

# **Bi-State Sage Grouse Forest Plan Amendment**

## **Noxious and Invasive Weeds Report**

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for:  
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## Introduction

Noxious weeds and invasive plants are recognized as a very serious threat to the biodiversity of native rangelands. These plants alter basic ecosystem functions such as nutrient cycling, hydrology, and wildfire frequency; overwhelm native plants and animals; and sometimes hybridize with native species. All natural plant communities are susceptible to noxious weed invasion. The presence, abundance, and influence of noxious weed infestations in a particular ecosystem is highly dynamic, responding to changes in local environmental conditions from a range of human and natural causes.

### *Overview of Issues Addressed*

Alternatives B and C would result in changes to noxious and invasive weed management. Weed management focuses on curtailing the introduction and spread of weeds (prevention) as well as reducing the amount and density of current infestations (control).

### Issue Indicators

Table 1 shows the indicators used in this analysis.

**Table 1. Comparison of Indicators by Alternatives**

Indicator	Alternative A - No Action	Alternative B - Proposed Action	Alternative C
Change in the likelihood for noxious weed or invasive annual grass introduction or spread	No Change	Reduced likelihood	Reduced likelihood
Change in the amount or density of noxious weeds or invasive annual grasses	No Change	Decrease	Decrease

## Affected Environment

### *Existing Condition*

Non-native noxious and invasive weeds are recognized as a primary threat to the long-term longevity of the Bi-State sage grouse (USFWS 2013). Invasive weed species have a wide variety of effects on native ecosystem structure and function. They reduce plant species diversity by displacing native vegetation which reduces the amount of food and cover available for sage grouse and other wildlife. This can severely alter habitat to the point that it is no longer suitable for sage grouse. Invasive plants can alter nutrient cycling, soil moisture regimes and soil properties leading to enhanced soil erosion that further inhibits the reestablishment of native vegetation. Some species, such as the annual grasses cheatgrass and medusahead, modify the fuel characteristics of sites resulting in increased fire frequency that convert sagebrush ecosystems to annual grass dominated ecosystems. Invasive plants have economic impacts as well from reducing productivity of agricultural lands, increasing fire suppression and rehabilitation costs, and limiting wildlife associated recreation opportunities (Duncan et al 2004).

The rangelands of the intermountain west have had a several thousand year period in which large hoofed grazers were rare (Connelly et al 2004, Reisner 2010). As a result, sagebrush ecosystems are particularly sensitive to surface disturbances (Belnap et al 2001) and many of the native

bunchgrasses are highly sensitive to grazing (Adler et al 2004, Mack and Thompson 1982). Excessive grazing by domestic livestock during the late 1800s and early 1900s, along with severe drought and the introduction of exotic weed species, resulted in long-term effects on the vegetation and soil characteristics of sagebrush ecosystems that persist today (Knick et al 2003). Repeated overgrazing by livestock leads to significant reductions in perennial grass cover and biological soil crusts in the interspaces between sagebrush plants (Reisner 2010). The resulting gaps between native bunchgrasses and biological soil crusts are readily invaded by noxious and invasive weed species (Reisner et al 2013).

Impacts from recreational vehicle use, mining, road building and maintenance, vegetation treatments and fire all contribute to the introduction of new populations or the spread of existing populations of noxious and invasive weeds (Brooks and Pyke 2001, Gelbard and Belnap 2003).

There are approximately 1,800 acres of noxious weeds within the amendment area on BLM and Forest Service managed lands. Table 2 shows the noxious weed species currently found within the amendment area. Noxious weeds are usually found in places where the native plant community has been degraded and where there is sufficient soil moisture; although, noxious weeds can invade healthy ecosystems. The infestations within the amendment area tend to be located in riparian areas, burned areas, and along roadsides.

**Table 2. Noxious Weeds within the Amendment Area**

<b>Common Name</b>	<b>Scientific Name</b>
Russian knapweed	<i>Acroptilon repens</i>
Hoary cress	<i>Cardaria draba</i>
Musk thistle	<i>Carduus nutans</i>
Spotted knapweed	<i>Centaurea biebersteinii</i>
Diffuse knapweed	<i>Centaurea diffusa</i>
Yellow starthistle	<i>Centaurea solstitialis</i>
Canada thistle	<i>Cirsium arvense</i>
Poison-hemlock	<i>Conium maculatum</i>
Common St. Johnswort	<i>Hypericum perforatum</i>
Perennial pepperweed/Tall whitetop	<i>Lepidium latifolium</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Scotch thistle	<i>Onopordum acanthium</i>
Medusahead	<i>Taeniatherum caput-medusae</i>
Saltcedar	<i>Tamarix spp</i>

The current extent of cheatgrass is not mapped within the amendment area. However, it is found in all BSSG PMUs (Bi State Action Plan 2012). Recent analysis in the Great Basin has determined that 65% of the region is at a moderate or high risk of cheatgrass invasion (Meinke et al 2009).

The BLM and Forest Service utilize an integrated pest management approach to prevent the introduction and establishment of noxious weeds and to control existing infestations. This includes education and preventative measures, as well as physical, biological, chemical, and cultural treatments. Current policy allows the BLM and Forest Service to treat other invasive species; however, there is no requirement to do so as there is with state-listed noxious weeds.

### *Desired Condition*

The Federal Noxious Weed Act of 1974, Nevada Administrative Code Chapter 555, Executive Order 13112, Invasive Species, February 3, 1999 and various Forest Service and BLM policies guide agency management of noxious and invasive species.

## Environmental Consequences

### *Methodology*

The information used in this report was gathered from several GIS layers and documents from the BLM and Forest Service.

### Past, Present, and Foreseeable Activities Relevant to Cumulative Effects Analysis

The BLM and Forest Service have been utilizing an integrated pest management approach to prevent the introduction and establishment of noxious weeds and to control existing infestations. This approach includes education and preventative measures, as well as a variety of treatment options. Noxious and invasive species management will continue to be a priority for both agencies in the future.

### *Alternative A – No Action*

#### Direct/Indirect Effects

There are no direct or indirect effects if Alternative A is selected. Management of noxious and invasive weeds will continue as described in the Affected Environment.

#### Cumulative Effects

Because there are no direct or indirect effects, there are no cumulative effects if the no action alternative is selected.

#### Summary of Effects

Selecting Alternative A will have no effect on the current management of noxious and invasive weeds within the amendment area. An integrated pest management approach will continue to be utilized by the BLM and Forest Service to control noxious and invasive weed populations.

### *Alternative B – Modified Proposed Action*

#### Direct/Indirect Effects

Alternative B contains several standards and guidelines that will directly affect noxious and invasive weed management.

Guideline B-Weed-G-01 allows the use of domestic livestock to control undesirable vegetation in order to achieve BSSG habitat desired conditions. Recent research suggests that cattle grazing, even at the highest intensities, does not reduce cheatgrass cover. Increasing intensity of cattle grazing results in a decrease in the remnant native perennial grasses and biological soil crusts which promotes an increase in the magnitude of cheatgrass dominance (Reisner 2010, Reisner et al 2013). While cattle grazing may not be effective for cheatgrass control, many species of

noxious and invasive weeds can be controlled with specifically designed grazing strategies using cattle, sheep and goats (Davison et al 2005, Olson 1999).

Standard B-Weed-S-01 would limit the opportunities for weed establishment or expansion following soil disturbances or seeding. This standard would ensure that no soil disturbing authorized uses would be allowed on disturbed sites until they have recovered.

Standard B-Weed-S-03 would require agency personnel, contractors, and permit holders working in areas with known weed infestations to clean vehicles of dirt, mud, and visible plant debris before entering a different area to reduce the spread of noxious weeds. This standard would reduce the likelihood of introducing or spreading noxious and invasive weed species.

Standard B-Weed-S-02 prohibits the use of herbicides during the critical disturbance period. Herbicide use would only be allowed in BSSG habitat if other integrated pest management approaches are inadequate or infeasible. Limiting the timing of herbicide application could hinder noxious and invasive weed management efforts for some species.

### Indirect Effects

The five goals of Alternative B and the associated objectives, standards and guidelines are intended to conserve, enhance, and/or restore sagebrush and associated habitats to provide for the long-term viability of the Bi-State sage-grouse.

Goal 1 focuses on managing BSSG habitat and movement corridors to bring vegetation communities to their ecological site potential by restoring degraded habitat with management changes or restoration activities. Goal 2 applies standards and guidelines to BSSG habitat that will eliminate or reduce negative impacts and increase positive impacts from discretionary and nondiscretionary actions. Goal 3 emphasizes using fuels treatment projects to protect BSSG habitat from wildfire. Goals 4a, 4b and 4c seek to limit the size and extent of degraded BSSG habitat, reduce the risk of high severity wildfires and increase BSSG habitat resilience to disturbance and resistance to annual grass invasion. Goal 5 would increase areas with dense sagebrush cover through restoration strategies.

Promoting healthy vegetation communities, reducing disturbance and reducing the risk of wildfire will result in indirect effects to noxious and invasive weed management. Healthy BSSG habitat is more resistant to weed invasion. Reduced disturbances will result in less opportunity for noxious and invasive weeds to become established. Reduced risk of wildfire will also reduce the risk of conversion of BSSG habitat to communities dominated by exotic, annual grass and weed species.

Alternative B allows for disturbances to occur within BSSG habitat from various land uses and projects. Livestock grazing, recreational vehicle use, mining, fuels reduction treatments, pinyon-juniper removal projects, and other habitat restoration projects would occur on the landscape. These types of projects and uses have a disturbance footprint that could lead to new noxious or invasive weed infestations within BSSG habitat. The standards and guidelines in Alternative B will reduce the risk of inadvertently introducing or spreading noxious and invasive species from these activities.

### Cumulative Effects

The Forest Service and BLM will continue to treat noxious and invasive weed infestations using integrated pest management approaches in areas outside of BSSG habitat.

## *Alternative C*

### Direct/Indirect Effects

The five goals of Alternative C and the associated objectives, standards and guidelines are intended to conserve, enhance, and/or restore sagebrush and associated habitats to provide for the long-term viability of the Bi-State sage-grouse.

Goal 1 focuses on managing BSSG habitat and movement corridors to bring vegetation communities to their ecological site potential by restoring degraded habitat with management changes or restoration activities. Goal 2 applies standards and guidelines to BSSG habitat that will eliminate or reduce negative impacts and increase positive impacts from discretionary and nondiscretionary actions. Goal 3 emphasizes using fuels treatment projects to protect BSSG habitat from wildfire. Goals 4a, 4b and 4c seek to limit the size and extent of degraded BSSG habitat, reduce the risk of high severity wildfires and increase BSSG habitat resilience to disturbance and resistance to annual grass invasion. Goal 5 would increase areas with dense sagebrush cover through restoration strategies.

Standards B-Weed-S-01, B-Weed-S-02, B-Weed-S-03 and guideline B-Weed-G-01 from Alternative B would also be applied by Alternative C and have the same effects as discussed under the Alternative B section of this report. In addition, Alternative C would apply additional standards and guidelines.

Standard C-Weed-S-01 requires that fires be suppressed in vegetation communities with low to moderate resilience and resistance to prevent an invasive annual grass-fire cycle.

Standard C-Weed-S-02 requires that proposed restoration treatments take into account the annual grass resistance of the site and the resilience of the native vegetation to respond to disturbance.

Standard C-Weed-S-03 requires that annual invasive grasses be controlled or suppressed.

Guideline C-Weed-G-01 emphasizes treating new weed or annual grass infestations for activities that are likely to cause or promote the introduction or infestation of invasive plants.

These three additional standards and one additional guideline will help to limit the spread and establishment of invasive annual grasses.

Alternative C allows for disturbances to occur within BSSG habitat from various land uses and projects. Recreational vehicle use, mining, fuels reduction treatments, pinyon-juniper removal projects, and other habitat restoration projects would occur on the landscape. These types of projects and uses have a disturbance footprint that could lead to new noxious or invasive weed infestations within BSSG habitat. The standards and guidelines in Alternative C will reduce the risk of inadvertently introducing or spreading noxious and invasive species from these activities. Alternative C would close livestock grazing allotments containing BSSG habitat which would help to limit weed spread.

Promoting healthy vegetation communities, reducing disturbance and reducing the risk of wildfire will result in indirect effects to noxious and invasive weed management. Healthy BSSG habitat is more resistant to weed invasion. Reduced disturbances will result in less opportunity for noxious and invasive weeds to become established. Reduced risk of wildfire will also reduce the risk of conversion of BSSG habitat to communities dominated by exotic, annual grass and weed species.

## Cumulative Effects

The Forest Service and BLM will continue to treat noxious and invasive weed infestations using integrated pest management approaches in areas outside of BSSG habitat.

## Compliance with Forest Plan and Other Relevant Laws, Regulations, Policies and Plans

All three alternatives comply with the Federal Noxious Weed Act of 1974, Nevada Administrative Code Chapter 555, Executive Order 13112, the Toiyabe LRMP, the Carson City RMP, Battle Mountain RMP, and BLM and Forest Service directives and policies.

## Summary of Effects

Alternative B will apply standards and guidelines designed to enhance noxious and invasive weed control efforts. These standards and guidelines would reduce the likelihood of introducing or spreading noxious and invasive weed species as well as reducing the amount and density of current infestations. Alternative B will also promote healthy vegetation communities, reduce disturbance and reduce the risk of wildfire within BSSG habitat which will further reduce opportunities for noxious and invasive weed establishment and spread.

Alternative C will apply standards and guidelines designed to enhance noxious and invasive weed control efforts. These standards and guidelines would reduce the likelihood of introducing or spreading noxious and invasive weed species as well as reducing the amount and density of current infestations. Alternative C will also promote healthy vegetation communities, reduce disturbance and reduce the risk of wildfire within BSSG habitat which will further reduce opportunities for noxious and invasive weed establishment and spread. Alternative C emphasizes control of invasive annual grass species as well improving resistance of BSSG habitat to annual grass invasion.

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