ENVIRONMENTAL ASSESSMENT

Hooligan Springs Prescribed Fire Treatment Project

BLM

Worland Field Office, Wind River/Bighorn Basin District, Wyoming

October 2010

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CHAPTER 1

INTRODUCTION AND NEED FOR THE PROPOSED ACTION

INTRODUCTION

The Bureau of Land Management's Worland Field Office is proposing to treat approximately 235 acres of ponderosa pine and aspen stands with prescribed fire about 10 miles north of Ten Sleep, Wyoming in parts of sections 29-32 of T49N, R87W and sections 25 and 36 of T49N and R88W. (Map A).

PURPOSE AND NEED FOR THE PROPOSED ACTION

In 2000 several small mountain pine beetle outbreaks started at the south end of Dorn Draw and Red Dick Canyon. These outbreaks were scattered patches affecting about 5 – 15 trees in each patch. In response to the bark beetle outbreak, the BLM offered commercial salvage, commercial thinning, and commercial stewardship contracts several times through 2001 – 2004. The projects were not implemented due to lack of interest from prospective bidders. Difficult terrain combined with poor market conditions made the sales unfeasible. Fortunately, the mountain pine beetle outbreaks in Dorn Draw and Red Dick Canyon eventually abated without human intervention, and never reached infestation levels. The mountain pine beetle population has since returned to endemic levels in the project area.

In 2002, the BLM identified 130 acres of ponderosa pine in the south end of Dorn Draw that would benefit from periodic under burning following ladder fuels reduction. Later that year the BLM treated the ladder fuels via non-commercial service contract. The juniper understory was cut and piled, and the piles were later burned. This pre-treated area is included within the project area.

In 2003, the BLM indentified aspen stands that would increase in vigor following conifer removal and burning. From 2004 – 2005, a BLM seasonal fuels crew completed an aspen enhancement project that involved cutting and slashing encroaching conifers within 34 acres of

aspen stands in Red Dick Canyon. These pre-treated areas are also included within the project area.

The historical fire return interval in Ponderosa Pine stands of the Big Horn Basin is 26-53 years. This ponderosa stand is experiencing encroachment from western juniper and mixed conifer trees due to the absence of low intensity fire. This encroachment is contributing to the buildup of understory and ladder fuels. The area also has increased pine needle cast depth underneath the ponderosa stands. The encroachment increases chances of stand replacing wildfire which would destroy the ponderosa stands. The heavy needle cast depth increases fire severity on the root systems of the ponderosa during wildfire conditions.

Fire Regime Condition Class (FRCC) is a tool that categorizes a landscape's potential degree of departure from its reference condition. It is a measure of ecological departure to describe resource conditions. While the concept is most widely used in the fire, fuels, and forestry programs, it is also consistent with the concepts of land health. The FRCC system uses two sets of descriptors that, when combined, can be used to diagnose the fire regime condition class. The first set of factors measures vegetation composition and structure changes. The second set measures possible changes in fire frequency and severity. FRCC classes are broken down into three categories: 1, 2, and 3. Landscapes determined to fall within the category of FRCC 1 contain vegetation, fuels, and disturbances characteristic of the natural regime; FRCC 2 landscapes are those that are moderately departed from the natural regime; and FRCC 3 landscapes reflect vegetation, fuels, and disturbances that are uncharacteristic of the natural regime.

The planned project area for the Hooligan Springs Prescribed burn falls into the category of FRCC 2.

CONFORMANCE WITH BLM LAND USE PLAN(S)

This proposed action conforms to the Record of Decision and Approved Resource Management Plan for the Washakie Resource Area dated 1988, which is currently under revision and consolidation into the Bighorn Basin Resource Management Plan. The decisions in the Washakie Resource Management Plan provide general management direction and allocation of uses and resources on the public lands in that area. The proposed action does not conflict with the preferred alternative of the Draft Bighorn Basin RMP revision.

RELATIONSHIPS TO STATUTES, REGULATIONS AND OTHER PLANS

The proposed action is consistent with the following laws, regulations and policies;

Vegetation Treatments on Bureau of Land Management Lands in 17 Western States, Programmatic Environmental Report, Record of Decision, BLM, 2007

Interim Management Guidelines for the Greater Sage-grouse and Sagebrush-Steppe Ecosystems for BLM Administered Lands in Wyoming, 2000

Federal Land Policy and Management Act, 1976

Wyoming Standards for Healthy Rangelands

State of Wyoming, Department of Environmental Quality, Smoke Management Rules

CHAPTER 2

DESCRIPTION OF ALTERNATIVES

INTRODUCTION

This EA focuses on the Proposed and No Action Alternatives. The No action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the proposed action.

Alternatives Considered but not Analyzed in Detail

The following alternatives were considered, but were not analyzed in detail because they were found to be inadequate and did not entirely fulfill the purpose and need for action objectives. It is for this reason that they will not be discussed/analyzed further in this EA.

1. Chainsaw Cutting Only

Under this alternative, the method of juniper removal would be limited to hand-falling only. The juniper would be cut and piled and/or left to be burned at a later date to remove excess fuel from the project area. This method would be very time consuming. Given the size of the treatment area and the amount of vegetation to be treated this method would not be cost effective. This method would not address the removal of other ladder fuels and needle cast removal.

2. Herbicide Treatment Only

Under this alternative method, juniper sprouts and seedlings would be treated with herbicide. This method would not address the issue of other ladder fuels, dead fuel on the ground and needle cast.

3. No Action

PROPOSED ACTION

The Bureau of Land Management's Wind River/Big Horn Basin District Fire Management staff proposes implementing a low intensity ground fire to reduce ladder fuels, decrease ponderosa needle cast depth, and reduce dead woody fuels. The prescribed burn would be conducted with strip head firing using narrow strips to lessen fire intensity or low intensity backing fires. If needed the proposed burn unit will be hand lined followed by black lining prior to ignition of project area.

The treatments would be conducted over a ten year time frame beginning in 2011.

The objectives of this alternative would be:

1) Reduce the fuel bed of needle cast.
2) Provide maintenance burning to meet juniper and ladder fuel reduction goals.
3) Kill re-sprouts on juniper stumps produced by any mechanical removal.
4) Increase production and cover of perennial grasses and forbs
5) change the vegetative community so that it more closely reflects an ecosystem with a fire return interval of 15 to 25 years (Brokenback Diversity Unit Analysis 1995)

In order to accomplish the above the following design features would be incorporated into the proposal:

- Conduct noxious weed pre and post surveys and follow up with treatments if noxious weeds are discovered.
- Conduct a cultural clearance of the project area.
- The two monitoring points will be re-read at one, three and five year post treatment.
- Use chain saws to remove junipers around known cultural and archeological resources.
- No work will take place on state and private lands within the project boundary until agreements are in place for each parcel.
- Raking of needle cast fuel bed will take place on some of the oldest, relic ponderosa trees to decrease mortality due to fire severity on roots of trees.

NO ACTION

Under No Action Alternative there would be no treatment of the vegetation in the area. Juniper density would continue to increase as woodland succession proceeded towards Phase II.

CHAPTER 3

AFFECTED ENVIRONMENT

INTRODUCTION AND GENERAL SETTING

The affected environment was considered and analyzed by an interdisciplinary team as documented in the Interdisciplinary Team Checklist. The checklist indicates which resources of concern are either not present in the project area or would not be impacted to a degree that requires detailed analysis.

Resources which could be impacted to a level requiring further analysis are and impacts on these resources are analyzed below.

Unless specifically noted for a resource the Cumulative Impact Area is considered to be the project boundary since there are few if any past present or reasonably foreseeable future actions outside the project boundary watershed that would affect resources.

The proposed project area consists of approximately 235 total acres of State and BLM administered land.

Elevation of the area is between approximately 7200-7800 feet. A permanent rain gauge located in the vicinity of Cedar Mountain indicates total annual precipitation to be about 14-15 inches, of which slightly less than half occurs during the growing season of April, May and June.

1. Vegetation & Soils

Vegetation of the proposed treatment area is a grass and forb understory with ponderosa pine and quaking aspen canopy. Some native shrubs are present that are typical of the elevation and precipitation zone the parcels are found in. The common taxa include:

basin wildrye (*Leymus cinereus* (Scribn. & Merr.) A. Löve)
Idaho fescue (*Festuca idahoensis* Elmer ssp. *idahoensis*)
needle and thread (*Hesperostipa comata* (Trin. & Rupr.) Barkworth ssp. *comata*)
ponderosa pine
quaking aspen
skunkbush sumac (*Rhus trilobata* Nutt.)
western snowberry (*Symphoricarpos occidentalis* Hook.)
Utah juniper (*Juniperus osteosperma* (Torr.) Little)

Utah juniper encroachment is currently the biggest threat to the ponderosa pine stands on the west slope of the Big Horn mountains. This is due to the exclusion of low intensity fire in the ponderosa fuel type. In 2002 juniper encroachment understory was cut and piled in the treatment area. The area does have large concentrations of needle cast around the larger ponderosa pines. Reducing needle cast in the treatment area will encourage the spread of grasses and forbs and create bare ground for germination and establishment of pine seed. Junipers treated mechanically have limbs remaining on their cut stumps that need to be removed. In 2004 and 2005 aspen stands in the area had conifers removed from them and would benefit from a fire treatment to stimulate stem suckering.

Riparian vegetation is limited to a few areas around some scattered springs and seeps. The riparian vegetation is dominated by blackroot sedge (*Carex elynoides* Holm), bluejoint (*Calamagrostis canadensis* (Michx.) Beauv.), and small floating mannagrass (*Glyceria borealis* (Nash) Batchelder). Some of these riparian areas are also experiencing juniper encroachment.

Figure 1. Low intensity prescribed fire used to reduce needle cast, litter, and low lying juniper limbs (foreground) around ponderosa pine in the Maggie's Cabin Area.

The present Fire Regime and Condition Class of the proposed treatment area is II.

The soils in the project area are well drained to excessively well drained. These soils formed over sandstone bedrock and from sandy material weathered from sandstone outcrops. Soil depth is generally moderately deep to shallow (10-40 inches). Surface textures are fines sandy loams and loamy fine sands. Sandy textures continue throughout the soil profile.

When the native vegetation is undisturbed, these soils are not prone to runoff and water erosion. Based on calculations generated by the U.S. Forest Service web-based Water Erosion Prediction Project (WEPP), Disturbed WEPP model, there is virtually no erosion when the native vegetation has not been disturbed. In the rare event of a 50-year storm cycle, WEPP still predicts little or no runoff and erosion. Wind erosion is also negligible for soils with intact native vegetation. Owing to the sandy nature of these soils, they are not prone to compaction.

The two dominant soil series are characterized in the table below.

Dominant Soil Series Characterization and Description

Soil Series	***Soil Depth***	***Surface/Subsoil Textures***	***Ecological Sites***	***Diagnostic Horizons***
Billy Creek	20-40	Loamy fine sand throughout	Woodland	None
Greenman	20-40	fine sandy loam throughout	Sandy 15-19 in. pz.	Mollic epipedon Argillic horizon (weak)

2. Air Quality

The treatment area is within the Big Horn Basin Air shed. There are no Class I or non-attainment areas which require special management considerations near the project area.

Air quality and visibility is generally good in this remote area, with no noticeable impact from urban areas. The nearest towns are the towns of Hyattville (11 miles), Basin (32 miles), Greybull (40 miles), Manderson (20 miles) and Tensleep (10 miles).

3. Noxious Weeds and Non-Native, Invasive Species

Noxious weed species that have been documented in the proposed burn area include houndstongue, whitetop, Canada thistle and bull thistle. Cheatgrass is also present in the area, primarily in a patchy distribution.

4. Special Status/BLM Sensitive Species

There are no known TE or BS plants in project area.

No threatened or endangered wildlife species have been observed or recorded utilizing the habitat within the project area. The project area is not within a sage grouse core breeding area and has not been designated as primary habitat for sage grouse activity of any kind.

5. Wildlife (Other than Threatened, Endangered and Sensitive)

Wildlife habitat in the project area consists of deep, steep-sided canyons and rocky areas with occasional small benches vegetated with Ponderosa pine, juniper, aspen, mountain mahogany, mountain sage brush, various perennial grasses, and forbs. The habitat is capable of sustaining a variety of wildlife species including, elk, mule deer, mountain lion, bobcat, coyote, black bear, yellow-bellied marmot, badger, numerous raptor species, small mammals, and passerines. A portion of the project area has been designated as crucial winter range for elk and mule deer.

6. Visual Resource Management

The project area is located in an area currently managed under Visual Resource Management (VRM) Class IV objectives, although historic visual resource inventories rated this area with a high B score. Recent visual inventory rated the area as Class A (score of 23) scenic quality, high sensitivity levels, and front country distance zone. The inventory work was completed in the field using an interdisciplinary approach.

The scenic quality rating was influenced by the high degree of natural contrasts created by the off-white, pillowy rock outcrops scattered in a landscape dissected by deeply incised, random and sinuous canyons. The canyons exhibit a variety of colors consisting of red, salmon, purple, white, and yellow standing out against the dark green colors from the junipers and ponderosas. This landscape containing such a high degree of natural contrasts, with low or unnoticeable cultural modifications within the area, creates a very scenic area.

The sensitivity levels rated high due in part that the landscape is classified as front country, and the types of users observed in the area, and how managing for visual resources affects other land uses, such as outfitting and guiding, recreation, and wildland tourism. A change in the landscape or introducing unnatural contrasting elements within this area will generate a high degree of public concern.

Class IV objectives are to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

7. Livestock Grazing

The grazing permit for the Renner Individual Allotment #00148 authorizes 250 cattle from April 1 to July 1 at 73% public land for a total of 383 public AUMs. As a term and condition of the grazing permit the allotment is to be grazed in accordance with the Renner Allotment Management Plan (AMP) dated July 2002.

The allotment is grazed under a deferred grazing plan with the strategy of managing growing season use. The grazing plan is based on a total of 525 AUMs. All cattle will be confined to one pasture at a time. Pasture moves may be based on the needs of the ranch operation as long as BLM, WGFD, and the permittee agree to the changes. The allotment is broken into Lower Pastures – which includes North, South, Homer, and Airport pastures and Upper Pastures – which include Lower Mountain, Upper Mountain, Red Dick, and Dorn Draw pastures. The Lower Pastures are grazed in a five year rotation with the intent to distribute grazing during the April 15 to July 1 and allow for proper plant recovery from grazing. The five year cycle for 2006 to 2010 is as follows:

PASTURE	2006	2007	2008	2009	2010
NORTH	Turnout April 15 to April 25	May 7 to May 15	April 26 to May 6	Turnout April 15 to April 25	May 7 to May 15
SOUTH	April 26 to May 6	Turnout April 15 to April 25	May 7 to May 15	April 26 to May 6	Turnout April 15 to April 25
HOMER	May 7 to May 15	April 26 to May 6	Turnout April 15 to	May 7 to May 15	April 26 to May 6

AIRPORT	Used for 2-3 days to facilitate livestock moves up the mountain	Used for 2-3 days to facilitate livestock moves up the mountain	April 25 Used for 2-3 days to facilitate livestock moves up the mountain	Used for 2-3 days to facilitate livestock moves up the mountain	Used for 2-3 days to facilitate livestock moves up the mountain

In 2010 the Lower Pastures were rested in consultation and agreement with the BLM and WGFD. The permittees used the Gapen Hyatt Allotment for their spring grazing.

The limiting factor for livestock grazing in the Upper Pastures is the lack of reliable water. It is the intent of the rotation in the Upper Pastures to stay as long as possible before going onto private lands. The permittees may stay longer to take advantage of water in the guzzlers in consultation with BLM and WGFD. Red Dick and Dorn Draw pastures will not be included in the grazing rotation to enhance reestablishment of willows and aspen. The grazing rotation for the Upper Pastures is as follows:

PASTURE	2006	2007	2008	2009	2010
Lower Mountain	June 4 to June 17	June 4 to June 17	June 4 to June 17	June 4 to June 17	June 4 to June 17
Upper Mountain	June 18 to July 1	June 18 to July 1	June 18 to July 1	June 18 to July 1	June 18 to July 1

In 2009 the permittees rested the Lower Mountain pasture in consultation with the BLM and WGFD in order to accomodate the cheatgrass spray treatment that occured in the fall of 2008. Instead they used the Red Dick and Dorn Draw pastures with 277 cattle for eleven days.

8. Water Resources/Hydrology

The proposed action is located in the Brokenback Creek watershed. The area is considered to be a hydrologic recharge area for the basin. The overall precipitation rates exceeds evapotranspiration and plant use of available water. The North Fork of Brokenback Creek is a perennial tributary to the Nowood River.

Groundwater

In the proposed treatment area, the geologic outcrops consist of the TenSleep Formation and other Paleozoic limestones that are considered important local and regional aquifers. These geologic formations have high permeability and transmit surface water easily into groundwater. There are also several limestone solution caves in drainages north of the project area.

Surface Water
The majority of the drainages in the project area are tributaries to Brokenback Creek. These drainages are geologically controlled flow in a southern direction. These segments are typically considered gaining reaches where surface flow encounters the water table and flow increases throughout the segment due to higher amounts of available water.
There are two riparian segments (I0014X,I0203X) located in the project area, these segments are a combined 2.3 miles in length and are intermittent and perennial reaches where seeps and springs intersect the surface outcrops. These segments were inventoried and evaluated during the 1998 field season and both found to be in proper functioning condition at the time of assessment.

9. Wilderness Study Areas (WSAs)

There are no Wilderness Study Areas within the project area. Recent inventories conducted by the BLM have found wilderness characteristics within this area, and are currently being analyzed to maintain these characteristics in the Bighorn Basin Resource Management Plan Revision.

As mandated by FLPMA, Section 202, the BLM is required to maintain an inventory of wilderness characteristics, which the project area has been identified as a multiple-use lands containing wilderness characteristics unit (031 PR). The Unit is 2,972 acres and is of adequate size due to the vegetation, random canyons, the broken environment, and the rugged topography which adequately maintains wilderness characteristics. Because of the lack of evident land uses, the area has maintained its naturalness and does not exhibit the footprint of man. The landscape, the ruggedness from the canyons and the vegetation which act as natural barriers, and abundant public accessible lands within and surrounding the unit provides for outstanding opportunities for primitive recreation and solitude. Cultural, scenic, and wildlife resources are abundant within the unit.

10. Recreation Uses

The project is located within the West Slope of the Bighorn Special Recreation Management Area (SRMA), where recreation resource and associated uses and management are one of the predominant resources and activities in the area. Desired settings, activities, opportunities, experiences, and beneficial outcomes have been identified in this area. The Hyattville Logging Road, and North Brokenback Road provide for essential access points into the area, and is a very popular area for many different forms of both primitive and non-primitive activities, such as hunting, camping, hiking, exploring, wildlife watching, sightseeing, rock hounding, and photography. The Logging Road provides for exceptional access into the northern regions of the proposed project area, as well as a popular portal into the Bighorn National Forest, and North Brokenback Road provides for exceptional access into the southern portion. Both routes are very desirable because of the amount of public accessible lands they provide access for, as well as the highly scenic landscape and other resources important for a high quality recreational experience.

Travel and transportation management limits motorized use to designated roads and trails. A travel management plan has been implemented in the Renner Unit Wildlife Habitat Management Areas located within the project area, and the South Brokenback region located south of the project area.

11. Rangeland Health Standards and Guidelines

In 1997, *Standards for Healthy Rangelands and Guidelines for Livestock Management for BLM lands in Wyoming* were approved by the Secretary of the Interior and adopted as decisions in all BLM land use plans. These standards relate to all types of public land use and describe the natural resource conditions to sustain public land health (CFR 43 Subpart 4180). Assessments are periodically conducted to determine where conditions are meeting established BLM Standards related to soil, watershed, riparian/wetlands, floodplains, vegetative and wildlife species diversity, and water quality resources.

Specific guidelines for livestock have been developed within Wyoming to identify management actions and/or best management practices to implement the standards. Periodical assessments could indicate that changes in management may be needed to meet appropriate standards or other multiple use objectives.

The "Wyoming Standards for Healthy Rangelands Assessment Conformance Review" was completed for the Renner Individual Allotment #00148 in 1998 in accordance with federal grazing regulations 43 CFR 4180. The review determined the allotment was meeting all the Standards except Standard #5 which was unknown.

CHAPTER 4
ENVIRONMENTAL IMPACTS

1. Vegetation & Soils

Proposed Action

Removing juniper would renovate the ponderosa forest structure and grassland community. It would also restore a fire return interval of 15 to 30 years with lower intensity burning. Diversity within the plant community might increase. The area would move towards Condition Class I since juniper would be reduced in the plant community. Reduction of juniper, needle cast, and forest debris could help fire suppression efforts in the event of a wildfire, reduce wildfire size and cost, and reduce the number of acres converted to a mono-culture grassland after a fire. Removing juniper around springs and seeps would allow riparian vegetation to expand from its present distribution.

Prescribed fire removes surface vegetation. Based on WEPP calculations, using the *low severity fire treatment* variable there is a 56 probability of runoff and erosion immediately following burning. WEPP predicts erosion rates to average 1.0 tons per acre per year during the time that

the soil is most bare. In the rare event of a 50-year storm cycle, WEPP predicts that erosion rates could be as high as 8.5 tons per acre per year. Likewise, there is some potential for an increase in wind erosion during this timeframe in areas directly exposed to wind, such as ridge tops or open areas. Erosion rates for both water and wind erosion are anticipated to return to background levels within 1 to 3 years following treatment. No soil compaction is anticipated.

No Action

There would be no direct disturbance of vegetation or soils in the project area. Under the no action alternative juniper encroachment would progress to Phase II. Overall plant community diversity would decrease. As juniper encroachment progressed to Phase III, grass and forb cover would be greatly reduced and bare ground would increase or invasive brome distribution would increase. The juniper canopy could become dense enough to support severe crown fire in the ponderosa overstory when fuels and fire weather conditions are critical. Past fires in the Big Horn Basin that have occurred under this circumstance have resulted in post fire plant communities dominated by cheatgrass (*Bromus tectorum* L.) (CC III). A high intensity wildfire could adversely impact soils by increasing erosion and reducing soil productivity due to the loss of organic matter.

2. Air Quality

Proposed Action

Air quality would only be an issue during prescribed burning. Due to distance from communities, it is unlikely that air quality in the local communities would be affected. Smoke emission impacts to these communities, if any, would be mitigated by burning during favorable conditions, as prescribed by the Wyoming Department of Environmental Quality's smoke management rules. http://deq.state.wy.us/aqd/smokemanagement.asp

No Action

Air quality would be impacted if a wildfire occurred. Smoke impacts from wildfire are potentially more substantial than under the proposed action due to the amount of vegetation consumed during a wildland fire, as compared to the low intensity burning that the BLM proposes to implement. Additional factors such as unpredictable weather conditions and fire behavior during a wildfire would contribute to smoke impacting the proposed project area. A large wildfire occurring during summer months could burn for several days and produce smoke impacts including visibility and air quality to the several local communities listed above. If juniper succession was allowed to progress to Phase III, emissions would be much greater than if a wildfire occurred in the present plant community due to greater volume large fuels available

3. Noxious Weeds and Non-Native, Invasive Species

Proposed Action

The proposed action would increase the likelihood of noxious weeds and invasive, non-native species becoming established in areas where vegetation is removed and the soil is disturbed. Contaminated tools and equipment could potentially carry seeds or vegetative parts of weeds into uninfested areas. Burning could also exacerbate existing populations of weeds, especially in areas with a higher burn severity such as heavy dead-and-down logs and jackpot fuels.

Project design features that will mitigate weed spread and population increase include the following: cleaning equipment before each phase of work on the project begins; inventory the unit prior to burning and apply weed treatments where necessary; monitor the site over time to ensure the effectiveness of treatments; and seed native species where appropriate to provide competition with invasive/noxious weeds – especially in areas with cheatgrass.

No Action

Noxious weeds would not be introduced into the area as a result of this project. However, an unplanned ignition in the unit could lead to a high-severity fire without fuels mitigation, which would disturb the soil to a greater degree and increase current weed infestations. About 10 miles south of the project area cheat grass became dominant following the 1996 Cold Springs wildfire. Juniper encroachment in the Cold Springs fire had progressed to Phase III and the area is now in fire condition class III. Several researchers report greater abundance of non-native species following high severity fire (RMS GTR-42). A higher intensity burn would also lengthen the recovery period for native vegetation post-burn, reducing their ability to compete with weeds.

4. Special Status/BLM Sensitive Species

Proposed Action

No threatened or endangered status species are known to use the project area. The removal of juniper would likely enhance the probability of the habitat being used by sage grouse, citing the removal of large numbers of potential avian predator perches in the form of existing juniper. The removal of encroaching juniper would also likely increase the occurrence of native sage brush and the diversity o native grasses and forb species favored by sage grouse.

No Action

In the event that no action is taken, juniper encroachment is likely to continue to increase, contributing to decreasing vegetation species diversity, greater numbers of potential avian predator perches, and less likelihood that the habitat will be utilized by sage grouse.

5. Wildlife (Other than Threatened, Endangered and Sensitive)

Proposed Action

Maintaining the juniper reduction in this area will maintain or improve wildlife habitat and reduce the threat of large severe wildfires. Forage for elk, mule deer, and black bear would generally be maintained or improved. Maintaining a healthy ponderosa woodland community

will provide quality habitat for numerous big game species, small mammals, birds and other wildlife species that utilize this habitat.

Project design features would reduce treatment related impacts to wildlife species. Disturbance will be short–term and impact relatively few wildlife species. Elk will be displaced during burning activities but the impacts will be minimal, and positive benefits will outweigh this minor negative impact.

No Action

As juniper density increases, the quality of elk and mule deer winter range and habitat for other sagebrush obligates would decline as sagebrush and desirable understory species were out-competed by juniper. Overall as juniper continue to encroach, wildlife abundance as well as species diversity would decline.

If juniper encroachment advances to phase III with a canopy capable of supporting a severe crown fire direct impacts on wildlife could include displacement, mortality, and loss or modification of habitat. If a hot season wildfire were to occur in areas with a dense juniper canopy, fire effects would be severe. The burned area would be susceptible to invasion by cheatgrass and other invasive species that would provide little or no value as wildlife habitat.

6. Visual Resource Management

Proposed Action

The proposed action will introduce contrasting elements of line, form, and texture against the surrounding natural elements. These contrasts would initially include some handline construction and blackened ground cover. It would also include some blackened live ponderosa trees and some ponderosa mortality resulting in red needle ponderosa conditions. These elements will be visible from the casual observer, but may not be readily observed due to the naturalness of the treatment activities (compared to observed visual contrasts from activities like open pit mining, and oil and gas activities). Long term impacts may indirectly aid in maintaining the visual resources by minimizing catastrophic events such as uncontrolled wild fires. The treatment area is managed as VRM IV. Treatment activities, if managed for appropriately, will not conflict the VRM class objectives.

To maintain the visual resources within the area, the following mitigation measures must be adhered to:

· If cross-country motorized use off of existing two tracks is absolutely necessary, tracks left behind will promptly be signed as closed to motorized use and reclaimed.

· Maintain natural burn mosaics by avoiding newly created straight linear boundaries within the burn areas. New fire lines will maintain a nonlinear element.

· Low stump and cross-hatching techniques will be used for larger trees, such as ponderosa and lodge pole.

No Action

The encroaching conifers contribute additional elements of form, line, texture, and color against the natural surrounding elements. The lack of management actions will not introduce contrasting elements of form, line, color, and texture against the natural surrounding elements. However, possible events such as uncontrolled wildfires from the lack of vegetation management will indirectly impact the visual resources.

7. Livestock Grazing

Proposed Action

Since juniper encroachment is largely in Phase I and no reseeding will be necessary, no changes in livestock grazing will be required to accommodate the treatment. If post treatment monitoring indicates an increase in livestock use of the treated area, the treated area will be temporarily fenced for two years. Burning would occur with snow or under conditions where only single trees are ignited and the impacts would be essentially the same as the mechanical treatment. In the long term forage availability to livestock would be maintained since juniper density would not be allowed to increase.

No Action

Livestock grazing would continue to occur. No changes in management are anticipated under no action. In the long term forage availability to livestock would decrease as juniper density increased.

8. Water Resources/Hydrology

Proposed Action

Previous juniper removal studies and its expansion into ecological sites along with its associated impacts in relation to hydrology have been numerous. The associated hydrologic response to these treatments is complex in nature. Possible benefits of this project include increased ground water recharge, and increased amounts of water in the surface and subsurface, all of which aide in spring and stream restoration.

Conversion to less-water-demanding vegetation types affects site hydrology by: (1) decreasing leaf area and biomass, thereby reducing the amount of precipitation intercepted by vegetation canopy and lost due to evaporation , and (2) reducing the amount and depth from which water is withdrawn from the soil by transpiration. By reducing evapotranspiration, conversion to such low-water-use vegetation would potentially increase runoff, groundwater recharge and soil water storage.
This proposed treatment is located in the Brokenback watershed has potential to improve the riparian conditions by improving infiltration and subsurface water movement into the subsurface soils and also into fractures of the underlying Ten Sleep formation which has high amounts of primary and secondary permeability to transmit water.

The treatment area lies within a 15-19" precipitation zone. There are 2.3 miles of perennial and intermittent public stream segments in or immediately downstream of the proposed treatment area (Watershed Map). If an increase in yield did occur more surface water would be available for downstream riparian habitat and other uses that occur from tributaries downstream of the project area. The photo points established in 1998 will be revisited and monitored for changes in hydrologic conditions and vegetation types in the monitoring plan intervals as outlined.

No Action

Since the area is in Phase I encroachment with healthy rangeland vegetation still present, the hydrologic process associated with capture, storage and release of water from precipitation would continue to function properly. Juniper encroachment along riparian areas has often caused a reduction in desirable native perennial *carex* and *juncus* species due to shading and competition for available water resources. The encroachment of juniper onto the floodplain areas will continue to occur.

9. Wilderness Study Areas (WSAs)
Proposed Action

If the proposed project were to take place, the wilderness study areas would not be impacted. No portion of the WSAs in the area need to be crossed or accessed in order to reach the project area or to meet the objectives of the project.

The wilderness characteristics identified within Unit 031 PR would temporarily be impacted by the proposed action. The prescribed burning activities will compromise the characteristics of naturalness, outstanding opportunities for solitude, and primitive recreation. The naturalness would be compromised due to the blackened burned mosaics and the presence of the handlines. However, these impacts would be temporary and will quickly disappear within a few seasons. The burnt mosaics will contrast against the surrounding natural elements, but the naturalness of the burned areas and the lack of unnatural elements (i.e. permanent structures) will retain the naturalness of the area. These impacts will be temporary.

To maintain the identified wilderness characteristics, mitigation measures listed in the Visual Resource Management section must be followed.

Long term impacts from the proposed action will benefit the wilderness characteristics by managing for a healthy ecosystem and by minimizing catastrophic events such as uncontrolled wild fires which will compromise the naturalness and outstanding opportunities for naturalness and primitive recreation.

No Action

The WSAs will have no impacts to the no action alternative.

031 PR will maintain the wilderness characteristics as identified by the BLM. No immediate impacts will be observed from the no action. However, possible events such as uncontrolled wildfires from the lack of vegetation management will indirectly impact the naturalness and compromise the wilderness characteristics.

10. Recreation Uses

Proposed Action

Short term recreational impacts may be observed, such as additional operational presence. Additional BLM activities during times of treatments may conflict with the desired settings needed to realize the visitors' beneficial outcomes. This goal interference will displace visitors to alternative areas, which will minimally impact experiences and benefits of those within the region. However, treatment activities may highly impact visitors' experience and benefits from those visiting from outside the region. The two-tracks left from the management actions may encourage additional casual recreational use from visitors in the area, which will introduce additional 2-tracks in the area. The influx and sprawl of additional 2-tracks will alter the physical, social, and operational recreational setting character conditions which may interfere with the targeted settings and related targeted experiences and benefits.

To maintain the desired settings conducive to a high quality recreational experience, the mitigation measures listed under the Visual Resource Management section must be followed.

Long term impacts will be beneficial to recreation by managing for or enhancing a healthy ecosystem, and by minimizing the risks of a catastrophic event. Recreational experiences are dependent upon the desired recreational settings and associated resources, all of which would be appropriately managed for, or enhanced through the proposed action. Supplemental values such as scenic quality, healthy forest, and wildlife will benefit from the proposed action, which will benefit recreational settings, opportunities, experiences, and beneficial outcomes.

No Action

The no action alternative would not alter the current back and middle country settings, but maintain the naturalness of the area as observed by the casual observers. Users may be displaced to alternative areas if an undesirable event occurred due to the lack of vegetation management.

11. Rangeland Health Standards and Guidelines

The prescribed fire treatment would be effective in slowing juniper encroachment, maintaining and improving plant diversity, and limiting fire size and severity. These actions would help maintain and improve watersheds condition.

The desired future condition of the project area would be indicated by sufficient cover and litter to protect the soil surface from erosion and to promote infiltration. A reduced fuel load would result in less potential for large, high severity wildland fire with correspondent soil erosion.

If the treatment proved to be fully successful, the proposed action would also conform to Rangeland Health Standards by providing a more reliable forage base for wildlife and livestock as well as improved vegetative diversity in the treatment area.

Cumulative Impacts Analysis:

"Cumulative impacts" are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions.

Past and Present Actions:

Past or ongoing actions that affect the same components of the environment as the proposed action are:

If implemented, the proposed action would result in vegetative improvements that would provide high quality habitat for wildlife. .

Positive long-term impacts from the completion of this project would include increased ability to directly attack wildfire, increased safety and efficiency of fire suppression forces, and the protection of public health and private property. Wildfire that did occur would be smaller and less severe.

Under the no-action alternative, fuel loadings would increase exponentially as the area progressed to Phase III encroachment and could lead to a severe wildfire event that could cause damage to soils and lead to increased growth of noxious weeds and other invasive species, resulting in an increased fire frequency rate.

Reasonably Foreseeable Action Scenario (RFAS)

The following RFAS identifies reasonably foreseeable future actions that could cumulatively affect the same resources in the proposed project area as the proposed action and no action alternative. Cumulative effects are incremental and can result from projects such as the proposed action as well as other past, present, and reasonably foreseeable future actions. Multiple activities to differing degrees have previously affected portions of the proposed project area. These include livestock grazing, hunting, and recreational off-highway vehicle (OHV) use; fire control and fuels treatments. Any of these activities could continue or increase in future years and could impact the area encompassing the proposed project.

Invasion and/or spread of non-native species (noxious weeds) could affect vegetation within the proposed area. Other fuels reduction treatment projects have occurred on BLM lands in the

general area which could decrease the spread of noxious weeds through successful regeneration of native and non-native plant species. Monitoring of the project area would be ongoing following treatment and results could warrant further management action if non-native species proliferate in this area.

Removing juniper and reducing some ground fuels would directly reduce the chance of wildland fire spreading from public to private land or the reverse.

Cumulative Impacts:

The primary focus of the proposed project is to reduce needle cast, surface litter and kill re-sprouting juniper. This would reduce the chances of a wildfire that would adversely affect ponderosa pine and wildlife habitat. The prescribed fire treatment area would reduce the chances of an uncontrolled wildfire spreading from the treatment area to adjacent private, state and federal lands near the project area. Likewise a wildfire moving into the treatment area would burn with lower intensity on the surface and result in lower mortality in the ponderosa pine.

The currently existing noxious and invasive plants within the analysis area are manageable with monitoring and treatment; however, a high intensity wildland fire could increase impacts from invasive species and cause a concurrent increase in control costs.

CHAPTER 5
PERSONS, GROUPS, AND AGENCIES CONSULTED

Public Involvement Process

During preparation of the EA, the public was notified of the proposed action by posting on the Wyoming Internet Homepage on ___date. No persons have contacted the BLM in response to the notice. The BLM issued a number of press releases concerning its vegetation treatment program and conducted open houses throughout the Big Horn Basin in 2009 concerning its vegetation treatment program.

List of Persons, Agencies and Organizations Consulted

Name	**Purpose & Authorities for Consultation or Coordination**	**Findings & Conclusions**
Jerry Altermat Wyoming Game and Fish	Habitat Biologist and Grazing	
The BLM consulted with both the Department of Interior's Fish and Wildlife Service under Section 7 of the Endangered Species Act for the 2007 Vegetation Management PEIS.		

BLM Preparers

BLM staff specialists who determined the affected resources and provided content to the preparers for this project are listed in Appendix A. Specialists were briefed in Resource Meetings regarding the proposal and the progress of the EA . Those who otherwise contributed to this EA are listed below.

Name	Title	Responsible for the Following Section(s) of this Document
Andy Rothleutner	Fuels Technician	NEPA Preparation
Andrew Tkach	Planning Coordinator	Quality Control

References

A public comment period was not offered because very little interest in the proposal has been expressed.

References

List of Preparers

BLM staff specialists who determined the affected resources for this document are listed in Appendix A. Those who contributed further analysis in the body of this EA are listed below

Appendix A

INTERDISCIPLINARY TEAM CHECKLIST

Project Title: Hooligan Springs Prescribed Fire

File/Serial Number: WY-R010-2010-0044-EA

Project Leader: Andy Rothleutner

DETERMINATION OF STAFF: ***(Choose one of the following abbreviated options for the left column)***

NP = not present in the area impacted by the proposed or alternative actions
NI = present, but not affected to a degree that detailed analysis is required
PI = present with potential for relevant impact that need to be analyzed in detail in the EA
NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section D of the DNA form. The Rationale column may include NI and NP discussions.

Determi-nation	Resource	Rationale for Determination*	Signature	Date
RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)				
NI	Air Quality	Individual tree burning could affect air quality and is analyzed in Chapter3 of the EA.		
NP	Areas of Critical Environmental Concern	There are no ACEC's in the area		
NP	BLM Natural Areas**	There are no BLM natural areas		
NI	Cultural Resources	See Appendix C, Notification Documenting NHPA Compliance		
NI	Greenhouse Gas Emissions**			
NP	Environmental Justice	Treatment area is in a remote largely unpopulated area		
NP	Farmlands (Prime or Unique)	Treatment area is woodland and forest.		
NP	Fish and Wildlife Excluding USFW Designated Species	Sec 7 consultation		
NP	Floodplains	Treatment area is on upland sites		
PI	Fuels/Fire Management	Individual Juniper burning and fuels breaks are analyzed in Chapter3 of the EA.		
NP	Geology / Mineral Resources/Energy Production	No exploration, mining or energy production is occurring in or near the treatment area		

Determi-nation	Resource	Rationale for Determination*	Signature	Date
PI	Hydrologic Conditions	Juniper encroachment and hydrologic conditions are analyzed in Chapter 3		
PI	Invasive Species/Noxious Weeds	Invasive species are analyzed in Chapter 3		
NP	Lands/Access	No Access issues are known to exist.		
PI	Livestock Grazing	Livestock grazing is analyzed in Chapter 3		
PI	Migratory Birds.	Migratory birds are analyzed in Chapter 3		
NI	Native American Religious Concerns	See Appendix C, Notification Documenting NHPA Compliance		
NI	Paleontology	Formations with a high sensitivity for significant fossils are not present in the treatment area.		
PI	Rangeland Health Standards	See vegetation & soils, water resources, air quality, T&E species in Chapter 3.		
PI	Recreation	See recreation in chapter 3		
NI	Socio-Economics	No economic activities such as livestock grazing or hunting will be disrupted by the project		
PI	Soils	See vegetation and soils in Chapter 3		
NP	Threatened, Endangered or Candidate Plant Species	None present in the treatment area		
NP	Threatened, Endangered or Candidate Animal Species	None present in the treatment area		
NP	Wastes (hazardous or solid)	None present in the treatment area		
PI	Water Resources/Quality (drinking/surface/ground)	Analyzed in chapter 3 under Water Resources and Hydrology		
PI	Wetlands/Riparian Zones	Analyzed in Chapter 3 under Vegetation and Soils		
NP	Wild and Scenic Rivers	None present in the treatment area		
NP	Wilderness/WSA	There are no WSA's present in treatment area.		
NP	Woodland / Forestry	Woodland and forestry analyzed in Chapter 3 of the EA.		
PI	Vegetation Excluding USFW Designated Species	Analyzed in Chapter 3 under vegetation and soils		
PI	Visual Resources	Analyzed in Chapter 3 under visual resources		
NP	Wild Horses and Burros	None present in or near the treatment area		
NI	Areas with Wilderness Characteristics**	Treatment will be in a unit identified as containing wilderness characteristics and management to maintain or enhance characteristics are analyzed in current Resource Management		

Determi-nation	Resource	Rationale for Determination*	Signature	Date
		Plan Revision.		

FINAL REVIEW:

Reviewer Title	Signature	Date	Comments
Environmental Coordinator			
Authorized Officer			

BLM Staff Specialist	Position
Stephen Kiracofe	NRS
Eve Warren	NRS – Fuels Planner
Rance Neighbors	Fuels Specialist
Jared Dalebout	Hydrologist
Paul Rau	Outdoor Recreation Planner
Marit Bovee	Archaeologist
Karen Hepp	Rangeland Management Specialist
Ted Igleheart	Wildlife Biologist
Teryl Shryack	Rangeland Management Specialist
Jim Gates	Forester
C.J. Grimes	NRS – Weeds

Appendix B – Project Maps
Vicinity Map
Project Map

Appendix C
Notification Documenting NHPA Compliance