United States Department of the Interior
Bureau of Land Management

Environmental Assessment
LSFO Juniper Encroachment Treatment

Little Snake Field Office
455 Emerson Street
Craig, Colorado

DOI-BLM-CO-N010-2014-0039-EA

September 2014

TABLE OF CONTENTS

CHAPTER 1 - INTRODUCTION

1.1 IDENTIFYING INFORMATION

PROJECT NAME: LSFO Juniper Encroachment Treatment

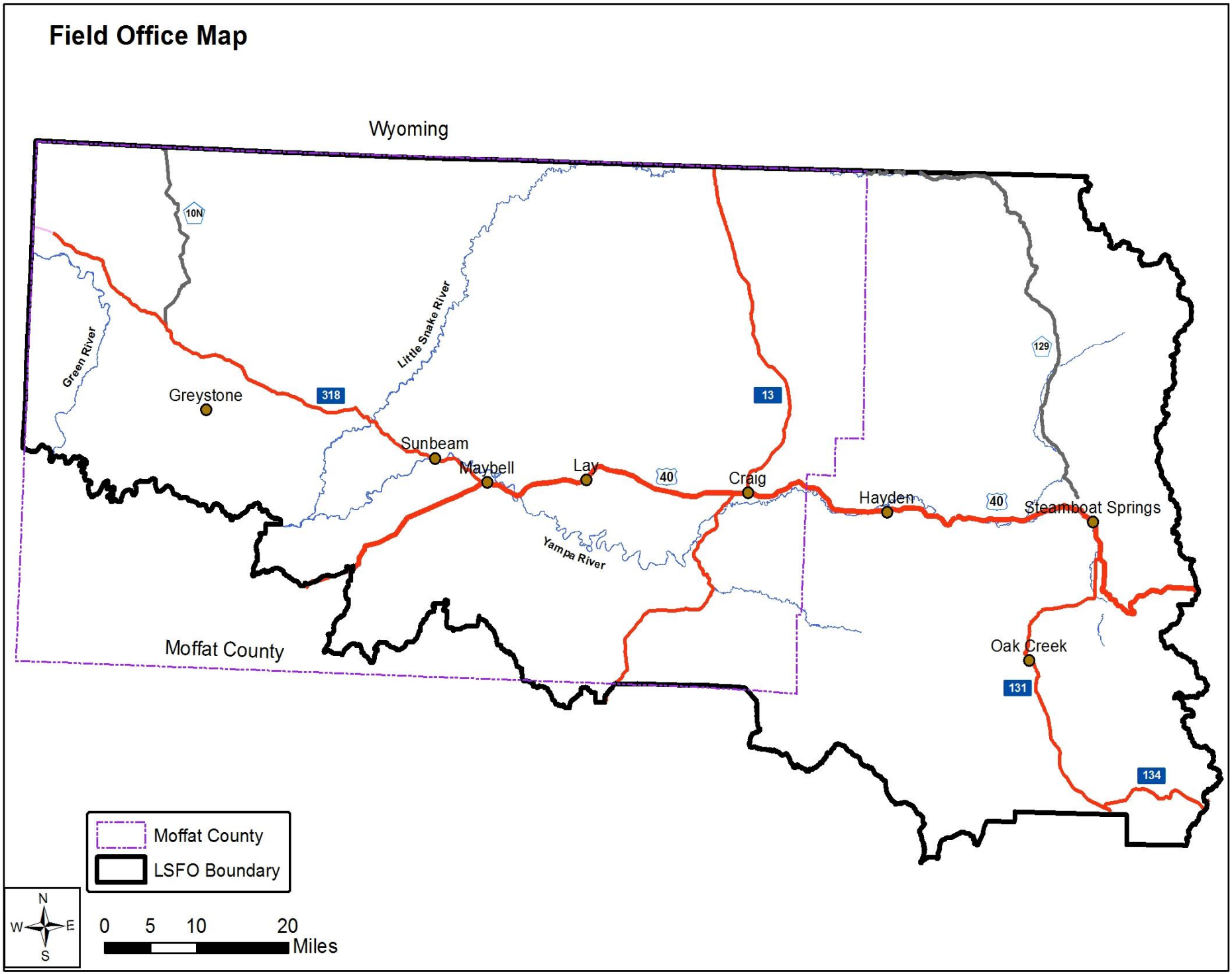
1.2 PROJECT LOCATION AND LEGAL DESCRIPTION

COUNTY AND GENERAL LOCATION: All lands within the Little Snake Field Office (LSFO) in Moffat County that meet the specified criteria are being considered in the environmental assessment.

LANDSCAPE DESCRIPTION: Areas considered within the LSFO are sagebrush dominated with young Utah juniper and/or pinyon pine spreading into them. Juniper is by far the most prevalent. Elevation ranges from 5900' to 7000' with annual precipitation in the 9 – 14 inch range. Terrain is flat to rolling with slopes of less than 15%. Figure 1 depicts a typical site.

Figure 1. Typical site

Field Office Map



1.3 BACKGROUND

The removal of young pinyon and juniper (primarily Utah juniper) from ecological sites that primarily support Wyoming big sagebrush (artemesia tridentata wyomingensis) has been an on-going effort in the Little Snake Field Office and many BLM offices throughout the west for many years. It is done to achieve improvements in sage grouse habitat and deer and elk habitat; general range improvement, general improvement in ecological diversity, and hazardous fuels reduction goals. The objective is to reduce juniper and pinyon from identified sites while it is economically feasible to do so before tree cover becomes so thick that shrub, grass, and forb production is reduced to the point that wildlife habitat quality, plant community diversity, soil stability, and range productivity is severely degraded. Additionally, juniper and pinyon encroachment causes wildfires become more intense and harder to control and post fire recovery takes much longer with a high threat of invasive and noxious weed establishment.

1.4 PURPOSE AND NEED

The purpose of the Proposed Action is to take a programmatic approach to the reduction of encroaching pinyon and juniper into sagebrush dominated areas. This is being done in order to work towards the sagebrush management goals to sustain the integrity of the sagebrush biome in order to support viable populations of greater sage-grouse and other sagebrush obligate species; and to identify and initiate restoration and rehabilitation of sagebrush habitat while maintaining a mosaic of canopy cover and seral stages.

Another purpose is to reduce hazardous fuel accumulations in order to increase public and firefighter safety, protect cultural resources, and provide an opportunity for habitat restoration. The scale of this analysis provides for a landscape approach to sagebrush and fuels management that fulfils the need to prioritize sagebrush maintenance and restoration treatments throughout the Little Snake Field Office rather than a project by project analysis as is the current practice in the LSFO. Further, this analysis establishes environmental, administrative, and social criteria that would be utilized in the subsequent design of individual vegetation treatments as well as spatial and temporal thresholds and restrictions that may apply to individual areas or planning area wide.

1.4.1 Decision to be Made

The LSFO manager will decide whether or not to approve a programmatic approach to sagebrush maintenance and restoration treatments on a field office wide scale and if so under what terms and conditions.

1.5 PLAN CONFORMANCE REVIEW

The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Little Snake Record of Decision and Resource Management Plan (RMP)

Date Approved: October 2011

Results: The Proposed Action is in conformance with the LUP because it is specifically provided for in the following LUP goals, objectives, and management decisions:

Section/Page:

Wildland Fire Management - page RMP-27.
Give first priority to protection of life or property. Objectives for achieving this goal include:
• Identify and reduce hazardous fuels, with an emphasis on urban interface areas.
Create an integrated approach to fire and resource management to meet land health standards. Objectives for achieving this goal include:

- Reduce fire hazards in ecosystems and restore ecological community functions.
- Use mechanical or other vegetation treatments to reduce fire hazards, when appropriate.

Vegetation – page RMP-15
Collaborate with stakeholders and resource users in providing an array of habitats, suitably distributed across the landscape, that support biodiversity and viable populations of native plant and animal species. Objectives for achieving this goal include:

- Manage for a diversity of seral stages within plant communities.
- Manage for connections between varieties of plant communities on a landscape scale.
- Manage for juniper and other large woody species within their historic range of natural variability.
- Restore natural disturbance regimes, such as fire, and use vegetation treatments to accomplish biodiversity.

Sustain the integrity of the sagebrush biome in order to support viable populations of greater sage-grouse and other sagebrush obligate species. Objectives for achieving this goal include:

- Maintain large patches of high-quality sagebrush habitats, consistent with the natural range of variability for sagebrush communities in northwest Colorado.
- Maintain connections between sagebrush habitats on a landscape scale, as allowed by the range site condition.

Identify and initiate restoration and rehabilitation of sagebrush habitat while maintaining a mosaic of canopy cover and seral stages. Objectives for achieving this goal include:

- Reconnect large patches of sagebrush habitat, consistent with the natural range of variability for sagebrush communities in northwest Colorado.
- Reduce the encroachment of juniper and other large woody species into the sagebrush habitat.
- Restore a diversity of seral stages within sagebrush communities.
- Restore the quantity, species composition, and species diversity of sagebrush understories.

Special Status Species – page RMP-22

Sustain the integrity of the sagebrush biome to maintain viable populations of greater sage-grouse and other sagebrush obligate species, consistent with local conservation plans. Objectives for achieving this goal include:

- Maintain large patches of high-quality sagebrush habitats consistent with the natural range of variability for sagebrush communities in northwest Colorado.
- Maintain connections between sagebrush habitats on a landscape scale.

Identify and initiate restoration and rehabilitation of sagebrush habitat while maintaining a mosaic of canopy cover and seral stages. Objectives for achieving this goal include:

- Reconnect large patches of sagebrush habitat consistent with the natural range of variability for sagebrush communities in northwest Colorado.
- Reduce the encroachment of juniper and other large woody species onto sagebrush habitat.

1.5.1 RELATIONSHIP TO STATUTES, REGULATIONS, OR OTHER PLANS

The Proposed Action implements actions recommended in the following Plans, Acts, and Policies:

Northwest Colorado Fire Management Program Fire Management Plan:
National Fire Plan of 2000
Collaborative Approach to Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan of May 2002.
Federal Land Assistance, Management and Assistance Act of 2009.

1.6 PUBLIC PARTICIPATION

1.6.1 Scoping: NEPA regulations (40 CFR §1500-1508) require that the BLM use a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to allow public participation to identify issues, concerns, and potential impacts that require detailed analysis.

External Scoping Summary: The action in this EA is included in the NEPA log posted on the publicly available LSFO web site:
http://www.blm.gov/co/st/en/BLM_Information/nepa/lsfo.html

Internal Scoping Summary: The Proposed Action and Alternatives were introduced to the Little Snake NEPA interdisciplinary team on June 7, 2014. Staff members representing all disciplines that are analyzed in this document were present.

Issues Identified: For the purpose of BLM NEPA analysis, an "issue" is a point of disagreement, debate, or dispute with a Proposed Action based on some anticipated environmental effect. All issues identified have been mitigated by incorporation into the design features of the Proposed Action.

CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter describes and compares the Proposed Action and No Action Alternative, and alternatives considered but dismissed.

The Proposed Action seeks to analyze juniper and pinyon as well as limited sagebrush reduction treatments on a Field Office wide level versus a project by project analysis as is the current approach under the no action alternative. If the no action alternative is selected, fuel treatment activities would continue to be analyzed with a site-specific EA. No other alternatives were brought forth for consideration.

2.2 ALTERNATIVES ANALYZED IN DETAIL

2.2.1 Proposed Action

Background Information for the Proposed Action

The planning area encompasses the entire Little Snake Field Office; however only a fraction of the area fits within the ecological criteria being considered for juniper reduction treatments and is almost entirely within Moffat County. Pinyon/juniper woodland development is classified in many publications (from Miller and others 2000, 2005) as phase I, II, or II with the following general characteristics:

- Phase I, trees are present but shrubs and herbs are the dominant vegetation that influence ecological processes on the site.
- Phase II, trees are co-dominant with shrubs and herbs and all three vegetation layers influence ecological processes on the site.
- Phase III, trees are the dominant vegetation and the primary plan layer influencing ecological processes on the site.

For analysis purposes, only Phase I and II sites will be considered for treatment with Phase I being the primary focus. This degree of woodland development can be found on the following ecological sites within the Little Snake Field Office: Rolling Loam, Sandy Foothills, Sandhills, Sandy land, Loamy, Loamy Cold Desert, Mountain Loam, Deep Loam, and Sandy. These ecological sites generally fall within the 9 – 13 inch precipitation zone and have slopes of less than 15%. There are an estimated 10,000 to 30,000 acres of Phase I and II woodlands occupying these ecological sites. In all of these sites, the potential natural vegetation as described by the Moffat County Soil Survey includes Wyoming big sagebrush as the dominant or co-dominant shrub, with the exception of Mountain Loam in which the dominant shrub is mountain big sagebrush (artemesia tritentata vaseyana). All of these ecological sites are considered habitat for greater sage-grouse and are therefore considered a priority to improve or maintain through the removal of encroaching trees.

Methodology and Design Features of the Proposed Action

It is proposed to remove juniper and pinyon trees that have expanded into ecological sites supporting Wyoming big sagebrush and to a lesser degree mountain big sagebrush through mechanical means within the Little Snake Field Office to meet wildlife, wildland fire, and vegetation management goals. Limited amounts of sagebrush (less than 100 acres per project) may also be removed when hazardous fuels reduction is the main objective. Treatment methods are described below:

Mastication:
This is typically done with a large rubber tired tractor (similar to a skidder) with a 6' - 8' hydraulically powered mowing or mulching head attached to the front (Figures 1 and 2). These machines are capable of shredding trees up to 12" in diameter and 15' tall. Tracked units with a similar masticating head may also be used on smaller sized projects or projects with smaller trees as they are typically smaller machines (Figure 3). Whole tree are reduced to small branches and pieces of wood from pencil size up to bowling ball size (Figure 4). The mulch is scattered across the surface but will be deeper in the immediate vicinity of the tree. This machinery can also be used for brush mastication although is not as cost effective as a tractor pulled brush mower.

Figure 1. Rubber tired carrier with horizontal rotary drum (Bull Hog shredder)

Figure 2. Rubber tired carrier with mower style shredder (Hydro-Ax).

Figure 3. Tracked carrier with horizontal rotary drum (Bull Hog Shredder).


Figure 4. Typical results of tree mastication.

Hand Cutting:
Trees are cut by hand using chainsaws and the trees and limbs are either piled for later burning or scattered. If tree size and density is low, the cut material will be scattered with no branches extending above the existing brush height. In areas of greater tree density or larger size, the cut material may be piled and burned. Pile burning usually takes place from several months to several years following cutting in order to let the woody material dry thereby promoting complete combustion and reduced smoldering. Burning typically occurs during the late fall, winter, or early spring when there is snow on the ground to prevent fire spread away from the piles.

Prescribed burning (including pile burns) must be carried out in accordance with the Interagency Prescribed Fire Planning and Implementation Procedures Guide. This guide requires that a prescribed burn plan be completed that describes exactly how and under what conditions prescribed burning would occur in order to meet stated resource and fire management goals and objectives. The prescribed fire will also be conducted in accordance with the State of Colorado Smoke Management Plan and MOU, and is regulated under Colorado Department of Public Health and Environment, Air Pollution Control Division. The Air Pollution Control Division issues an open burning permit, which specifies smoke dispersal conditions and other stipulations under which burning may occur.

Spot seeding where piles were burned may be done in areas that are felt to be prone to cheatgrass or noxious weed infestation. This is typically areas that receive lower annual precipitation and have limited native herbaceous plant cover. Native species that are endemic to the area would be

utilized if possible. Non-native species would only be used if native species are unavailable or would not be able to achieve the desired ecosystem maintenance or restoration goal. Seeding rates vary by species and application method but is typically about 8 – 12 lbs. pure live seed (pls) per acre. All seed must be certified noxious weed free for the 11 western states in order to be used on BLM land.

Brush Mowing:
This technique involves a heavy duty mower pulled behind a rubber tired tractor (Figure 5). It is typically used in flat to gently rolling sagebrush areas. Brush would be mowed to a height of 3 to 4 inches (Figure 6.). Herbaceous vegetation is also mowed during this process but is not killed and any damage very short term. Treatments are typically done in a mosaic fashion leaving 40 to 70% of the target area untreated.

Figure 5. Brush mower.

Figure 6. Typical brush mowing results.

Design Features of the Proposed Action – The following design features will be incorporated into the Proposed Action Alternative, if selected. Individual vegetation treatment projects proposed under the guidance of the Proposed Action would first undergo a Determination of NEPA Adequacy. The Field Office Manager, with input from resource specialists, would decide if all resource concerns are adequately addressed in this environmental analysis and apply additional mitigation measures if necessary or determine that an additional environmental analysis is required.

Resource-specific Design Features:

Soils

1. Planned fuels treatments will be limited to slopes less than 15%.

2. When using mechanical fuels reduction treatments, limit tractor and heavy equipment use to periods of low soil moisture or when the ground is frozen/under snow to reduce the risk of soil compaction and disturbance. If this is not practical, evaluate sites following treatment and if necessary, implement appropriate remediation as part of the operation.

Wildlife

1. If an active raptor nest has been located in a treatment area, there will be a 0.25 mile buffer of no surface disturbance stipulation put into effect allowing no activities from February 1 through August 15. Exceptions may be granted as outlined in the Little Snake Resource Management Plan.

2. Treatment would not occur between May 15 and July 15 to protect nesting migratory birds. Additional timing limitations and other protective measures to protect wildlife species can be found in the LSFO RMP ROD, Appendix B and would be applied at the project level.

3. Remove standing and encroaching trees within at least 100 meters of occupied sage-grouse leks and other habitats (e.g., nesting, wintering and brood rearing) to reduce the availability of perch sites for avian predators, as resources permit.

4. For treatments in greater sage-grouse preliminary general habitat (PGH) where fuels reduction is a priority, up to 50% of the sagebrush may be mowed or masticated, providing this would still meet sage-grouse habitat guidelines. The amount of sagebrush treatment allowed on any one project will be determined in consultation with the Field Office wildlife biologist when a DNA is completed for each project. As a general guide, less than100 acres per project will be considered.

5. Sagebrush treatments will not be done in greater sage-grouse preliminary priority habitat (PPH) under this programmatic EA, however, juniper/pinyon treatments would be authorized under this programmatic EA with a Documentation of NEPA Adequacy (DNA))

Weeds/Range

1. Mechanical treatments that have little ground disturbance may not require grazing rest. These treatments will be evaluated on a case by case basis.

2. All machinery used within the project boundary will be cleaned prior to working within the project, to help reduce the spread of noxious weeds.

3. Coordination with permittees will be made prior to any treatments.

4. Unless other agreements have been documented any treatment requiring rest or exclusion from livestock grazing should require at least one year notice for the livestock operator to make alternative arrangements or adjustments for when their allotment(s) is closed to grazing.

9. Treatments will be monitored for noxious weed infestation and control measures taken if warranted.

Recreation/Wilderness/Lands with Wilderness Characteristics

1. Timing limitations may be implemented if excessive conflicts with hunting is expected or cannot be mitigated.

2. Wilderness Study Areas (WSAs) and Areas of Critical Environmental Concern (ACECs) will not be considered for planned fuels treatments in this analysis.

3. No Mechanical treatments will be planned for areas designated as lands with wilderness characteristics until overall management decisions have been made.

4. All fuels reduction activities affecting lands with wilderness characteristics areas would be consistent with the minimum requirement concept. This concept is a documented process used to determine if administrative activities effecting wilderness characteristics or the visitor experience are necessary and how to minimize impacts. The minimum requirement concept would be applied as a two-step process that determines (1) whether or not the proposed fuels management action is appropriate or necessary for administration of the area as lands with wilderness characteristics and does not pose a significant impact to naturalness, and outstanding opportunities for primitive recreation and solitude; and (2) the techniques and type of equipment needed to ensure that impact to wilderness characteristics is minimized.

Cultural/Heritage Resources

1. Once an area has been identified for treatment, an appropriate level of cultural resources assessment and/or inventory will be determined and completed prior to project implementation. Consultations with the State Historic Preservation Officer (SHPO), Native American tribes, or other affected/interested parties also may be required.

2. Work with heavy equipment may only occur when the ground is dry or frozen in order to reduce the risk of damage to surface or shallowly buried artifacts.

3. For any action or treatment, the Standard Discovery Stipulations apply:

    a. Any cultural and/or paleontological (fossil) resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and the authorized officer will make any decision as to proper mitigation measures after consulting with the holder.

b. The operator is responsible for informing all persons who are associated with the operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are encountered or uncovered during any project activities, the operator is to immediately stop activities in the immediate vicinity of the find and immediately contact the authorized officer (AO) at (970) 826-5000. Within five working days, the AO will inform the operator as to:

- Whether the materials appear eligible for the National Register of Historic Places;
  The mitigation measures the operator will likely have to undertake before the identified area can be used for project activities again; and

  - Pursuant to 43 CFR 10.4(g) (Federal Register Notice, Monday, December 4, 1995, Vol. 60, No. 232) the holder of this authorization must notify the AO, by telephone at (970) 826-5000, and with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

Paleontological Resources

1. Areas that contain geologic formations that are PFYC 3, 4, and 5, for which new surface disturbance is proposed on or adjacent to bedrock (native sedimentary stone), including disturbance that may penetrate protective soil cover and disturb bedrock, may be subject to an inventory that shall be performed by a BLM permitted paleontologist and approved by the appropriate LSFO specialist. Surface disturbing activities in many areas including PFYC 4 and 5 may also require monitoring by a permitted paleontologist. The risks of damage or degradation by human-caused impacts could be lowered if the area of the Proposed Action is covered by extensive soil and vegetative cover.

2. Any paleontological resource discovered during fuel reduction treatment shall be immediately reported to the BLM Authorized Officer. Construction operations shall be suspended in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer and the discovery shall be protected from damage or looting. Activities may not be required to be suspended if activities can be adjusted to avoid further impact to a discovered locality or be continued elsewhere. The Authorized Officer would evaluate or would have evaluated, such discoveries as soon as possible, but not later than 10 working days after being notified. Appropriate measures to mitigate adverse effects to significant paleontological resources will be determined by the Authorized Officer after consulting with the operator. Within 10 days, the operator would be allowed to continue construction through the site, or would be given the choice of either (1) following the Authorized Officer's instructions for stabilizing the fossil

resource in place and avoiding further disturbance to the fossil resource, or (2) following the Authorized Officer's instructions for mitigating impacts to the fossil resource prior to continuing construction through the Planning Area.. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant paleontological or scientific values.

Realty Authorizations

1. Projects will only involve private land where the landowner is a willing participant and an agreement has been signed.

2. Projects would be designed to avoid or otherwise ensure the protection of authorized rights-of-way and other facilities located on the public lands, including coordination with holders of major rights-of-way and communication sites.

3. The actions of any fire management practice shall not destroy, deface, change, or remove to another place any monument or witness tree of the Public Land Survey System (PLSS). Prior to commencing any ground or vegetation disturbing activities, evidence of the PLSS will be marked for protection. Cadastral Survey staff shall be consulted to assist with providing data, searching for and evaluating evidence, and locating and protecting monuments of the PLSS from destruction.

Visual Resources

1. Any specific projects undertaken as part of implementing this Environmental Assessment would include site specific visual resource analyses through the Documentation of Nepa Adequacy to determine project-specific impacts to visual resources, including any potential conflicts with policies and guidance, and additional mitigation measures applied as needed

2.2.2 No Action Alternative

Juniper reduction treatments would not be analyzed as a whole for the defined planning area. The no action alternative does not mean vegetation treatment activities would not occur; merely that any new project would be considered and analyzed individually.

2.3 Alternatives Considered But Eliminated from Detailed Analysis:

Alternatives that utilize fire and herbicide application were considered but eliminated due to excessive sagebrush mortality, thereby being inconsistent with the resource management goals stated in the Purpose and Need.

CHAPTER 3 – AFFECTED ENVIRONMENT AND EFFECTS

3.1 INTRODUCTION

Affected Resources:

The CEQ Regulations state that NEPA documents "must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. Table 1 lists the resources considered and the determination as to whether they require additional analysis.

Table 2. Resources and Determination of Need for Further Analysis

Determination[1]	Resource	Rationale for Determination
Physical Resources		
PI	Air Quality and Climate	See section 3.2.1 for analysis.
NI	Floodplains	No floodplains would be impacted.
NI	Hydrology, Ground	Subsurface hydrology would not be impacted by surface vegetation treatments.
NI	Hydrology, Surface	Due to the retention of herbaceous ground cover, surface water hydrology and quality would not be impacted.
NI	Minerals, Fluid	Surface vegetation treatments would not affect fluid mineral authorizations. Operators would be notified of treatments within permit boundaries.
NI	Minerals, Solid	Surface vegetation treatments would not affect solid mineral authorizations. Operators would be notified of treatments within permit boundaries.
PI	Soils	See Section 3.2.2 for analysis.
NI	Water Quality, Ground	Surface vegetation treatments would not affect ground water.
NI	Water Quality, Surface	Due to the retention of herbaceous ground cover, surface water hydrology and quality would not be impacted.
Biological Resources		
PI	Invasive, Non-native Species	See section 3.3.1 for analysis.
PI	Migratory Birds	See Section 3.3.2 for analysis.
PI	Special Status Animal Species	See Section 3.3.3 for analysis
PI	Special Status Plant Species	See Section 3.3.4 for analysis
PI	Upland Vegetation	See Section 3.3.5 for analysis.
NI	Wetlands and Riparian Zones	No treatments are proposed in or adjacent to wetlands and riparian zones

Determination[1]	Resource	Rationale for Determination
NI	Wildlife, Aquatic	There are no treatments proposed in aquatic wildlife habitat.
PI	Wildlife, Terrestrial	See Section 3.3.6 for analysis
NI	Wild Horses	The treatments would not impact wild horse populations.
Heritage Resources and the Human Environment		
PI	Cultural Resources	See Section 3.4.1 for analysis
NI	Environmental Justice	According to Census 2012, the only minority population of note in the impact area is the Hispanic community of Moffat County. Hispanic or Latino represented 14.2% of the population, considerably less the Colorado state figure for the same group, 21.0%. Blacks, American Indians, Asians and Pacific Islanders each accounted for around 1% of the population, below the comparable state figure in all cases. The census counted 12% of the Moffat County population as living in families with incomes below the poverty line, compared to 12.9% for the entire state. Both minority and low income populations are dispersed throughout the county therefore no minority or low income populations would suffer disproportionately high and adverse effects as a result of any of the alternatives.
PI	Hazardous or Solid Wastes	See Section 3.4.6 for analysis
PI	Lands with Wilderness Characteristics	See Section 3.4.2 for analysis
PI	Native American Concerns	See Section 3.3.3 for analysis
PI	Paleontological Resources	See Section 3.4.4 for analysis
NI	Social and Economic Conditions	There would not be any change to local social or economic conditions.
PI	Visual Resources	See Chapter 3, Section 3.4.5
Resource Uses		
NI	Access and Transportation	Access and Transportation would not be affected by the Proposed Action or alternatives.
NI	Fire Management	The Proposed Action is consistent with the existing LSFO Fire Management Plan.
PI	Forest Management	See Upland Vegetation Section 3.3.5 for analysis
NI	Livestock Operations	Overall there would be beneficial impacts to forage resources and livestock operations with treatment of invasive species. Individual projects would be analyzed on a site specific basis.
NI	Prime and Unique Farmlands	There are soil types designated as " prime farmland if irrigated" and "farmland of statewide importance" within the Planning Area. Generally, farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. None of these soils are or would become irrigated or otherwise manipulated so as to create conditions favorable to create

Determination[1]	Resource	Rationale for Determination
		prime farmland on public lands within the Planning Area.
NI	Realty Authorizations, Land Tenure	Surface vegetation treatment would not impact realty authorizations and land tenure with the inclusion of resource-specific design features in the proposed action.
PI	Recreation	See Chapter 3, Section 3.5.1
Special Designations		
NI	Areas of Critical Environmental Concern	ACECs are not being considered for treatment.
NP	Wild and Scenic Rivers	There are no WSRs near the proposed Planning Area; therefore the Proposed Action would have no impact.
NI	Wilderness Study Areas	WSAs would not be considered for planned fuels treatments.

[1] NP = Not present in the area impacted by the Proposed Action or Alternatives. NI = Present, but not affected to a degree that detailed analysis is required. PI = Present with potential for impact analyzed in detail in the EA.

3.2 PHYSICAL RESOURCES

3.2.1 Air Quality and Climate

Affected Environment: The setting and affected environment are discussed in detail in the Little Snake Field Office Resource Management Plan Environmental Impact Statement.

Environmental Consequences, Proposed Action: The primary sources of emissions in the proposed and no action alternatives would be equipment and vehicle exhaust emissions, dust from equipment operating, and smoke emissions from slash pile burning. Pile burning produces reactive organic compounds, nitrogen oxides, carbon monoxide, inhalable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and greenhouse gas pollutants. Vehicle and machine engine combustion also produces the same categories of emissions as prescribed fire. In addition, vehicle use on unpaved roads and cross-country travel generate fugitive dust that contains PM_{10} and $PM_{2.5}$ particulates. The emissions from vehicles and equipment would be of small quantity and have a short duration.

Emissions from a fire can cause irritation to the eyes, nose, and mouth and can reduce visibility. The Colorado Air Pollution Control Division regulates prescribed burning (including pile burning) in regards to smoke emissions. All prescribed burns must obtain an open burning permit from this agency which stipulates the atmospheric conditions under which burning is allowed. The amount of material to be burned, distance to homes, roadways, and sensitive airsheds, as well as smoke dispersal conditions are considered when a permit is issued. The goal is to limit impacts to sensitive smoke receptors and stay within national ambient air quality standards.

Environmental Consequences, Cumulative Impacts: Considering the size of the planning area, only a small fraction is considered for treatment. This, coupled with the short duration of emissions and activities, would not be a significant contributor to cumulative air quality and climate impacts. The other primary sources of air quality detractors include wood burning at

private residences, dust from unpaved roads and off-road travel, wind blown particulates from disturbed or sparsely vegetated ground, power plant emissions, and vehicle emissions.

Mitigation: None

3.2.2 Soils

Affected Environment: The areas considered for treatment can be grouped into two main groups with similar soil characteristics described below.

Soil Texture	Drainage Class	Runoff Class	Water Capacity	Depth
Loam, Sandy Loam	Well Drained	Medium	Low - Moderate	30" – 60"
Sandy	Excessively Drained	Very Low - Low	Low	40" – 60"

Data taken from *Soil Survey of Moffat County Area, Colorado (2004)*

The parent material for most of the soils is sandstone, but the sandy soils may be eolian or alluvial deposits. The main hazard with most of these soil types is wind erosion unless close-growing plant cover is maintained. There are no fragile soils (as defined by the NRCS) present in areas considered for treatment due to the flatter terrain and medium to very low runoff class.

Environmental Consequences, Proposed Action: Very little soil disturbance is expected with the proposed treatment methods other than very small areas where equipment may spin or slide a tire or track. Mechanical treatments would maintain herbaceous cover and therefore protect soils from wind and water erosion. Small areas of soil would be exposed where slash piles are burned until re-vegetated. Since these spots are widely scattered, impacts should be insignificant. There would be a slight risk of compaction from the equipment used in the project, which could increase surface flows and erosion, a potential hazard in this terrain. Equipment proposed for the project would involve a masticator or mower that is mounted on a tracked or large rubber-tired tractor, either of which would minimize soil compaction. Compaction would also be reduced if the cover limits are maintained and if treatment is only performed on dry or frozen ground (see Resource-specific Design Features), thereby decreasing ruts and new overland flow patterns.

The proposed treatments could result in slight increases in ground cover and therefore soil protection, either by the scattering/ mulching of slash or a positive understory vegetative response to treatment. This increased cover helps slow runoff and increase infiltration into the soil, provides organic matter and nutrients for incorporation into the soil, and reduces erosion. In the long term, vegetative treatments could benefit soil retention by increasing quality and quantity of plant diversity and cover.

Environmental Consequences, No Action Alternative: The no action alternative would analyze all fuels treatments individually. Analyzing potential impacts of individual fuels treatment projects to soils would be similar as described above.

Environmental Consequences, Cumulative Impacts: Proposed size of treatments per year represents a very small percentage of the overall Planning Area. This, coupled with the limited impacts, would contribute little to cumulative effects from other land uses such as agriculture, oil and gas activity, mining, recreation, and livestock operations.

Mitigation: None.

3.3 BIOLOGICAL RESOURCES

3.3.1 Invasive/Non-Native Species

Affected Environment: Invasive and noxious weeds are present throughout the Little Snake Field Office. Invasive annuals such as downy brome (cheatgrass) and yellow alyssum are common, occupying disturbed areas. Invasive annual weeds are typically established on disturbed and high traffic areas whereas biennial and perennial noxious weeds are less common in occurrence. Many species on the Colorado noxious weed list are present in the target project areas the most common of which include hound's tongue, hoary cress, Dalmatian toadflax, Canada thistle and several biennial thistles. The BLM cooperates with partners to employ the principals of Integrated Pest Management to control noxious weeds on public lands.

Environmental Consequences, Proposed Action: The surface disturbing activities and associated traffic involved with the proposed action would create an environment, and provide a mode of transport, for invasive species and other noxious weeds to become established. Construction equipment and any other vehicles brought onto the sites can introduce weed species. Washing the equipment prior to use on site as stated in the Proposed Action would reduce the potential for introduction. Wind, water, recreation vehicles, livestock and wildlife would also assist with the distribution of weed seed into the newly disturbed areas. While annual invasive species such as cheatgrass, allysum, and blue mustard would easily move into disturbed areas, establishment of perennial vegetation is expected to provide the necessary control of invasive annual weeds within 2 or 3 years.

Perennial and biennial noxious weeds are less frequently established on the uplands but some potential exists for their establishment in draws and swales or areas that would collect additional water. The largest concern in the project area would be for these species to become established and not be detected, providing seed which can be moved onto adjacent rangelands. Subsequent monitoring and control of noxious weeds in the project area would reduce the potential for weeds to spread.

Environmental Consequences, No Action alternative: The no action alternative would analyze all fuels treatments individually. Analyzing potential impacts of individual fuels treatment projects would be similar as described above.

Environmental Consequences, Cumulative Impacts: Cumulative impacts from the proposed action could result in a short term net increase in invasive weeds. Over the time and on a larger scale this is a negligible amount as the treatment will ultimately create a more diverse and

productive herbaceous community. Under the No Action alternative there is no direct impact but potential risks are still present.

Mitigation: None.

3.3.2 Migratory Birds

Affected Environment: BLM guidance for migratory birds emphasizes management of habitat for species of conservation concern by avoiding or minimizing negative impacts and restoring and enhancing habitat quality. The LSFO provides both foraging and nesting habitat for a variety of migratory bird species. Several species on the U.S. Fish & Wildlife Service (USFWS) Birds of Conservation Concern (BCC) list occupy these habitats within the LSFO.

Native plant communities in targeted areas would be comprised of sagebrush and grass with encroaching pinyon and juniper trees. Sagebrush species occurring on the BCC list that may utilize sagebrush in proposed treatment areas include sage sparrow, sage thrasher, loggerhead shrike and Brewer's sparrow (also a BLM sensitive species). Two pinyon-juniper obligate species listed on the BCC List, the pinyon jay and juniper titmouse may also use this habitat type and can be found in old-growth pinyon-juniper woodlands that may be adjacent to proposed treatment sites. Scattered pinyon and juniper trees may provide nesting and perching sites for a variety of raptor species.

Environmental Consequences, Proposed Action: Since project activities would not be permitted during the nesting period (May 15 – July 15), there would be little chance of take from proposed treatments. Individual birds would likely be displaced from the area during project implementation due to noise and an increase in human presence. This disturbance would be minimal and short in duration.

The removal of encroaching pinyon-juniper trees would result in long-term benefits to sagebrush dependent bird species. Tree removal would ensure the maintenance of contiguous blocks of sagebrush habitat. The removal of pinyon-juniper trees could have some negative impacts to pinyon-juniper obligate species. However, targeted trees are generally small and scattered and are within otherwise predominant sagebrush habitats. Old growth pinyon-juniper woodlands that likely exist adjacent to treatment areas and provide more suitable habitat for these species.

Raptor species should not be affected as an abundance of upland foraging habitat exists in the general area. Some suitable perch trees would be eliminated, but this should have minor impacts to raptors in the area as an abundance of pinyon-juniper is found through-out the field office.

Removal of sagebrush may have some impacts to migratory birds, however, this treatment would be very limited (See Special Status Animal Species).

Mitigation: No mitigation is required beyond the incorporation of the design features in each individual project.

Environmental Consequences, No Action Alternative: The no action alternative would analyze all fuels treatments individually. Analyzing potential impacts of individual fuels treatment projects to migratory birds would be similar as described above.

Cumulative Effects: The Proposed Action is not anticipated to add substantially to existing or proposed disturbances. Activities currently occurring in the LSFO include oil and gas exploration, grazing, coal mining and recreational uses, primarily hunting. The Proposed Action would mimic natural disturbances that were common in sagebrush ecosystems, improving habitat for sagebrush obligate species.

3.3.3 Special Status Animal Species

Affected Environment: Sagebrush habitats within the LSFO provide habitat for several BLM sensitive species, including greater sage-grouse, ferruginous hawk, bald eagle, Brewers sparrow, Columbian sharp-tailed grouse and midget faded rattlesnake.

Environmental Consequences, Proposed Action: The Proposed Action would be beneficial to sensitive species that rely on large blocks of sagebrush habitat. Some species, such as greater sage-grouse, are sagebrush obligates and typically avoid areas with encroaching trees. If treatment does not occur, these areas will slowly become dominated by trees, decreasing the usability of the habitat by sagebrush species. Since wildfires have been suppressed in most of these areas, succession is unlikely to occur naturally. The Proposed Action would improve habitat for these species by returning treated areas to sagebrush dominated habitats and would increase the amount of suitable sagebrush habitat in the LSFO. The noise from heavy equipment and chainsaws could temporarily disperse sensitive species from breeding and nesting habitat and from other occupied habitats. Disturbances from project implementation would be localized and short term. Most wildlife species would move into adjacent untreated areas and direct mortality during the vegetation treatments is unlikely if conducted outside critical periods (i.e. nesting). Timing limitations and controlled surface use restrictions in the LSFO RMP would be used to mitigate the short-term impacts from the treatments. Overall, removing encroaching trees would improve habitat for several BLM sensitive species and would likely increase use of sagebrush habitats in the treated areas.

Limited treatment of sagebrush would have varying impacts on sensitive species, depending on the amount of sagebrush treated and the location of the treatment. Opening up sagebrush canopy can result in an increase in grasses and forbs and may improve habitat for some species. However, removing too much canopy cover can have negative impacts if a species requires dense canopy cover. Sage-grouse would likely benefit from very small, mosaic treatments that created brood-rearing habitat. Since sagebrush treatment would be very limited and would be coordinated at the project level, impacts to sensitive species can be minimized.
Mitigation: No mitigation is required beyond the incorporation of the design features in each individual project.

Environmental Consequences, No Action: The no action alternative would analyze all fuels treatments individually. Analyzing potential impacts of individual fuels treatment projects to sensitive species would be similar as described above.

Cumulative Effects: The Proposed Action is not anticipated to add substantially to existing or proposed disturbances. Activities currently occurring in the LSFO include oil and gas exploration, grazing, coal mining and recreational uses, primarily hunting. The Proposed Action would mimic natural disturbances that were common in sagebrush ecosystems, improving habitat for sagebrush obligate species.

3.3.4 Special Status Plant Species

Affected Environment: The Little Snake Field Office contains the following populations of plants listed as sensitive by BLM Colorado: Duchesne milkvetch (*Astragalus duchesnensis*), Caespitose Cat's-eye (*Cryptantha caespitosa*) previously known as tufted cryptantha (*Oreocarya caespitosa*), narrow leaf evening primrose (*Oenothera acutissima*) and Gibbens' beardtongue (*Penstemon gibbensii*). While these species are not protected under the Endangered Species Act (ESA), their rarity and potential for listing has resulted in recognition by the BLM Colorado that proactive conservation measures are necessary to reduce or eliminate threats, minimizing the likelihood of and need for listing of these species under the ESA.

The proposed project area contains historical populations of the following plants listed as sensitive by BLM Colorado: Debris milkvetch (*Astragalus detritalis*), Uinta Basin spring parsley (*Cymopterus duchesnensis*), Singlestem buckwheat (*Eriogonum acaule*), Ephedra buckwheat (*Eriogonum ephedroides*), Woodside buckwheat (*Eriogonum tumulosum*), Duchesne buckwheat (*Eriogonum viridulum*), Colorado feverfew (Parthenium ligulata), rock tansy (Sphaeromeria capitata) and strigose Easter-daisy (*Townsendia strigosa*). While these species are not known to currently exist within the project area, should populations be identified during the life of the planning document those populations will be given the same protections to mitigate any adverse impacts.

There is one federally listed threatened species, Ute ladies'-tresses (*Spiranthes diluvialis*) with potentially suitable habitat along the Yampa River on the Southern end of the Planning Area. However, this species has not been identified on lands administered by the Little Snake Field Office. An intensive modeling and surveying effort is under way to identify habitat on lands administered by the BLM. Should potential habitat or populations be identified within the Planning Area, separate analysis and consultation with the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the ESA will be required.

Environmental Consequences, Proposed Action Alternative: Special status plant species file searches would be conducted before any planned surface disturbing activity or treatment. In areas where known species populations occur, treatments would include surveying and flagging avoidance areas to prevent adverse impacts to the species populations. Any populations that would be impacted by prescribed fire, hand thinning or mechanical treatments would be either completely avoided or, in extraordinary circumstances, have seeds collected in accordance with BLM policy prior to treatment.

Environmental Consequences, No Action Alternative: Analysis of juniper and pinyon tree removal activities would not be prepared as a whole across the defined planning area. Analyzing

potential impacts to special status species and rare plant populations would be similar based on site specific analysis prepared for individual projects.

Environmental Consequences, Cumulative Impacts: Sensitive plant species within the proposed project area owe their rarity to unusually specific habitat requirements rather than widespread disturbance or loss of available habitat. Most populations of BLM sensitive plants species are primarily affected by factors such as herbivory from livestock and wildlife, off-highway vehicle use, climatic fluctuations, development and construction of range improvements which can result in highly localized loss of habitat and individual plants or local populations. The proposed action and incorporated design features should not add additional impacts or threats to special status species populations beyond those that already exist. Special status species and rare plant populations will be avoided when necessary. This should have limited impacts on the long term management of the populations and habitat. Managing encroachment will reduce the likelihood of site conversion from sagebrush to pinyon-juniper woodlands thus resulting in the ability to better protect existing special status species populations within the Planning Area.

Mitigation: None

3.3.5 Upland Vegetation

Affected Environment: The areas considered for treatment are ecological sites that support primarily Wyoming big sagebrush and the associated herbaceous species with pinyon and juniper trees spreading into the sites. By far the most dominant tree is Utah juniper with only the higher elevations or isolated north aspects supporting pinyon pine. Higher elevation sites (above approximately 7500') will support mountain big sagebrush instead of or in conjunction with Wyoming big sagebrush. Other brush species that may be present include rubber and green rabbitbrush, winterfat, and greasewood. Common grass and grass-like species include bluebunch, western, and thick spike wheatgrass, Sandberg and mutton bluegrass, Indian ricegrass, needle-and-thread, junegrass, threadleaf sedge, and bottlebrush squirreltail. Common forbs include phlox, various daisies and asters, Hooker sandwort, buckwheat, penstemon, Indian paintbrush, lupine, globemallow, and several vetch species. As described in the Background to the Proposed Action there is an estimated 10,000 – 30,000 acres that meet the criteria for treatment consideration.

Pinyon and juniper encroachment into sagebrush dominated sites until removed by fire is the natural cycle of succession in the identified ecological sites. With fire suppression and other human factors such as grazing and road construction in the last 100 – 130 years, these sites are not experiencing wildfire as often as would be the case in a total natural environment.

Environmental Consequences, Proposed Action and No Action Alternatives: The targeted tree species would be eliminated from the site for a period of 15 – 30 years. Barring any other disturbances, juniper and pinyon (if present pre-treatment) will begin establishment in the treated sites again, but will take 40 – 100+ years to attain pre-treatment cover levels.

The shrub and herbaceous response to mechanical fuels treatments is highly dependent upon pre-treatment rangeland health. If the community is healthy and has an adequate amount of native

understory herbaceous vegetation, the response to treatment would result in increased herbaceous plant production. If there is little native herbaceous plant presence, invasive species such as cheatgrass and mustard would likely be dominant where individual trees and sagebrush (if treated) have been masticated. If sagebrush is masticated or mowed, all plants aren't typically killed; therefore sagebrush can again be a significant part of the plant community in the treated areas in 10 – 20 years. This typically occurs much sooner in mountain big sagebrush communities.

Environmental Consequences, Cumulative Impacts: When considering strictly plant community dynamics, the ideal amount of treated acres through fire and mechanical means should approximate the natural fire return interval. Although the effects of mechanical treatment are not the same as fire, increased mechanical treatments will slow the trend of woodland domination of sagebrush dominated sites. No other known past or planned management activities would combine with the proposed and no action alternatives to produce different cumulative impacts than that previously described.

Mitigation: None

3.3.6 Wildlife, Terrestrial

Affected Environment: A variety of wildlife species inhabit sagebrush and pinyon/juniper woodland habitats in the LSFO. Each habitat type provides food, cover and shelter for a variety of mammal, bird and reptile species common to northwest Colorado.

Large ungulates in the area include pronghorn, mule deer and elk, with some areas providing important winter range for these species. Large predators include mountain lion and black bear. Coyotes, bobcats, jackrabbits, cottontail rabbits and a variety of small rodents, reptiles and birds likely inhabit the general area.

Environmental Consequences, Proposed Action: Impacts to terrestrial wildlife would be similar to those described in the Migratory Bird and Special Status Animal Species Sections of this EA.

Environmental Consequences, No Action: Impacts to terrestrial wildlife would be similar to those described in the Migratory Bird and Special Status Animal Species Sections of this EA.

Environmental Consequences, Cumulative Impacts: Impacts to terrestrial wildlife would be similar to those described in the Migratory Bird and Special Status Animal Species Sections of this EA.

Mitigation: No mitigation is required beyond the incorporation of the design features in each individual project.

3.4 HERITAGE RESOURCES AND HUMAN ENVIRONMENT

3.4.1 Cultural Resources

A number of laws mandate that federal agencies consider the effect of proposed land use activities on cultural resources (i.e. historic and archaeological sites). The National Environmental Policy Act states that it is the responsibility of the federal government to preserve important historic and cultural aspects of the national heritage. The National Historic Preservation Act (NHPA) requires federal agencies to take into account the effect of federal undertakings (such as juniper reduction projects) on cultural resources that are eligible for inclusion in the National Register of Historic Places (National Register). In Colorado, the requirements of the NHPA are implemented under the terms of the Protocol Agreement between the Bureau of Land Management and the State Historic Preservation Officer.

Affected Environment: Because the EA applies to the entire field area, a very general discussion is provided here of the kinds of historic and archaeological sites commonly found on land managed by the Little Snake Field Area (LSFA) to give the reader an idea of the variety of cultural resources that are likely to be encountered within the tracts of land to be subjected to vegetative treatment projects. Historic sites document the settlement and use of the region by Euroamericans. Commonly, historic sites within the LSFA are associated with various economic activities, most notably sheep and cattle raising, coal mining, and oil and gas exploitation. Most archaeological sites in LSFA are places with evidence of habitation or other use by Native Americans and include a variety of site types. Lithic scatters and campsites are common site types. As implied by the name, lithic scatters are often denoted by a scattering of stone tools and stone debris from tool manufacture. Campsites often have such a scattering of stone artifacts but also have some evidence of habitation, such as fire hearths or, less commonly, tipi rings, pithouses, or wickiups. Among the less common kinds of sites are rock art sites, tool stone quarry sites, and burials.

Information on the specific sites within the areas to receive vegetative treatment will be compiled and taken into consideration prior to project implementation to determine if the federal undertaking will potentially affect important sites (those that are eligible or potentially eligible to the National Register). For each vegetative treatment project conducted under this EA, a records check (Class I inventory) of recorded sites will be conducted at minimum. An on-the-ground survey for cultural resources (Class III inventory) may also be completed. As a general rule, treatment areas with higher densities of conifers to be destroyed will receive cultural resource surveys, but areas with relatively fewer and more widely dispersed trees may not be surveyed on-the-ground for cultural resources. Sagebrush grassland areas to be treated only with brush beating equipment also will not likely be inventoried via an on-the-ground archaeological survey.

Sites with wickiups are of particular concern. A wickiup is a conical structure constructed of juniper or pinyon branches that can be either built into a tree for support or may be free-standing. Presumably, the wooden framework was covered with brush, bark, or hides to complete the shelter. Wickiups are known from the ethnographic record of the Great Basin and archaeologists believe that wickiups found in northwest Colorado were made by the Utes or the Shoshone or their predecessors. Some wickiups may be in an advanced state of decay and therefore may not be obvious habitation structures.

Environmental Consequences, Proposed Action: The possibility that mastication of juniper and pinyon trees could destroy wickiups in areas not surveyed for cultural resources is considered to be low. Areas to be targeted for treatment would not be old growth pinyon-juniper woodlands, but rather would be plant communities where conifers are either in the minority or co-dominant with shrubs and herbs (so-called Phase I and Phase II growth; see Chapter 2). Pinyon and juniper trees in Phase I or Phase II areas are not thought to be old enough to serve as support for construction of wickiups. The Utes were forcibly removed from northwest Colorado to a reservation in Utah after the Battle of Milk Creek, which took place in 1879. Although they did return very infrequently to northwest Colorado after this date, it is reasonable to suggest that the large majority of wickiups were constructed prior to 1879 and therefore surviving examples located in woodland areas are a minimum of 135 years old. Conifer trees in areas to be treated are presently invading sagebrush grasslands or areas vegetated with shrubs and therefore are not likely old enough to have served as supports for wickiups. There is a low probability that enclaves of old growth pinyon and juniper may be contained within proposed treatment areas that generally will include trees that are much younger than 135 years of age.

In regard to other kinds of sites, the effects of the proposed vegetative treatments are expected to be minimal and confined to artifacts and archaeological features that are on the ground surface or shallowly buried. The kinds of sites that may be affected by juniper reduction or brush beating projects are most commonly prehistoric lithic scatters and campsites and historic trash scatters. The later type of site, when not associated with a building or structure is often deemed not eligible. Lithic scatters and prehistoric campsites are often considered eligible when buried, intact archaeological features are present. Therefore, undertakings whose impact is largely confined to the surface will affect the integrity of buried archaeological deposits to a lesser degree. Relative greater damage to sites is expected if use of heavy earth moving equipment during tree mastication operations or dragging of a brush beater over an area vegetated with sagebrush is allowed to occur in weather conditions that result in saturated ground.

Environmental Consequences, No Action Alternative: Under the No Action Alternative, cultural resources would be analyzed in a project specific NEPA document rather than through a programmatic approach.

Environmental Consequences, Cumulative Impacts: Past, present and future juniper reduction projects in the field area are not expected to pose a substantial cumulative effect on cultural resources. Chaining of pinyon and juniper areas, where trees were uprooted by a chain strung between bulldozers can cause significant impacts to cultural resources, but this method of reducing woodlands and establishing grasslands was not carried out to a great extent in the Little Snake field area. Because juniper and pinyon trees to be targeted by vegetative treatment are likely to be too young to contain wickiups, the juniper reduction activities of the past, present, and foreseeable future are not expected to result in a substantial cumulative effect on cultural resources.

Mitigation Measures: None

3.4.2 Lands with Wilderness Characteristics

Affected Environment: Wilderness characteristics are defined in Section 2(c) of the Wilderness Act and incorporated in FLPMA. Under FLPMA, wilderness preservation is part of BLM's multiple use mandate, and wilderness characteristics are recognized as part of the spectrum of resource values considered during land use planning. The Little Snake Record of Decision and Resource Management Plan (RMP), October 2011 identified lands with wilderness characteristics outside existing Wilderness Study Areas (WSAs) as Vermillion Basin (77,069.02 acres), Dinosaur North (45,635.41 acres), and Cold Spring Mountain (30,479.66 acres).

In order for an area to qualify as lands with wilderness characteristics, it must possess sufficient size, naturalness, and outstanding opportunities for either solitude or primitive and unconfined recreation. In addition, it may also possess supplemental values.

Impacts to lands with wilderness characteristics would be considered significant if there was any degradation of the individual wilderness characteristics (naturalness and outstanding opportunities for solitude and primitive recreation) to the degree the value would no longer be present within the specific area. This analysis is based on the assumption that lands identified as having, or as likely to have wilderness characteristics contain wilderness values (e.g., naturalness, outstanding opportunities for solitude or primitive recreation).

The objective for Vermillion Basin and Dinosaur North, is to manage to protect naturalness, and outstanding opportunities for primitive recreation and solitude. The areas are classified as VRM Class II, where the objective is to retain the existing character of the landscape and the level of change to the characteristic landscape should be low and should not attract attention of the casual observer.

The objective for Cold Spring Mountain is to manage to protect naturalness, and outstanding opportunities for primitive recreation and solitude. The area is classified as VRM Class III, where the objective is to partially retain the existing character of the landscape and the level of change to the characteristic landscape should be moderate and may attract attention but should not dominate the view of the casual observer.

Environmental Consequences, Proposed and No Action Alternatives: The presence of work crews, fuels reduction activities (such as thinning and clearing vegetation) and the use of power tools and machines could have short-term, minor impacts to wilderness characteristics, such as solitude and naturalness. Management activities associated with vegetation reduction would result in short-term, negligible to minor impacts due to the presence of work crews, the additional noise associated with brush clearing activities, and the use of equipment in or bordering lands with wilderness characteristics. Because work crews would only be present for a brief period of time, areas affected would be small, and with implementation of mitigation measures, recovery of the areas' soils and vegetation would be rapid.

Environmental Consequences, Cumulative Impacts: Implementation of the proposed action would, in the short-term, continue the cumulative minor adverse effects that currently exist due to human activities in the areas managed to protect wilderness characteristics. However, the plan provides for long-term, beneficial effects to these areas through the reduction of pinyon-juniper,

which would increase the potential for more diverse vegetation and a more natural environment. Along with the presence of backcountry users, firefighter presence during brush clearing events would have a negligible to minor short-term adverse cumulative effect. Use of heavy equipment to remove pinyon-junipers associated with fire management activities and other administrative and commercial uses may temporarily detract from user experience. Reasonably foreseeable future actions would be anticipated to contribute minor to moderate cumulative effects on wilderness characteristics long-term, as vegetation is restored across the landscape and increasingly offsets effects associated with non-fire related activities. Overall, impacts of actions combined with impacts of other actions that could affect lands with wilderness characteristics, would result in negligible to minor, short-term, adverse, cumulative impacts and minor to moderate long-term beneficial effects.

Mitigation: None

3.4.3 Native American Religious Concerns

Affected Environment: As discussed in greater detail in the section on cultural resources, sites with wickiups are attributed by archaeologists to the Utes, Shoshone, or their predecessors. Sites with wickiups are a kind of site that possibly would be found in a juniper treatment area and if so, would likely be of concern to Native American peoples.

Environmental Consequences, Proposed Action: As explained in the cultural resource section, the areas to be identified for juniper reduction will be wooded areas or tracts of land containing scattered trees that are far too young to contain wickiups. There is some possiblility, however, that identified areas containing primarily young juniper trees may also have a grove of old-growth pinyon and juniper with wickiups present. If cultural resources in these identified areas are not inventoried at the Class III level by on-the-ground survey (but rather are only taken into consideration as part of a Class I records search) then wickiups could be destroyed by juniper reduction projects. This possibility is considered very unlikely, however.

Environmental Consequences, No Action: Under the No Action Alternative, impacts to sites or regions of concern to Native Americans would be analyzed in a project specific NEPA document rather than through a programmatic approach.

Environmental Consequences, Cumulative Impacts: The cumulative effects of past, present, and forseeable future juniper reduction projects is not thought to result in a substantial effect on sites of Native American concern, in particular those with wickiups. Some chaining of pinyon-juniper woodland to improve graze was done in the Little Snake Field Area in the 1960s when cultural resources surveys were not being completed. Therefore, an unknown number of wickiups may have been destroyed. It is not likely that present juniper reduction activities or those of the forseeable future will impact an appreciable number of sites with wickiups.

Mitigation Measures: It is anticipated that any wickiup sites found during Class III inventories of proposed juniper reduction areas could be flagged and avoided by the tree mastication

equipment. Therefore, developing measures to mitigate damage or destruction of wickiup sites resulting from juniper reduction projects will not likely be necessary.

3.4.4 Paleontological Resources

Affected Environment: The BLM has implemented a Potential Fossil Yield Classification (PFYC) system for classifying paleontological resources on public lands. Under the PFYC system, geologic units are classified from Class 1 to Class 5 based on the relative abundance of vertebrate fossils or uncommon invertebrate or plant fossils and their sensitivity to adverse impacts. A higher classification number indicates a higher fossil yield potential and greater sensitivity to adverse impacts. The project area contains portions of geological formations known to produce a range of fossils, from few scientifically valuable fossils to several scientifically valuable fossils, resulting in PFYCs between Class 1to Class 5. Bedrock outcrops would be the most sensitive to adverse impacts from the proposed action.

Environmental Consequences, Proposed Action: The proposed action would occur in areas where there is soil and vegetation cover. Generally, fossil yielding bedrock or alluvium would not be near the surface where the need for pinyon, juniper and sagebrush reduction is proposed and it is unlikely that the proposed action would penetrate into bedrock or alluvium. If fossil yielding bedrock or alluvium is penetrated, paleontological resources could be damaged. If fossil yielding bedrock or alluvium is exposed by the proposed action, it could be subjected to increased mechanical and chemical weathering, causing damage to paleontological resources. The proposed action could have beneficial consequences by exposing fossil yielding bedrock and alluvium that could lead to the discovery of unknown paleontological resources. Standard discovery stipulations are incorporated into the proposed action.

Environmental Consequences, No Action Alternatives: Under the No Action Alternative, impacts to paleontological resources would be analyzed in a project specific NEPA document rather than through a programmatic approach.

Environmental Consequences, Cumulative Impacts: The vegetation reduction, when combined with past, present and reasonably foreseeable actions has the potential to identify previously unrecorded paleontological resources by exposing bedrock that has not been inventoried.

Mitigation: None

3.4.5 Visual Resources

Affected Environment: Visual resources are the visible physical features of a landscape to which concerned or visually sensitive publics assign scenic value. Scenic values in the LSFO have been inventoried as Visual Resource Inventory (VRI) conditions, and VRM objectives were established in the LSFO RMP. VRM objectives corresponding to the various management classes provide standards for analyzing compliance with RMP VRM objectives. Projects are evaluated using the Contract Rating System to determine if it meets VRM objectives established by the RMP. VRI conditions, supplemented by site and area analyses of proposed actions, are the basis for evaluating the effects of proposed projects on the human environment.

The VRM system is composed of four Visual Resource Inventory (VRI) classes that were mapped by overlaying scenic quality, sensitivity levels, and distance zones. The majority of the Little Snake Field Office, approximately 46.2 percent was designated as VRI Class IV. Areas designated as Class II or Class III are generally found across the eastern and western sections of the field office and are often closely aligned. VRI Class II accounts for approximately 23.2 percent of the field office, while VRI Class III accounts for approximately 28.2 percent. The remaining 2.4 percent of the field office is designated as VRI Class I. (Logan Simpson Design Inc. 2011).

- Class I Objective: The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

    - Class II Objective: The objective to this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

    - Class III Objective: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

    - Class IV Objective: The objective of this class is to provide for management activities which require major modification 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.

Environmental Consequences, Proposed and No Action Alternatives: The vegetation management activities likely to occur at recommended treatment areas within the Planning Area would consist of a number of various methods, including hand cutting, mastication, and brushing mowing. Because vegetative cover comprising the Planning Area varies significantly, the likelihood of any one management activity occurring over a sufficiently large area to substantially adversely affect visual quality is minimal.

Proposed treatments have the potential to temporarily but adversely impact visual quality or character of a mountainside, but would also have the potential to substantially improve visual quality by removing younger specimens within the understory and thinning the density of tree stands and brush-laden areas. Since the areas specified for treatment have a low density of trees, their removal will not be that apparent when finished.

Full removal of pinyon-juniper could change the landscape to clearly appear altered by man. For example, mastication and brush mowing may create a visual contrast that makes human intervention apparent. For lands managed for Wilderness Characteristics, this would impact the management objective to protect naturalness in "...whether or not an area looks natural to the average visitor who is not familiar with the biological composition of natural ecosystems versus human-affected ecosystems."

Short-term adverse visual impacts would be associated with mechanical treatments. For example, thinning hazardous forest fuels would change the visual character of the forest viewshed. Slash piles would create short-term visual impacts until piles are burned and the burned spots are seeded. These treatments would reduce the potential for negative long-term visual impacts associated with a stand-replacement fire. Measures such as feathered fuel breaks and treating areas in a mosaic pattern would help reduce visual impact of reducing hazardous fuels by thinning forestlands or using prescribed burns.

Treatments anticipated with both alternatives would help reduce the risks of wildland fire impacts.

Environmental Consequences, Cumulative Impacts: Past and present fuel reduction projects in the Planning Area have resulted in visual impacts that can be seen by viewers. The Proposed Action would create visual impacts until the disturbed land has successfully reclaimed.

Other management efforts within and outside the Planning Area boundaries could produce long-term cumulative impacts on visual resources. Reasonably foreseeable future actions could have adverse impacts on visual resources. Impacts would be caused by surface disturbance from burning, cutting, fire lines, and vehicle use.

Specific actions would be required to conform to an area's VRM Class objectives through BMPs and the Minimum Requirement concept, which would prevent cumulative impacts on visual resources from becoming significant.

Mitigation: None. While implementation of the guidelines and actions included in this EA would reduce the severity of this temporary visual impact to the scenic character of the Planning Area and scenic resources, no additional feasible mitigation measures are available.

3.4.6 WASTE, HAZARDOUS AND SOLID

Affected Environment: The Resource Conservation and Recovery Act (RCRA) of 1976 established a comprehensive program for managing hazardous wastes from the time they are produced until their disposal. U.S. Environmental Protection Agency (EPA) regulations define solid wastes as any "discarded materials" subject to a number of exclusions. The Comprehensive Environmental Response Compensation and Liability Act (CERCLA) of 1980

regulates mitigation of the release of hazardous substances (spillage, leaking, dumping, accumulation, etc.) or threat of a release of hazardous substances into the environment. Civil and criminal penalties may be imposed if the hazardous waste is not managed in a safe manner and according to regulations. The Colorado Department of Public Health & Environment (CDPHE) administers hazardous waste regulations for oil and gas activities in Colorado. There are no known hazardous materials present in the fuels reduction area.

Environmental Consequences, Proposed and No Action Alternatives: Potential releases of hazardous materials could occur due to vehicle and equipment operations on site. Coolant, oil, hydraulic fluid, and fuel are materials that could potentially be released during while fuels reduction equipment is operating. The potential for releases of any of these materials is low and if a release were to occur, it would be minimal and highly localized and not result in an adverse impact to the area.

Environmental Consequences, Cumulative Impacts: There are no past, present, or adjacent hazardous materials issues that would result in identifiable cumulative impacts.

Mitigation: None

3.5 RESOURCE USES

3.5.1 Recreation

Affected Environment: The proposed planning area (LSFO) is known for its big game hunting. The area provides some of the most sought after elk and deer hunting in North West Colorado. Camping, equestrian, hiking, OHV enjoyment, site seeing, and antler collecting are amongst other recreational activities that occur in the proposed project area. ATV and UTV use associated with these activities are utilized year round as the public travels from one point to another. Several Special Recreation Permits (SRPs) are authorized for guided big game hunting and outfitting in the proposed planning area during big game hunting seasons.

Environmental Consequences, Proposed and No Action Alternatives, Recreationist could be temporality displaced during fuel treatments depending on the time of year and type of fuel reduction method used. Fuel treatments near dispersed recreation sites and sought after destinations could affect the quality of a visitor's experience due to equipment operations and contractors or BLM employees egressing or digressing from project area. Contingent on the type of recreational activity and fuel treatment type used, impacts from projects may last up to several years. Depending on the times of year big game species such as elk, pronghorn, bear or deer that are sought after during the big game hunting seasons by recreationist could temporarily be displaced during project implementation. SRP activities may also be slightly impacted during fuel treatments. The recreational experience could also be adversely impacted by imposing noise or safety concerns associated with tree mastication equipment. However, the long term beneficial effects by effectively managing forest through fuel reduction can impact recreational activities within the units while mitigating for the potential wildland fires would provide a positive long

term impact for the public's health, safety and their enjoyment. The project would also provide improved essential wildlife habitat.

Consumptive (such as hunting) and non-consumptive (such as wildlife viewing) wildlife activities would be impacted during fuel treatments, however, over time treatments would create a positive impact by increasing the quality of wildlife habitat throughout time. In the long-term, vegetative mosaics from managed fuel treatments could enhance the recreational visitor's experience.

Environmental Consequences, Cumulative Effects: Other disturbances or projects coupled with a fuels reduction project in the sane general vicinity could adversely impact a recreationist opportunity or experience.

Mitigation: None

CHAPTER 4– PUBLIC LAND HEALTH STANDARDS

4.1 INTRODUCTION

All landscapes within the LSFO have been assessed for compliance with the Colorado Standards of Public Land Health by and interdisciplinary teams consisting of various resource specialists typically including range specialists, wildlife biologists, and one soil/water/air specialists between 1998 and 2007.

4.2 COLORADO PUBLIC LAND HEALTH STANDARDS

In January 1997, the Colorado State Office of the BLM approved the Standards for Public Land Health and amended all RMPs in the State. Standards describe the conditions needed to sustain public land health and apply to all uses of public lands.

4.2.1 Standard 1 Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes.

Finding of most recent assessment: All landscapes accessed in the LSFO met this standard with only isolated problems encountered.

Proposed and No Action Alternatives: Either alternative would not preclude this standard from being met and would have a slightly beneficial effect. This is a result of slightly increased herbaceous ground cover and the reversal of juniper spread into sagebrush dominated areas.

4.2.2 Standard 2 Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbance such as fire, severe grazing, or 100-year floods.

Finding of most recent assessment: Most landscapes did not meet this standard due to riparian systems that were determined to be functioning at risk.

Proposed and No Action Alternatives: Sites considered for treatment are upland sites and typically have no direct link to riparian areas; therefore either alternative would not preclude this standard from being met.

4.2.3 Standard 3 Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential.

Finding of most recent assessment: Sagebrush stands in the field office are in varying seral stages, with some areas meeting this standard and some areas failing this standard. Reasons for failure include: weed infestations, lack of perennial grasses and forbs and older, decedent stands, resulting in higher than desired canopy cover.

Proposed Action: The Proposed Action would not preclude this standard from being met. Areas that are currently meeting this standard would likely continue to meet the standard. Habitat in areas that are failing may be improved, which may move the treated area towards meeting this standard.

No Action Alternative: Current conditions would continue under this alternative, with portions of the field office meeting and portions failing this standard.
Finding of most recent assessment:

4.2.4 Standard 4 Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

Finding of most recent assessment: Sagebrush stands in the field office are in varying seral stages, with some areas meeting this standard and some areas failing this standard. Reasons for failure include: weed infestations, lack of perennial grasses and forbs and older, decedent stands, resulting in higher than desired canopy cover.

Proposed Action: The Proposed Action would not preclude this standard from being met. Areas that are currently meeting this standard would likely continue to meet the standard. Habitat in areas that are failing may be improved, which may move the treated area towards meeting this standard.

No Action Alternative: Current conditions would continue under this alternative, with portions of the field office meeting and portions failing this standard.

4.2.5 Standard 5 The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado.

Finding of most recent assessment: All landscapes have met this standard although isolated salinity and sediment issues have been identified. No use impairment problems have been identified, and water quality appears sufficient to support the designated uses classified for waterways with the LSFO.

Proposed and No Action Alternatives: Minimal surface disturbance would result from the proposed treatment techniques, resulting in a low likelihood of sediment generation and therefore little to no effect to water quality. Either alternative would meet this standard.

SIGNATURE OF PREPARER:

SIGNATURE OF ENVIRONMENTAL REVIEWER:

DATE SIGNED:

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

DOI-BLM-CO-N010-2014-0039-EA

Based on the analysis of potential environmental impacts contained in the EA and all other available information, I have determined that the proposal and the alternatives analyzed do not constitute a major Federal action that would adversely impact the quality of the human environment. This determination is based on the following factors:

1. Beneficial, adverse, direct, indirect, and cumulative environmental impacts have been disclosed in the EA. Analysis indicated no significant impacts on society as a whole, the affected region, the affected interests or the locality. The physical and biological effects are limited to the Little Snake Resource Area and adjacent land.

2. Public health and safety would not be adversely impacted. There are no known or anticipated concerns with project waste or hazardous materials.

3. There are no park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas in the area of Proposed Action. As described in the EA, potential impacts to cultural resources were identified for the Proposed Action.

4. There are no highly controversial effects on the environment.

5. There are no effects that are highly uncertain or involve unique or unknown risk. Sufficient information on risk is available based on information in the EA and other past actions of a similar nature.

6. This alternative does not set a precedent for other actions that may be implemented in the future to meet the goals and objectives of adopted Federal, State or local natural resource related plans, policies or programs.

7. No cumulative impacts related to other actions that would have a significant adverse impact were identified or are anticipated.

8. There are no known American Indian religious concerns or persons or groups who might be disproportionately and adversely affected under the Environmental Justice Policy. A cultural resources records review or on-the-ground survey will be initiated, as appropriate, prior to any action considered an undertaking under Section 106 of the National Historic Preservation Act. Any adverse effects to Historic Properties will be mitigated in consultation with the Colorado Office of Archaeology and Historic Preservation (SHPO). Any wickiup sites identified during cultural resource surveys will be avoided by project re-design.

9. No adverse impacts to any threatened or endangered species or their habitat that was determined to be critical under the Endangered Species Act were identified. If, at a future time, there could be the potential for adverse impacts, treatments would be modified or mitigated not to have an adverse effect or new analysis would be conducted.

10. This alternative is in compliance with relevant Federal, State, and local laws, regulations, and requirements for the protection of the environment.

Based upon a review of this Environmental Assessment and the supporting documents, I have determined that the Proposed Action is not a major federal action and will not have a significant effect on the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity, as defined at 40 CFR 1508.27 and do not exceed those effects as described in the Little Snake Record of Decision and Resource Management Plan (2011). An environmental impact statement is not required.

SIGNATURE OF AUTHORIZED OFFICIAL: Tim J Wilson
Tim Wilson, Acting Field Manager

DATE SIGNED: 09/05/14

Decision Record
DOI-BLM-CO-N010- 2014-0039-EA

DECISION AND RATIONALE:
I have determined that approving this fuels reduction project is in conformance with the approved land use plan. It is my decision to implement the project with the specified mitigation measures. The project will be monitored as stated in the Compliance Plan outlined below.

MITIGATION MEASURES: There are no mitigation measures for this project beyond those described in the design features of the Proposed Action.

COMPLIANCE PLAN(S):

Compliance Schedule
Compliance will be conducted during the implementation phase to insure that all specifications and mitigative measures outlined in EA No. DOI-BLM-N010-2014-039 EA are followed. Individual projects authorized by a Determination of NEPA Adequacy will include the necessary specifications and mitigation specified in this environmental analysis. Contracts for fuels treatments will also include the necessary specification and mitigation to insure compliance.

Monitoring Plan
Following implementation, fuels treatments will be mapped and filed with the project file. Photo plots will be established and new photos taken each year for the following three years to document vegetation response to the treatment. This monitoring will help determine the treatment effectiveness and document the need for additional mitigative measures or specification changes for future projects.

Assignment of Responsibility
Responsibility for implementation of the compliance schedule and monitoring plan will be assigned to the Fire Management Specialist in the Little Snake Field Office. .

Administrative Review or Appeal Opportunities
This decision is effective upon the date the decision or approval by the authorized officer. Under regulations addressed in 43 CFR Part 4, any party adversely affected has the right to appeal this decision. Within 30 days of the decision, a Notice of Appeal must be filed in the office of the Authorized Officer at the Little Snake Field Office, 455 Emerson Street, Craig, CO 81625 with copies sent to the Regional Solicitor, Rocky Mountain Region, 755 Parfet St., Suite 151, Lakewood CO 80215, and to the Department of the Interior, Board of Land Appeals, 801 North Quincy St., MS300-QC, Arlington, VA 22203. If a statement of reasons for the appeal is not included with the notice, it must be filed with the Interior Board of Land Appeals at the above address within 30 days after the Notice of Appeal is filed with the Authorized Officer.

Contact Person

For additional information concerning this decision, contact Dale Beckerman, Fire Management Specialist, Little Snake Field Office, 455 Emerson Street, Craig, CO 81625, Phone (970) 826-5004.

SIGNATURE OF AUTHORIZED OFFICIAL:

DATE SIGNED: