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Environmental Assessment
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Northern Piceance Fuels Reduction Project

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U.S. Department of the Interior
Bureau of Land Management
Northwest District
White River Field Office
220 East Market St
Meeker, CO 81641

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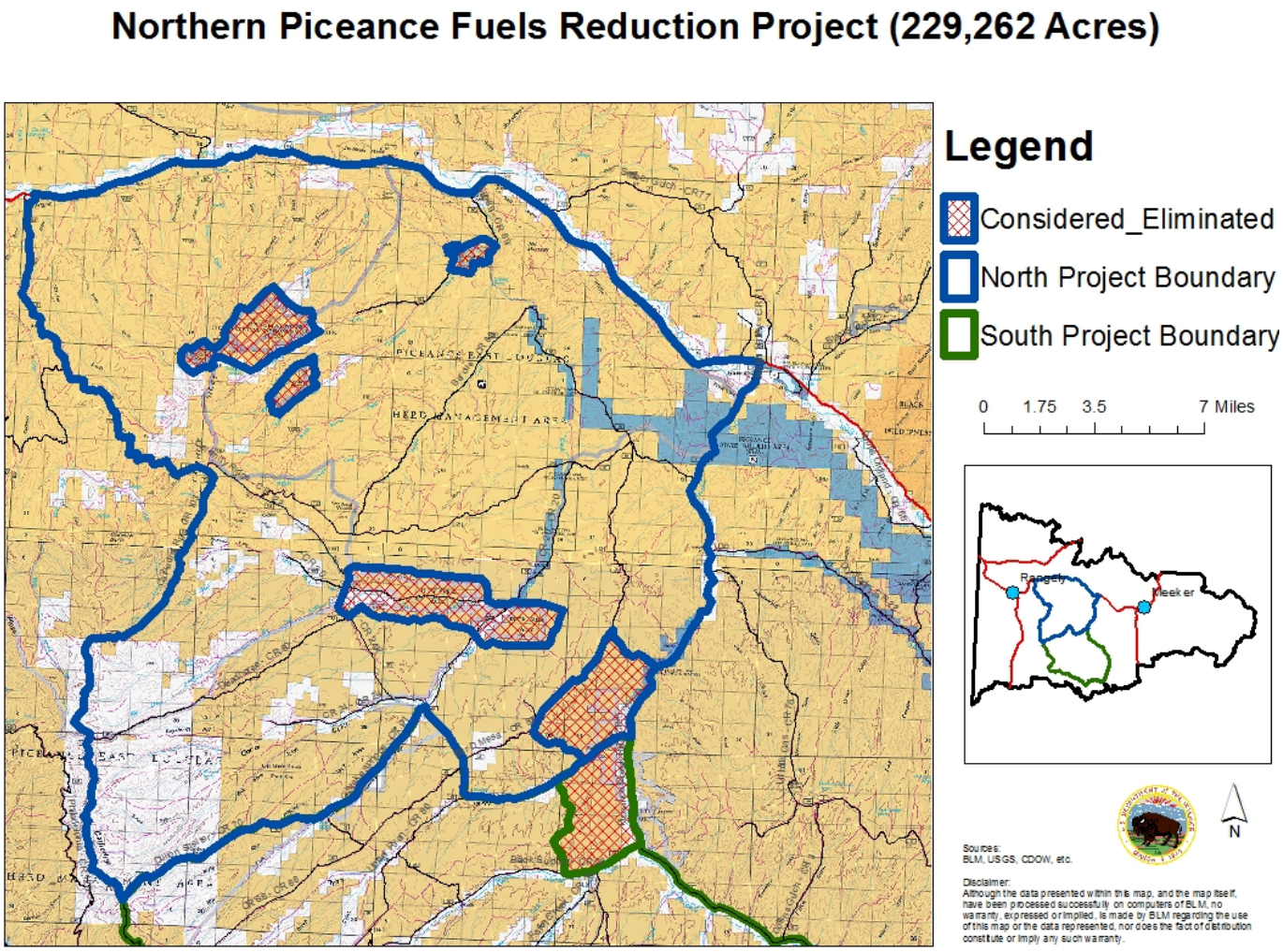

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1. INTRODUCTION

1.1. Identifying Information

Project Title: Northern Piceance Fuels Reduction Project

Legal Description: T 1 S, R 97W, all sections west of CR 5
T 1 S, R 98W
T 1 S, R 99W
T 1 S, R 100W, all sections east of CR 103
T 2 S, R 97W, sec. 6
T 2 S, R 98W, sec. 1, 2, 3, 4, 6, 9, 10, 11, 12
T 2 S, R 99W, all sections north of CR 70 and north of CR 91
T 2 S, R 100W, all sections east of CR 103 and north of CR 70
T 1 N, R 97W, all sections west of CR 5
T 1 N, R 98W
T 1 N, R 99W
T 1 N, R 100W, all sections east of CR 122 and CR 103
T 2 N, R 97W, sec. 18, 19, 20, 28, 29, 30, 31, 32, 33, 34, 35, 36
T 2 N, R 98W, all sections south of HWY 64
T 2 N, R 99W
T 2 N, R 100W, all sections except 5 and 6
T 3 N, R 98W, sec. 31
T 3 N, R 99W, sec. 31, 32, 33, 34, 35, 36

Applicant: Bureau of Land Management

NEPA Document Number: DOI-BLM-CO-N05-2015-0052-EA

Casefile/Project Number: N/A

1.2. Background

A programmatic approach for environmental assessment (EA) has been used for several resources within the White River Field Office (WRFO) including herbicide use and most recently the Southern Piceance Fuels Reduction Project. Naturally ignited wildfire was analyzed as part of the Fire Management Plan (FMP) in CO-110-1999-099-EA, but prescribed fire was only mentioned, so to this point each prescribed fire project has been analyzed on an individual basis. In the years from 2003 to 2009, prescribed fires that were less than 4,500 acres were categorically excluded under the Healthy Forest Restoration Act of 2003. On August 21, 2009, the BLM distributed IM 2009-199 which discontinued the ability to categorically exclude prescribe fire projects thus requiring all vegetation manipulation projects go through full environmental analysis.

The FMP analyzed the impacts of naturally ignited wildland fire on the landscape but prescribed fire was not adequately addressed. This EA is to analyze in more detail the use of prescribed fire and all methods of mechanical treatments to manipulate vegetation in an effort to reduce fuel loading. Future proposed treatments will be designed with these features and evaluated with a Determination of NEPA Adequacy (DNA) unless there is a need for additional analysis.

This proposed planning area of 229, 262 acres (Figure 1) is comprised of the B6 Yellow Creek (78,202 acres), B7 Piceance Creek (1,581 acres), B10 White River (1,342 acres), C5 Greasewood Creek (44,559 acres), C6 Lower Piceance Basin (40,798 acres), C10 Fletcher (33,470 acres), and the D5 Cathedral Bluffs/Roan Plateau (29,310 acres) Fire Management Polygons. The overall fire management objective within these polygons is use fire as a tool to promote vegetation mosaic representing natural distributions of plant communities of varying successional stages. This is to be accomplished through a combination of managing naturally ignited fires, post fire rehabilitation, prescribed fires, and mechanical treatments. In accordance with agency standards, all fuels reduction treatment projects will support resource management objectives as identified in the 1997 White River ROD/RMP, as amended.

Additionally, as a means to balance the availability and distribution of successional states in a given vegetation community/habitat type, planned federal vegetation treatments should not contribute to reductions in later seral basin big sagebrush communities (foothill swale range sites) composed of mature basin big sagebrush canopies (e.g., structure and density) that cumulatively exceed 60 percent of that potentially available (all ownerships, excluding irrigated bottoms) at an appropriate watershed scale (generally on a basis no greater than USGS Hydrologic Unit Class (HUC) or the subwatershed level).

Within the project area, there has been vegetation manipulation in the form of both mechanical treatment (chaining and hydro-axing) and fire treatments (both prescribed fires and wildfires).

1.3. Purpose and Need for Action

The purpose of the Proposed Action is to use prescribed fire and mechanical methods to treat vegetation in an effort to reduce the impacts and risks of an unplanned wildland fire to life, property, and other natural resources and to enhance ecosystems. Within the proposed area of the Northern Piceance Fuels Reduction Project the Fire Regime Condition Class (FRCC; amount of departure from the natural regime) is moderate to high (FRCC 2 or 3). The need for the action is to return the landscape FRCC to moderate to low (FRCC 2 or 1). Rio Blanco (RBC) is among the top three counties in Colorado for wildfire risk (Neuenschwander et al. 2000) and the proposed project has a high frequency of naturally ignited fires within the WRFO and also contains a high concentration of oil and gas infrastructure. The Rio Blanco County Wildfire Protection Plan (CWPP) highlights values at risk within the county. The plan outlines oil and gas producing facilities as a high priority for fuels reduction. Reducing fuel loading through vegetation management is one of the most effective elements of any fire and fuels program. We can begin to manage fire and the risk associated with it by managing fuel loading in an effort to maintain a healthy ecosystem.

1.4. Decision to be Made

Based on the analysis contained in this EA, the BLM will decide whether to approve or deny the proposed Northern Piceance Fuels Reduction Project, and if so, under what terms and conditions. Under the National Environmental Policy Act (NEPA), the BLM must determine if there are any significant environmental impacts associated with the Proposed Action warranting further analysis in an Environmental Impact Statement (EIS). The Field Manager is the responsible officer who will decide one of the following:

- To approve the Northern Piceance Fuels Reduction Project with design features as submitted;
- To analyze the effects of the Proposed Action in an EIS; or
- To deny the Northern Piceance Fuels Reduction Project.

1.5. Conformance with the Land Use Plan

The Proposed Action is subject to and is in conformance (43 CFR 1610.5) with the following land use plan:

Land Use Plan: White River Record of Decision and Approved Resource Management Plan (ROD/RMP)

Date Approved: July 1997

Decision Language:

"Sustain a landscape composed of plant community mosaics that represent successional stages and distribution patterns that are consistent with natural disturbance and regeneration regimes and compatible with the goals identified in Standard Three of the Standards for Public Land Health…" (Page 2-10)

"BLM projects and land use approval actions will be designed to maintain a site above its conservation threshold (a point below which soil erosion accelerates beyond the site's ability to maintain natural productivity). Any plant cover or community which is capable of maintaining the site above the conservation threshold while meeting other land use objectives will be considered a desired plant community (DPC)." (Page 2-10)

"Acceptable DPCs will be managed in an ecological status of high-seral or healthy mid-seral for all rangeland plant communities. An exception may be provided for wildlife habitat-areas where specific cover types are needed. The required cover type in those wildlife habitat areas will be the DPC. The ecological status of a DPC in specified wildlife habitat areas could be lower than high seral. In which case, the DPC will be managed, at a minimum, to maintain an at risk rating (Table 2-6 of Appendix D) and have a stable to improving trend in ecological status." (Page 2-11)

"Native plant species will be encouraged in the remainder of the resource area for reseeding disturbed areas that are not threatened by establishment of exotic or noxious plant species.

Naturalized plant species will be allowed for reseeding on “at risk” and “unhealthy” rangelands and grazeable woodlands.” (Page 2-11)

“Reduce the pinyon-juniper tree components where pinyon or juniper has dominated or is invading other ecological sites.” (Page 2-12)

“Utilize prescribed fire, both natural and management ignited, to protect, maintain and enhance ecosystems, economic values, and multiple use resource management programs.” (Page 2-55)

“Areas within riparian zones that have been completely burned with an intense fire will be reseeded to achieve vegetation objectives…” (Page 2-55)

“Prescribed fires will be monitored to ensure that objectives are achieved and the fire would not exceed the prescription.” (Page 2-56)

“Prescribed fire will be a tool to use to help mitigate fuels and hazards and to benefit other natural resource programs.” (Page 2-56)

2. PROPOSED ACTION AND ALTERNATIVES

2.1. Proposed Action

The BLM is proposing to treat vegetation across the Northern Piceance Fuels Reduction Project Area (229, 262 acres). The Proposed Action is bordered on the north side by Highway (Hwy) 64, the east side by County Road (CR) 5, the south side by CR 91 and CR 70, and the west side by CR 103 and CR122. The project will involve the use of prescribed fire, mechanical methods, and seeding to restore the landscape to its desired plant community while specifically reducing fuel loading and reducing pinyon-juniper encroachment into sagebrush disclimax parks. A single treatment method may be used within a site or a combination of treatment methods.

2.1.1. Mechanical Vegetation Treatment

Mechanized treatment may be implemented using a fecon, hydro-axe, mower, brush beater, railing, chipper, bull hog, or chainsaw or a combination of these equipment types. Through mechanized fuels reduction in specific target areas (individual treatment sites), the BLM will:

1. Remove up to 95 percent of pinyon-juniper invading sagebrush ecosystem types while limiting sagebrush mortality in those treatment areas to less than 50 percent.
2. Mechanically treat 30 to 60 percent of serviceberry and other deciduous brush species to stimulate sprouting.
3. Limit mortality in mature pinyon-juniper woodland to less than 30 percent.

Design Features for Mechanical Vegetation Treatments

1. No wheeled equipment will be used on slopes greater than 30 percent. Chainsaws will be used on slopes greater than 30 percent.
2. Mechanical manipulations would be limited to slopes of 20 percent or less.
3. Mechanical treatments will be completed by hand if immediately upslope, within, and near perennial springs.
4. Vegetation removed with chainsaws will be either:
    a. Lopped and scattered to a depth of no greater than 18 inches
    b. Piled and burned following agency policy
    c. Chipped and dispersed
    d. Provided along roadsides for public firewood use if applicable.
5. Edges of mechanical treatments will be designed to repeat natural lines of similar vegetation contrast and avoid creating straight lines on the edge of the treatments. These measures should be taken in Visual Resource Management (VRM) Class III areas and must be taken in VRM Class II areas.
6. The edges of the treatment boundary will be feathered in VRM Class II mechanical treatment areas with dense pinyon-juniper stands or areas with dense shrubs. This means that the pinyon-juniper trees or shrub vegetation will be thinned from the edge of treatment in less dense to more dense thinning gradient that mimics natural encroachment into the treated area.

2.1.2. Prescribed Fire Treatment

Prescribed fire treatments (broadcast or slash pile burns) may be implemented using ground and aerial ignition or a combination of these methods. Ground ignitions may include: fusees, drip torches, flares, stubbies, ATV/UTV torches, and terra torch. Aerial ignition will be conducted using Plastic Sphere Dispenser (PSD) or helitorch. Through prescribed fire fuels reduction in specific target areas (individual treatment sites) the BLM will:

1. Remove up to 95 percent of pinyon-juniper invading sagebrush ecosystem types.
2. Remove 60 to 100 percent of basin big sagebrush which dominates ephemeral drainages (with a tolerable deviation of 10 percent due to the unpredictability of using fire).

Design Features for Prescribed Fire Treatments

1. All burn units inside the project area will be created to match existing vegetation openings in the surrounding environment.
2. Areas within riparian zones that have been completely burned with an intense fire will be reseeded to achieve vegetation objectives.
3. Prescribed fires will be conducted by qualified personnel and with a pre-approved prescribed fire plan.
4. Prescribed fires will be monitored to ensure that objectives are achieved and the fire would not exceed the prescription.
5. All prescribed fire will be conducted in accordance with the State of Colorado Smoke Management Plan and Memorandum of Understanding (MOU), and will be regulated

under Colorado Department of Public Health and Environment, Air Pollution Control Division.

6. To protect soil productivity, burning will be conducted under conditions when a light burn can accomplish stated objectives. Burning will occur when soil and duff are moist for fragile soils and soils with landslide potential in the effort to maximize moisture retention in duff layers.
7. Do not burn piles of slash within 100 feet of riparian areas or springs. If riparian areas are within or adjacent to the prescribed burn unit, piles will be scattered prior to burning.
8. When preparing the unit for burning, avoid piling concentrations of large logs and stumps; pile small material (3 to 8 inches in diameter). Piles should be burned when soil and duff moisture are high.
9. The location and construction of containment lines will implement methods that result in minimal surface disturbance while effectively controlling the fire. Handcrews shall locate lines to take full advantage of existing land features that represent natural fire barriers. Whenever possible, containment lines should follow the contour of the slope to protect the soil, provide sufficient residual vegetation to capture and retain sediment, and maintain site productivity.
10. Surface disturbances created for containment lines will be rehabilitated by building water bars on slopes greater than 35 percent, replacing topsoil and spreading woody debris as possible. Waterbars will be located to minimize future channeling of runoff and direct the runoff toward areas of natural vegetative filters.

2.1.3. Seeding Treatment

Seeding treatments may be implemented using an aerial application, drill seeding, all-terrain vehicles (ATVs and UTVs), hand application, or a combination of these methods. Through seeding in the specific target area the BLM will return the landscape to, or maintain, its desired ecological condition. Seeding of wildland fires and prescribed fires can help reduce fuels by establishing native plant species vs. invasive (e.g., cheatgrass).

Design Features for Seeding Treatments

1. Analyze and determine the correct native seed mixture based upon the surrounding vegetation and ecological condition. Apply appropriate standard or modified BLM seed mix based on the range site and or Desired Plant Community (DPC) for the treatment area (e.g., in a rolling loam site, BLM standard seed mix 2 would be used) to meet specified management objectives (e.g., sage-grouse habitat components, special status plants).

2.1.4. Design Features Common to All Treatment Methods

1. All treatments within the project area will require specific analysis from Field Office specialists.
2. Treatment areas would be monitored for noxious/invasive weed infestations for a minimum of three years post treatment. Any infestations identified will be suppressed/eradicated by the BLM as needed.

3. All spills of fuels, lubricants, etc., will be reported to the WRFO Hazardous Materials Coordinator within 24 hours.
4. Planned projects will undergo Class III cultural resource inventories to identify resources that need to be avoided or protected by fuel manipulation activities. Avoidance or protection measures for these properties would be incorporated into the project burn plans to prevent any damage or loss to cultural resources. If any previously unidentified cultural properties are discovered during project implementation, they would be protected, the BLM authorized officer would be notified and appropriate protection or mitigation measures would be determined.
5. Consultation efforts with Native American Tribes will continue. Inventories in project areas will attempt to locate any sites that the tribes have identified as sensitive and efforts will be made to protect those values.
6. Pursuant to 43 CFR 10.4(g), the BLM project lead will notify the Authorized Officer (AO), by telephone and 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), the proponent must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the AO.
7. All treatment actions with the potential to effect cultural resources are subject to the requirements of Section 106 of the National Historic Preservation Act, 36 CFR 800, and the BLM 8100 Manual series. Future treatment projects will require the concurrence of the WRFO cultural resources specialist, who must also sign off on future actions prior to initiation.
8. Because many archeological sites may have been exposed to wildland fire in the past, sites identified during field surveys prior to prescribed burning or mechanical treatments will be evaluated to determine whether the sites have been damaged from wildland fire events, and to evaluate the potential effects of proposed treatment methods on such sites. Any known cultural sites not subject to past wildland fire activity would be mitigated to ensure that they are unaffected during a prescribed fire event. Mitigation measures may include clearing around a site, cutting a fireline around site, ring firing around the site, or other practices that provide protection.
9. Ground disturbing treatment methods described under the Proposed Action would require site-specific cultural resources evaluation, including examination of records of known sites and an intensive cultural resources inventory (Class III). Mitigation, usually in the form of avoidance, would be necessary if a determination were made that NRHP-eligible properties would be impacted by a Proposed Action. Should undocumented cultural resources be identified in the course of ground-disturbing treatment, the treatment action would immediately cease until appropriate notification procedures have been accomplished and a decision for proper handling of the resource has been made.
10. Wooden structures and metal surfaces will be avoided when applying chemical retardants, except when such features are in danger of imminent exposure to wildland fire.
11. The BLM project lead is responsible for informing all persons who are associated with the project that they will be subject to prosecution for knowingly disturbing archaeological sites or for collecting artifacts. If archaeological materials are discovered

as a result of operations under this authorization, the proponent must immediately contact the WRFO Archaeologist.

12. The BLM project lead is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for disturbing or collecting vertebrate fossils, collecting large amounts of petrified wood (over 25lbs./day, up to 250lbs./year), or collecting fossils for commercial purposed on public lands. If any paleontological resources are discovered as a result of operations under this authorization, the BLM project lead must immediately contact the WRFO Paleontology Coordinator.
13. All projects affecting aquatic or riparian habitats would be reviewed and mitigation developed to reduce adverse impacts. A 500 ft. buffer strip along all perennial streams would be maintained in areas of vegetation manipulations, unless a detailed location-specific prescription is developed to address riparian vegetation.
14. ATV, UTV and fire engine travel off existing trails and roads will be limited to the greatest extent practicable. When off-trail and off-road travel is needed, alternating travel routes will be used to avoid creating two-tracks and new trails. Visible tracks will be obliterated when possible.
15. Vegetation treatments in riparian areas and springs shall be by handcrew only and concentrate on areas of heavy fuels. Vehicle entry into the riparian area will be permitted to establish pumping operations only if approved beforehand to access water only if no bridges or natural stream crossings are in the burn area.
16. No fuel staging areas or refueling sites would be allowed within 200 feet of any water body.
17. All activity shall cease when soils or road surfaces become saturated to a depth of three inches unless otherwise approved by the Authorized Officer.
18. Prior to any treatment activity, the BLM will coordinate with existing right-of-way holders, range permittees, operators, and mineral lessees.
19. The WRFO Ecologist will be consulted the growing season prior to any proposed treatments to determine if special status plant species (SSPS) surveys would be required. If surveys are required they must be completed according to the SSPS protocol prior to the beginning of any treatments. If listed, proposed, or candidate plants are found during the surveys, consultation with FWS may be required and/or special mitigation may be applied to avoid impacting the species.
20. Evidence of the Public Land Survey System (PLSS) and related Federal property boundaries will be identified and protected prior to commencement of any ground-disturbing activity. This will be accomplished by contacting BLM Cadastral Survey to coordinate data research, evidence examination and evaluation, and locating, referencing or protecting monuments of the PLSS and related land boundary markers from destruction. In the event of obliteration or disturbance of the Federal boundary evidence the responsible party shall immediately report the incident, in writing, to the Authorizing Official. BLM Cadastral Survey will determine how the marker is to be restored. In rehabilitating or replacing the evidence the responsible party will be instructed to use the services of a Certified Federal Surveyor (CFedS), procurement shall be per qualification based selection, or reimburse the BLM for costs. All surveying activities will conform to the Manual of Surveying Instruction (Manual) and appropriate State laws and regulations.

Local surveys will be reviewed by Cadastral Survey before being finalized or filed in the appropriate State or county office.

21. Range improvement projects within each given project area would be identified and measures taken to prevent damage or to replace the improvement in order to maintain its purpose and function.
22. Where reclamation of oil and gas infrastructure have occurred, mitigation or replacement of wattles, silt fences, hay bales, mulch, hedgerows, and seeded areas will be incorporated into the project development.
23. Should the Proposed Action occur simultaneous with a wild horse gather, all project-related activities would be coordinated through the WRFO and the gather contractor.
24. To minimize the incidents of young foals becoming dislocated from their mares, project crews would be required to slow or stop when wild horses are encountered, allowing bands to move away at a pace slow enough so that the foals can keep pace and are not separated.
25. During the spring foaling period (March 1 – June 15), if it is determined that wild horses are in the vicinity of the proposed project, activities may need to be delayed or modified, as outlined by the White River ROD/RMP, to reduce impacts during this sensitive time period.
26. Disruptive activities will not take place within greater sage-grouse habitat (priority habitat management areas [PHMA] or general habitat management areas [GHMA] during the reproductive period (lekking, nesting, and brood-rearing) of March 1 – July 15.
27. Consultation with Colorado Parks and Wildlife (CPW) and the U.S. Fish and Wildlife service (FWS) will be required for those proposed treatments involving sage-grouse habitat (PHMA and GHMA).
28. Proposed treatments involving sage-grouse habitat (PHMA and GHMA) will be reviewed and analyzed through subsequent NEPA analysis. Proposed treatments should meet the habitat requirements for sage-grouse outlined in Connelly (2000). If these habitat requirements are currently being met, proposed treatments will not be considered in PHMA. Treatments in PHMA will be considered if they maintain or enhance sage-grouse habitat (e.g., removal of encroaching pinyon-juniper into sagebrush parks, modifying sagebrush canopies that currently exceed sage-grouse habitat suitability criteria, and restoring native bunchgrass communities in shrublands that are currently dominated by invasive annuals).
29. Treated areas will be rested from grazing for two full growing seasons in sage-grouse PHMA, where practical.
30. Surveys for midget faded rattlesnakes will be required if suitable habitat exists within the treatment area. If occupies den/hibernacula are located, activity (vegetation removal, heavy equipment use) will not be permitted within 200 meters of the den from April 15 – August 1.
31. Mature pinyon-juniper and aspen woodlands should be avoided. Future projects involving mature woodland components will be reviewed and designed with the objective of maintaining the extent and continuity of woodland types that provide nesting substrate for woodland raptors and migratory birds that are considered to be pinyon-juniper obligate species.

32. A raptor survey may be required if woodland or cliff habitat capable of supporting nesting functions may potentially be involved. Should an active nest be located the appropriate timing limitations (species dependent) may be applied:
    a. Listed, proposed, and candidate threatened or endangered species and BLM sensitive species (not including bald eagle or ferruginous hawk): No activities will be allowed from February 1 – August 15 within 0.50 miles of an identified nest.
    b. All other raptor species: No activities will be allowed from February 1 – August 15 within 0.25 mile of an identified nest.
33. Proposed fuels and mechanical treatments will take place outside of the migratory bird nesting season (May 15 – July 15). Treatments will be permitted from July 16 – May 14. An exception may be granted if it is determined that the proposed treatment can be conditioned so as not to interfere with habitat function or compromise migratory bird nesting functions.
34. Treatments will not be permitted from December 1 – April 30 in mule deer severe winter range. An exception may be granted if it is determined that the proposed treatment could be conditioned so as not to interfere with habitat function or compromise animal condition in the project area.
35. Treatments will not be permitted from May 15 – August 15 in big game summer range. An exception may be granted if it is determined that the proposed treatment can be conditioned so as not to have any additional influence on the utility or suitability of summer range.

2.2. No Action Alternative

Under the No Action Alternative, landscape-scale vegetation treatments would not be approved or implemented. However, the BLM would consider future site-specific proposals that would reduce fuel loading. Each target area would be analyzed under an individual environmental assessment rather than a programmatic assessment.

2.3. Alternatives Considered but Eliminated from Detailed Analysis

1. Herbicide treatments on a broadcast scale was considered but eliminated from further analysis due to the inability to achieve hazardous fuels reduction objectives. Using this type of treatment would create pockets of standing dead fuel and increase the chances of a large wildfire.
2. A larger scale project boundary was considered but not carried forward for further analysis due to current WRFO workloads and priorities.
3. The use of chaining as a mechanical treatment was considered but not carried forward for further analysis because of cultural and soil concerns. In addition the use of chaining creates jackpots of dead fuels that are highly volatile during wildfires.
4. Areas of Environmental Concern (ACEC) were considered for treatment, but were eliminated from further analysis due to sensitive nature of ACEC designation.

3. PUBLIC INVOLVEMENT

3.1. 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 identify issues, concerns, and potential impacts that require detailed analysis. Scoping is both an internal and external process.

Internal scoping was initiated when the project was presented to the White River Field Office (WRFO) interdisciplinary team on 5/5/2015. External scoping was conducted by posting this project on the WRFO's on-line National Environmental Policy Act (NEPA) register on 05/21/2015.

4. ISSUES

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. The following sections list the resources considered and the determination as to whether they require additional analysis.

4.1. Issues Analyzed

The following issues were identified during internal scoping as potential issues of concern for the Proposed Action. These issues will be addressed in this EA.

- **Air Quality**: Short-term and localized impacts to air quality would result from the use of mechanized equipment and/or prescribed fire treatments.

- **Soil Resources**: Short-term and localized impacts to soil resources could result from mechanical treatments and longer-term impacts (one to four years) could result from prescribed fire treatments.

- **Surface and Ground Water Quality**: Prescribed fire treatments could impact surface water quality.

- **Floodplains, Hydrology, and Water Rights**: Prescribed fire treatments could impact floodplains and hillslope hydrology.

- **Wetlands and Riparian Zones**: Vegetation removal or modification within the riparian corridor or in adjacent upland habitats may influence the condition of riparian communities as well as channel characteristics.

- **Vegetation**: Vegetation removal from fuels treatments would create short-term changes in vegetation composition of herbaceous species and a more long-term change in composition of woody species.

- **Invasive, Non-Native Species**: Removal of vegetation in the project area can lead to the proliferation of noxious and invasive weed species.

- **Migratory Birds:** Vegetation removal and modification associated with mechanical and fuels treatments may directly impact migratory bird species. Additionally, noise associated with these treatments may have an indirect influence (behaviorally, physiologically, etc.) as well.

- **Terrestrial Wildlife**: Vegetation removal and modification associated with fuels treatments may directly impact terrestrial wildlife species. Additionally, noise associated with these treatments may have an indirect influence (behaviorally, physiologically, etc.) as well.

- **Special Status Animal Species**: Vegetation removal and modification associated with fuels treatments may impact special status animal species. Additionally, noise associated with these treatments may have an indirect influence (behaviorally, physiologically, etc.) as well.

- **Special Status Plant Species**: The project area contains occupied habitat for the federally threatened Dudley Bluffs Bladderpod and Dudley Bluffs Twinpod. Fuels treatments have the potential to impact these species from trampling, mowing, and burning due to the Proposed Action.

- **Cultural Resources**: There are 1,481 known cultural resources within the project area comprised of prehistoric, protohistoric and historic archaeological sites. Approximately 13 percent (32, 935 acres) of the project area has been surveyed for cultural resources. Given the high density of cultural resources that exist in the project area the Proposed Action has the potential to both directly and indirectly adversely affect cultural resources.

- **Paleontological Resources**: There are 165 known paleontological localities within the project area. Prescribed fires have the potential to scorch and cause spalling of exposed fossil resources, while vegetation treatment impacts to fossil resources are variable and may depend on a number of factors such as whether or not outcrops are exposed in the manipulation area and the type of manipulation to be employed.

- **Visual Resources**: Visual resources are the visible physical features of a landscape that convey scenic value. The Proposed Action is located in an area with Visual Resource Management (VRM) Class II and Class III objectives, which describe the level of

acceptable change allowable to areas of the landscape. The Visual Resource Inventory (VRI) uses classes to assess visual values for areas of the landscape. The VRI classes within the Proposed Action boundary are VRI Class II, II, and IV. The Proposed Action has the potential to not meet VRM class objectives and/or to change the existing VRI class.

- **Lands with Wilderness Characteristics:** The mechanical vegetation treatment described in the Proposed Action has potential to impact the naturalness of four units that have been identified as having wilderness characteristics (unit 11-Barcus Creek 12,300 acres, unit 13- Blair Mountain/Greasewood 36,900 acres, unit 15-Hammond Draw 6, and unit 17-Hammond Draw 6,100 acres).

- **Livestock Grazing:** Following vegetation treatments, livestock grazing may be deferred on areas creating a potential economic impact to ranchers. There is also the potential for livestock distribution to change on an allotment following fuels treatments causing indirect impacts to rangelands on other parts of grazing allotments.

- **Wild Horses:** In general, the project area could potentially impact approximately 121,213 acres within the Piceance-East Douglas Herd Management Area (PEDHMA) and approximately 49,625 acres within the North Piceance Herd Area.

- **Forestry and Woodland Products:** Mechanical treatment, prescribed fire, and seeding treatments all have the potential to impact forestry and woodland products primarily through the complete removal of woody species.

- **Recreation:** Mechanical vegetation treatments, prescribed fire, and seeding treatments could impact the quality of desired big game hunting experiences if conducted at the same time.

- **Fire Management**: The Proposed Action will allow fire officials to fully use the Northwest Colorado Fire Program Area Fire Management Plan and will increase public and firefighter safety.

- **Areas of Critical Environmental Concern:** Impacts to ACEC are expected to be limited since all ACECs were excluded from the project area. There is a potential for vegetation in ACECs to be impacted by fire if prescribed fire becomes uncontrolled and burns into the ACECs.

4.2. Issues Considered but not Analyzed

- **Native American Religious Concerns**: The proposed project area is located within a larger area identified by the Ute Tribes as part of their ancestral homeland. Contemporary Native American groups such as the Eastern Shoshone, Ute Tribes of the Uinta and Ouray Bands (Northern Ute), Southern Ute, and Ute Mountain Ute maintain cultural ties to the land and resources within the WRFO area.

Areas used traditionally for hunting would be expected to revegetate following a fire event, although this may occur slowly. The loss of game animals and their habitat until revegetation occurred would also be expected. For localities where food and/or medicinal plants are gathered, effects would be dependent upon the amount of time such vegetation would require in order to reestablish. The threat of invasive species occupying areas associated with traditionally important vegetation is also an issue of concern. In areas where invasive species currently predominate, the potential for culturally important native plant species to reestablish following prescribed burns or other treatments may be enhanced.

No places of traditional cultural importance were identified by Tribal representatives to occur in the project area. Locations of cultural importance are often not known to the BLM, but may be present in or near the project area due its location in the Piceance Basin. Should recommended inventories or future consultations with Tribal authorities reveal the existence of such sensitive properties, appropriate mitigation and/or protection measures may be undertaken. The need for protecting, and accommodating access to, any such places identified by tribes would be considered prior to implementing individual fire management actions.

- **Social and Economic Conditions**: There would not be any substantial changes to local social or economic conditions.
- **Environmental Justice**: According to the most recent Census Bureau statistics (2010) and guidelines provided in WO-IM-2002-164, there are no minority or low income populations within the WRFO.
- **Prime and Unique Farmlands**: There are no prime and unique farmlands within the project area.
- **Wilderness**: There are no designated Wilderness areas or Wilderness Study Areas located near the Proposed Action.
- **Wild and Scenic Rivers**: There are no Wild and Scenic Rivers within the WRFO.
- **Scenic Byways**: There are no Scenic Byways within the project area.
- **Aquatic Wildlife**: Impacts to aquatic wildlife will be addressed in the aquatic species portion of the Special Status Animal Species section.
- **Realty Authorizations:** It is unlikely that the Proposed Action would impact realty authorizations because the BLM would coordinate with existing right-of-way holders prior to any vegetation treatment.
- **Hazardous or Solid Wastes**: No listed or extremely hazardous materials in excess of threshold quantities are proposed for use in this project. While commercial preparations of fuels and lubricants proposed for use may contain some hazardous constituents, they

would be in small quantities and would be stored, used, disposed, and transported in a manner consistent with applicable laws, and the generation of hazardous wastes would not be anticipated. Solid wastes would be disposed of properly.

- **Geology and Minerals**: The vegetation treatments of the Proposed Action for fuel reduction would have little to no adverse impacts to the geologic and minerals resources within the project area. Reduction of fuel loading would benefit the safety and operation of existing mineral facilities near treatment areas.

- **Access and Transportation**: The Proposed Action as designed will not create any new public access travel routes and should not have any perceivable impact to the existing travel and transportation system or to those traveling these routes.

5. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

5.1. General Setting & Access to the Project Area

The Proposed Action is bordered on the north side by Highway (Hwy) 64, the east side by County Road (CR) 5, the south side by CR 91 and CR 70, and the west side by CR 103 and CR122 (Figure 1). Elevation ranges from 5,000 feet in valley bottoms to 8,600 feet on the Cathedral Bluffs. Vegetation at lower elevation ranges from sagebrush and pinyon-juniper to mountain shrubs and Douglas fir at higher elevations.

5.2. Air Quality

5.2.1. Affected Environment

The White River Field Office is an attainment area for national and state air quality standards. The attainment designation means that no violations of ambient air quality standards have been documented in the area (EPA 2013). Non-attainment areas are designated by U.S. Environmental Protection Agency (EPA) as having air pollution levels that persistently exceed the National Ambient Air Quality Standards (NAAQS) or Colorado Ambient Air Quality Standards (CAAQS). General conformity regulations require that federal activities do not cause or contribute to a new violation of NAAQS; that actions do not cause additional or worsen existing violations of the NAAQS; and that attainment of these standards is not delayed by federal actions in non-attainment areas.

The Proposed Action is within the Western Counties Monitoring Region of Colorado (CAPCD 2013). Local air quality parameters including particulates and ozone are measured at monitoring sites located at Meeker, Rangely, Dinosaur, and near the Flat Tops Wilderness Area. The closest location for an Interagency Monitoring of Protected Visual Environments (IMPROVE) site is near the Flat Tops Wilderness, northeast of the Project Area. IMPROVE sites measure air borne particles that cause impairment to visibility.

5.2.2. Environmental Consequences – Proposed Action

The Proposed Action would result in short-term impacts on air quality from equipment used to treat vegetation, vehicles to access sites and manage prescribed fire, and smoke from prescribed fire. Transportation and the use of equipment to accomplish the fuel treatments will generate emissions from internal combustion engines and generate airborne dust during treatments.

Increases in the following criteria pollutants would occur due to combustion of fossil fuels: carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), and ozone (a secondary pollutant formed photochemically from volatile organic compounds (VOCs) and nitrogen oxides (NOx)).

Particulate matter or dust is made up of soil particles, acidic aerosols (such as nitrates and sulfates), organic chemicals, metals, and allergens (such as fragments of pollen or mold spores). Dust or particulate matter would be produced during treatments by vehicles and mechanical equipment used to implement the treatment and transporting workers to sites. Fine particles (less than 2.5 µm) are very efficient in scattering and absorbing light and are the major contributor to visibility problems. The effects of particulates include visibility degradation, climate change, vegetation damage, and human health impacts.

Prescribed fire will generate particulates and smoke. Prescribed fires would be conducted in accordance with the State of Colorado Smoke Management Plan and Memorandum of Understanding (MOU). This MOU requires notification and permitting for prescribed burns. Air quality considerations will be addressed during this permitting process, and will be regulated by Colorado Department of Public Health and Environment, Air Pollution Control Division.

Even with these increased pollutants the Proposed Action is unlikely to result in an exceedance of NAAQS or CAAQS, and is it likely to comply with applicable PSD increments and other significant impact thresholds.

5.2.3. Environmental Consequences – No Action Alternative

No impacts to air quality would occur from the No Action Alternative.

5.3. Soil Resources

5.3.1. Affected Environment

Based on Natural Resources Conservation Service (NRCS) soil survey of Rio Blanco County Area, Colorado (Soil Conservation Service-SCS, 1982) and web-based data (NRCS 2012) Rentsac channery loam, Torriorthents-Rock Outcrop, Castner channery loam, Rentsac-Piceance complex, and Glendive fine sandy loam comprise approximately 70 percent of the soils located within the Proposed Action.

These soils are typically shallow to very shallow, well-drained, having moderate permeability and limited water availability for vegetation, limited organic matter, and rooting depths of 10 to

20 inches. Runoff resulting from precipitation is rapid to very rapid and the subsequent erosion hazard is moderate to very high.

5.3.2. Environmental Consequences – Proposed Action

The proposed mechanized mosaic vegetation treatments could result in short-term and localized soil surface disturbances from mechanized equipment including surface compaction, reduced soil permeability (infiltration loss), and physical and biological crust damage. These disturbances could result in increased surface erosion and rill formation during intense precipitation events and increased soil loss due to wind erosion until herbaceous vegetative cover is reestablished in disturbed areas.

Mosaic treatments, especially banded treatments aligned along slope contours and/or prevailing wind directions, have a multitude of beneficial impacts to soil resources. During winter months, increased snow capture and retention would be expected due to the banded vegetation acting very similar to snow fencing. The newly created plant interspaces capture falling and blowing snowfall and shelter the snow from solar energy. The reduction in canopy densities proportionally reduces canopy interception and subsequent sublimation (evaporation/melting). These positive impacts benefit the soil resource by increasing the amount and duration of available moisture needed for seed germination and plant vigor. In addition, increased soil moisture decreases soil surface temperatures by the upward movement of stored soil moisture and subsequent evaporation at the soil/air interface.

The proposed prescribed fire treatments have the potential to completely consume surface layer organic matter resulting in exposed bare mineral soils, nutrient transformations, binding organic matter loss, and hydrophobic (water repellant) surface layer formation. The removal of vegetation and consumption of organic matter exposes the soil surface to direct raindrop impact and splash resulting in pore sealing, compounded by the hydrophobic characteristics, resulting in dramatic increases in surface runoff. Concerning the formation of the hydrophobic surface layer, given the limited organic matter located within the Proposed Action, the extent and depth of the hydrophobic layer should be minimal and quickly disrupted by natural expansion and contraction for freeze-thaw, wildlife hoof action, and anthropogenic activities.

As discussed in the affected environment, the soils located within the treatment area have moderate to very high erosion hazard ratings. Based on this rating, increased runoff would be expected with increases in surface erosion processes. The increased surface erosion could result in the formation of erosional and depositional landforms until a diverse vegetative cover and surface litter is reestablished. Erosional landforms could include interrill, rill, and gully formation. Depositional landforms could include sediment deposition in depressions, channels, and catch basins containing ash, charcoal, and partially burned debris.

In areas where the prescribed fire treatment consumes more than 50 percent of the vegetative cover, changes in the soil surface energy balance could be expected including decreased surface albedo (reflectivity), increased soil surface temperatures, and increased evaporation. During winter/spring months, decreased seasonal snowfall accumulation could be expected due to increased wind erosion and sublimation (evaporation/melting), due to the increased bare soils

and increased surface temperatures, in the exposed soils. These processes would reduce water moisture content available for supporting seed germination and vegetative vigor until vegetative cover is reestablished.

Nutrients are washed, or leached, into and through soil by precipitation. Precipitation can dissolve ash and carry nutrients into the soil. Soluble forms of nutrients in excess of that which can be used by plants and microbes can be flushed by precipitation beyond the reach of plant roots and associated microbes. These excess water-soluble nutrients could leach into nearby streams (McNabb and Cromack 1990). Nitrate-nitrogen is particularly prone to leaching from soil. Other nutrients, like phosphorus, calcium, and magnesium, are more strongly attracted to soil particles than water, and are therefore more tightly bound in soil. Leaching losses increase with fire intensity. Rapid uptakes of nutrients by plants and microbes that survive fire minimize nutrient leaching from the soil profile.

5.3.3. Environmental Consequences – No Action Alternative

The detrimental and beneficial impacts from the mechanized and/or fire treatments discussed in the previous section would not occur with this alternative. The continued and/or expanding dominance by woody vegetation would be expected. The dominance by woody vegetation typically results in expanding bare ground (interspaces) between the woody plant canopies. These interspaces, unprotected by physical or biological crust, could result in increased interrill and rill formation and subsequent increases in soil surface erosion when compared to post-treatment herbaceous dominated communities.

5.4. Surface and Ground Water Quality

5.4.1. Affected Environment

The climate of the area is semi-arid, with annual precipitation ranging from 12 to 16 inches. Precipitation generally occurs as snow during winter months and high intensity rainfall during the summer.

Piceance and Yellow Creeks are perennial streams draining into the White River to the north. The Piceance Creek and Yellow Creek hydrologic basins drain 18,868 acres and 19,393 acres, respectively characterized by a network of poorly developed ephemeral channels typical of an arid region. Piceance Creek is a perennial stream and Yellow Creek is intermittent in the upper drainage becoming perennial in the lower drainage with baseflow (minimum sustained flow) being sustained by groundwater discharge.

Section 303(d) of the Clean Water Act requires states to identify water bodies or stream segments that are water quality limited. Those water quality limited segments currently identified in Colorado are identified in the 2014 303(d) List. Water quality limited segments are those water bodies or stream segments which, for one or more assigned use classifications or standards, the classification or standard are not fully achieved. Once listed, the State is required to quantify the amount of a specific pollutant that a listed water body can assimilate without

violating applicable water quality standards and to apportion that allowable quantity among the different pollutant sources.

Table 1. lists the segments impacted by the Proposed Action, their use designation, if any, and the classifications.

Table 1. CDPHE Stream Classification

Stream Segment	Stream Segment Description	Designation	Classifications
13a.	All tributaries to the White River, including all wetlands, from a point immediately below the confluence with Piceance Creek to a point immediately above the confluence with Douglas Creek,	UP - use protected	Aquatic Life Warm - 2 Recreation - N Agriculture
13b.	Mainstem of Yellow Creek including all wetlands from the source to immediately below the confluence with Barcus Creek. All tributaries to Yellow Creek from the source to the White River, including wetlands.	Impaired Waters-Aquatic Life	Aquatic Life Warm - 2 Recreation - N Water Supply Agriculture
13c.	Mainstem of Yellow Creek, including all wetlands from immediately below the confluence with Barcus Creek to the confluence with the White River.	Impaired Waters Aquatic Life	Aquatic Life Warm - 2 Recreation - N Agriculture

Stream segment 13a qualifies for a use-protected designation while segments 13b and c have an undesignated antidegradation designation because the existing water quality meets the 12 parameter test of section 31.8 of the CDPHE Regulation No. 31.

Segments 13a, b, and c are classified as Aquatic Class 2 streams which are waters not capable of sustaining a wide variety of cold or warm water biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species.

Segments 13a, b, and c are class N for recreation which are surface waters not suitable or intended to become suitable for primary contact recreation. Segments 13a, b, and c are also use classified Agriculture for surface waters are suitable or intended to become suitable for irrigation of crops. Segment 13b is classified as suitable or intended to become suitable for potable water supplies after receiving standard treatment.

Segment 13b and c are listed in the Clean Water Act Section 303(d) impairment for aquatic life due to selenium.

5.4.2. Environmental Consequences – Proposed Action

The proposed mechanized treatments would have negligible impacts on surface and ground water quality or quantity.

The proposed fire treatments could result in short-term impacts on surface water quality, surface water quantity, and groundwater quantity until herbaceous vegetation becomes reestablished on the fire treatment areas. As discussed in Section 5.3 Soil Resources, short-term increases in surface runoff and erosion would be expected following fire treatments. In the steeper ephemeral and intermittent channels, erosion would be expected to dominate with deposition of course transitioning to finer sediments downslope and downstream. As a result, sediment and nutrients could be transported and deposited in the perennial Yellow and Piceance creeks.

Elevated levels of nitrogen, phosphorus, calcium, magnesium, and potassium have been detected following natural wildfires (Beschta, 1990). Phosphorus is normally not very soluble and has been noted to be transported with sediment (Ice et al. 2004), but when excessive amounts are present in water, eutrophication (reduction in dissolved oxygen) could occur, often evident by the formation of algae in perennial channels. The reduction in dissolved oxygen can be detrimental to aquatic life. Any spike in nutrients resulting from the fire treatment would be expected to return to pre-burn levels with the reestablishment of vegetation.

5.4.3. Environmental Consequences – No Action Alternative

The impacts from the fire treatments discussed in the previous section would not occur with this alternative. The continued and/or expanding dominance by woody vegetation would be expected. The dominance by woody vegetation typically results in expanding bare ground (interspaces) between the woody plant canopies. These interspaces, unprotected by physical or biological crust, could result in increased interrill and rill formation and subsequent increases in soil surface erosion when compared to post-treatment herbaceous dominated communities.

5.5. Floodplains, Hydrology, and Water Rights

5.5.1. Affected Environment

The predominant watersheds located within the treatment boundaries include Yellow, Piceance, Barcus, and Big Duck Creek (48 percent of the total area). Based on BLM GIS data digitized from US Army Corps of Engineers maps in 2009, approximately 5,100 acres within the Yellow Creek watershed are mapped as 100 year floodplains.

There are 129 groundwater expressions (springs) located on BLM managed lands within the proposed treatment boundary with multiple water rights assigned to the United States.

Approximately 49,000 acres located within the treatment boundary have slopes with a gradient greater than 35 percent.

5.5.2. Environmental Consequences – Proposed Action

Refer to Section 5.3 Soil Resources for environmental impacts from increased surface runoff, hydrophobic soil formation, and potential interrill and rill erosion.

The proposed mechanized treatments would have negligible impacts on hillslope hydrology. The proposed fire treatments could result in short-term impacts to hillslope stability by altering evapotranspiration, soil water content resulting in increased pore pressure between soil particles, and reduced root mass stabilization. The reduction in evapotranspiration and the decay of plant roots, which form channels (macropores) for downward movement of surface water (permeability), could contribute to localized hillslope destabilization especially in locations with impermeable layers near or at the surface. These processes could be exacerbated by the occurrence of an intense rainfall event prior to the reestablishment of adequate herbaceous vegetative cover. An intense rainfall event could produce accelerated hillslope erosion and subsequent runoff to surrounding ephemeral and perennial streams.

As noted, 5,100 acres of floodplain are located along the intermittent and perennial tributaries in the Yellow Creek watershed. The herbaceous and woody debris located within the floodplain limit the impact of flood waters to the stream banks, capture sediment (acting as a natural filter), which would otherwise be transported to the White River, and contribute to the natural development of stream channel sinuosity. Currently, the amount of herbaceous and woody vegetation is limited and impacts from an unplanned burn over would be minimal. Overall, the floodplain would benefit by the post-burn establishment of a more diverse herbaceous vegetative community.

5.5.3. Environmental Consequences – No Action Alternative

The impacts from the fire treatments discussed in the previous section would not occur with this alternative. The continued and/or expanding dominance by woody vegetation would be expected. The dominance by woody vegetation typically results in expanding bare ground (interspaces) between the woody plant canopies. These interspaces, unprotected by physical or biological crust, could result in increased interrill and rill formation and subsequent increases in soil surface erosion when compared to post-treatment herbaceous dominated communities.

5.6.Wetlands and Riparian Zones

5.5.4. Affected Environment

There are several perennial streams that support riparian communities within the project area. Based on stream health assessments conducted by a BLM interdisciplinary team, these systems are classified as being in one of three categories: properly functioning condition (PFC), functioning at risk (FAR), or non-functional (NF). Classification is based on the interaction of a stream’s hydrologic, vegetative and landform/soils components. Table 2 identifies the perennial streams within the project area, along with their length and classification.

Table 2. Perennial streams located within the project area.

Stream Name	Classification	Length (miles)
Box Elder Gulch (reach 2)	PFC	0.85
Big Duck Creek (reach 3)	FAR	0.71
Big Duck Creek (reach 4)	FAR	0.39
Yellow Creek (reach 3)	FAR	1.06
Yellow Creek (reach 4)	FAR	1.64
Yellow Creek (reach 1)	NF	1.02
Yellow Creek (reach 6)	FAR	1.72
Yellow Creek (reach 7)	FAR	0.53
Yellow Creek (reach 8)	FAR	0.74

5.5.5. Environmental Consequences – Proposed Action

Proposed mechanical treatments have the potential to crush, alter, or directly remove riparian vegetation. Similarly prescribed fires may result in the direct loss or modification of riparian vegetation. Removal or modification of riparian vegetation could influence channel stability (lead to increased sedimentation, increased bank erosion, etc.) and may indirectly influence some aquatic species (see discussion in Special Status Animal Species section) if habitat quality or prey availability is negatively influenced.

Mitigation incorporated into the Proposed Action (e.g., 500 foot buffer along perennial streams, reseeding, invasive species monitoring etc.) would be expected to avoid or minimize impacts to riparian communities. Furthermore, each individual project will be reviewed by WRFO staff. If it is determined to impact riparian communities, additional design features may be applied.

5.5.6. Environmental Consequences – No Action Alternative

Impacts to riparian communities would be similar to those discussed above under the Proposed Action; however each proposed project would be analyzed through a stand-alone environmental assessment.

5.6. Vegetation

5.6.1. Affected Environment

Across the project area vegetation is predominantly dense mountain shrub, pinyon/juniper woodland, and big sagebrush plant communities with variable herbaceous understories. There is a component of weedy native and non-native annual species throughout many of the plant communities, especially in areas that are accessible foraging areas for livestock.

Table 3 lists the plant community appearance for the ecological sites or woodland types along with the predominant plant species composition of the more dominant plant communities present throughout the proposed planning area. Forb species, though important to the diversity of a

community and making up to 25 to 30 percent of the composition of several of the plant communities listed, are not presented in the following table because they generally are not contributors to the appearance or the dominance of the community.

Table 3. Plant Community Appearance and Plant Species

Ecological Site / Woodland Type	Plant Community Appearance	Predominant Plant Species in the Plant Community
Brushy Loam	Deciduous Shrub/Grass Shrubland	Serviceberry, oakbrush, snowberry, mountain brome, slender wheatgrass, western wheatgrass, Letterman and Columbia needle grasses
Loamy Slopes	Mix Shrub/Grass Shrubland	Mountain mahogany, bitterbrush, serviceberry, mountain big sagebrush, beardless bluebunch wheatgrass, western wheatgrass, June grass, Indian rice grass
Pinyon/Juniper	Pinyon/Juniper Woodland	Pinyon pine, Utah juniper, mountain mahogany, bitterbrush, serviceberry, Wyoming big sagebrush, beardless bluebunch wheatgrass, western wheatgrass, June grass, Indian rice grass, mutton grass
Mountain Loam	Grass/Open Shrub Shrubland	Mountain brome, slender wheatgrass, western wheatgrass, Letterman and Columbia needle grasses, mountain big sagebrush, bitterbrush, low rabbitbrush, snowberry, serviceberry
Mountain Swale	Grass/Open Shrub Shrubland	Basin wildrye, slender wheatgrass, western wheatgrass, Letterman and Columbia needle grasses, sedges, rushes, mountain big sagebrush, rubber rabbitbrush, snowberry
Rolling Loam	Sagebrush/Grass Shrubland	Wyoming big sagebrush, winterfat, low rabbitbrush, horsebrush, bitterbrush, western wheat grass, Indian rice grass, squirreltail, June grass, Nevada and Sandberg bluegrass
Foothill Swale	Grass/Open Shrub Shrubland	Basin wildrye, western wheatgrass, slender wheatgrass, streambank wheatgrass, Indian rice grass, Nevada bluegrass, basin big sagebrush, fourwing saltbush, rubber rabbitbrush
Stony Foothills	Grass/Open Shrub Shrubland	Beardless bluebunch wheatgrass, western wheatgrass, needle-and-thread, June grass, Indian rice grass, fringed sage, Wyoming big sagebrush, black sage, serviceberry, pinyon and juniper
Deep Loam	Grassland	Bluebunch wheatgrass, muttongrass, needle-and-thread, western wheatgrass, slender wheatgrass, big sagebrush, serviceberry, snowberry

5.6.2. Environmental Consequences – Proposed Action

Direct impacts of vegetation treatments include short-term loss of mostly woody vegetation and the modification of plant community structure, species composition, and a short-term reduction of basal and aerial vegetative cover. Plant communities would temporarily be set back to an earlier, more herbaceous dominated seral state. Over time treated sites would progress toward the potential natural community. Treatment of vegetation (via fire or some form of mastication) will

also result in increased soil exposure, short-term loss of wildlife habitat, reduced plant diversity, and some short-term loss of livestock forage. Indirect impacts include the increased potential for non-native/noxious plant establishment and introduction, accelerated wind and water erosion, possible changes in water runoff, soil impacts that affect plant growth (soil erosion or siltation), shifts in species composition and/or changes in vegetative density, and changes in visual aesthetics. Depending on the site, reestablishment of pinyon and juniper may not begin for more than 20 years. Native mixed-shrub communities would likely begin to return immediately for re-sprouting species such as serviceberry or within five to ten years depending on the treatment method and site conditions for non-resprouting species such as sagebrush.

5.6.3. Environmental Consequences – No Action Alternative

The impacts under this alternative would be similar to those under the Proposed Action because fuels treatment projects would still be proposed, analyzed, and implemented. The principal difference being that analysis would be done on a project by project basis.

5.7. Invasive, Non-Native Species

5.7.1. Affected Environment

Throughout the overall treatment area there are several weed species; some are present in specific locations while others are more widely spread. The principal noxious weeds with potential to establish/proliferate in fuels treatment areas are spotted and diffuse knapweed (*Centaurea maculosa* and *Centaurea diffusa*), musk and bull thistle (*Carduus nutans* and *Cirsium vulgare*), houndstongue (*Cynoglossum officinale*), yellow toadflax (*Linaria vulgaris*), and leafy spurge (*Euphorbia esula*). These species occur in and are well adapted to the pinyon-juniper, big sagebrush, mountain shrub vegetation types and precipitation ranges. These same plant communities are also suited for establishment of the invasive alien cheatgrass (*Bromus tectorum*). Russian thistle (*Salsola iberica*) is also becoming more widely spread in the general project area and readily establishes on disturbed sites.

5.7.2. Environmental Consequences – Proposed Action

Where fuels treatment projects coincide with known weed infestations there is potential for spread and proliferation of the weeds. Aggressive revegetation followed by onsite monitoring to detect noxious weed establishment and treatment of occurrences will prevent long term establishment of noxious weeds in treatment areas. Establishment of desirable vegetation through seeding and or protection of the treatment area to allow for natural regeneration will typically provide sufficient competitive plant cover to prevent noxious/invasive plant proliferation.

5.7.3. Environmental Consequences – No Action Alternative

The impacts under this alternative would be similar to those under the Proposed Action because fuels treatment projects would still be proposed, analyzed, and implemented. The principal difference being that analysis would be done on a project by project basis.

5.8. Migratory Birds

5.8.1. Affected Environment

The Proposed Action spans a wide array of vegetation types and elevation ranges (6,000 – 8,400 ft.). In general, the project area is largely comprised of basin, Wyoming, and to a lesser extent mountain big sagebrush communities, mountain shrub communities (serviceberry, snowberry, Gambel oak, bitterbrush), pinyon-juniper woodlands and small, isolated pockets of aspen and Douglas fir woodlands (see Vegetation section for a more detailed description).

These communities support a variety of migratory bird species including but not limited to Bewick's wren, black-throated gray warbler, pinyon jay, gray flycatcher, ash-throated fly catcher (pinyon and juniper associates); orange-crowned warbler, Virginia's warbler, MacGillivray's warbler, blue-gray gnatcatcher, spotted towhee (mountain shrub associates); Vespers sparrow, western meadowlark, Brewer's sparrow, sage thrasher, green-tailed towhee (sagebrush associates); warbling vireo, house wren, red-naped sapsucker (aspen associates); and song sparrow and yellow warbler (riparian associates). Species considered birds of conservation concern (BCC) by the US Fish and Wildlife Service (FWS) that may occur in the project area include pinyon jay, juniper titmouse, and Brewer's sparrow (also BLM sensitive species). These birds typically return in April and begin nesting in earnest in mid-May. Most young have fledged by mid to late July.

5.8.2. Environmental Consequences – Proposed Action

Impacts to migratory birds would vary depending on the size and location of the treatment, habitat type involved, and the type and timing of treatment. Proposed mechanical treatments would result in the loss or modification of mostly woody vegetation (pinyon-juniper, big sagebrush or mountain shrub species). Shrubland communities generally take 5 to 30 years (depending on the community type) to return to a mature state, while pinyon-juniper woodlands can take several hundred years (depending on stand age). Pinyon-juniper habitat supports the largest nesting bird species list of any upland vegetation type in the West (Colorado Partners in Flight Conservation Plan 2000). Treatments involving a mature component would be expected to have more substantive impacts to pinyon-juniper associates than those involving immature or encroaching pinyon-juniper due to the length of time it takes to return to mature conditions. In general, woodlands that are targeted in the Proposed Action are younger-aged, encroaching types which typically do not support the full contingent of pinyon-juniper or sagebrush associate bird species. In the long term, removal of invading pinyon-juniper from these sagebrush parks would likely benefit those sagebrush obligate species.

Crushing of herbaceous vegetation would likely occur from use of heavy equipment but these treatments would not be expected to result in substantial groundcover loss. Impacts to migratory birds would largely depend on the time of year treatments are applied. As stated above, mechanical treatments would result in both short and long term loss of habitat, but would not be expected to have a direct influence on migratory bird nesting activities if conducted outside of the breeding season. Treatments conducted during the nesting season (typically May - July) would likely result in avoidance of functional habitats, displacement/disruption of birds, nest abandonment and possible mortality of nestlings.

Similar to mechanical treatments, impacts associated with fuels treatments would vary depending on the extent, severity and type of habitat involved, but in general would result in short and long term impacts by removing or modifying habitats that provide cover and forage for migratory birds. Fuels treatments targeting sagebrush, mountain shrub or woodland communities would result in a more extensive and long term loss of forage and cover habitat. This would be expected to have a greater impact on those species associated with shrubland and woodland habitats (see Affected Environment). In those instances, benefits may not be realized until redevelopment of a mature canopy (several years to several decades). In most cases, fuels treatments would return all or a portion of the area treated to an early successional state. This would be an expected benefit those bird species that depend on younger seral stages (e.g., lark sparrow, vesper's sparrow, and mountain blue bird). Overall, fuels treatments would be expected to establish the foundation for proper ecological succession that would benefit most migratory bird species in the long term.

Noise from equipment as well as human activity can indirectly influence (behaviorally, physiologically) migratory birds by displacing or deterring/suppressing use in otherwise functional habitats adjacent to the treatment area. This would likely be short term, with birds reoccupying an area once the treatment is complete. Avoiding treatments during the migratory bird nesting season would be expected to eliminate or minimize these impacts.

Of concern would be the potential for the invasion of undesirable plant species. In general, annual dominated/degraded communities provide little in the way of forage or cover resources for migratory bird species. Design features outlined in the Proposed Action would be expected to reduce the spread of noxious weeds and other annual species.

5.8.3. Environmental Consequences – No Action Alternative

Impacts to migratory bird species would be similar to those discussed above under the Proposed Action. The greatest difference would be that each proposed project would be analyzed through a stand-alone environmental assessment.

5.9. Terrestrial Wildlife

5.9.1. Affected Environment

The Proposed Action spans a wide array of vegetation types and elevation ranges (6,000 – 8,400 ft.). In general, the project area is largely comprised of basin, Wyoming, and to a lesser extent mountain big sagebrush communities, mountain shrub communities (serviceberry, snowberry, Gambel oak, bitterbrush), pinyon-juniper woodlands and small, isolated pockets of aspen woodlands (see Vegetation section for a more detailed description). The project area is largely encompassed by mule deer winter range, with inclusions of winter concentration areas and severe winter range – a specialized component of winter range that virtually supports an entire herd during the most extreme conditions (snow depth, temperature etc.). These ranges are most heavily used from December through April. Additionally a small band of big game summer range encompasses the higher elevations along the southwestern boundary of the project area.

Mature components of pinyon-juniper woodlands, mature aspen stands, dead standing trees, and cliff/rock outcrops may provide suitable nest substrate for several raptor species including red-tailed hawk, golden eagle, sharp-shinned hawk, Cooper's hawk, northern goshawk and several owl species. Breeding dates vary, depending on the species but generally most species in the area nest from February through August. There are dozens of known raptor nests within the project area.

Small mammal populations are sparsely documented in the WRFO, however, recent BLM and CPW surveys found all shrub-steppe communities in this Field Office dominated by deer mouse and least chipmunk. The remaining species that are likely to occur in this area (e.g., montane vole) are less common, but display broad ecological tolerance and are widely distributed throughout the region. No narrowly distributed or highly specialized species or subspecific populations are known to inhabit this area.

5.9.2. Environmental Consequences – Proposed Action

Impacts to wildlife would vary depending on the size and location of the treatment area, habitat type involved and the type and timing of the treatment. Mechanical treatments would result in the removal or alteration of predominately woody vegetation as forage or cover resource for terrestrial wildlife species. Generally these shrubland communities can take anywhere from five years to several decades to return to a state functionally capable of providing cover or forage for local wildlife. Mechanical treatments would likely result in the crushing of herbaceous vegetation, but would not be expected to result in a substantial loss of ground cover. Although not specifically targeted (see Proposed Action), mature components of pinyon-juniper woodlands provide nesting habitat for many woodland raptors. Proposed treatments will be reviewed and analyzed to minimize or avoid involvement of mature woodland types which have the potential to support raptor nesting functions.

Noise from the equipment would likely result in the displacement of wildlife in and around the treatment area. This would likely be localized and short term and in most cases, local wildlife would be expected to return to the surrounding area once the treatment is complete. Avoiding

treatments during critical timeframes (big game calving and winter periods, raptor breeding, etc.) would minimize impacts to local wildlife.

In general, fuels treatments can have short term and long term impacts on terrestrial wildlife by removing or degrading habitat, displacing wildlife, causing avoidance of otherwise functional habitats in close proximity to the treatment area and causing changes in movement patterns. There would also be potential for injury or mortality, particularly to slow-moving species. Conversely, fuels treatments may provide short term benefits to those species that depend on younger seral stages and in the long term may lead to an increase in herbaceous plant productivity and diversity, resulting in additional or better quality forage and cover resources for both big game and nongame species. For those species that rely on woody species (big sagebrush and mountain shrub communities) benefits may not be realized for several years to several decades.

The invasion of undesirable plant species would be of concern for both fire and mechanical treatments. Noxious and invasive plant species are generally of lower value to wildlife nutritionally and functionally (as a form of cover). Design features outlined in the Proposed Action would be expected to reduce the spread of noxious weeds and other annual species.

5.9.3. Environmental Consequences – No Action Alternative

Impacts to terrestrial wildlife would be similar to those discussed above under the Proposed Action. The greatest difference would be that each proposed project would be analyzed through a stand-alone environmental assessment.

5.10. Special Status Animal Species

5.10.1. Affected Environment

There are no threatened or endangered animal species that are known to inhabit or derive important use from the project area. Greater sage-grouse, a candidate for listing under the Endangered Species Act (ESA) and a BLM sensitive species, may occur within the project area.

Greater sage-grouse populations generally require large expanses of intact sagebrush habitat (Connelly et al. 2004). Sage-grouse nests are generally found under shrubs with larger canopies and within of stands greater shrub canopy cover (Connelly et al. 2000). Height and structure of herbaceous vegetation is an important component in nesting habitat and can influence sage-grouse nest site selection, nest success, and chick survival. Habitat requirements typically vary depending on season of use. Sage-grouse begin nesting from mid-April through mid-May with chicks appearing from mid-May through mid-July; peaking from mid to late June. There are no active leks within the project area.

Based on recent (2012) Colorado Parks and Wildlife (CPW) mapping efforts, sage-grouse habitat has been classified into two types: 1) priority habitat management areas (PHMA) and 2) general habitat management areas (GHMA). PHMA represents areas having the highest conservation value in maintaining sustainable sage-grouse populations, including breeding, later brood-rearing, and winter concentration areas. General habitat management areas represent occupied or recently occupied habitats that are outside priority habitat. These two habitat categories conform well to former mapping that emphasized suitable habitat within 4 miles of current or recently active leks. There are approximately 500 BLM administered acres of priority habitat and 16,300 BLM administered acres of general habitat within the project area. This is largely confined to the western portion of the project area. There are no known active leks within the project area. Furthermore, there has been no evidence of recent (within the past two decades) occupation by sage-grouse in much of the general habitat within the project area (~13,400 acres).

There are several BLM sensitive species that are known to inhabit or may be found within the project area including: northern goshawk, Brewer's sparrow, midget faded rattlesnake, northern leopard frog, mountain sucker, flannelmouth sucker, fringed myotis, big free-tailed bat, and Townsend's big-eared bat.

Sensitive Aquatic Species

While there are several perennial and intermittent streams located throughout the project area, only the lower reaches of Yellow Creek (below Barcus Creek), are known to support higher order vertebrate species. This system provides habitat for native speckled dace, and BLM sensitive flannelmouth sucker, mountain sucker and northern leopard frog. Mountain sucker are typically found in small streams with gravel, sand or mud substrate. They are fairly tolerant of low water quality and warmer temperatures. Flannelmouth sucker are predominantly found in large streams in all habitat types (e.g., riffles, eddies, and backwaters).

Northern Goshawk

Based on the BLM's experience, goshawks nest at low densities throughout the WRFO in mature pinyon-juniper woodlands above 6,500 ft. and Douglas-fir and aspen stands. These habitats are well distributed in higher elevation woodlands and forests in East Douglas Creek and its tributaries and near the White-Colorado River divide. Goshawks establish breeding territories as early as March and begin nesting by the end of April. Nestlings are normally fledged and independent of the nest stand by mid-August. There are no documented goshawk nests within the project area.

Brewer's Sparrow

Brewer's sparrows are common and widely distributed in virtually all big sagebrush, greasewood, saltbush, and mixed brush communities throughout the planning area. These birds are typically one of the most common members of these avian communities and breeding densities generally range between 10-40 pairs per 100 acres. Although most abundant in extensive stands of sagebrush, the birds appear regularly in small (one to two acre) sagebrush parks scattered among area woodlands. Typical of most migratory passerines in this area, nesting

activities normally take place between mid-May and mid-July. These birds would be expected to be found in sagebrush habitats throughout the project area.

Sensitive Bats

Although the distribution of bats in the WRFO is not completely understood, recent acoustic surveys in the Piceance Basin and along the lower White River have documented the localized presence of Townsend's big-eared and big free-tailed bats along larger perennial waterways. These bats typically use caves, mines, bridges, and unoccupied buildings for night, nursery, and hibernation roosts, but in western Colorado, single or small groups of bats use rock crevices and tree cavities. Although rock outcrops and mature conifers that could serve as temporary daytime roosts for small numbers of bats are widely available in the project area, and relatively extensive riparian communities are available along Yellow Creek, there are no underground mines or known caves, and unoccupied buildings are extremely limited in the project area. Birthing and rearing of young for these bats occur in May and June, and the young are capable of flight by the end of July. The big free-tailed bat is not known to breed in Colorado.

Midget Faded Rattlesnake

The midget faded rattlesnake (MFR) is the smallest member of the western rattlesnake species complex. This subspecies is thought to be generally confined to the Green River geologic formation in southeast Wyoming, eastern Utah and western Colorado, and appears to have very narrow preference for bedded sandstone outcrops with fallen mid-slope slabs on south to southeast exposures below 7,000 feet in elevation. Midget faded rattlesnakes occur in small discrete groups and exhibit classic metapopulation distribution. These snakes display strong fidelity to and remain closely associated with hibernacula for overwintering and reproductive activities. These snakes emerge from their dens in late April or early May and remain in close proximity to the den until late May/early June. Gravid females and juveniles remain within 200 meters of dens throughout the year, while mature males and nongravid females disperse an average of 1,000 meters from dens from June through September. Concentrated year-round association with the den sites makes these snakes particularly vulnerable to vehicle-caused mortality. This species has been documented within the project area.

5.10.2. Environmental Consequences – Proposed Action

Impacts to special status animal species would vary depending on the size and location of the treatment, habitat type, species involved, and the type and timing of the treatment. In general, impacts to special status species would be similar to those discussed above in the Migratory Bird and Terrestrial Wildlife sections. Mechanical treatments would result in direct habitat loss or alteration of predominately woody vegetation with minimal ground cover removal. Prescribed burns would result in the loss of both woody and herbaceous types (as a forage or cover source). Impacts to special status animal species can be both short term and long term and would greatly depend on the species and vegetative community involved. Individual special status wildlife species will be discussed in further detail below.

Greater sage-grouse

In general, impacts to sage-grouse would be similar to those discussed below in the Terrestrial Wildlife section. It would be difficult to determine the impacts to sage-grouse without knowing the exact location and extent of the treatment area, treatment type (mechanical vs. fire) and type of habitat involved (breeding, brood-rearing or winter), however, it should be noted that there is a limited amount of habitat considered suitable or occupied by sage-grouse within the project area (500 acres of priority habitat and roughly 2,900 acres of general habitat).

Proposed treatments should be designed to meet the seasonal habitat requirements for grouse outlined in Connelly (2000). The type of habitat involved (breeding, brood-rearing, or winter) may determine the treatment method (mechanical vs. fire) used. All proposed burns or mechanical fuels treatments within PHMA and PHMA should have identified sage-grouse habitat objectives and should consider existing sagebrush communities, site conditions and site potential in treatment design. Prescribed burns and mechanical fuels treatments will only be considered if they are shown to maintain or improve the quality and quantity of greater sage-grouse habitats. This would be determined on a case-by-case basis and appropriate design features will be applied.

Connelly et al. (2000) recommends that breeding habitat support 15-25 percent sagebrush canopy cover, with perennial herbaceous cover averaging 18 cm in height or greater. Canopy cover should be 15 percent or greater for perennial grasses and 10 percent or greater for forbs. Sagebrush is the key component of winter habitat. As such, winter habitat should support sagebrush stands with a 10 – 30 percent canopy cover with minimal heights of 25 – 35 cm. Treatments in PHMA should be designed to meet these criteria. Where sagebrush is limited on the landscape, the use of prescribed fire and other sagebrush reduction projects should be avoided in PHMA and GHMA that currently meet greater sage-grouse breeding or winter habitat requirements. This would be determined on a case-by-case basis.

Removal of larger tracts of sagebrush would be expected to adversely affect sage-grouse. There have been several studies that showed no adverse effects to breeding grouse populations from fire (Gates 1983, Martin 1990 and Bensen et al. 1991). However, Connelly et al. (1994, 2000) showed a >80 percent decline in a sage-grouse breeding population following prescribed burning of Wyoming sagebrush. Nelle et al. (2000) also showed a long term negative impact on sage-grouse nesting and brood-rearing habitats following burning of mountain sagebrush stands. Similarly, the use of fire has been shown to negatively affect sage-grouse brood-rearing habitat (Connelly and Braun 1997, Fisher et al. 1996). Future projects will be analyzed on a case-by-case basis, but in general fire is not recommended in PHMA dominated by big sagebrush types, as fire is often difficult to control.

Often, invasive species occupy an area following disturbance. Design features regarding monitoring, evaluation and reseeding post treatment are incorporated into the Proposed Action and would be expected to minimize the potential for invasion of annual species (cheatgrass). Treatments that maintain or enhance sage-grouse habitat such as removal of encroaching pinyon-juniper, modification of sagebrush canopies that currently exceed sage-grouse habitat suitability

criteria, and restoration of native bunchgrass communities in shrublands that are currently dominated by invasive annuals will be considered.

Sensitive Aquatic Species
Removal or modification of riparian vegetation from treatments could result in increased erosion, loss of stream bank cover, an increase in water temperature due to loss of shading, reduction in prey availability, and a reduction in stream habitat quality due to an increase in sediment loading. Impacts would vary depending on the species, with some being less tolerant to change than others. For example, trout are extremely vulnerable to changes in water temperature and quality as they rely on clean, cold water. Increases in water temperature may affect survivorship and reproduction for certain aquatic species with little impact to others.

Removal or alteration of upland vegetation (particularly resulting from a fire) may lead to increased runoff, and an increase in erosion and sediment loading. Increased sediment could silt in spawning areas, fill in pools, and reduce productivity of macroinvertebrates that serve as prey for many aquatic species. Impacts to aquatic species and habitats would vary greatly depending on fire intensity, proximity to the stream, slope etc. Fire intensities are generally low with prescribed burns so impacts to aquatic habitats, particularly from sedimentation would be reduced. Design features outlined in the Proposed Action (e.g., 500 foot buffer along perennial streams, reseeding and invasive species monitoring) should limit involvement with riparian habitats and aquatic systems that support aquatic wildlife.

Northern Goshawk
Impacts to northern goshawk would be similar to those discussed for other woodland raptors in the Terrestrial Wildlife section.

Brewer's Sparrow
Impacts to Brewer's sparrow would be similar to those discussed for other migratory bird species in the Migratory Bird section.

Midget Faded Rattlesnake
Impacts to rattlesnakes would be similar to those discussed above in the Terrestrial Wildlife section. In general, treatments that take place in or around MFR denning/hibernacula sites should be avoided during the reproductive period (generally April 15 – August 1). Surveys may be required if the proposed treatment occurs in habitats capable of supporting MFR.

Sensitive Bats
Impacts to bats would be similar to those discussed in the Terrestrial Wildlife section.

5.10.3. Environmental Consequences – No Action Alternative

Impacts to special status animal species would be similar to those discussed above under the Proposed Action. The greatest difference would be that each proposed project would be analyzed through a stand-alone environmental assessment.

5.11. Special Status Plant Species

5.11.1. Affected Environment

Dudley Bluffs bladderpod (*Physaria congesta*) and Dudley Bluffs twinpod (*Physaria obcordata*) have occupied habitat that occurs in the Proposed Action area. There is mapped suitable habitat for both *Physaria* spp. within the Proposed Action area. The two federally threatened species are badland or rock outcrop soil associates, and are considered "oil shale endemics" or edaphic (soil-related) endemic species. The bladderpod grows on barren white shale outcrops on tongues of the Green River Formation where it has been exposed along down-cut drainages or windswept ridges. It often grows on level surfaces at the points of ridges or in pinyon-juniper savannah areas where outcrops of the white shale geology has been exposed. The twinpod also grows on barren white shale outcrops on tongues of the Green River Formation where it is exposed along down-cut drainages, sometimes occurring below, or interspersed with the bladderpod habitats. The Black Sulphur tongue and the Parachute Creek member of the Green River Formation are present within the project area. The Black Sulphur tongue is considered suitable habitat for both the Dudley Bluffs bladderpod and twinpod. The Parachute Creek member is suitable habitat for Dudley Bluffs twinpod.

Potential and occupied habitat for Cathedral Bluffs dwarf gentian, Piceance bladderpod, and Cathedral Bluffs meadow rue are also found in the vicinity of the Proposed Action. Cathedral Bluffs dwarf gentian, Piceance bladderpod, and Cathedral Bluffs meadow rue are BLM sensitive and occur on shale slopes of the Green River Formation. A list of special status plant species affected is provided in Table 4.

Table 4: Special Status Plants Species Potentially affected by the Proposed Action

Name	Species	Status	Habitat
Dudley Bluffs bladderpod	*Physaria congesta*	Threatened	Barren, white shale outcrops of the Green River and Uinta Formations (6,000-6,700 ft.)
Dudley Bluffs Twinpod	*Physaria obcordata*	Threatened	Barren, white outcrops and steep slopes of the Parachute Creek Member of the Green River Formation (5,900-7,500 ft.)
Cathedral Bluff dwarf gentian	*Gentianella tortuosa*	Sensitive	Barren shale knolls and slopes of the Green River Formation (8,500-10,800 ft.)
Piceance bladderpod	*Lesquerella parviflora*	Sensitive	Shale outcrops of the Green River Formation, on ledges and slopes of canyons in open areas (6,200-8,600 ft.)

Cathedral Bluff Meadow- rue	*Thalictrum heliophilum*	Sensitive	Sparsely vegetated, steep shale talus slopes of the Green River Formation (6,300-8,800 ft.)

5.11.2. Environmental Consequences – Proposed Action

Any type of surface disturbance treatments can negatively impact special status plant habitat directly and indirectly by generating fugitive dust, trampling and/or removing plants, removing and/or disturbing pollinator habitat, and contributing to the spread of noxious weeds. However, it is not the BLM's intention to impair or harm special status plant habitat. The removal of thick overgrowth may allow for a more biologically diverse understory which will assist in expanding pollinator habitat. A reduction in fuel loading may also lessen the intensity of a potential fire in treatment areas which would increase the likelihood that the current seedbank would be preserved.

5.11.3. Environmental Consequences – No Action Alternative

The No Action Alternative would have no conceivable influence on special status plant species or their associated habitats.

5.12. Cultural Resources

5.12.1. Affected Environment

It is generally accepted that humans have occupied North America and northwest Colorado for at least 13,000 years (c. Reed and Metcalf 1999, Church *et al* 2007). Manifestations of human occupation and use of the landscape can take many forms, some quite subtle and not obvious to the untrained eye. Within the Piceance Basin, which includes the project area, there is, currently, a very high known density of various cultural resources. Approximately 13 percent (32, 935 acres) of the project area has been surveyed for cultural resources yielding 1,481 documented archaeological sites to-date. These resources may represent all phases of human occupation of the area. Cultural resources may be as simple as a few artifacts scattered on the surface, representing a very short term limited activity or may include substantial evidence of occupation such as architectural elements such as roads, historic brush fences, historic homestead cabins, or Native American rock art or habitation structures – often referred to as wickiups. Some cultural resources may be readily visible on the ground surface and some may be masked by a layer of soil.

5.12.2. Environmental Consequences – Proposed Action

Impacts to cultural resources from vegetation manipulation depend on the type of cultural resource present and the particular manipulation of vegetation used. For example, fire has a particularly destructive effect on wooden features and sites, which can destroy the feature such

as a brush fence, wickiups, or log cabin. If fire is close enough and of sufficient heat and duration it can cause spalling of rock faces that might contain rock art. Depending on duration and fire intensity, some features such as lithic scatters may not be affected at all. However, in heavy fuels, such as brush piles or slash piles (where intensity and duration of fire are high), substantial destructive effects on artifacts may occur.

Impacts from a vegetation mastication machine such as a fecon or a hydro-ax can have impacts to all types of surface remains if they are not avoided. Wooden features are easily ground up and dispersed, destroying any archaeological or historic values or information that might have been present. In addition, as the equipment works it can cause ground/soil disturbance that can crush artifacts and through soil displacement destroy features such as hearths or other in ground features.

Studies conducted in the WRFO and Kremmling Field Office (Hadden 2001 compliance dated 1/9/2001, Rupp, 1990) have indicated that a brush-hog drawn by a rubber tired tractor or brush railings conducted in the winter when the ground is frozen have virtually no impacts to cultural resources. Standing features such as brush fences or cabins are readily avoided by these treatment actions while lithic scatters do not seem to be affected.

Piling or lopping and scattering vegetation could potentially affect cultural resources if standing wooded structures such as wickiups are not identified prior to the any activity. Piling has the potential to create small areas of high fire intensities that could adversely affect cultural resources if the pile should coincide with the location of a cultural resource. In either case the increased activity could pose a threat to resources due to the increased activity in the vicinity, which could lead to trampling of resources and features if not properly identified during project inventory.

Using natural features and breaks in vegetation to construct containment lines limits or eliminates the potential for impacting cultural resources during line construction. During line construction, there is a small potential for affecting previously unidentified subsurface remains that could not be identified during surface inventory for the control lines.

Using naturally occurring ignitions for fuel management purposes presents the greatest threat to standing wood features as they likely would not be identified prior to the fire and would not be protected by firebreaks or other means during the burning activity. However, it is important to note that this process has been a natural part of the landscape for centuries and cannot be adequately quantified or documented at this time.

5.12.3. Environmental Consequences – No Action Alternative

Under the No Action Alternative, wildland fire would continue to occur, with direct impacts resulting from fire intensity/duration, and from mechanical and/or chemical suppression activities. Direct impacts would include damage or destruction of prehistoric and historic sites

and associated artifacts; destruction of organic materials such as bone, plant and animal fibers, and timber elements of historic structures; and destruction or chemical changes in materials used for dating archeological sites. Uncontrolled wildland fire would be expected to have more severe effects to prehistoric and historic resources than those of prescribed burns, where the intensity and duration of the fire is more controlled. Impacts from mechanical fire suppression activities would include potential destruction of artifacts and other materials, and the disturbance of site context and loss of scientific value of individual sites. Chemicals used for suppression of active wildland fire would not affect prehistoric/historic resources.

5.13. Paleontological Resources

5.13.1. Affected Environment

Paleontological resources are "any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth" (Section 6301 of the Paleontological Resource Protection Act of 2009 Omnibus Public Lands Bill, Subtitle D, SEC. 6301). All vertebrate fossils, be they fossilized remains, traces, or imprints of vertebrate organisms, are considered scientifically significant, and certain invertebrate and plant fossils are as well.

The geologic formations containing paleontological resources in the project area comprise the Wasatch, Williams Fork, Uinta, and Green River formations. The geologic formations and units across the WRFO and region have been ranked according to the Potential Fossil Yield Classification (PFYC) system, a numerical rank from 1 (very low) to 5 (very high) to predict the likelihood of finding scientifically significant fossils.

These ranks are as follows:

(1) Very Low – Class 1: Igneous and metamorphic geologic units, or very old deposits not likely to contain recognizable fossils.
(**2) Low –** Class 2: Geologic units not likely to contain vertebrate fossils or scientifically significant non-vertebrate fossils, such as very young sedimentary deposits.
(3) Moderate or Unknown –Class 3: Fossiliferous sedimentary geologic units – content varies in scientific significance, abundance, and predictable occurrence. Includes some units of unknown potential that should be reviewed.
(4) High –Class 4: Geologic units containing a high occurrence of scientifically significant fossils. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability.
(5) Very High –Class 5: Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plan fossils.

The BLM has categorized the Wasatch, Williams Fork, Uinta, and Green River formations as PFYC 4 and 5 formations indicating that they are known to produce scientifically noteworthy

fossil resources; vertebrae, invertebrate and plants (cf. Armstrong and Wolny 1989). To date 165 paleontological localities are known to exist within the proposed project area.

5.13.2. Environmental Consequences – Proposed Action

Fire, with long residence time and high intensities, can cause spalling of portions of exposed fossil remains or, on vertical rock exposures, the exfoliation of rock faces, which could cause heat shattering of fossils or spalling of rock surfaces to expose previously unknown fossil resources. Thermal shattering of fossils is considered a permanent, long term, irreversible and irretrievable loss of scientific data from the regional database while exposure of new fossils might be perceived as a positive impact to the regional fossil database.

Vegetation manipulation impacts to fossil resources are variable and may depend on a number of factors such as whether or not outcrops are exposed in the manipulation area and the type of manipulation to be employed. Should the cutter head of the fecon or hydro-ax contact exposed rock outcrops fossils, particularly smaller ones, could be impacted or destroyed as the rock is ground up.

In the event control line construction extends deep enough to reach the underlying sedimentary rock formation there is a potential to expose and perhaps result in scraping of the rock surface there is a potential to impact, by crushing or displacing smaller and more fragile fossil elements.

Any activity that improves visibility of the surface and exposed rock formations has the potential to attract collectors who might engage in the unlawful removal of vertebrate or scientifically noteworthy plants or invertebrate fossils.

In general, though, most vegetation manipulation activity is not expected to have any impacts to fossil resources.

Incorporation of design features in the Proposed Action and proper project planning with inventory and relocation work as needed should serve to limit the adverse impacts to fossil resources. The only impact that may not be mitigated would be unlawful collection. Any loss of fossils and the contextual information associated with them would constitute a permanent, long term, irreversible and irretrievable loss of scientific data from the regional database. With proper project design the loss of scientific data would be so small as to be difficult to quantify, likely negligible.

5.13.3. Environmental Consequences – No Action Alternative

Under the No-Action Alternative, exposed fossil resources would continue to be subject to scorching or cracking by wildland fire, however, the impact of such fires on such resources has not been quantified.

5.14. Visual Resources

5.14.1. Affected Environment

Visual resources are the visible physical features of a landscape that convey scenic value. The BLM developed the Visual Resource Management system to identify and evaluate an area's scenic value. The visual resource inventory (VRI) process described in BLM Manual H-8410-1 establishes VRI classes, which are used to assess visual values for areas of the landscape. VRI classes II, III, and IV are determined by using a combination of three components: scenic quality, sensitivity level, and distance zones, with Class II having a higher level of value and Class IV having the least visual value. VRI Class I areas are assigned to special management areas, such as Wilderness Study Areas, which are the most valued landscapes. The VRI classes are the baseline from which environmental effects are measured.

Approximately 60 percent of the Proposed Action is located in VRI Class IV, which means this area is a lesser valued scenic landscape. The northern portion of the project area, approximately 30 percent of the total project area, is classified as VRI III, which is of moderate value. The southwest corner of the project area, approximately 10 percent of the total project area, is classified as VRI II, which means it has a higher visual value.

The BLM also maintains four Visual Resource Management (VRM) classes used to describe the level of acceptable change allowable at a given location. Scenic values in the BLM White River Resource Area have been classified according to the Visual Resource Management (VRM) system into four Visual Resource Management Classes (I-IV), and corresponding VRM objectives were established in the 1997 White River ROD/RMP. VRM Class I are the most restrictive with VRM Class IV being the least restrictive for the amount of allowable change to occur on the landscape. The VRM objectives provide the amount of allowable change and are considered a resource-allocation.

The vast majority of the Proposed Action is located within a VRM Class III area. The objective of the VRM III classification is to partially retain the existing character of the landscape. The level of change to the characteristic landscape in VRM III areas 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. Approximately 19,000 acres near the higher elevations of the northern end of Calamity Ridge is located in VRM II as well as small buffer near the White River. The objective of the VRM II classification is to retain the existing character of the landscape. The level of change to the characteristics 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 characteristic landscape.

The Proposed Action is generally located in the northwestern portion of the Piceance Basin. This landscape consists of gently sloping nearly flat parallel ridges with steep side slopes. These ridges and drainages generally go from higher elevations of approximately 8,000 feet near the

top of Calamity Ridge to lower elevations of approximately 5,500 feet near the White River. Color and texture of the landscape consists of dark green pinyon juniper scattered throughout and contrasting with lighter green sage brush and buff colored soils. Some areas consist of gray to brown colored brushy vegetation. This landscape consists of large naturally appearing areas without any developments mixed with roads and trails, dispersed range improvements for livestock grazing, and areas with dense oil and gas development such as well pads, pipeline corridors, power line corridors and associated roads.

5.14.2. Environmental Consequences – Proposed Action

The type of vegetation treatment that is least likely to contrast with the existing characteristic landscape would be prescribed fire. This type of treatment would likely appear to the casual observer to mimic a naturally occurring process and would likely be unnoticeable as human caused impact on the landscape. Mechanical vegetation treatments are likely to be noticeable for a short duration (two to three growing seasons) in areas with grasses and shrubs. Mechanical vegetation treatments in pinyon-juniper stands will likely be noticeable for longer periods of time, potentially over a decade until shrubs and trees begin to establish within the area. In order to blend mechanical treatments with the surrounding landscape and make the treatments less noticeable to casual observers, it is recommended the edges of the treatments repeat natural lines of similar vegetation contrast and avoid creating straight lines on the edge of the treatments. These measures should be taken in VRM III areas and must be taken in VRM II areas. Also, to not attract attention of casual observers in VRM II areas, retain the existing character of the landscape and reduce visible vegetative contrasts, it is recommended that in treatment areas with dense pinyon-juniper or dense shrub vegetation that the edges of the treatment boundary be feathered. This means that the trees or shrubs will be thinned from the edge of treatment in less dense to more dense thinning gradient that mimics natural encroachment into the treated area. Overall, with these design features considered, there should be no change to the VRI classes and the Proposed Action will meet all VRM class objectives.

5.14.3. Environmental Consequences – No Action Alternative

This alternative would result no new impacts to visual resources and will not attract any new attention from casual observers in the project area.

5.15. Lands with Wilderness Characteristics

5.15.1. Affected Environment

In accordance with the Federal Land Policy and Management Act (FLPMA), the BLM is required to consider all available information in order to determine the mix of resource use and protection that best serves the multiple-use and sustained-yield mandate. In accordance of Section 201 of the FLPMA, which requires the Secretary of the Interior to “prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values,” the

WRFO has identified BLM-managed lands with wilderness characteristics outside of existing Wilderness Study Areas (WSAs). The process entailed the identification of wilderness inventory units, an inventory of roads and wilderness character, and a determination of whether or not the area meets the overall criteria for wilderness character (naturalness, outstanding opportunities for solitude, and primitive and unconfined types of recreation). BLM Manual 6310 - Conducting Wilderness Characteristics Inventory on BLM Lands, provides the guidance for the wilderness characteristic inventory process. There are four units that have been identified within the project area as having wilderness characteristics. These four units include: unit 11- Barcus Creek (12,300 acres), unit 13-Blair Mountain/Greasewood, unit 15-Hammond Draw 7,100 acres), and unit 17-Boise Creek (7,100 acres).

The WRFO developed a tiered management approach for lands with wilderness characteristics in the Oil and Gas Development Record of Decision/Approved RMP Amendment. Tier 1 areas will be managed to protect wilderness characteristics as a priority over other multiple uses. Tier 2 areas will be managed emphasis other multiple uses while applying management restrictions to reduce impacts to wilderness characteristics. Tier 3 areas will be managed to emphasize other multiple uses as a priority over protecting wilderness characteristics. All lands with wilderness characteristics units located within the Proposed Action are proposed to be managed as Tier 3 areas.

5.15.2. Environmental Consequences – Proposed Action

Mechanical treatments such as mastication, hydro-axing, or other similar treatment methods have the potential to create long-term impacts to the naturalness characteristics of this unit. These types of mechanical vegetation treatments are generally recognized by the public as human-caused and not natural appearing due to the shredded or mulch-like appearance of what was woody vegetation spread across the landscape. Naturalness is defined in BLM Manual 6310 as “affected primarily by the forces of nature.” Areas that have received a mastication or hydro-axe type vegetation treatment may take several growing seasons up to a decade to appear natural once again.

To be consistent with the management of lands with wilderness characteristics in the Oil and Gas Development RMP Amendment, which states that all four of the lands with wilderness characteristics units located within the project boundary will be managed as Tier 3 areas where other multiple uses will be emphasized as a priority over protecting wilderness characteristics, there is no mitigation needed to meet this management direction. Several design features in the Proposed Action will likely indirectly decrease the overall potential to impact the naturalness found in these areas. These include: feathering the edges of treatment in VRM Class II areas, designing mechanical treatments to repeat natural lines of similar vegetation contrast and avoid creating straight lines on the edge of the treatments, and avoiding mature pinyon-juniper and aspen woodlands.

Other types of vegetation treatments and prescribed fires should blend with the naturalness of the landscape and not impact other wilderness characteristics over long term periods. There may be

some localized, short term impacts to the solitude found in these areas during the actual treatment activity only. There are no anticipated long-term impacts to the other wilderness characteristics such as size, solitude, or primitive recreational opportunities as a result of the Proposed Action.

5.15.3. Environmental Consequences – No Action Alternative

By not conducting landscape scale fuel treatments, there would be no new impacts to lands with wilderness characteristics as a result of this alternative.

5.16. Livestock Grazing

5.16.1. Affected Environment

The proposed planning area overlaps varying portions of several grazing allotments as shown in Table 5. Livestock operators are authorized to graze livestock in their respective allotments from the spring, though in some cases mid-winter, until October or November. These are typical seasons of use for the big sagebrush, pinyon/juniper, and mountain-shrub dominated rangelands of the proposed project planning area. These rangeland types also have a relatively high probability of burning in wildfire events. There are various range improvement projects such as fences, springs, ponds, storage tanks, windmills, other water developments, water lines, and livestock handling facilities throughout the proposed planning area.

Table 5: Allotments, Operators, and BLM Acres impacted by the Proposed Action

Allotment Name	Allotment Number	Total BLM Acres in allotment	Livestock Operator	Total BLM Authorized AUMs
Boise Creek	06042	8,354	Nick Theos Family LP	1,023
Duck Creek	06031	15,183	OS Wyatt Jr	1,484
East Fork Spring Creek	06033	31	Donald Rooks	196
Greasewood	06036	29,801	OS Wyatt Jr	1,687
Hammond Draw	06039	6,903	Wade Cox	215
Hatch Gulch	06028	1	Mantle Ranch/LOV Ranch	656
Little Spring Creek	06038	14,683	OS Wyatt Jr	931

Lower Fletcher	06041	6,152	Wade Cox	513
North Dry Fork	06005	13	Shultz LLLP/Michael Lopez	502
Spring Creek	06032	620	Tuffy Sheridan	3,642
Square S	06027	47,445	Mantle Ranch/LOV Ranch	3,522
Upper Fletcher Draw	06040	6,414	OS Wyatt Jr	506
Yellow Creek	06030	66,967	Burke Brothers	2,725

5.16.2. Environmental Consequences – Proposed Action

Where prescribed fire projects are implemented in the short term there would be a temporary loss of forage for two to three growing seasons until seeded and existing native forage species establish and recover. Livestock grazing would generally be deferred or modified in treatment areas during this period requiring grazing permittees to make adjustments in their livestock management. Range improvement projects could be damaged or destroyed by fire. Where mechanical treatments are implemented there would be less if any short term forage loss and deferral periods could be shorter depending on existing herbaceous vegetation in treatment areas and the extent of follow-up seeding. Impacts to range improvements would be minimal and avoidable with mechanical treatments.

5.16.3. Environmental Consequences – No Action Alternative

The impacts under this alternative would be similar to those under the Proposed Action in the short term because fuels treatment projects would still be proposed. The principal difference being that analysis would be done on a project by project basis.

5.17. Wild Horses

5.17.1. Affected Environment

The Proposed Action spans a wide array of vegetation types and elevation ranges (6,000 – 8,400 ft.). In general, the project area could potentially impact approximately 121,213 acres within the Piceance-East Douglas Herd Management Area (PEDHMA) and approximately 49,625 acres within the North Piceance Herd Area. Wild horses are managed by the WRFO within the PEDHMA only. The project area is within the Greasewood, Rocky Ridge, Barcus Creek, Pinto Mesa, Box Elder/Wolf Ridge home ranges of the HMA with no acreage identified in the East Douglas portion of the HMA. These areas include summer and winter ranges for wild horses and in general supports a large number of wild horses that reside in the HMA.

Wild horses use mature components of pinyon-juniper woodlands and aspen stands for cover when needed for shade and cover from inclement weather. Foaling generally takes place between March 1 and June 15 with wild horses making use of all of the areas available to them for such activities. All areas are also used during breeding activities which can vary in dates, depending on an individual wild horse's circumstance. In general much of the area identified in this project is habitat known and used by the wild horses to the HMA.

5.17.2. Environmental Consequences – Proposed Action

Impacts to wild horses would vary depending on the size and location of the treatment area, habitat type involved and the type and timing of the treatment. Mechanical treatments would result in the removal or alteration of predominately woody vegetation as cover resources for wild horses and could take multiple years to be available as cover in the future. Mechanical treatments would likely result in the crushing of herbaceous vegetation, but would not be expected to result in a substantial loss of ground cover.

Noise from the equipment would likely result in the displacement of wild horses in and around the treatment area. This would likely be localized and short term and in most cases, the wild horse bands would be expected to return to the surrounding area once the treatment is complete. Avoiding treatments during the foaling period timeframe would minimize impacts to the wild horse bands in a given area but again, wild horses would be expected to temporarily relocate.

In general, fuels treatments can have short term and long term impacts on wild horses by removing or degrading habitat, displacing the wild horses, creating avoidance areas of useful habitats in the general proximity to the treatment area and potentially changing movement patterns. Fuels treatments may provide short and/or long term benefits to wild horses by increasing herbaceous plant productivity and diversity, resulting in additional or higher quality forage used by wild horses.

The invasion of undesirable plant species would be of concern for both fire and mechanical treatments. Noxious and invasive plant species are generally of lower value to wild horses with some species toxic to wild horses if consumed.

5.17.3. Environmental Consequences – No Action Alternative

Impacts to wild horses would be similar to those discussed above under the Proposed Action. The greatest difference would be that each proposed project would be analyzed through a stand-alone environmental assessment.

5.18. Forest Management

5.18.1. Affected Environment

The Proposed Action is located within both productive and dry exposure stand classes of pinyon-juniper, forest interface and pinyon woodlands as defined by a survey performed in 2003-2005 by White River Field Office personnel. Productive exposure types occur on primarily lower

gradient slopes and on north and east aspects. Growth rates are higher in these areas due to soil features which allow for effective use of precipitation. Dry exposure types occur when slopes and soil features do not allow for the retention of precipitation. The growth rates within these areas are low and most generally the trees present are mature. These habitat types are further broken down based on the age class of the stand. In this case the affected stands are mature, young, disturbed, and old growth. Mature pinyon-juniper trees on productive exposure establish themselves as the dominant plant community on the site. Young pinyon-juniper trees are a component of the plant community or encroach into sagebrush and mountain shrub communities in the absence of reproduction through time and will eventually establish as the dominant plant community. Old growth stands feature trees that have lived a full life expectancy in the absence of fire or other disturbance. Mature stands are valuable locally as a source of fire wood. Encroachment sites of young pinyon trees are valuable for Christmas tree harvest and posts for fence construction.

5.18.2. Environmental Consequences – Proposed Action

At this time it is uncertain how many acres of woodlands will be removed as a result of the Proposed Action treatments. When treatment areas are selected, a more accurate acreage calculation of woodlands removed will be performed.

Following reclamation of treatments sites it is expected that pinyon-juniper will again invade sites within 50-70 years and would develop into mature stands within 200-300 years. Impacts would be long-term until woodlands regenerate successfully. However, if treatment areas are followed up on with additional treatments, woodlands will not fully regenerate within the area.

5.18.3. Environmental Consequences – No Action Alternative

The No Action Alternative would have no conceivable influence on woodlands. Over time in the absence of any disturbance, younger age-class pinyon-juniper stands would develop into mature old growth stands, and in areas where pinyon-juniper is encroaching into sagebrush woodlands they could eventually become the dominate species on these areas.

5.19. Recreation

5.19.1. Affected Environment

The Proposed Action occurs within the White River Extensive Recreation Management Area (ERMA) which covers the entire WRFO. The BLM custodially manages the ERMA to provide for unstructured recreation activities such as hunting, dispersed camping, hiking, horseback riding, wildlife viewing, and off-highway vehicle use. The Recreation Opportunity Spectrum (ROS) is used by the BLM to provide a framework for integrating recreation opportunities and non-recreation activities on public lands so that managers can make informed land use decisions. The BLM approach to ROS applies criteria to a land area's physical, social, and managerial

parameters to describe the existing conditions that define a land area's capability and suitability for providing a particular range of recreational experience opportunities. The Proposed Action is located mostly in the ROS classification area of Semi-Primitive Motorized. Areas within this classification are characterized by a largely natural appearance and are accessible by foot, horseback, bike or motor vehicle generally on native-surfaced roads or gravel. Interaction with other visitors is relatively low. There are a few small areas along Piceance Creek and the White River within the Proposed Action located in the ROS classification area of Rural (R) which consists of by a substantially modified natural environment. Resource modification, development, and use are obvious in these Rural areas. There are also a few small portions of the Proposed Action in areas located in Roaded Natural ROS classification which means setting consists of areas near improved and maintained roads. While these areas are mostly natural in appearance, some human modifications are evident, with moderate numbers of people, visible management controls, and developments.

The primary recreation activity in these areas is upland big game hunting and associated dispersed camping from late August through December of each year with peak use from mid-October through mid-November. The Proposed Action is located within the Colorado Parks and Wildlife (CPW) Game Management Unit (GMU) 22, which is a somewhat popular big game hunting area where hunters have good opportunities to pursue both mule deer and elk. There are 13 Special Recreation Permits (SRPs) for commercially outfitting and guiding for mountain lion hunting which are permitted for all BLM lands within the WRFO. There are four SRPs for commercially outfitting and guiding for big game permitted on extensive public lands in the area of the proposed fence locations. Viewing wild horses as a recreational activity does occur in these areas, but at a relatively low level. OHV recreational riding occurs at a fairly low level within the Proposed Action during the spring and summer months as well.

5.19.2. Environmental Consequences – Proposed Action

Mechanical vegetation treatments, prescribed fire, and seeding treatments could impact the quality of desired big game hunting experiences if conducted at the same time. These proposed activities could have potential to displace big game and also affect the quality of dispersed camping if located near camping areas. It is likely that these proposed activities will conducted within the project area in relatively small areas of 5,000 acres or less. If this is the case, then those associated with big game hunting should have opportunities to pursue big game in areas on public lands within GMU 22 that are not near the vegetation treatment activities. It is expected that there may be a small number of those associated with big game hunting that are temporarily displaced from small localized areas for one hunting season if vegetation treatments are located in the same place and at the same time of their hunting season. For other recreational activities within the project area there may be minor impacts such minor travel route delays, but these impacts are expected to be temporary and short in overall duration and of relatively small size. Post vegetation treatment there are not any expected direct impacts to existing primary recreational opportunities or experiences. The indirect impacts to recreationalists post-treatment may be beneficial. These proposed vegetation treatments are planned to result less fuel loading and a healthier ecosystem. This should result in a safer environment to recreate in and improved wildlife habitats which could result in improved long term hunting opportunities.

5.19.3. Environmental Consequences – No Action Alternative

By not implementing the Proposed Action there would be no direct impacts to existing recreational opportunities and experiences. Indirectly, by not implementing vegetation treatments in this area, this could result in increased fuel loads and unimproved wildlife habitat. This could result in a somewhat less safe environment to recreate in and no improvement to long term hunting opportunities.

5.20. Fire Management

5.20.1. Affected Environment

The total acreage of the proposed planning area is 229,262 acres. The planning area is predominantly within the B6 Yellow Creek fire management polygon (78,202 acres), but also contains the B7 Piceance Creek (1,581 acres), the B10 White River (1,342 acres), the C5 Greasewood Creek (44,559 acres), the C6 Lower Piceance Basin (40,798 acres), the C10 Fletcher (33,470 acres), and the D5 Cathedral Bluffs/Roan Plateau (29,310 acres) Fire Management Polygons.

5.20.2. Environmental Consequences – Proposed Action

Implementation of prescribed fires or other fuels management treatments would directly achieve desired resource management objectives within each FMU. The primary objective within the B6 polygon is to protect known cultural sites and vegetation types with high potential for occurrence of cultural sites (PJ type) when threatened by public land fires. Primary objectives within the other polygons are 1) enhance deer winter range and 2) promote a vegetation mosaic representing natural distributions of plant communities of varying successional stages. Indirectly, the interruption of continuous fuel beds would enhance the ability for fire suppression resources to protect agricultural lands, residences, communication sites, oil and gas facilities, and infrastructure scattered throughout the unit when threatened by public land fires. Desired effects could be accomplished through a combination of managing naturally ignited fires, conducting prescribed fires, and implementing mechanical treatments.

5.20.3. Environmental Consequences – No Action Alternative

There will be no change from the current condition. The FRCC levels in each of the included FMUs would likely remain unchanged or convert to the next higher level condition class. Pinyon-juniper encroachment would continue to reduce sagebrush communities. A wildfire impacting the area would likely be more difficult to control and thus more expensive.

5.21. Colorado Standards for Public Land Health

In January 1997, the Colorado BLM approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, special status

species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. If there is the potential to impact these resources, the BLM will note whether or not the project area currently meets the standards and whether or not implementation of the Proposed Action would impair the standards.

5.21.1. Standard 1 – Upland Soils

The Proposed Action could have short-term localized impacts on soil resources leading to increased interrill and rill erosion until herbaceous vegetative cover is reestablished. After vegetative reestablishment, the upland soils will benefit from improved physical (infiltration and permeability) properties resulting in denser vegetative cover when compared to pretreatment conditions.

5.21.2. Standard 2 – Riparian Systems

The majority of the perennial systems within the project area are not considered to be meeting Standard #2 (either FAR or NF). As mitigated, the Proposed Action is designed to avoid direct involvement with riparian communities. If design features outlined in the Proposed Action are adhered to, proposed treatments (both mechanical and prescribed fire) would not be expected to detract from the continued meeting of the land health standards, nor lead to additional deterioration in those systems that currently are not meeting land health standards.

5.21.3. Standard 3 – Plant and Animal Communities

Animal Communities: There are likely annual dominated (cheatgrass) inclusions within the project area that do not meet land health standards however, on a landscape scale, the project area is generally meeting the land health standards for terrestrial wildlife communities. The Proposed Action would be expected to result in both short term and long term loss or modification of habitats that support big game and nongame species; however, in general these treatments would be expected to establish the foundation for proper ecological succession that would benefit terrestrial wildlife species in the long term. As mitigated (see mitigation and design features outlined in the Proposed Action), neither the Proposed Action nor the No Action alternative would be expected to detract from the continued meeting of these standards.
Plant Communities: There are annual plant dominated (cheatgrass, annual mustard, etc.) inclusions in the project area that do not meet public land health standards. There are also areas within the project area that have some relatively large noxious weed populations. On a landscape level, the project area does primarily meet public land health standards for vegetation. The Proposed Action is expected to create long-term and short-term changes is vegetation structure and composition. These projects are designed to establish a baseline for proper ecological succession and if carried out as mitigated, neither the Proposed Action or the No Action Alternative would be expected to result in additional acreage not meeting land health standards.

5.21.4. Standard 4 – Special Status Species

Special Status Animal Species: While there are likely inclusion of annual dominated areas that would not be considered to be meeting land health standard #4, the project area on a whole is generally considered to be meeting the land health standards for special status species. The Proposed Action would be expected to result in both short term and long term loss or modification of habitats that support special status animal species; however, in general these treatments would be expected to establish the foundation for proper ecological succession that would benefit special status species in the long term. As mitigated (see mitigation and design features outlined in the Proposed Action), neither the Proposed Action nor the No Action alternative would be expected to detract from the continued meeting of these standards.

Special Status Plant Species: The increased disturbance in and around occupied plant habitat can increase the spread and abundance of noxious weeds which will compete with Threatened Plants. Projects will be designed to avoid any occupied plant habitat, and consultation will occur with the USFWS for any projects occurring within occupied habitat. Conservation measures will be developed to prevent impacts to special status plants and the Proposed Action and the No Action Alternative are not expected to detract from the continued meeting of Land Health Standards.

5.21.5. Standard 5 – Water Quality

It is not anticipated that the activities associated with either the mechanized or fire treatments would result in an exceedance of water quality standards established by the State of Colorado.

6. CUMULATIVE IMPACTS ANALYSIS

6.1. Analysis Areas

The geographic extent of cumulative impacts varies by the type of resource and impact. The timeframes, or temporal boundaries, for those impacts may also vary by resource. Different spatial and temporal cumulative impact analysis areas (CIAAs) have been developed and are listed with their total acreage in Table 6.

Table 6. Cumulative Impact Analysis Areas by Resource

Resource	CIAA	Total CIAA Acreage	Temporal Boundary
Soil Resources, Water Quality, Hydrology.	Boundaries of Proposed Action.	229,262 acres.	The analysis consider a post-treatment recovery of one to four years for a substantive reestablishment of herbaceous vegetation

			and restoration of physical and chemical processes influencing soil and water resources.
Air Quality	White River Field Office Boundary	White River Field Office Boundary.	The analysis considered the duration needed to complete either the mechanized and/or fire treatments.
Paleontological Resources	Boundaries of Proposed Action.	229,262 acres.	Any loss of fossils and the contextual information associated with them would constitute a permanent, long term, irreversible and - irretrievable loss of scientific data from the regional database
Cultural Resources	Boundaries of Proposed Action.	229,262 acres.	Any loss of cultural resources, artifacts or features, represents a long term, permanent, irreversible and irretrievable loss of data from the regional archaeological database
Migratory Birds, Terrestrial Wildlife, Special Status Animal Species	Boundary of the Project Area	229,262 acres	May be anywhere from several years to several decades depending on the vegetative community type and wildlife species.
Recreation, Transportation and Access, Visual resources, and Lands with wilderness characteristics.	Boundary of the Project Area	229,262 acres	Most all impacts to these resources would be localized within this area and of short duration during the implementation of the projects only.

			Mechanical treatments may cause impacts up to a decade for lands with wilderness characteristics.
Rangeland Management, Vegetation, Noxious and Invasive Plants, Forestry and Woodland Products	Boundary of the Project Area	229,262 Acres	Most of the impacts would be localized within the project area. Impacts to vegetation would create both long-term and short-term changes in vegetation composition and structure.

6.2. Past, Present, and Reasonably Foreseeable Future Actions

Cumulative effects are defined in the CEQ regulations (40 CFR 1508.7) as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."

Cumulative impacts from oil and gas development within the WRFO were disclosed in the 1996 White River Resource Area Proposed RMP and Final EIS. A Reasonably Foreseeable Development (RFD) scenario compiled for the 1996 EIS estimated that oil and gas development would occur primarily south of Rangely, would consist of approximately 1,100 single well pads and would result in an estimated surface disturbance of 11,000 acres (10 acres per pad including associated infrastructure).

The BLM estimated actual development to date in 2011. From July 1, 1997 until August 19, 2011, there were 1,132 Federal wells drilled (including Federal wells drilled from fee pads). During that same time period, there were 261 plugged and abandoned wells and 375 abandoned wells. The BLM estimated surface disturbance associated with oil and gas development to be 9,165 acres and reclamation to be 783 acres (assumed 3 acres per plugged and abandoned location).

In 2012 the BLM published the Oil and Gas Development Draft RMP Amendment/EIS which considered changes in the location, type, and level of oil and gas development within the resource area. Based on an updated 2007 RFD scenario, it is assumed that the majority (95 percent) of oil and gas development would occur within the Mesaverde Play Area (MPA; Piceance Basin) and consist of multi-well pads. The preferred alternative in the Draft RMPA/EIS considered drilling up to 15,042 wells from 1,800 well pads with an associated surface disturbance of 21,600 acres (see Table 2-1, Record 13 of the Draft RMPA/EIS). An estimated 12

acres per pad would be disturbed initially (including areas needed for associated infrastructure) however that would be reduced to 5 acres per pad following interim reclamation (see Table 4-2 of the Draft RMPA/EIS). Further, it was assumed there would be up to 1,295 miles of roads and 925 miles of utility lines (pipelines and power lines) developed to support this activity (see Table 4-3 of the Draft RMPA/EIS).

As of March 2014, the Colorado Oil and Gas Conservation Commission database indicated there were a total (i.e., including those drilled prior to the 1997 RMP) of 2,562 producing wells, 320 shut-in wells, and 84 wells where drilling has begun but are not yet in production.

This project is located within the MPA, where it was assumed that full-field development would require two to three pads per section.

Other past, present, and reasonably foreseeable actions in the project area include livestock grazing and associated range improvement projects, vegetation treatments, and wildfires. Other mineral development within the area includes a nahcolite mining operation and oil shale research tracts. The project area is also within the Piceance-East Douglas Herd Management Area which the BLM manages for wild horses. Areas of Critical Environmental Concern (ACEC) are also found dispersed throughout the project area. Recreation use is characterized by dispersed camping, OHV use, and hunting.

6.3. Cumulative Impacts by Resource

6.3.1. Air Quality

Air quality in Region 11 (Western slope of Colorado) is affected by both mobile and stationary emitters of air pollutant. Fugitive dust can come from natural sources that are not preventable, such as volcanic eruptions, large regional dust storms, and wildfires. PM10 and PM2.5 are also created from windblown dust and soil from fields, agricultural crops, agricultural livestock, paved road re-entrained dust, unpaved roads, construction activities, mining and quarrying, construction sites, automobile and diesel engine exhaust, waste burning, soot from wood fires, and sulfates and nitrates from combustion sources such as industrial boilers (CAPCD 2013). The following criteria pollutants would be emitted during the combustion of fossil fuels: CO, NO2, SO2, and ozone.

Downward trends in annual NO2, CO, and SO2 have been measured at air quality monitoring sites in the region and are likely the result of national emissions control programs. For example, between 1990 and 2012, national emissions of NOx and VOC emissions have declined 56 percent and 35 percent, respectively (CAPCD 2013). Decreases in SOx emissions from diesel fuel and power plants coincides with a decrease in SO2 measured at IMPROVE and other air quality monitoring programs.

In general, air quality within the region is good due to few emission sources, good dispersion characteristics and national trends showing a decrease in some air pollutants. However, some

emissions have caused localized or regional level increases in pollution monitoring values such as ozone and PM2.5 within the past ten years. This has led to an increase in air quality monitoring in the region including the BLM supported Federal reference air quality monitoring sites in Rangely and Meeker.

6.3.2. Soil Resources

Oil and gas exploration and development in the WRFO will result in road and pad construction, pipeline installation, drilling and completion activities that have the potential to impact soils. Livestock grazing occurs on public and private lands in the area and these activities may reduce canopy cover and lead to localized erosion in some reclamation areas. There is some dispersed recreation, mostly hunting, that disturbs soils, result in changes in surface runoff, create some localized erosion and decrease the productivity and stability of soils in some locations. This action is not likely to add to or reduce overall cumulative effects. Permitted activities may reduce soil productivity in localized areas of disturbance, but are unlikely to impact overall soil productivity.

6.3.3. Surface and Ground Water Quality

Oil and gas exploration and development will result in road and pad construction, pipeline installation, drilling and completion activities that have the potential to impact both surface and groundwater. There are surface water withdrawals for oil and gas activities including drilling, domestic use, construction, dust abatement, well completion activities, and hydrostatic testing of pipelines. There are stormwater containment features (e.g., wattles, hedgerows, mulch, silt fences, hay bales, and seeded areas) for these oil and gas activities that may be damaged during fuel treatments, when possible these features would be avoided or repaired, but impacts are not likely and would be isolated. No increase in sedimentation from these construction sites with stormwater features is likely.

Livestock grazing occurs on public and private lands in the area and these activities may reduce canopy cover and lead to localized erosion in some reclamation areas. There is some dispersed recreation, mostly hunting and livestock grazing that disturb soils, result in changes in surface runoff, and create some localized erosion. This action is not likely to add to or reduce overall cumulative effects. Permitted activities may reduce soil productivity in localized areas of disturbance, but are unlikely to impact water quality.

6.3.4. Floodplains, Hydrology, and Water Rights

Oil and gas exploration has the potential to impact floodplains, stream channel and hillslope hydrology, and water rights due to water usage during drilling, construction, dust abatement, well completion, and hydrostatic testing of pipelines.

Livestock grazing could potentially impact riparian vegetation located within the floodplain which is critical in reducing peak flows, promoting sediment deposition needed to prevent channel degradation, and improving fish habitat and water quality.

Currently, the amount of herbaceous and woody vegetation is limited and impacts from an unplanned burn over would be minimal. Overall, the floodplain would benefit by the post-burn establishment of a more diverse herbaceous vegetative community. No impacts to existing water rights are expected from this action since increased runoff is typical following post-burn and/or mechanized treatments.

6.3.5. Wetlands and Riparian Zones

Although there are several other management actions that occur within the project area (oil and gas development, power lines, weed treatments, etc.), grazing would most likely have the most substantial impact on riparian habitats. The Proposed Action when coupled with other actions may potentially result in the incremental removal of riparian vegetation; however, vegetation removal associated with this project would be expected to be short term in nature.

6.3.6. Vegetation

Past and present impacts to vegetation have occurred in the project area from oil and gas development and road development from complete vegetation removal. Long-term removal of vegetation from a site does increase the likelihood of the introduction and proliferation of noxious and invasive weeds into vegetative communities. Of the total potential vegetation treatments throughout the planning area and the Piceance Basin, the proposed fuels treatments would not result in a noteworthy increase in vegetation disturbance or long-term changes in plant community with the exception of a slight increase in the diversity of plant community age structure. Disturbances to vegetation are expected to be short-term and with seeding and noxious weed management are anticipated to improve vegetation community health over time.

6.3.7. Invasive, Non-Native Species

Past and present development of roads, well pads, and pipeline rights-of-way in the project area have led to the introduction and proliferation of noxious weeds in the project area. Fuels reduction projects have the potential to increase the amount of noxious weeds by transporting weed seeds and propagules onto project areas. The Proposed Action and No Action Alternative are not expected to have a large impact on Noxious and Invasive weeds introduction and proliferation.

6.3.8. Migratory Birds

It would be difficult to assess the impacts without knowing the acreage of the treatment, treatment type (mechanical vs. fire), type of habitat involved, and where the treatment is located in relation to other disturbances. There are several other management actions that could potentially occur in the project area, but those resulting in substantial loss or reduction of forage and cover resources are generally limited to oil and gas development, grazing, and rights-of-way. The Proposed Action would result in the incremental loss of migratory bird nesting and foraging habitat. In general, these treatments are not expected to have a substantial influence on local bird

populations. Treatments would be expected to provide both short and long term benefits to migratory birds (depending on species).

6.3.9. Terrestrial Wildlife

It would be difficult to assess the impacts without knowing the acreage of the treatment, treatment type (mechanical vs. fire), type of habitat involved, and where the treatment is located in relation to other disturbances. There are several other management actions that could potentially occur in the project area, but those resulting in substantial loss or reduction of forage and cover resources are generally limited to oil and gas development, grazing, and rights-of-way. The Proposed Action would result in the incremental loss of forage and cover habitat for big game and nongame species. In general, these treatments are not expected to have a substantial influence on local big game and nongame wildlife populations in the long term. Treatments would be expected to provide both short term and long term benefits, depending on the species.

6.3.10. Special Status Animal Species

It would be difficult to assess the impacts to special status species without knowing the acreage of the treatment, treatment type (mechanical vs. fire), type of species and habitat involved, and where the treatment is located in relation to other disturbances. There are several other management actions that could potentially occur in the project area, but those resulting in substantial loss or reduction of forage and cover resources are generally limited to oil and gas development, grazing, and rights-of-way. The Proposed Action would result in the incremental loss of forage and cover habitat for special status animal species, however, these treatments are not expected to have a substantial influence on local special status wildlife populations in the long term.

6.3.11. Special Status Plant Species

Projects will be designed to avoid special status plant species. For mechanical treatments, avoidance of special status plants will have no impacts on special status plants. Prescribed fire may impact special status plants if containment of the burn is lost and burns into populations of special status plants. Fire does not generally carry well in the areas where special status plants are located so even if a fire burns outside of the project area impacts are expected to be minimal. All care will be taken to avoid any specials status plants during fuels reduction projects.

6.3.12. Areas of Critical Environmental Concern

There are expected to be no impacts to ACECs from the Proposed Action or the No Action Alternative. All ACECs have been excluded from any fuels treatment in this analysis. The only potential impacts to ACECs may occur if a prescribed fire breaks containment from the project area. Fire is hard to predict so it is hard to determine potential cumulative effects if a fire does break containment, but all care will be taken to no impact ACECs.

6.3.13. Cultural Resources

Long-term cumulative impacts from the Proposed Action have the potential to remove ground-covering vegetation making artifacts on the surface easy to see for several years post-fire; therefore, there is a risk of illegal surface collection and acts of vandalism. In addition, site deposits are vulnerable to accelerated wind and water erosion with no vegetative cover. Furthermore, increased public access and the presence of project personnel could result in a range of impacts to undiscovered cultural resources, such as illegal collection, vandalism, and excavation. These impacts combined with other past, present and future land use activities in the project area such as oil and gas development, livestock grazing, and recreation will contribute to the incremental loss of cultural resources. Any loss of cultural resources, artifacts or features, represents a long term, permanent, irreversible and irretrievable loss of data from the regional archaeological database. Cumulatively, these losses make understanding human occupation and use of the landscape more difficult.

6.3.14. Paleontological Resources

The Proposed Action in conjunction with other past, present and future land uses such as oil and gas development, livestock grazing, and recreation will contribute to the incremental loss of paleontological resources. Any loss of fossils and the contextual information associated with them would constitute a permanent, long term, irreversible and irretrievable loss of scientific data from the regional database.

6.3.15. Visual Resources

Existing and future oil and gas exploration and development within the Proposed Action area will likely result in road, pipeline, utility line, well pad, and associated facility maintenance and construction which have the potential to impact visual resources by attracting the attention of those traveling in this area. The Proposed Actions, as designed, should result in not contributing cumulatively to these other impacts to visual resources.

6.3.16. Lands with Wilderness Characteristics

Potential future oil and gas exploration and development within the Proposed Action area will likely result in road, pipeline, utility line, well pad, and associated facility maintenance and construction activities. If these activities occur within identified lands with wilderness characteristics units, they will likely directly impact the size, naturalness, and potentially solitude currently found in these areas. The Proposed Action, combined with these impacts, may result in cumulatively impacting the naturalness of these areas. It is not currently know if these types of activities may take place in the future and if they will be located within lands with wilderness characteristics units. There is long term potential for some of these impacts to result in these current units not meeting the minimum requirements to be considered lands with wilderness characteristics units.

6.3.17. Livestock Grazing

Past, present, and reasonably foreseeable development from oil and gas, roads, and pipelines have impacted grazing in the grazing allotments within the project area. Long-term disturbances from well pads could potentially reduce AUMs within allotments in the future. Impacts from fuels reduction projects would result in short-term loss of forage (two to three years) and create potential hardships for livestock operators. Long-term benefits of fuels treatments would likely improve forage in areas of dense sagebrush and pinyon juniper encroachment by reducing competition and allowing more expression of the herbaceous understory. It is hard to predict the full extent of these impacts with knowing exact acreage, but long-term impacts from fuels treatments would likely increase herbaceous forage for livestock grazing.

6.3.18. Wild Horses

The Proposed Action would result in the incremental loss of forage and cover habitat for wild horses. In general, these treatments are not expected to have a substantial influence on the wild horse herd in the long term. Treatments would be expected to provide both short and long term benefits depending on type of treatment, size of treatment, location of treatment, and recovery of quality vegetation utilized by the wild horses in the PEDHMA.

6.3.19. Forestry and Woodland Products

Past and present impacts from well pads, roads, and pipeline rights-of way have resulted in the removal of pinyon-juniper in the project area. These removals have been on relatively small scales based on the amount of pinyon juniper woodland in the project area, but it is considered long-term based on the amount of time it take pinyon-juniper to recolonize an area. Removal of mature and middle-aged woodlands as a result of the Proposed Action would reduce the potential for outbreak of woodland diseases and pest infestations. By reducing the stand size of juniper trees in areas historically included in sagebrush and grass communities, it would increase the open areas preferred as foraging areas by wildlife and livestock. Increasing the open areas would additionally increase pollinator habitat for special status plant species.

6.3.20. Recreation

The Proposed Action combined with other impacts to recreational opportunities and experiences, such as oil and gas development, utility corridor development, and rangeland management activities, may result in not meeting the future expected or desired recreational experiences. The Proposed Action may cumulatively result in localized, short-term temporary impacts to recreationalist only.

6.3.21. Access and Transportation

There is no expected noticeable impacts to public access and the travel and transportation system as a result of implementing the Proposed Action.

6.3.22. Fire Management

Long range effects of conducting various fuels treatments over staggered timeframes would achieve the resource objectives of creating natural distributions of plant communities over varying successional stages and convert moderate and high (FRCC 2 or 3) areas to moderate to low (FRCC 2 or 1). Vegetation treatments, both mechanical and prescribed fire, enhance the BLM's ability to manage fire across the landscape. This ability allows the agency to protect resources it deems a priority. Without these fuel bed transitions, it may be increasingly difficult to allow fire to play a natural role within these polygons and protect natural resources, adjacent private lands, residences, communication sites, oil and gas facilities, and various infrastructure.

7. SUPPORTING INFORMATION

7.1. Interdisciplinary Review

Table 7. List of Preparers

Name	Title	Area of Responsibility	Date Signed
Keith Sauter	Hydrologist	Surface and Ground Water Quality; Floodplains, Hydrology, and Water Rights; Prime and Unique Farmlands	8/9/2015
Lisa Belmonte	Wildlife Biologist	Special Status Animal Species, Migratory Birds, and Aquatic and Terrestrial Wildlife	8/14/2015
Matthew Dupire	Rangeland Management Specialist	Vegetation, Invasive, Non-Native Species, Wild Horses, Livestock Grazing, Soil Resources, Wetlands and Riparian Zones, Hazardous or Solid Wastes, Social and Economic Conditions,	8/17/2015
Matthew Dupire	Ecologist	Special Status Plant Species, Forestry and Woodland Products, Areas of Critical Environmental Concern	8/17/2015
Brian Yaquinto	Archaeologist	Cultural Resources, Paleontological Resources, Native American Religious Concerns	8/11/2015
Kyle Frary	Fire Management Specialist	Fire Management	
Aaron Grimes	Outdoor Recreation Planner	Visual Resources, Lands with Wilderness Characteristics, Recreation, Access and Transportation, Wilderness, Scenic Byways	8/13/2015
Melissa J. Kindall	Range Technician	Wild Horse Management	8/11/2015
Paul Daggett	Mining Engineer	Air Quality; Geology and Minerals	8/7/2015
Stacey Burke	Realty Specialist	Realty Authorizations	8/7/2015
Kyle Frary	Fire Management Specialist	Project Lead – Document Preparer	12/7/2015

Name	Title	Area of Responsibility	Date Signed
Heather Sauls	Planning & Environmental Coordinator	NEPA Compliance	1/21/2016

7.2. Tribes, Individuals, Organizations, or Agencies Consulted

Consultation letters and contact was made with the Eastern Shoshone Tribe of the Wind River Reservation, Ute Indian Tribe of the Uintah and Ouray Reservation, the Southern Ute Indian Tribe and the Ute Mountain Ute Tribe for this project. If additional information comes out in consultation, aspects of the project may be changed in response to tribal concerns.

7.3. References

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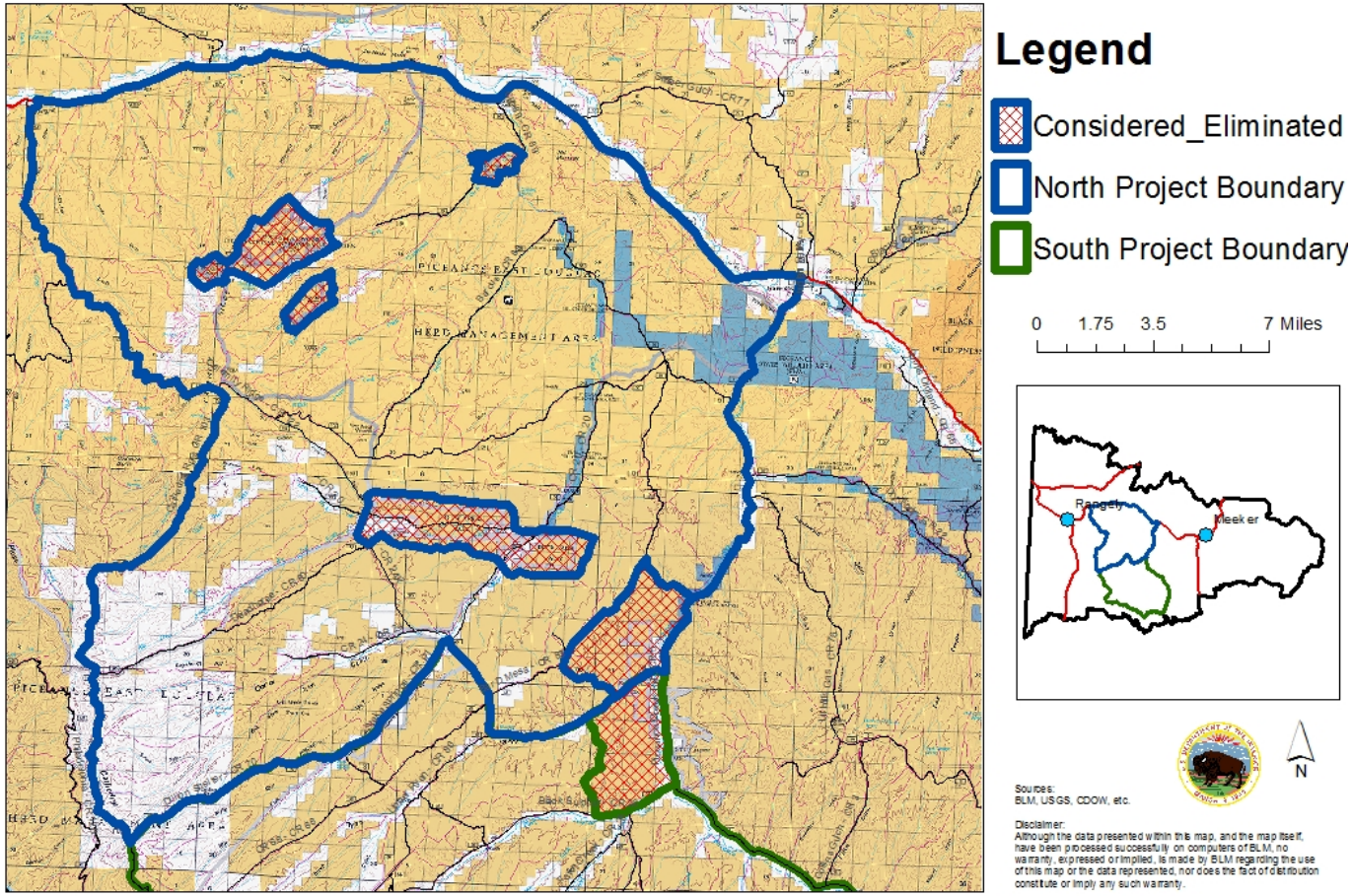
FIGURE 1. MAP OF THE NORTHERN PICEANCE FUELS REDUCTION PROJECT

Northern Piceance Fuels Reduction Project (229,262 Acres)