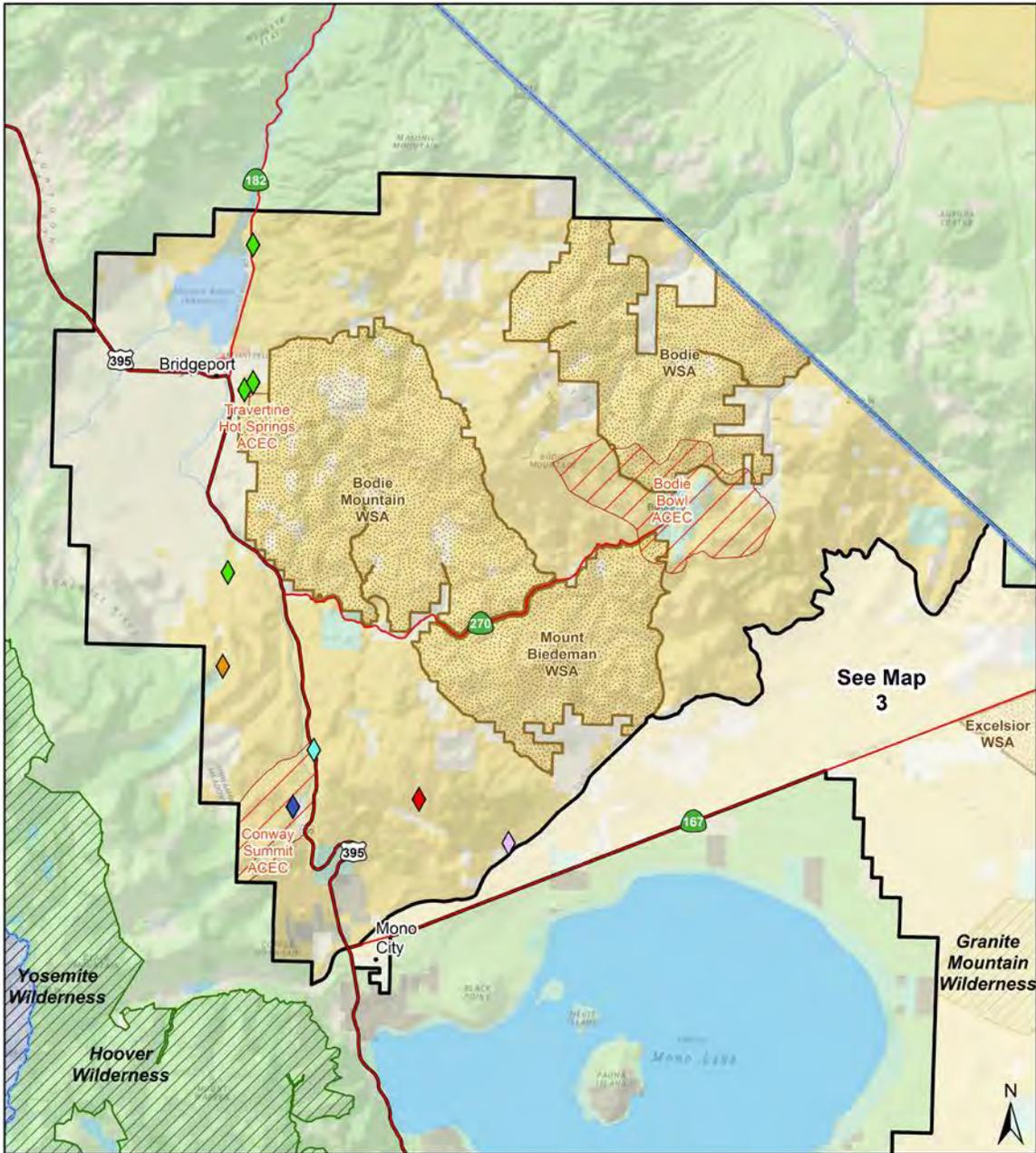
- Species**
- ◆ Russian thistle (4)



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 Date Prepared: 2/25/2015
 Project: Invasive Plant Management EA



Map: 1



See Map 3



- Land Status**
- Bishop Field Office Boundary
 - Bureau of Land Management
 - Forest Service
 - National Park Service
 - Bureau of Indian Affairs
 - State
 - Local Government

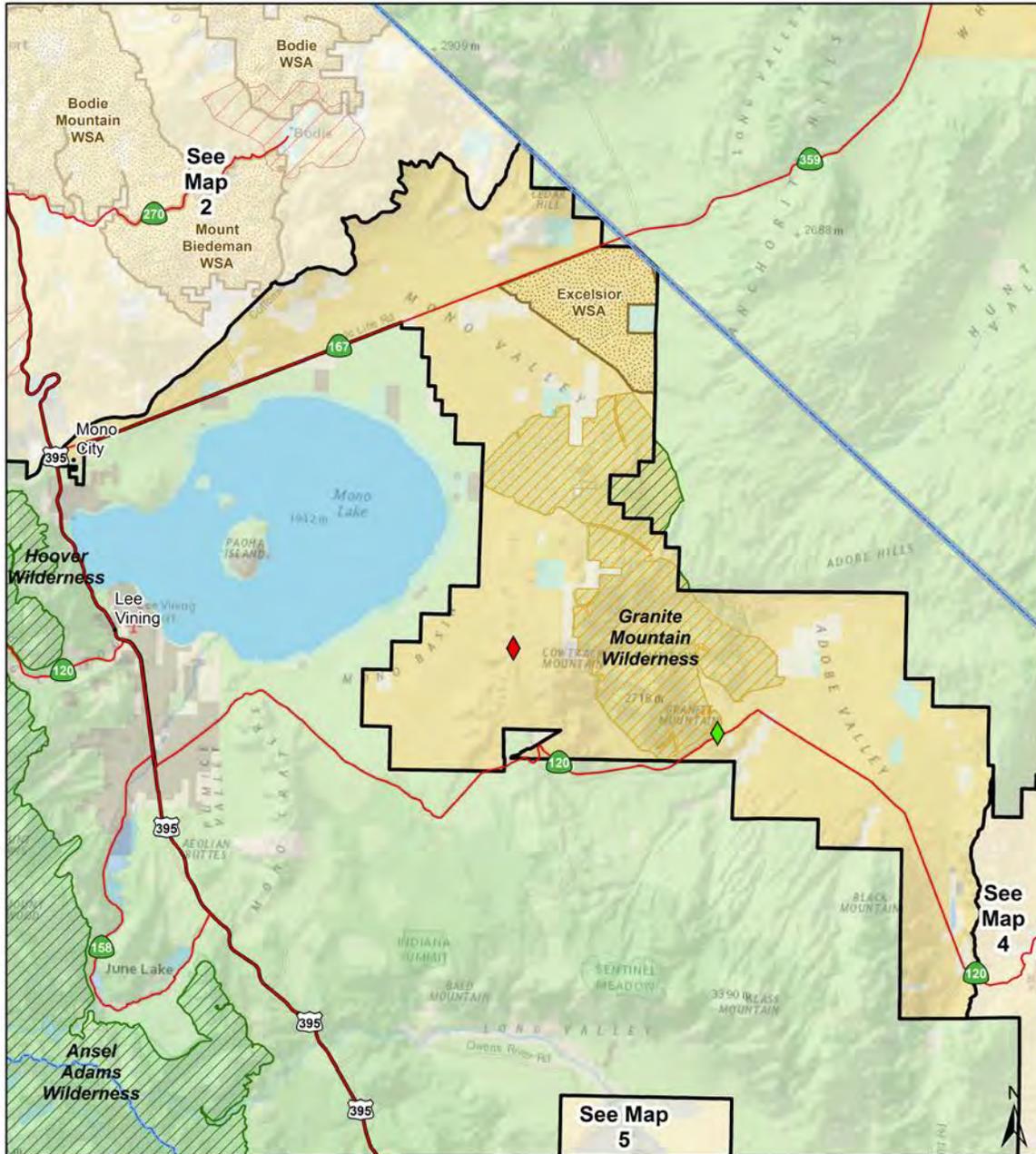
- Species**
- ◆ Bull thistle (1)
 - ◆ Perennial pepperweed (1)
 - ◆ Russian olive (1)
 - ◆ Russian thistle (4)
 - ◆ Whitetop (1)
 - ◆ Woolly mullein (1)



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Map: 2



- Land Status**
- Bishop Field Office Boundary
 - Bureau of Land Management
 - Forest Service
 - Bureau of Indian Affairs
 - State
 - Local Government

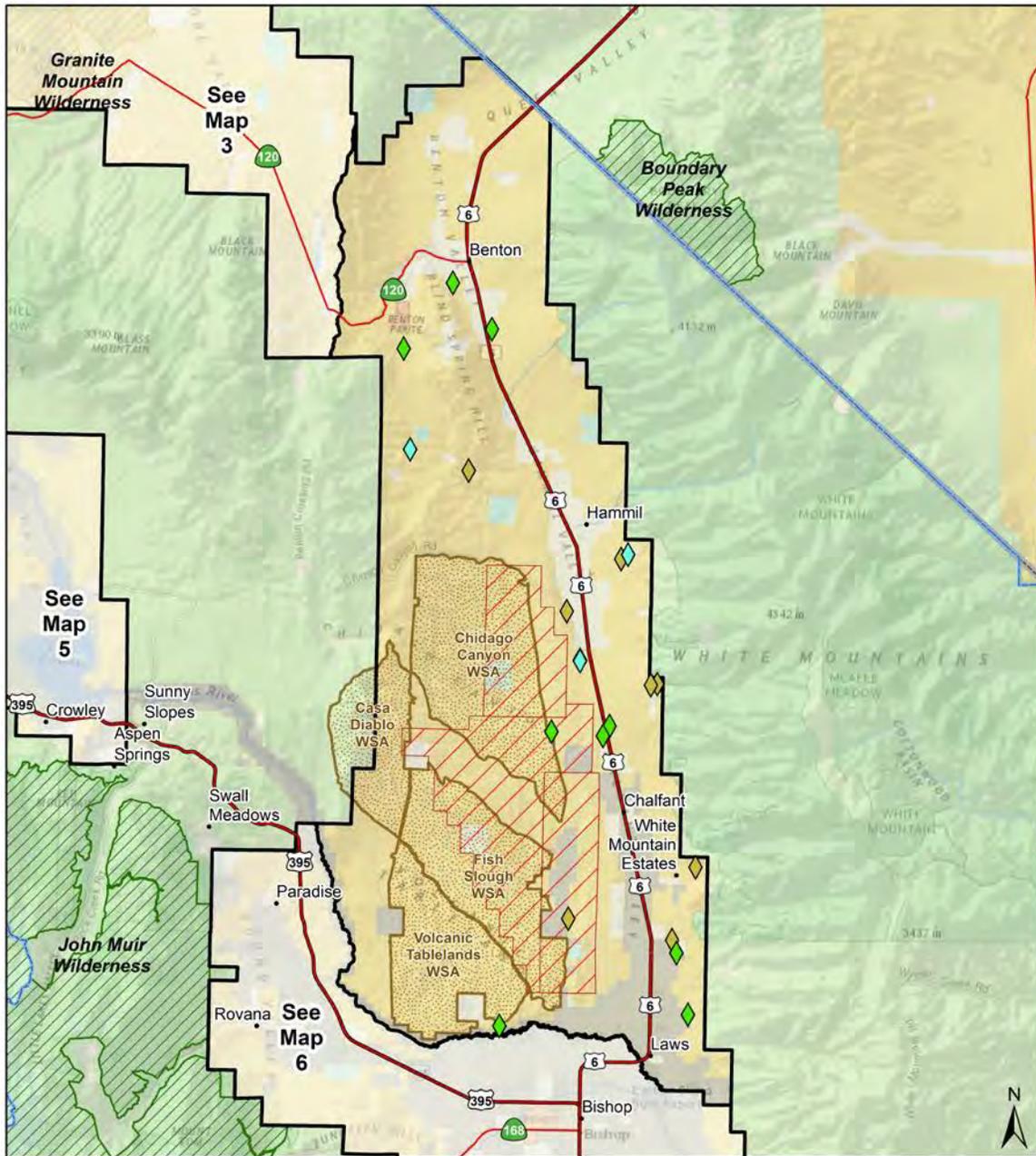
- Species**
- ◆ Bull thistle (1)
 - ◆ Russian thistle (1)



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Map: 3

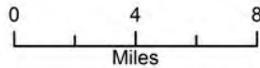


- Land Status**
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 - ▭ Bureau of Land Management
 - ▭ Forest Service
 - ▭ Bureau of Indian Affairs
 - ▭ State
 - ▭ Local Government

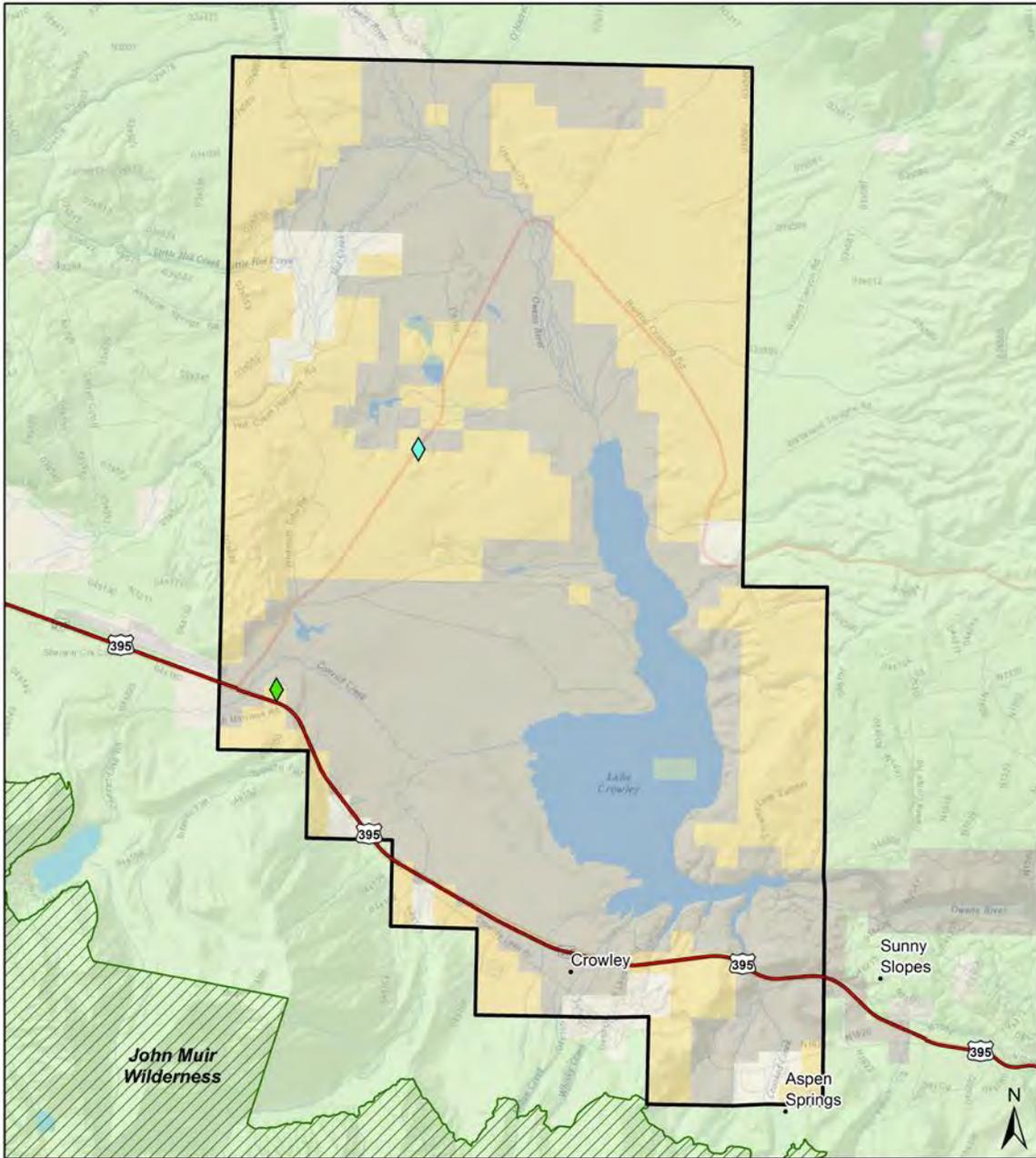
- Species**
- ◆ Perennial pepperweed (3)
 - ◆ Russian thistle (9)
 - ◆ Tamarisk (11)



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Map: 4

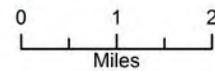


- Land Status**
- Bishop Field Office Boundary
 - Bureau of Land Management
 - Forest Service
 - Local Government

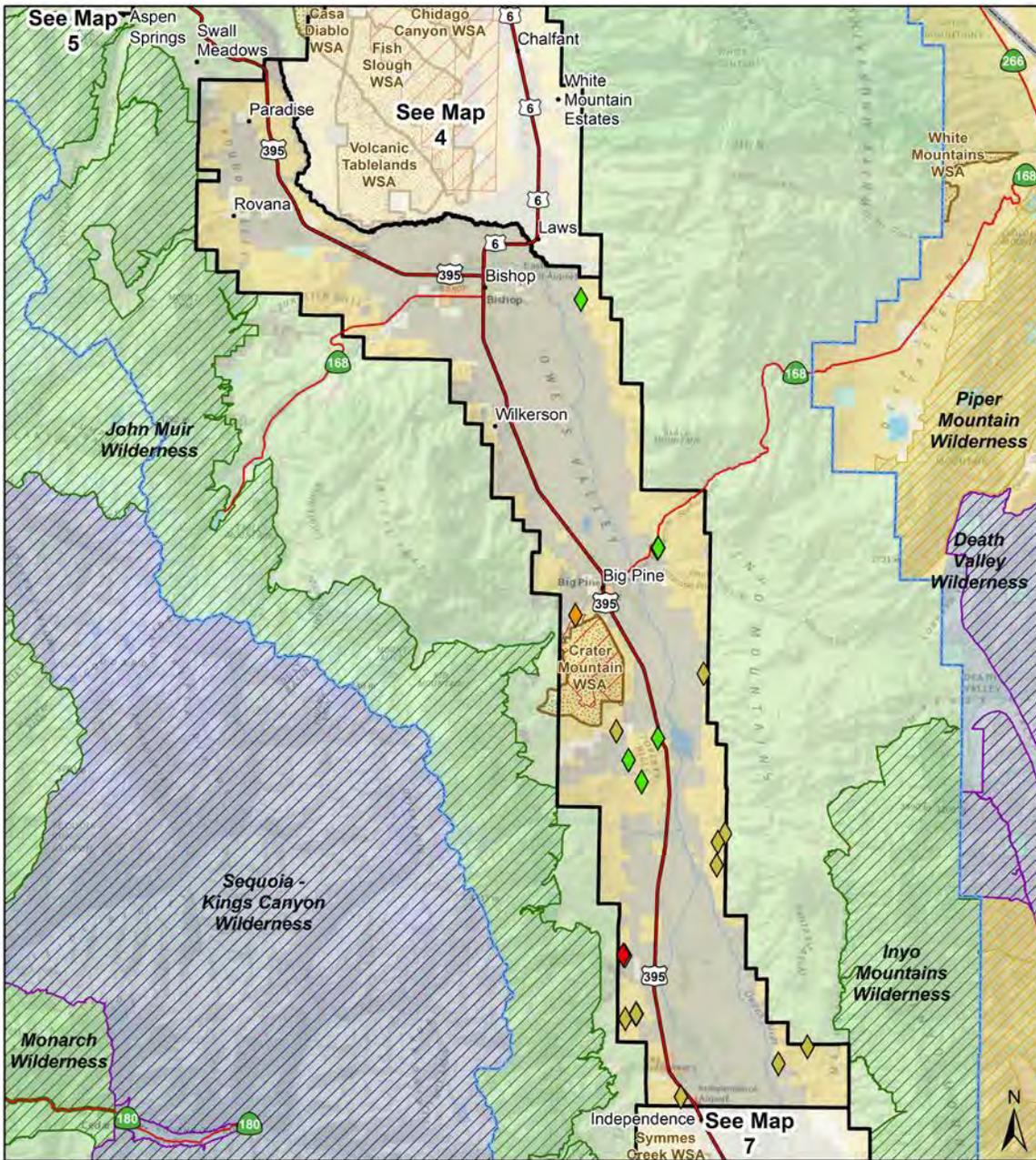
- Species**
- Perennial pepperweed (1)
 - Russian thistle (1)



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Map: 5



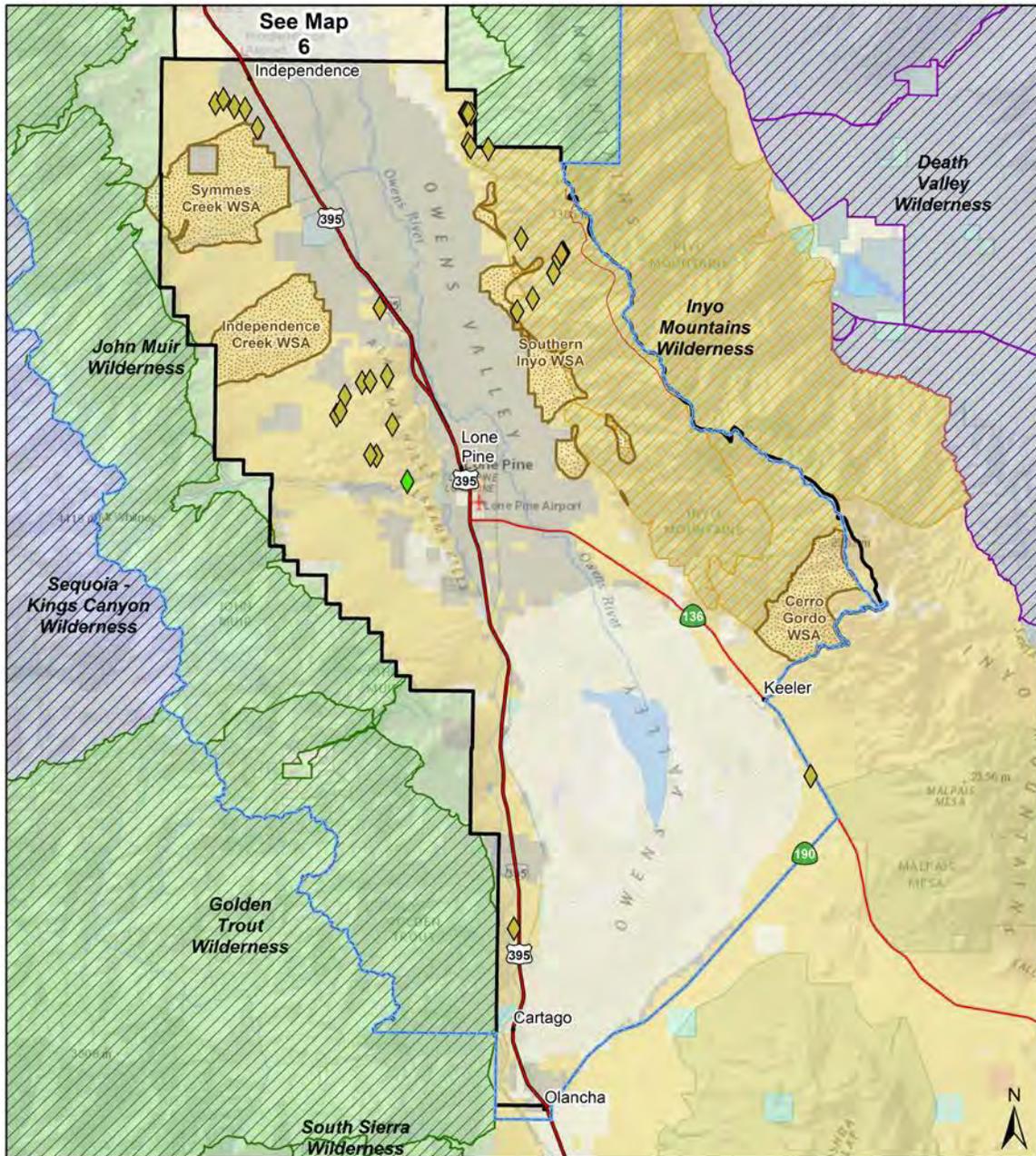
- Land Status**
- Bishop Field Office Boundary
 - Bureau of Land Management
 - Forest Service
 - National Park Service
 - Bureau of Indian Affairs
 - State
 - Local Government

- Species**
- ◆ Bull thistle (3)
 - ◆ Russian thistle (5)
 - ◆ Tamarisk (12)
 - ◆ Woolly mullein (1)

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0 5 10
 Miles

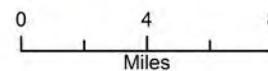
Map: 6



- Land Status**
- Bishop Field Office Boundary
 - Bureau of Land Management
 - Forest Service
 - National Park Service
 - Bureau of Indian Affairs
 - State
 - Local Government

- Species**
- ◆ Russian thistle (1)
 - ◆ Tamarisk (36)

US Department of the Interior
BUREAU OF LAND MANAGEMENT
 Bishop Field Office
 Bishop, California
 (760) 872-5000
 www.ca.blm.gov/bishop
 Date Prepared: 2/25/2015
 Project: Invasive Plant Management EA



Map: 7

APPENDIX 2: APPLICABLE STANDARD OPERATING PROCEDURES (SOPs) for HERBICIDE APPLICATION (*PEIS ROD Appendix B, Table B-2, pp. B-9 thru B-14*)

General

1. Prepare operational and spill contingency plan in advance of treatment.
2. Conduct a pretreatment survey before applying herbicides.
3. Select herbicide that is least damaging to the environment while providing the desired results.
4. Select herbicide products carefully to minimize additional impacts from degradates, adjuvants, inert ingredients, and tank mixtures.
5. Apply the least amount of herbicide needed to achieve the desired result.
6. Follow herbicide product label for use and storage.
7. Have licensed applicators apply or oversee application of herbicides.
8. Use only USEPA-approved herbicides and follow product label directions and “advisory” statements.
9. Review, understand, and conform to the “Environmental Hazards” section on the herbicide product label. This section warns of known pesticide risks to the environment and provides practical ways to avoid harm to organisms or to the environment.
10. Minimize the size of application area, when feasible.
11. Comply with herbicide-free buffer zones to ensure that drift will not affect crops or nearby residents/landowners.
12. Post treated areas and specify reentry or rest times, if appropriate.
13. Notify adjacent landowners prior to treatment.
14. Keep a copy of Material Safety Data Sheets (MSDSs) at work sites. MSDSs are available for review at <http://www.cdms.net/>.
15. Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location.

16. Avoid accidental direct spray and spill conditions to minimize risks to resources.
17. 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.
18. Conduct pre-treatment surveys for sensitive habitat and special status species within or adjacent to proposed treatment areas.
19. Consider site characteristics, environmental conditions, and application equipment in order to minimize damage to non-target vegetation.
20. Use drift reduction agents, as appropriate, to reduce the drift hazard to non-target species.

Air Quality

1. Consider the effects of wind, humidity, temperature inversions, and heavy rainfall on herbicide effectiveness and risks.
2. Select proper application methods (e.g., set maximum spray heights, use appropriate buffer distances between spray sites and non-target resources).

Soil

1. Minimize treatments in areas where herbicide runoff is likely, such as steep slopes when heavy rainfall is expected.
2. Minimize use of herbicides that have high soil mobility, particularly in areas where soil properties increase the potential for mobility.
3. 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

1. Consider climate, soil type, slope, and vegetation type when developing herbicide treatment programs.
2. 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.

3. 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.
4. 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.
5. 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.
6. Conduct mixing and loading operations in an area where an accidental spill would not contaminate an aquatic body.
7. Do not rinse spray tanks in or near water bodies. Do not broadcast pellets where there is danger of contaminating water supplies.
8. 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.
9. Minimize the potential effects to surface water quality and quantity by stabilizing terrestrial areas as quickly as possible following treatment.

Wetlands and Riparian Areas

1. Use a selective herbicide and a wick or backpack sprayer.
2. 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

1. 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, to maintain desirable vegetation on the treatment site.

Fish and Other Aquatic Organisms

1. 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.
2. Use appropriate application equipment/method near water bodies if the potential for off-site drift exists.
3. 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.

Wildlife

1. Use herbicides of low toxicity to wildlife, where feasible.
2. 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.
3. Use timing restrictions (e.g., do not treat during critical wildlife breeding or staging periods) to minimize impacts to wildlife.

Threatened, Endangered and Sensitive Species

1. Use a selective herbicide and a wick or backpack sprayer to minimize risks to special status plants.
2. Avoid treating vegetation during time-sensitive periods (e.g., nesting and migration, sensitive life stages) for special status species in area to be treated.

Livestock

1. 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.
2. As directed by the herbicide product label, remove livestock from treatment sites prior to herbicide application, where applicable.

3. Use herbicides of low toxicity to livestock, where feasible.
4. 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.
5. Avoid use of diquat in riparian pasture while pasture is being used by livestock.
6. Notify permittees of the herbicide treatment project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment.
7. Notify permittees of livestock grazing, feeding, or slaughter restrictions, if necessary.
8. Provide alternative forage sites for livestock, if possible.

Wild Horses and Burros

1. Minimize using herbicides in areas grazed by wild horses and burros.
2. Use herbicides of low toxicity to wild horses and burros, where feasible.
3. Remove wild horses and burros from identified treatment areas prior to herbicide application, in accordance with herbicide product label directions for livestock.
4. 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.

Cultural Resources and Paleontological Resources

1. Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the *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* and state protocols or 36 Code of Federal Regulations Part 800, including necessary consultations with State Historic Preservation Officers and interested tribes.
2. Follow BLM Handbook H-8270-1 (*General Procedural Guidance for Paleontological Resource Management*) to determine known Condition I 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.

3. Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected by herbicide treatments.
4. Work with tribes to minimize impacts to these resources.
5. Follow guidance under Human Health and Safety in the PEIS in areas that may be visited by Native peoples after treatments.

Visual Resources

1. 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).
2. 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.

Wilderness and Other Special Areas

1. Provide educational materials at trailheads and other wilderness entry points to educate the public on the need to prevent the spread of weeds.
2. Use the “minimum tool” to treat noxious and invasive vegetation, relying primarily on the use of ground-based tools, including backpack pumps, hand sprayers, and pumps mounted on pack and saddle stock.
3. 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.
4. Give preference to herbicides that have the least impact on non-target species and the wilderness environment.
5. Implement herbicide treatments during periods of low human use, where feasible.

Recreation

1. Schedule treatments to avoid peak recreational use times, while taking into account the optimum management period for the targeted species.
2. Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas.
3. Adhere to entry restrictions identified on the herbicide product label for public and worker access.
4. Post signs noting exclusion areas and the duration of exclusion, if necessary.

Social and Economic Values

1. Notify the public of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment.
2. Control public access until potential treatment hazards no longer exist, per herbicide product label instructions.
3. Observe restricted entry intervals specified by the herbicide product label.
4. 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.
5. 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.

Human Health and Safety

1. 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.
2. Use protective equipment as directed by the herbicide product label.
3. Post treated areas with appropriate signs at common public access areas.
4. Observe restricted entry intervals specified by the herbicide product label.

5. Have a copy of MSDSs at work site.
6. Contain and clean up spills and request help as needed.
7. Secure containers during transport.
8. Dispose of unwanted herbicides promptly and correctly.

APPENDIX 3: APPLICABLE MITIGATION MEASURES for HERBICIDE APPLICATION (PEIS ROD Table 2, pp. 2-4 thru 2-6)

Water Resources and Quality

1. 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 nonchemical methods.

Vegetation

1. 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.
2. Establish appropriate (herbicide-specific) buffer zones (see Tables 4-12 and 4-14 in Chapter 4 of the Final PEIS) around downstream water bodies, habitats, and species/populations of interest. Consult the ecological risk assessments (ERAs) prepared for the PEIS for more specific information on appropriate buffer distances under different soil, moisture, vegetation, and application scenarios.

Fish and Other Aquatic Organisms

1. Limit the use of diquat in water bodies that have native fish and aquatic resources.
2. Limit the use of terrestrial herbicides (especially diuron) 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.
3. Avoid using the adjuvant R-11[®] in aquatic environments and either avoid using glyphosate formulations containing polyoxyethyleneamine (POEA), or seek to use formulations with the least amount of POEA, to reduce risks to aquatic organisms in aquatic environments.
4. At the local level, consider effects to special status fish and other aquatic organisms when designing treatment programs.

Wildlife

1. 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.
2. 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.
3. Where practical, limit glyphosate and hexazinone to spot applications in rangeland and wildlife habitat areas to avoid contamination of wildlife food items.
4. Do not apply bromacil or diuron in rangelands, and use appropriate buffer zones (see Tables 4-12 and 4-14 in Chapter 4 of the Final PEIS) to limit contamination of off-site vegetation, which may serve as forage for wildlife.

Livestock

1. Minimize potential risks to livestock by applying diuron, glyphosate, hexazinone, tebuthiuron, and triclopyr at the typical application rate, where feasible.
2. 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.
3. Where feasible, limit glyphosate and hexazinone to spot applications in rangeland.
4. Do not apply bromacil or diuron in rangelands, and use appropriate buffer zones (see Tables 4-12 and 4-14 in Chapter 4 of the Final PEIS) to limit contamination of off-site rangeland vegetation.

Wild Horses and Burros

1. 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.
2. 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.

3. Apply herbicide label grazing restrictions for livestock to herbicide treatment areas that support populations of wild horses and burros.
4. Do not apply bromacil or diuron in grazing lands within herd management areas (HMAs), 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.
5. Do not apply 2,4-D, bromacil, or diuron in HMAs 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.

Paleontological and Cultural Resources

1. 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.
2. Limit diquat applications to areas away from high residential and traditional use areas to reduce risks to Native Americans and Alaska Natives.

Wilderness and Other Special Areas

Mitigation measures that may apply to wilderness and other special area resources are associated with human and ecological health and recreation (see mitigation measures for Vegetation, Fish and Other Aquatic Resources, Wildlife Resources, Recreation, and Human Health and Safety).

Recreation

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, and Human Health and Safety).

Human Health and Safety

1. Use the typical application rate, where feasible, when applying 2,4-D, bromacil, diquat, diuron, fluridone, hexazinone, tebuthiuron, and triclopyr to reduce risk to occupational and public receptors.

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2. 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.