

# **Bi-State Sage-Grouse**

## **Fire and Fuels Report**

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for:

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## Introduction

The USDA Forest Service (FS) is proposing to amend the Toiyabe National Forest Land and Resource Management Plan (TNF LRMP) and the Bureau of Land Management (BLM) is proposing to amend the Tonopah RMP and the Carson City Field Office Consolidated RMP by adding to or changing some of the regulatory mechanisms that would reduce, eliminate, or minimize threats to the Bi-state DPS habitat on federal lands administered by the FS and the BLM under those plans (USDA 2013). This analysis describes existing fire and fuels management within the BSSG amendment area and the potential effects to the program from the proposed action and alternatives.

### *Changes between the Draft and Final*

After review of public comments and consultation with the Fish and Wildlife Service on the DEIS, standards and guidelines for fire and fuels management were modified and new ones developed to more specifically address issues, concerns and potential impacts to BSSG. Some new standards and guidelines also address the Resistance and Resilience matrix developed by the Western Association of Fish and Wildlife Agencies (WAFWA) group. The matrix will help guide how conservation, preservation and restoration efforts are planned and implemented and employs concepts to reduce impacts of invasive annual grasses and altered fire regimes on sagebrush ecosystems. Initially the guidelines that applied to the proposed action were that unspecified buffers, timing limitations and locations of use could be applied to discretionary actions. A new alternative, Alternative C, with a more conservation oriented approach, was added in response to public comment. Alternative C adds additional restrictions to address issues brought forward.

### *Overview of Issues Addressed*

The indicators of the potential impacts to fire and fuels management in the amendment area are as follows:

- Alteration in vegetation cover and composition that may result in a positive or negative shift in Fire Regime Condition Class rating (FRCC).
- Changes in response to and suppression of wildland fire.
- Changes in how fuel treatments are designed and implemented to reduce impacts from wildland fire.

## Affected Environment

### *Existing Condition*

The BSSG Amendment area is located on National Forest system lands and public lands managed by the Bureau of Land Management (BLM). Included in the amendment area are portions of the Carson and Bridgeport Ranger Districts of the Humboldt-Toiyabe National Forest (HT) and the Carson City and Battle Mountain Field Offices of the BLM.

### Fire and Fuels Management

Fire is an inherent component of ecosystems and historically has had an important role in promoting plant succession and the development of plant community characteristics. Control of fires and other

land use practices during the last century has changed plant communities by altering the frequency, size, and severity of wildfires. The Federal Wildland Fire Management Policy was developed by the Secretaries of the DOI and the USDA in 1995 in response to dramatic increases in the frequency, size, and catastrophic nature of wildland fires in the US. The 2001 review and update of the policy consisted of findings, guiding principles, policy statements, and implementation actions, and replaced the 1995 Federal Wildland Fire Management Policy. Known as the 2001 Federal Wildland Fire Management Policy (DOI et al. 2001), this update “recommends that federal fire management activities and programs are to provide for firefighter and public safety, protect and enhance land management objectives and human welfare, integrate programs and disciplines, require interagency collaboration, emphasize the natural ecological role of fire, and contribute to ecosystem sustainability.” The policy provides nine guiding principles fundamental to the success of the federal wildland fire management program and the implementation of review recommendations.

The Guidance for Implementation of Federal Wildland Fire Management Policy (Forest Service 2009d) is the most recent guiding principle for these documents. These umbrella principles compel each agency to review its policies to ensure compatibility. The management of BLM- and Forest Service-administered lands include the control of wildfires, the use of fire through prescribed burning, or the use of fire through the management of wildfires in order to meet land management goals. Wildland fire management on BLM-administered and Forest Service-administered lands is guided by a Fire Management Plan (FMP) that considers the three elements mentioned and includes firefighter and public safety and cost effectiveness.

Wildland fires occur from natural causes, such as lightning, or are human caused. Prescribed fire is used for beneficial purposes (such as reducing hazardous fuel accumulation or restoring ecosystem health) in a controlled manner under a specific prescription and planned effort. Wildland fires can be managed for multiple objectives either by a full suppression response or to achieve land management objectives or combinations of both. The response to a wildland fire is based on an evaluation of risks to firefighter and public safety; the circumstances under which the fire has occurred, including weather and fuel conditions; natural and cultural resource management objectives; and resource protection priorities.

Fire is a management tool used to maintain or increase age class diversity within vegetation communities (e.g., big sagebrush/grassland); rejuvenate fire-dependent vegetation communities (e.g., aspen); maintain or increase vegetation productivity, nutrient content, and palatability; and maintain or improve wildlife habitat, rangeland, and watershed condition. Fire is also considered a management tool for disposal of timber slash, seedbed preparation, reduction of hazardous fuel, control of disease or insects, grazing management, thinning, or species manipulation in support of forest management objectives. In sagebrush ecosystems, fire has been identified as one of the primary factors linked to loss of sagebrush-steppe habitat. Wildfire has been increasing the loss of habitat due to an increase in fire frequency. This increase in fire frequency has been facilitated by the incursion of non-native annual grasses, primarily cheatgrass, into the sagebrush ecosystems (Miller and Eddleman

2000). In areas where cheatgrass invasion has occurred, fuel profiles have changed, resulting in increased surface fire intensities, shorter fire return intervals, and larger fire sizes (Knapp 1996; Epanchin-Niell et al. 2009; Rowland et al. 2010; Baker 2011; Condon et al. 2011). Without sufficient rehabilitation efforts, these larger burned areas are prone to even more cheatgrass invasion.

## Fire Regimes

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention but including the influence of aboriginal burning (Agee 1993). Coarse-scale definitions for natural (historical) fire regimes have been developed by Hardy et al. (2001) and Schmidt et al. (2002) and interpreted for fire and fuels management by Hann and Bunnell (2001). The five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant over story vegetation. The following table displays the fire regime groups and descriptions for the project area the five regimes include:

- I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75% of the dominant over story vegetation replaced);
- II – 0-35 year frequency and high (stand replacement) severity (greater than 75% of the dominant over story vegetation replaced);
- III – 35-100+ year frequency and mixed severity (less than 75% of the dominant over story vegetation replaced);
- IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75% of the dominant over story vegetation replaced);
- V – 200+ year frequency and high (stand replacement) severity.

**Table 1. Fire Regimes for the Bi-State Sage Grouse Project Area.**

Group	Description	Proportion (%) of Project Area
Fire Regime Group I	<= 35 Year Fire Return Interval, Low and Mixed Severity	5
Fire Regime Group II	<= 35 Year Fire Return Interval, Replacement Severity	<1
Fire Regime Group III	35 - 200 Year Fire Return Interval, Low and Mixed Severity	33
Fire Regime Group IV	35 - 200 Year Fire Return Interval, Replacement Severity	24
Fire Regime Group V	> 200 Year Fire Return Interval, Any Severity	33
	Other (including sparsely vegetated, barren and water)	~4

## Fire Regime Condition Class

Fire Regime Condition Class (FRCC) is an interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels and disturbance regimes (FRCC 2011). FRCC uses various parts of a biophysical setting (BPS)<sup>1</sup> by comparing the current conditions to document reference conditions; then gives a rating for each BPS based on various factors including succession conditions, fire frequency<sup>2</sup> and fire severity<sup>3</sup>. The three condition classes FRCC uses to describe a BPS departure from reference condition are defined in the following table.

**Table 2. Fire Regime Condition Classes (FRCC)**

Condition Class	Description
Low departure (<33%) from reference condition is defined as <b>Condition Class 1</b>	Vegetation composition, structure, and fuels are similar to those of the natural regime and do not predispose the system to risk of loss of key ecosystem components. Wildland fires are characteristic of the natural fire regime behavior, severity, and patterns. Disturbance agents, native species habitats, and hydrologic functions are within the natural range of variability.
Moderate departure (33-66%) from reference condition is defined as <b>Condition Class 2</b>	Vegetation composition, structure, and fuels are different from those of the natural regime and predispose the system to risk of loss of key ecosystem components. Wildland fires are moderately uncharacteristic compared to the natural fire regime behaviors, severity, and patterns. Disturbance agents, native species habitats, and hydrologic functions are outside the natural range of variability.
High departure (>66%) from reference condition is defined as <b>Condition Class 3</b>	Vegetation composition, structure, and fuels are very different from the natural regime and predispose the system to high risk of loss of key ecosystem components. Wildland fires are highly uncharacteristic compared to the natural fire regime behaviors, severity, and patterns. Disturbance agents, native species habitats, and hydrologic functions are substantially outside the natural range of variability.

National and State BLM fire policy requires current and desired resource conditions related to fire management be described in terms of three condition classes. The Fire Regime Condition Classification System measures the extent to which vegetation departs from reference conditions (or how the current vegetation differs from a particular reference condition). Departures from reference condition could be a result of changes to key ecosystem components such as vegetation characteristics, fuel composition, fire frequency, fire severity, and pattern, as well as other associated disturbances, such as insects and disease mortality. The classification system is used to categorize existing ecosystem conditions and to determine priority areas for treatment as mandated by national direction (DOI BLM 2013)

An FRCC assessment has been done for the planning area utilizing LANDFIRE National layers. Though there may be inaccuracies in the data inputs for this planning area, the coarse-scale results

<sup>1</sup> **Biophysical settings** (Bps) are the primary environmental settings used to determine a landscape's natural fire regime and fire regime condition class (Hann and Bunnell, 2001; Hann and Strohm, 2003)

<sup>2</sup> **Fire frequency** is defined as the average number of years between fires or the mean fire interval (Baker and Ehle, 2001; Hann and Bunnell, 2001)

<sup>3</sup> **Fire severity** is defined as the effects of a fire on the vegetation and forest floor, and is measured in terms of surface and over story fuel consumption and heat transference to the organic and mineral soil (DeBano et al. 1998).

are helpful to broadly identify current conditions. The “Fire Regime Condition Class Assessment outlines the fire regime group of each setting, and the acres of each condition class. The analysis shows more than half of the project area is classified as highly departed from reference condition. The moderate and high departure rating could be a concern as it is likely these areas will continue to move further from reference condition without management or fire disturbance.

**Table 3. Current FRCC Condition Classes in the Bi-State Sage Grouse Project Area**

Condition Class	Description	Percent of project Area
I	Low Vegetation Departure	15
II	Moderate Vegetation Departure	31
III	High Vegetation Departure	48
	Other (including water, urban, barren sparsely vegetated and agricultural lands	6
	<b>Total</b>	100

## Vegetation

Pinyon-juniper woodlands and Wyoming big sagebrush ecosystems have undergone major changes in vegetation structure and composition since settlement by European Americans. Woodlands of the Great Basin have rapidly expanded into the sagebrush steppe. This expansion and eventual suppression of the invaded sagebrush community has resulted in considerable loss in area for these diverse and productive ecosystems. In many locations this has resulted in increased soil erosion and is increasingly resulting in the increase in the size and intensity of wildfire (Tausch et al 2005). These changes are resulting in dramatic shifts in fire frequency, size and severity. Effective management of these systems has been hindered by lack of information on: (1) pre-settlement fire regimes and the spatial and temporal changes that have occurred in Intermountain Region woodlands and sagebrush ecosystems since settlement; (2) changes in fuel loads and the consequences for the ecosystem types and conditions that currently exist on the landscape; and (3) the environmental and ecological factors that influence community susceptibility to invasion by nonnative species (Chambers et al 2005). The most significant, widespread and persistent threat is the invasion of cheat grass (*Bromus tectorum*) in disturbed areas. Conifer expansion is the result of a lack of disturbance caused by resource management activities. In some areas of the sagebrush biome, pinyon pine (*Pinus monophylla*) and juniper (*Juniperus spp.*) once existed as open, savannah-like woodlands that were maintained by relatively frequent fires. Since the 1880’s, the stand density and distribution of conifer woodlands have increased in many areas. As it expands into sagebrush communities, contiguous sagebrush stands are reduced in size and the diversity of grasses and forbs decreases. Fire suppression policies generally lengthen fire return intervals in conifer dominated habitats allowing for increased cover densities. (DOI BLM 2013)

## Fuels Reduction in Pinyon-juniper woodlands

Pinyon-juniper woodlands were once viewed as being at a minimal wildfire risk, with low tree stand densities and a lack of continuous and dense ground cover. But as certain conditions arose and persisted—an ongoing drought, a region-wide infestation of the pinyon engraver beetle (*Ips confusus*), and a buildup in stand densities and fuel loadings—the potential for more severe

wildfires has also increased (Gottfried et al 2011).

Prescribed fires and fire use strategies will be more effective in controlling western juniper encroachment if they occur in the earlier stages of succession. The combination of young western juniper being more susceptible to fire damage and fuel loads that allow the manager more opportunity to perform a prescribed burn increase the chances of minimizing the encroachment of western juniper into sagebrush grasslands. Throughout the western United States fire seasons are generally lasting longer with uncharacteristically larger and more severe fires. It is anticipated that climate change will further extend fire seasons. Invasive plants are also of concern and have expanded to create extensive areas of fine fuels where fires spread rapidly.

### Fire History and Occurrence

Fire has been the major influence on vegetation patterns, composition, structure, function, age and development of both individual stands and the larger landscape (Arno 2000). Agee (1993) added that changing land use patterns and attempts to exclude fire have succeeded in greatly reducing the scope of fire on the landscape.

Since 1940, 188 fires have occurred within the project. Although many early fires had no accompanying written information and therefore were not included in fire occurrence maps, this data does give a glimpse of the fire history in the area. Fires that escaped detection would also not be included. The fire occurrence data was digitized from historical maps and from Kansas City fire database (KCFast). The records from KCFast have detailed information including acreage, cost, and physical location.

**Table 4. Fire History by Size Class for the Bi-State Sage Grouse Amendment Area.**

Fire History	Size Class A & B	C	D	E	F	E	Total
Decade	< 9.9 acres	10 - 99.9 acres	100 - 299.9 acres	300 - 999.9 acres	1000 - 4999.9 acres	> 5000 acres	
1940 - 1949			5	4		2	11
1950 - 1959		4	6	1	1		12
1960 - 1969	1	7	1	3			12
1970 - 1979	2	4	5	2	2		15
1980 - 1989	3	17	7	3	4	2	36
1990 - 1999	2	12	4	8	2	2	30
2000 - 2009	5	10	5	15	7	5	47
2010 - 2013	1	11	2	2	6	3	25
<b>Total</b>	<b>14</b>	<b>65</b>	<b>35</b>	<b>38</b>	<b>22</b>	<b>14</b>	<b>188</b>

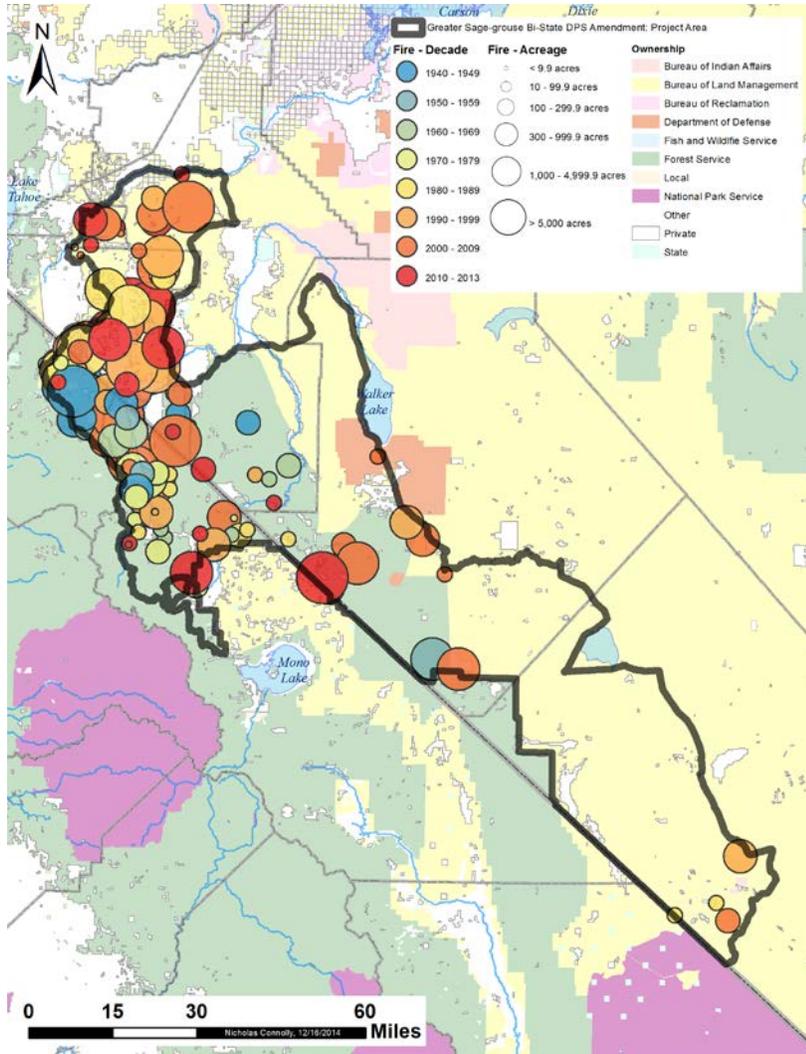


Figure 1. Spatial display of fire occurrence in the Bi-State Sage Grouse Amendment area

### Fire Behavior and Fuel Condition

Fire behavior is driven by the combination of fuels, topography, and weather across the landscape. Surface fires spread according to the direction and speed of wind and the steepness of a slope. Surface fuels are an important factor in determining how fast a surface fire will spread and how hot it will burn. Surface fuels consist of needles, leaves, grass, forbs, branches, logs, stumps, shrubs, and small trees. Surface fire factors are also important to the initiation and spread of crown fires.

A fire behavior fuel model represents the fuelbed characteristics necessary to predict surface fire behavior in fire behavior modeling systems. In 2005, Scott and Burgan presented a new set of fire behavior fuel models that expanded on the original 13 created by Anderson in 1982. Advantages of this new set include: increased precision in surface fire intensity prediction and subsequent crown fire behavior prediction, increased ability to simulate changes in fire behavior as a result of fuel treatments, and improved accuracy of fire behavior predictions outside of the severe period of the fire season (Scott and Burgan 2005). Although twenty-one fuel models are represented in the project area, we will only be discussing the fuel models that compose the majority of the project area or are of greatest concern from a fire behavior standpoint.

Fuel model 101 (GR1) composes 15 percent of the project area and consists of short, sparse grasses indicative of grazed areas. Predicted flame length and spread rate are low with a GR1 fuel model and moisture of extinction is 15%. Fuel model 121 (GS1) comprises 11 percent of the amendment area and is consists of shrubs about 1 foot high. The grass component is low as well as the predicted spread rate and flame lengths. Moisture of extinction is 15%. Fuel model 122 (GS2) has a grass and shrub component, shrubs are 1-3 feet high and the grass load is moderate. Fuel model 122 composes 19% of the amendment area. Spread rate is high and flame lengths are moderate. The moisture of extinction is 15 percent. Fuel model 141 (SH1) composes 11 percent or the amendment area. The primary carrier of fire in SH1 is shrubs and shrub litter and a small grass component if present. The predicted spread rate and flame lengths are low and moisture of extinction is 15%. Fuel model 142 (SH2) composes approximately 6 percent of the amendment area and consists of a moderate load of woody shrubs and shrub litter. There is generally no grass fuels present. The predicted spread rate is low, flame length is low and moisture of extinction is 15%. Fuel model 145 (SH5) comprises approximately 16 percent of the area. Woody shrubs and litter are the primary carriers of fire. It consists of a heavy shrub load with a depth of 4-6 feet. Predicted spread rate and flame lengths are very high and moisture of extinction is 15 percent. The SH5 fuel model can pose suppression challenges to firefighting forces due to the high spread rate and flame lengths that can be generated with wind speeds of 5-10 mph.

Fuel model 183 (TL3) comprises 6% of the project area and combines moderate load conifer litter and light load of coarse woody debris. An understory of litter is the main component that will carry fire. This fuel model has a sparse vegetative understory. Rate of spread is very low and flame lengths are low. The moisture of extinction is 20 percent.

**Table 5. Fire Behavior Fuel Models in the Bi-State Sage Grouse Amendment Area.**

Fuel Model #	Fuel Model Code	Description	Proportion (%)
101	GR1	Short, sparse dry climate grass	15
102	GR2	Low load, dry climate grass	<2
104	GR4	Moderate load, dry climate grass	<1
121	GS1	Low load, dry climate grass-shrub	11
122	GS2	Moderate load, dry climate grass-shrub	19
141	SH1	Low load dry climate shrub	11
142	SH2	Moderate load dry climate shrub	6
144	SH4	Low load, humid climate timber-shrub	<1
145	SH5	High load, dry climate shrub	16
147	SH7	Very high load, dry climate shrub	2
161	TU1	Low load dry climate timber-grass-shrub	<2
165	TU5	Very high load, dry climate timber-shrub	1
183	TL3	Moderate load conifer litter	6
189	TL9	Very high load broadleaf litter	1
		All other fuel models	~6
		<b>TOTAL</b>	<b>100</b>

## Wildland Urban Interface (WUI) Fire Hazard Assessments

The counties in the planning area have developed Community Wildfire Protection Plans (CWPP) which identify fire prevention and protection needs and establish priorities for fire mitigation projects in wildland urban interface (WUI) areas. In the CWPPs, areas of concern such as WUI, are identified and prioritized based on fuel hazards, risk from wildfire, FRCC assessments, infrastructure, and other values such as view-sheds and watersheds. As an outcome of this project, each assessed community was rated extreme, high, moderate or low in terms of its fire hazard. The Healthy Forest Restoration Act (HFRA) facilitates federal involvement by requiring interagency collaboration, especially when counties have completed CWPPs. The following website contains the Risk Hazard Assessment Reports for all counties in Nevada; <http://www.livingwithfire.info/fire-hazard-assessments> (accessed online June 2013). The California CWPP's are located in the project record.

The study area lies within the Alpine and Mono Counties in California and Douglas, Lyon and Mineral Counties in Nevada. The table below shows the acres classified as Wildland Urban Interface within each of the counties in the states of California and Nevada. The BLM has noted WUI areas have been increasing dramatically throughout the Carson City District Planning Area (CCDPA) over the past two decades. Examples of additional WUI infrastructure includes: power lines, pipelines, communication sites, recreation facilities, renewable energy, and military training.

**Table 6. Wildland Urban Interface Acres by County for California and Nevada in the Bi-State Sage Grouse Amendment Area.**

County	Acres within BSSG Amendment Area
Alpine County	77,130
Mono County	347,045
<b>Total for California</b>	424,174
Douglas	302,980
Lyon	555,578
Mineral	894,355
<b>Esmeralda</b>	816,243
<b>Total for Nevada</b>	2,606,554
<b>Total acres classified as WUI within the Project Area</b>	515,322
<b>Approximate acres of Amendment Area</b>	3,030,729
<b>Proportion of Project Area Classified as WUI</b>	~2%

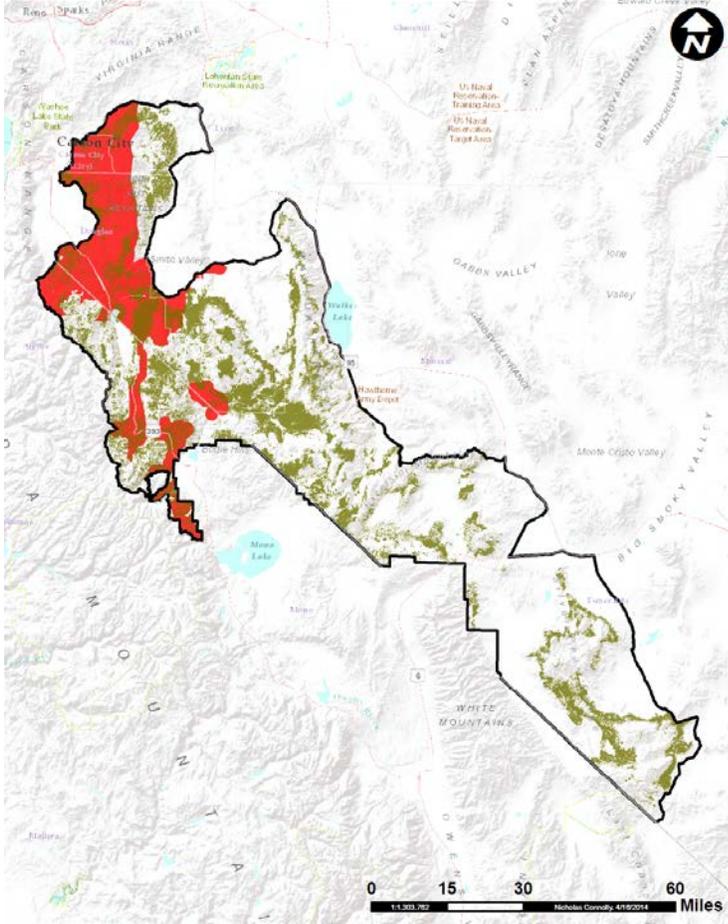


Figure 2 Wildland Urban Interface areas within the Bi-State Sage Grouse Amendment area.

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### *Desired Condition*

Policy and direction in the amendment area is provided by the U.S. Forest Service and Bureau of Land Management National policy and direction.

### BLM Carson Resource Management Plan

Fire management on BLM-Carson City Field Office (CCFO) administered lands in the planning area is guided by the goals and objectives in the 2001 Carson RMP and 2013 RMP update, and is implemented by the current Fire Management Plan (FMP). Existing management direction in the CRMP, amendments, and various implementation plans allows fire to be restored as an integral part of ecosystems to meet resource management objectives. It also identifies activities to improve protection of human life and property through aggressive fire protection, reduction of hazardous fuels and restoration of fire-damaged ecosystems. The CCFO-FMP provides clear management direction for fire and resource personnel and helps implement decisions identified in the CRMP. The fuels program strategy is to utilize both non-fire treatments and prescribed fire to modify vegetation communities to create fire safe communities, protect private property, achieve resource management objectives, and restore ecosystem health. (DOI BLM 2013)

### Toiyabe National Forest Fire and Fuel Management

Fire and fuel management will have been implemented at a level that achieved the least cost plus least net value change on all management areas, except those where management direction required a more intense level of protection. The Cooperative Sierra Fire Initiative will have been implemented. Level II and the Sierra Initiative will result in an average annual burn of a maximum of 500 acres by wildfire and improved protection of private land investments within and adjacent to the Forest. Prescribed burning will have been used in wildlife and range management practices resulting in improved vegetative conditions. (Desired Future Condition Page IV-4)

- The Forest will provide an effective fire management program that is responsive to land and resource management objectives. It will achieve that successful operation of a fully coordinated fire protection workforce which includes the Forest Service, State of Nevada, State of California, BLM, and local fire departments.
- Prescribed burning will be planned to meet management objectives, including fuels reduction and habitat type conversion, in a safe and efficient manner. (Goals- Page IV-4)

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## Environmental Consequences

### Assumptions and Methodology

- Fire is an important functional, natural disturbance in many ecological systems in the amendment area and will likely occur in the future.
- Disturbance events including wildfire and invasive encroachment would continue indefinitely and are un-measurable.
- Conditions will remain favorable for large wildfires due to fuel conditions and warmer climatic patterns.
- A direct relationship exists between fuel characteristics (loading, type, arrangement) and potential fire intensity and severity.
- The necessity for fuels treatments would likely continue in the amendment area.

### Information Sources

Information sources used for this analysis are listed below and represent some of the best available science that was available at the time of report completion.

- LANDFIRE (<http://www.landfire.gov/>) data was used to gather data on the existing condition for the project area. LANDFIRE is a national vegetation and fuels mapping project that provides nationally consistent and seamless geospatial data products for use in wildland fire analysis and modeling.
- Bureau of Land Management Land Resources Management Plan (2013)
- Humboldt-Toiyabe Forest Plan (USDA Forest Service 1986, as amended)
- Project area boundary
- Historic wildfire occurrence data
- Wildland urban interface classification and boundaries
- Fire regime condition class (FRCC) data
- Scientific literature
- Other unpublished documents

### Spatial and Temporal Context for Effects Analysis

The spatial boundaries for analyzing the cumulative effects to fire and fuels management are the amendment area. The temporal context would be effects to fire and fuels management due to changes in how future wildland fires are managed, fuel treatments are planned and implemented as well as the potential shift in Fire Regime Condition Class (FRCC) rating.

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

Cumulative effects to fire and fuels management within the amendment area boundary would relate to other federal, state or private land management activities occurring within the amendment area. Cumulative effects considers the impacts of the alternatives when combined with fuel profile changes resulting from other activities including silvicultural treatments, wildfires and fuels reduction activities. The reduction or cessation of activities may also impact the fuel profile, including suppression of wildfire in sage grouse habitat areas that otherwise would have been allowed to burn with a resource benefit emphasis or a reduction in prescribed fire treatments and mechanical treatments in sage grouse habitat that have caused or have the potential to cause changes in the fuel profile and subsequent changes in fire behavior. Past activities that have shaped the existing condition of the project area include wildfire, fire suppression, prescribed burning, mechanical treatments and grazing. Other past activities including noxious weed treatment and recreational activities generally had a small or localized effect on fuels in the project area.

The following list includes present and foreseeable actions relevant to the cumulative effects analysis for fire and fuels management.

- Carson and Bridgeport Ranger Districts current and planned fuels management projects.
- BLM current and planned fuels management projects.
- Undeterminable amount of fuels reduction/Fire Wise work completed on private, and state lands in the amendment area.
- Revision of land management plans for BLM and associated changes in policy and direction.

## Alternative A – No Action

Under Alternative A, fire and fuels management would continue using existing agency land management plan policy and direction. Due to interim direction, sage-grouse habitat will continue to be a priority after life and property for wildfire suppression actions. Under Alternative A fewer management actions and restrictions would be applied specific to promote, protect and conserve BSSG habitat. Site-specific environmental analysis would continue to determine stipulations, timing, and location of fuels treatments.

**Table 7. Indicators for Assessing Effects to Fire and Fuels Management-Alternative A**

Indicator	Changes
Alteration in vegetation cover and composition that may result in a positive or negative shift in FRCC.	Fuel treatments would continue to have objectives that would benefit FRCC rating. With fewer restrictions more acres could be treated on an annual basis therefore positively affecting the number of acres classified as condition class II and III.
Changes in response to and suppression of wildland fire.	Due to interim direction, wildland fire in sage grouse habitat would continue to be a priority for suppression after life and property. However, the protection of BSSG habitat would change how wildland fire is managed for other resource benefits. Fire suppression costs are likely to be lower under this alternative.
Change in how fuel treatments are designed and implemented to reduce impacts from wildland fire.	The interim direction for protection of BSSG habitat could change how fuel treatments are planned and implemented in sage grouse habitat. These would be determined through site-specific analysis. Fuel treatment costs are likely to be lower under this alternative. There would be no change in non-habitat areas.

## Direct/Indirect Effects of Maintaining Current Management

Management actions under Alternative A would place minimal restrictions on fuels management and fire suppression control methods, and therefore would have few impacts on fire management. Fuel treatments will continue to be designed with objectives to modify fire behavior, change the fuel profile, treat fuels in the WUI, and in some areas restore native plants and create landscape patterns that benefit Bi-state DPS habitat.

Often, natural and planned fires used for fuels treatments and to meet land management plan objectives lower the risk for an uncharacteristic wildfire that can destroy larger acreages or wildlife habitats. Impacts on fire management would vary across the amendment area based on site-specific objectives for other resource concerns. The current agency LRMPs' address fire suppression and fuels management and more detailed fire management plan outline priorities and levels of suppression for resource value protection or other concerns. Recent, interim, direction has specific objectives and management action for suppression and management of fires within sagebrush

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vegetation communities and Bi-state DPS habitat in accordance with local conservation strategies.

Fuel treatments that reduce vegetation and mimic natural fire effects generally contribute to an upward shift in FRCC, creating landscapes that are more resilient to wildfires. Fuel treatments to improve, create, or re-establish healthy ecological conditions in various vegetation types benefit the fire and fuels program in the long term by shifting FRCC to historic conditions and promoting the most efficient use of fire and fuels resources. Management under Alternative A would generally allow for the use of prescribed fire and vegetative treatments where needed. Fire suppression would be prioritized to protect human life, property and high value resources as well as manage wildfire for land management objectives. Impacts would vary throughout the amendment area based on site-specific habitat objectives and treatments applied. Minimal restrictions for location and implementation of fuels treatments with Alternative A would result in more acres treated on an annual basis therefore positively affecting the number of acres classified as condition class II and III. Wildland fire, prescribed fire and fuel treatments may improve Bi-state DPS habitat by increasing structural and age diversity. Due to the flexibility in management of prescribed and wildland fires, fire suppression and fuels treatment costs are likely to be lower under Alternative A.

### Cumulative Effects of Maintaining Current Management

Past wildland fire events have had an effect on the landscape and will continue in the future. Cumulative effects from wildfires and past management activities are discussed in the existing condition section of this report. The existing condition has been influenced by fire suppression and wildfire activity, as well as natural and artificial activities including grazing, mechanical treatments, urban development, climate change, insects and disease and prescribed burning. Maintaining current management combined with future fuels reduction activities would modify fire behavior by contributing to the overall reduction of fuels and modification of the fuel profile, thereby reducing fire behavior potential within the amendment area. Invasive plants will continue to be of concern in fire management as most fire management activities are either surface or vegetation disturbing and subsequently, the impacts from these activities include increased susceptibility to exotic species (DOI BLM 2013). With the potential listing of sage-grouse as a threatened species, response to wildfires in sage grouse habitat could change from limited or conditional suppression to full suppression/protection. These changes could increase costs and add complexity to wildland fire management.

### Alternative A- Response to Key Threats Identified in Fish and Wildlife Proposed Listing:

**Wildfires:** Interim guidance currently addresses priority suppression in Bi-state DPS habitat areas, therefore sage grouse habitat will continue to be a priority after life and property for wildfire suppression actions.

Fuel Reduction/Prescribed Fire Treatments: Fuel treatments will continue to be designed with objectives to modify fire behavior, change the fuel profile, treat fuels in the WUI, and in some areas restore native plants and create landscape patterns that benefit/protect Bi-state DPS habitat.

**Alternative B – Modified Proposed Action**

Under this alternative, more specific standards and guidelines are identified for managing anthropogenic uses. Specific standards and guidelines affecting fire and fuels management can be found in table 11.

**Table 8. Indicators for Assessing Effects to Fire and Fuels Management-Alternative B**

Indicator	Changes
Alteration in vegetation cover and composition that may result in a positive or negative shift in FRCC.	Fuel treatments would continue to have objectives to positively affect FRCC rating. Restrictions on reduction of canopy cover could increase fuel loads and associated fire risk and negatively affect FRCC rating.
Changes in response to and suppression of wildland fire.	Wildland fire in Bi-state DPS habitat becomes a priority for suppression after life and property. Fire suppression costs are likely to be higher under this alternative due to the added complexity of protecting habitat. Additional resources may be required to enable a quicker more effective response to wildfire in habitat areas.
Change in how fuel treatments are designed and implemented to reduce impacts from wildland fire.	Restrictions on fuels treatment could impact ability to control fuel loading levels and result in increased fire risk. Fuel treatments costs are likely to be higher under this alternative as well. There would be no change in non-habitat areas.

**Alternative B- Response to Key Threats Identified in Fish and Wildlife Proposed Listing**

The standards and guidelines proposed under this alternative that relate to fire and fuels management provide a more concentrated focus and priority on BSSG habitat retention and avoidance of impacts than the current situation, under which the agencies operate using interim guidance.

**Wildfire**

Wildfire is identified as a key threat and this alternative addresses the threat of wildfires that may occur in the amendment area by addressing all wildfire in Bi-state DPS habitat will be prioritized for suppression immediately after life and property, and unburned Bi-state DPS habitat within a fire perimeter will also be suppressed. Although interim guidance currently addresses priority suppression in Bi-state DPS habitat areas, this alternative would make this guideline policy.

**Fuel Reduction/Prescribed Fire Treatments**

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Alternative B proposes a standard to include fuels treatments that will emphasize protection of existing sagebrush ecosystems. In addition, fuel management projects will be proposed in habitat to reduce wildfire threats and fire will not be used where the risk of escaped fire could cause negative long-term impacts.

## Restoration

Restoration objectives will be proposed for projects occurring in habitat areas. Alternative B includes several guidelines to address the threat of cheatgrass, including fire and brush control not being utilized in areas where there is a risk of cheatgrass invasion.

Restoration and protection of Sagebrush ecosystems is also addressed under this alternative and includes not utilizing fire, and mechanical treatments in pre-identified areas based on zonal precipitation averages and minimum vegetation cover thresholds. Some projects will be developed to include a restoration focus to benefit sagebrush ecosystems and Bi-state DPS habitat.

## Direct/Indirect Effects, Alternative B

Alternative B would provide additional protection and restoration measures in sagebrush habitat, as compared to Alternative A. Fire and fuels management projects would be designed to promote Bi-state DPS habitat by protecting and promoting existing sagebrush ecosystems. This would be accomplished by maintaining sagebrush cover, requiring the use of native seeds, reducing the threat of invasive plants and placing fuels management projects in habitat to reduce wildfire threat. These proposed modifications to fire and fuels management would result in increased sagebrush protection as compared to Alternative A. Prioritizing fire suppression in Bi-state DPS habitat would protect vegetation by reducing the threat and effects of wildfire, but could result in increased fuel load and spread of noxious weeds in those areas. Prioritizing suppression to conserve habitat may limit suppression options and increase cost for fire management programs as compared with Alternative A. This is due to the likelihood of an aggressive suppression response and more resources required to protect habitat.

Prescribed fire and mechanical treatments focused in Bi-state DPS habitat will be more effective in controlling encroachment of undesirable shrub species. Prescribed fire is a tool that can assist in the recovery of sagebrush habitat in some vegetation types, and many treatments would likely be located adjacent to private land to reduce fuel loading to acceptable levels also meeting fire and fuels management objectives. The combination of young western juniper being more susceptible to fire damage and reduced fuel loads allow fire managers more opportunity to perform a prescribed burn and minimize the encroachment of western juniper into sagebrush ecosystems.

Vegetation treatments used to mitigate impacts by creating or improving sagebrush areas is where the impact on wildland fire management would occur. Aggressive fire suppression and altered fire regimes have caused vegetation to miss a fire cycle or two,

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resulting in decadent, dead stands. This can increase fire intensity and fire severity of an area. By reducing or discontinuing the use of vegetation treatments that mimic the natural fire effects, typically a downward shift in FRCC rating results, leaving areas more prone to large wildfires with greater intensity and severity. Fuel treatments typically create early seral vegetation that is less likely to support large wildfires and therefore maintain or positively affect FRCC rating. Restoration projects that benefit sage-grouse would improve FRCC including reducing the infestation of cheatgrass and other non-natives that can alter fire frequency and removing encroaching conifers could reduce fire intensity and fire potential and subsequently improve FRCC.

Vegetation and weed treatments that decrease standing vegetation and associated fuel loads could decrease the intensity of wildland fires and allow fires to be more easily controlled. Prescribed fire could be utilized for noxious weed control. However, after prescribed burning areas would need to be monitored and emerging weeds treated on a site-specific basis. Management actions that increase, maintain sagebrush, other shrub cover may result in increased fuel loading, which increases the intensity of wildland fire.

Fuel treatments to meet Bi-state DPS habitat objectives would more likely be mechanical, which can be more expensive than using prescribed fire as a treatment method. This is due to the necessity of treatments to retain minimum percent cover of sagebrush. This is more easily ensured when using mechanical treatments versus prescribed fire treatment methods. If treatments are more expensive, fewer acres can be treated with the same amount of funds. Restrictions on fuels treatment could impact ability to control fuels levels and result in increased fire risk.

For example: Restrictions on reduction of canopy cover could increase fuel loads and associated fire risk. Allowing a range of fuel treatment options provides management flexibility to reduce large fire costs and achieve fire and fuels goals and objectives. Prioritizing areas for fire suppression can limit management options and increase costs for fire management. Management actions that are intended to improve, create, or re-establish healthy ecological conditions in various vegetation types benefit the fire and fuels program in the long term by shifting FRCC to historic conditions and promoting the most efficient use of fire and fuels fire management program resources.

## Cumulative Effects

Fire suppression has generally been effective in these areas and it is reasonable to assume would continue into the future, but may become increasingly difficult if fuels accumulate in the absence of frequent, low intensity fire and mechanical treatment in habitat areas. Post fuel treatment and restoration management projects in habitat would be designed to ensure long-term persistence of seeded or pre-treatment native plants to maintain the desired condition to protect and conserve habitat. Some restoration projects in BSSG habitat may not meet hazardous fuels reduction objectives and therefore may be more prone to wildfire due to lack of disturbance. Completed restoration projects may further increase the suppression priority of that area, increasing demands for fire suppression resources. Combining efforts to reduce fuel loading and improve habitat will increase the amount of vegetation treatments possible and will reduce the impact on the overall disturbance on the landscape. This would also be important for areas currently in Fire Regime Condition Classes II and

III, where a positive shift in condition class could be expected in treated areas.

*Summary of Effects*

The standards and guidelines proposed under this alternative that relate to fire and fuels management provide a more concentrated focus and priority on Bi-state DPS habitat retention and avoidance of impacts than the current situation, under which the agencies operate using interim guidance. When wildfires occur in Bi-state DPS habitat, the habitat will be prioritized for suppression immediately after life and property, and unburned Bi-state DPS habitat within a fire perimeter will also be suppressed. Although interim guidance currently addresses priority suppression in Bi-state DPS habitat areas, this alternative would make this guideline policy. Alternative B proposes a standard to include fuels treatments that will emphasize protection of existing sagebrush ecosystems. In addition, fuel management projects will be proposed in habitat to reduce wildfire threats and fire will not be used where the risk of escaped fire could cause negative long-term impacts.

In addition, restoration objectives will be proposed for projects occurring in habitat areas. Alternative B includes several guidelines to address the threat of cheatgrass, including fire and brush control not being utilized in areas where there is a risk of cheatgrass invasion. Restoration and protection of sagebrush ecosystems is also addressed under this alternative and includes not utilizing fire, and mechanical treatments in pre-identified areas based on zonal precipitation averages and minimum vegetation cover thresholds. Some projects will be developed to include a restoration focus to benefit sagebrush ecosystems and Bi-state DPS habitat.

*Alternative C*

Under Alternative C, more conservation oriented and restrictive standards and guidelines are proposed

**Table 9. Indicators for Assessing Effects to Fire and Fuels Management-Alternative C**

Indicator	Changes
Alteration in vegetation cover and composition that may result in a positive or negative shift in FRCC.	Fuel treatments would continue to have objectives to positively affect FRCC rating. Restrictions on reduction of canopy cover could increase fuel loads and associated fire risk and negatively affect FRCC rating.
Changes in response to and suppression of wildland fire.	Wildland fire in Bi-state DPS habitat becomes a priority for suppression after life and property. Fire suppression costs are likely to be higher under this alternative due to the added complexity of protecting habitat. Additional resources may be required to enable a quicker more effective response to wildfire in habitat areas.
Change in how fuel treatments are designed and implemented to reduce impacts from wildland fire.	Restrictions on fuels treatment could impact ability to control fuel loading levels and result in increased fire risk. Fuel treatments costs are likely to be higher under this alternative as well. There would be no change in non-habitat areas.

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## Alternative C- Response to Key Threats Identified in Fish and Wildlife Proposed Listing

Many of the standards and guidelines proposed under this alternative that relate to fire and fuels management use the Resistance and Resilience concept developed by the WAFWA group and provide a more concentrated focus and priority on BSSG habitat retention and avoidance of impacts than the current situation, under which the agencies operate using interim guidance.

### Wildfire

Same as Alternative B.

In addition, fires occurring in sagebrush ecosystems identified as moderate to low resilience and resistance will be aggressively suppressed. It is proposed fuel breaks be included with vegetation treatments to provide anchor points to aid in wildfire suppression actions.

### Fuel Reduction/Prescribed Fire Treatments

Same as Alternative B.

In addition, the use of mechanical treatments versus fire in low resistance/resilience areas will aggressively address cheatgrass and other invasives as well as early to mid-phase pinyon juniper expansion. Reducing fuel loading levels will reduce the risk of high severity fire in habitat. Fuel breaks and green strips would be aimed at protecting sagebrush cover.

### Restoration

Same as Alternative B.

In addition, Alternative C includes several guidelines for aggressive management of cheatgrass, other invasives and sagebrush ecosystems.

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## Direct/Indirect Effects, Alternative C

Effects from fire management would be similar to under Alternative B. Under Alternative C, fuels and other treatments to benefit habitat could be proposed with an emphasis on maintaining, protecting, and expanding sagebrush ecosystems. Emphasis would be concentrated in Bi-state DPS habitat to protect and conserve the habitat. The risk of high intensity fire could be reduced in these areas, thus causing a shift in condition class III areas to condition class II.

Creating and maintaining fuel breaks and green strips in strategic locations, prioritizing wildfire suppression and focusing fuel treatments in habitat would reduce the size and intensity of wildland fires in habitat areas but may result in an increase in fuels management implementation and fire suppression costs. Alternative C would also provide added measures for fuels treatment effectiveness and post fire rehabilitation activities and monitoring. These added measures would increase both fuels management planning, implementation and post fire rehabilitation costs, but would increase the awareness and encourage partnerships with other agencies and resource programs.

Management under Alternative C would limit the placement of fire suppression infrastructure in areas of solid sagebrush which would result in some loss of flexibility in management of wildfire and an increase in fire suppression costs. The added emphasis of prepositioning resources and prioritizing fire suppression immediately after firefighter and public safety would increase the use of resource, increasing firefighter exposure as well as overall program costs. However, it would result in a reduction in the loss of habitat from wildland fire. Under Alternative C, added measures would be incorporated in overall fire management planning to protect habitat. These added measures would increase planning time and costs, but would result in an increase in awareness and potentially benefit Bi-state DPS habitat.

## Cumulative Effects

The cumulative effects for alternative C are expected to be the same as those for alternative B.

### *Summary of Effects*

Many of the standards and guidelines proposed under this alternative that relate to fire and fuels management use the “resistance and resilience” concept developed by the WAFWA group and provide a more concentrated focus and priority on Bi-state DPS habitat retention and avoidance of impacts than the current situation, under which the agencies operate using interim guidance. Wildfire suppression policy is expected to be the same as alternative B with the addition of fires that occur in sagebrush ecosystems and identified as moderate to low resilience and resistance will be aggressively suppressed. This alternative also proposes fuel breaks that would be included with vegetation treatments to provide anchor points to aid in more aggressive wildfire suppression actions.

In addition, the use of mechanical treatments versus fire in low resistance/resilience areas will aggressively address cheatgrass and other invasives as well as early to mid-phase pinyon juniper

expansion. Reducing fuel loading levels will reduce the risk of high severity fire in habitat. Fuel breaks and green strips would be aimed at protecting sagebrush cover. In addition, alternative C includes several guidelines for aggressive management of cheatgrass, other invasives and sagebrush ecosystems during restoration activities.

The Goals, Standards and Guidelines as related to Fire and Fuels Management are listed in the table below.

**Table 10 Goals, Standards and Guidelines by Alternative for BSSG.**

	Alternative A	Alternative B	Alternative C
<b>Fire Suppression</b>	Use planned and unplanned ignitions to restore natural ecosystems in wilderness and other areas where appropriate.	<b>*B-Fire-G-01:</b> Do not use fire as a management tool in areas where the risk of escaped fire could cause negative long-term impacts during wildfire situations.	<b>*C-Fire-S-01:</b> Fires in moderate to low resilience and resistance sagebrush and wooded shrublands shall be suppressed to prevent an invasive annual grass-fire cycle.
	All wildfires will receive an appropriate suppression response.	<b>*B-Fire-G-02:</b> In bi-state DPS habitat areas, prioritize suppression, immediately after life and property, to conserve the habitat during wildfire situations.	Same as alternative B.
	Appropriate responses are confinement, containment, or control.	<b>*B-Fire-G-03:</b> Suppress wildfire threatening unburned habitat contained within a broader burn perimeter.	<b>*C-Fire-G-01:</b> Vegetation treatments should include fuel breaks to provide anchor points for wildland fire suppression to protect areas meeting or moving toward desired conditions to provide protection for habitat that is moving toward or meeting desired condition.
<b>Suppression in Wildland-Urban Interface</b>	All wildfires will receive an appropriate suppression response. Appropriate responses are confinement, containment, or control.	<b>*B-Fire-G-04:</b> Prioritize suppression in the wildland-urban interface to protect life and property over habitat to provide protection for habitat that is moving toward or meeting desired condition.	Same as alternative B.
<b>Fuels Treatments in Sagebrush</b>	Natural fuel treatment projects will meet multi-resource objectives.	<b>B-Fire-G-05:</b> Fuels treatments should emphasize protecting existing sagebrush ecosystems to provide protection for habitat that is moving toward or meeting desired condition.	<b>*C-Fire-G-02:</b> Use fuel breaks and green strips to protect areas with >25% landscape sagebrush cover to provide protection for habitat that is moving toward or meeting desired condition.

No existing direction.	<b>B-Fire-S-01:</b> Fuels treatment projects shall not reduce sagebrush canopy cover to less than 15% of the treatment unit unless needed to meet fire management/protection objectives.	<b>*C-Fire-S-02:</b> Do not reduce sagebrush canopy cover to less than 15% (Connelly et al. 2000; Hagen et al. 2007) unless a fuels management objective requires additional reduction in sagebrush cover to meet strategic protection of bi-state DPS habitat and conserve habitat quality for the species.
No existing direction.	<b>*B-Fire-G-06:</b> Do not use fire, including brush control, as a management tool in areas where there is threat of cheatgrass invasion, sagebrush areas with less than 12 inches of annual precipitation or 12 inches of soil, or areas where the sagebrush cover would be reduced to less than 15%. The intent is to limit the potential spread of cheatgrass into areas with low resistance and low resilience.	Same as alternative B.
No existing direction.	<b>*B-Fire-G-07:</b> Focus fuels management projects in habitat to reduce wildfire threats. The intent is to use fire only where it can do the most good and least harm to meet the purpose of the amendment and be consistent with B-Wild-S-01 (FEIS, Table 2-5).	Same as alternative B.
No existing direction.	<b>B-Fire-S-02:</b> Enhance and restore habitat while reducing the potential for severe wildfires in habitat. The intent is to use fire only where it can do the most good and least harm to meet the purpose of the amendment and be consistent with B-Wild-S-01 (FEIS, Table 2-5).	Same as alternative B.

<b>Prescribed Fire</b>	No existing direction.	No proposed direction.	<b>*C-Fire-G-03:</b> Treatment methodologies are based on the treatments area's resistance to annual invasive grasses and the resilience of native vegetation to respond after disturbance: (1) use mechanical treatments (i.e., do not use fire) in areas with relatively low resistance to annuals, and (2) treat areas in early- to mid-phase pinyon-juniper expansion. The intent is to use fire only where it can do the most good and least harm to meet the purpose of the amendment and be consistent with B-Wild-S-01 (FEIS, Table 2-5).
	Use planned, prescribed fire to improve or enhance resource outputs where appropriate.	<b>B-Fire-G-08:</b> Post-fuels management projects should ensure long-term persistence of seeded or pre-treatment native plants and to maintain the desired condition of fuels management projects. The intent is to use fire only where it can do the most good and least harm to meet the purpose of the amendment and be consistent with B-Wild-S-01 (FEIS, Table 2-5) .	<b>*C-Fire-G-04:</b> Manage post-treatment areas to increase perennial herbaceous species and minimize secondary weed invasion. The intent is to use fire only where it can do the most good and least harm to meet the purpose of the amendment and be consistent with B-Wild-S-01 (FEIS, Table 2-5) .
	No existing direction.	<b>*B-Fire-S-09:</b> To reduce the risk of habitat loss related to management actions do not use fire as a management tool in areas where the risk of escaped fire could cause negative long-term impacts.	<b>*C-Fire-G-05:</b> Vegetation treatments and post-disturbance restoration should seed and/or transplant sagebrush to restore large patches of sagebrush cover and connect existing patches. The intent of this guideline is to move toward habitat conditions (FEIS, Table 2-1) when restoring habitat or mitigating disturbance.

	No existing direction.	<b>B-Fire-G-10:</b> Where cheatgrass is a minor component in the understory (example; mountain shrub) use prescribed fire to disrupt fuel continuity (fuel breaks) The intent of this guideline is to move toward desired habitat conditions (FEIS, Table 2-1) when restoring habitat or mitigating disturbance.	<b>*C-Fire-S-06:</b> Use seed for perennial grasses and forbs adapted to local conditions to increase cover of these species.
	No existing direction.	No proposed direction.	<b>*C-Fire-S-03:</b> Annual invasive grasses shall be controlled or suppressed using an integrated strategy.

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**Agency Response to Scoping Comments** The forest plan amendment will not differentiate between different types of BSSG habitat (priority, etc.). However, the following language addresses concern for the general BSSG habitat: "Bi-State Sage Grouse habitat areas shall be prioritized immediately after life and property, to conserve the habitat during suppression activities." B) The objectives and areas of emphasis discussed in the proposed action are designed to yield net benefits to BSSG. C) The objectives and areas of emphasis discussed in the proposed action are designed to yield net benefits to BSSG. The following language is particularly applicable: "Fuels management treatments shall not reduce sagebrush canopy cover to less than 15 percent. There may be times when a fuels management objective requires additional reduction in sagebrush cover to meet strategic protection of Bi-State Sage Grouse habitat and conserve habitat quality for the species. Closely evaluate the benefits of the fuel break against the additional loss of sagebrush cover in future NEPA documents." D) The objectives and areas of emphasis discussed in the proposed action are designed to yield net benefits to BSSG. The following language is particularly applicable: "Seasonal restrictions for implementing fuels management treatments shall be applied according to the type of seasonal habitats present in Bi-State Sage Grouse habitat" E) The objectives and areas of emphasis discussed in the proposed action are designed to yield net benefits to BSSG. The following language is particularly applicable: "Fuels management treatments shall not be allowed in known wintering habitat unless the treatments are designed to strategically reduce wildfire risk around or in the wintering habitat and will maintain habitat quality. Prescribed fire shall not be used to treat sagebrush in less than 12-inch precipitation zones (e.g., Wyoming big sagebrush or other xeric sagebrush species). However, if as a last resort and after all other treatment opportunities have been explored and site specific variables allow, the use of prescribed fire for fuel breaks that would disrupt the fuel continuity across the landscape should be considered, in stands where cheat grass is a very minor component in the understory. Monitor and control invasive vegetation post-treatment." F) The objectives and areas of emphasis discussed in the proposed action are designed to yield net benefits to BSSG. The following language is particularly applicable: "Monitor and control invasive vegetation post-treatment." G) The objectives and areas of emphasis discussed in the proposed action are designed to yield net benefits to BSSG. The following language is particularly applicable: "Treated areas shall be rested for two full growing seasons unless vegetation recovery dictates otherwise." H) The objectives and areas of emphasis discussed in the proposed action are designed to yield net benefits to BSSG. The following language is particularly applicable: "Give genetically appropriate native plant materials primary consideration in any re-vegetation effort associated with fuels management treatment, consistent with FSM 2070.3. Restrict the use of non-native plant materials to situations in which their use supports Bi-state DPS habitat objectives and satisfies the conditions specified in FSM 2070.3." I) Under the Range Management section of the proposed action, the following language addresses this concern: "Manage rangeland for vegetation composition and structure consistent with achieving Bi-State sage-grouse habitat objectives." J) Under the Range Management section of the proposed action, the following language addresses this concern: "Incorporate management objectives that promote the growth and persistence of native shrubs, grasses, and forbs beneficial to sage-grouse." K) The objectives and areas of emphasis discussed in the proposed action are designed to yield net benefits to BSSG. The following language is particularly applicable: "Changes in climate shall be a consideration when proposing post-fire seeding using native plants. Consider seed collections from the warmer component within a species' current range for selection of native seed."



