

**United States Department of the Interior
Bureau of Land Management**

DOI-BLM-LLCON02000-2012-0031-EA

April, 2014

**Grand County Hazard Tree Removal
Programmatic EA**

Kremmling Field Office
P O Box 68
Kremmling, CO 80459
970-724-3000
970-724-3066



**Grand County Hazard Tree Removal
Programmatic EA
DOI-BLM-LLCON02000-2012-0031-EA**

Table of Contents

Contents	Page
CHAPTER 1 - INTRODUCTION.....	3
1.1 IDENTIFYING INFORMATION	3
1.2 PROJECT LOCATION AND LEGAL DESCRIPTION	4
1.3 PURPOSE AND NEED.....	4
1.3.1 Decision to be Made	4
1.4 PUBLIC PARTICIPATION	5
1.4.1 Scoping	5
1.4.2 Public Comment Period.....	5
CHAPTER 2 - ALTERNATIVES	5
2.1 INTRODUCTION	5
2.2 ALTERNATIVES ANALYZED IN DETAIL	5
2.2.1 Proposed Alternative.....	5
2.2.2 No Action Alternative.....	15
2.3 ALTERNATIVES CONSIDERED BY NOT ANALYZED FURTHER	15
2.4 PLAN CONFORMANCE REVIEW.....	15
CHAPTER 3 – AFFECTED ENVIRONMENT AND EFFECTS	16
3.1 INTRODUCTION	16
3.2 PAST, PRESENT AND REASONABLY FORESEEABLE ACTIONS.....	16
3.3 ENVIRONMENTAL CONSEQUENCES	17
CHAPTER 4– COORDINATION AND CONSULTATION	63
Appendix A: Maps.....	65
Appendix B: Definitions	75
Appendix C: Scoping list,	79
Appendix D: Tribal Consultation.....	81
Appendix E: Water Quality Report.....	82

Grand County Hazard Tree Removal Programmatic EA

DOI-BLM-CON02000-2012-031-EA

CHAPTER 1 - INTRODUCTION

1.1 IDENTIFYING INFORMATION

Background/Introduction:

From 1996 to the present, north central Colorado encountered a Mountain Pine Beetle (MPB) (*Dendroctonus ponderosae* Hopkins) epidemic. The MPB infested lodgepole pine trees, producing an 85-95% mortality rate in lodgepole pine in north central Colorado. It is estimated that over the next 10 years, an average of 100,000 trees will fall daily as a result of this bark beetle epidemic. Grand County was one of the area's most severely affected by the MPB, of the 762,154 forested acres in Grand County; 581,000 acres have been impacted by MPB according to the 2010 Colorado State Wide Forest Assessment. The BLM has a total of 143,677 acres in Grand County; of that 55,750 acres are forested areas. The potential Project Area is approximately 9150 treatable acres and makes up roughly 16 percent of the forested lands in Grand County within the BLM Kremmling Resource area.

State and Private landowners have been aggressively treating MPB affected lodgepole pine stands since the beginning of the MPB epidemic; treating roughly 33,200 acres.

In 2008 The United States Forest Service (USFS) started a campaign against the MPB epidemic in Wyoming, Colorado, South Dakota, and Nebraska.

The USFS is still currently proceeding with this campaign on the White River National Forest (WRNF), Medicine Bow/Routt National Forests, and Arapaho/Roosevelt National Forests. Related National Environmental Policy Act (NEPA) documents for those can be found here: Environmental Assessment Blue Ridge Salvage and Fuels Reduction Project. (See references) Environmental Assessment Upper Fraser Valley Forest Health Project (See references)

Tree mortality from the beetle infestation poses a significant threat to public safety along travel corridors. Dead and dying trees increase the potential for: a) persons or property being struck by falling trees; and b) trees falling and blocking roadways and trails, thus preventing both emergency and non-emergency ingress and egress, which would also likely hinder wildland fire suppression tactics. Live trees can also be hazard. A hazard tree for this project is defined as any tree that may fail due to a structural defect and, as a result, would likely cause property damage or personal injury. A defective tree is hazardous only when its failure could result in damage to something of value. The following tree specific criteria will be used to identify hazardous trees for this project.

Any one or more of these criteria will qualify a tree as hazardous.

1. Dead tree of any species
2. Trees with substantial defects:
 - a. Canker rots
 - b. Root rots
 - c. Trunk injuries (mechanical damage, stem decay, etc.)
 - d. Crown defects (broken or damaged branches, forked tops, dead tops, etc.)
3. Dying tree(s)
 - a. About 1/3 + dead limbs and branches
 - b. Foliage transparency 40% + (thin crown, off-color or dwarfed foliage)
 - c. Borer attacks obvious and abundant - the presence of insect activity, such as bark beetles or mountain pine beetles, may indicate that a tree has been weakened by other agent.

1.2 PROJECT LOCATION AND LEGAL DESCRIPTION

LEGAL DESCRIPTION:

6th PM,

T. 1 S., R .81 W., sec. 21, 22, 27, 28, 33, 34, 35

T .1 N., R .76 W., sec. 12, 13, 14, 24, 25, 36,

T. 1 N., R .75 W., sec. 30, 31, 32

T. 1 N., R. 78 W., sec. 04, 05, 19, 20, 21, 28, 29, 30, 32, 33, 34

T. 2 N., R. 77 W., sec. 19, 30

T .2 N., R .78 W., sec. 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27

T. 2 N., R. 79 W., sec. 13, 24, 25

T. 2 N., R. 81 W., sec. 26

T .2 S., R. 81 W., sec. 02, 03, 10, 11, 12

T. 3 N., R. 76 W., sec. 11, 22

T. 3 N., R .79 W., sec. 19, 30

1.3 PURPOSE AND NEED

The BLM is proposing a fuels reduction project on BLM lands within Grand County, Colorado. The fuels reduction project consists of several different methods of treatments in BLM-managed forested areas. The purpose for the action is to improve public health and safety and improve forest health through the removal of dead and otherwise hazardous trees from BLM-managed lands in Grand County. The need for the action is to comply with the Healthy Forest Restoration Act of 2003 (HFRA), and the Bark Beetle Strategic Plan Colorado 2012. There is also the need to help keep roads on BLM administered lands unobstructed from falling dead trees and/or to reduce the threat of a wild fire.

1.3.1 Decision to be Made

The BLM will decide whether or not to authorize the implementation of the proposed action, and if so, under what terms and conditions.

1.4 PUBLIC PARTICIPATION

1.4.1 Scoping

Internal and external: Scoping was the primary mechanism used by the BLM to initially identify issues. Internal scoping was initiated when the project was presented to the Kremmling Field Office interdisciplinary team on 04/16/2013. External scoping was conducted by sending out postcards to Landowners, Government Agencies, Outfitters, and the public (see Appendix C for complete list) with information on how to look at the proposed action on the Kremmling BLM webpage on 11/06/2013 and by posting this project on the KFO's on-line National Environmental Policy Act (NEPA) register on 05/12/2014.

Issues and Comments:

Mountain Parks Electric sent a comment via email asking for copies of specific mapped areas if any of the proposed areas have trees within 150 feet of MPEI power lines or are within reaching and falling distance of their power lines.

1.4.2 Public Comment Period

The preliminary EA and the unsigned Finding of No Significant Impact (FONSI) are available for a 30-day public review and comment period beginning May 12, 2014 and ending June 12, 2014. The document is available online at <http://www.blm.gov/co/kfo> and in the public room at the Kremmling Field Office. The document may be viewed at the field office during regular business hours (7:45 a.m. to 4:30 p.m.), Monday through Friday, except holidays. Comments should be sent to blm_co_kr_webmail@blm.gov by close of business on June 12, 2014. Comments received from the public will be reviewed and incorporated into the EA as appropriate.

CHAPTER 2 - ALTERNATIVES

2.1 INTRODUCTION

This chapter describes the alternatives analyzed in detail. Alternatives considered but not analyzed in detail are also discussed.

2.2 ALTERNATIVES ANALYZED IN DETAIL

2.2.1 Proposed Alternative

The Proposed Action is comprised of three main activities (Project Maps in Appendix A).

1. Corridor clearing of dead, disease infested, and prone to windthrow hazard trees within 125 feet of a BLM corridor (roads, trails and campsites.).

The BLM is proposing to remove all dead, disease infested, and prone to windthrow hazard trees within 125 feet of BLM roads, trails and other infrastructure. Mechanical treatments would be used along road corridors, trails, salvage areas, and near other infrastructure(s).

The majority of the salvage treatments would impact lodgepole pine trees, although small amounts of Engelmann spruce, sub-alpine fir, Douglas fir, and aspen could also be felled and/or removed. Areas that contain other tree species would only be removed if they are identified as a hazard tree. Depending on the severity of the beetle infestation and the resultant tree mortality, salvage treatments could include: removal of individual hazardous trees; removal of overstory dead or beetle-hit trees while leaving the understory vegetation; removal of clumps of hazardous trees; or removing all hazardous trees up to 125 feet from the outside of roads and trails. It is anticipated that all treated areas would regenerate naturally, therefore seeding or planting treated sites is not expected to be necessary. However, if natural seeding results in inadequate stocking, - the sites would be artificially regenerated (i.e.; seeded or planted) to bring them to minimum stocking standards.

After hazard trees are felled and/or removed, the area may resemble a thinning of the forest or a clearcut with scattered regeneration. This would depend on the number of dead and infested hazardous trees within an area. In areas where removal is not feasible (e.g., 50-100 feet near drainages), trees would be cut by hand and left on site. Slash would be piled and burned at a later date; some slash would be left to help with soil moisture, micro sites for seedlings, soil nutrients, and erosion control. These acres would be treated through timber or vegetation sale contracts, service contracts, or by other means (e.g. stewardship contracts, BLM crews). The treatments would be implemented with conventional, ground-based logging equipment including but not limited to Bull hogs, Hydro-axes, Timbco, Fella-bunchers, skid steers, chippers, Fecons, skidders, (see Appendix B for definitions) or by hand crews with chainsaws. Treatments would be conducted by the BLM or contractors. Implementation would occur during any periods of dry soil conditions. Priority for scheduling treatment would be determined by severity of bark beetle infestation, mortality of trees, and degree of safety hazard that is present.

Treatment to roadside corridors would be:

- Remove all species of dead trees and identified hazard trees;
- Remove all dead and or disease infested lodgepole up to 125 feet of each side of the road edge. Measurements would be taken from the edge of the road;
- Cut living tree species identified as hazards by the BLM;

- Mechanical areas would have the product removed for salvage and non-merchantable material would be piled;
- Majority of the piles would be burned, mulching of piles would be done on small unburnable piles and in areas where only a small number of piles need to be mulched. Some piles would be left for habitat;
- Machine piles would be a minimum of 15'x 15'x10' and no larger than 30'x 30'x 20';
- Heavy equipment would not be allowed in previously harvested stands to allow for regeneration. Short temporary roads or skid trails may be allowed if necessary to access adjacent stands. Regeneration units that contain dead overstory trees would be hand felled with chainsaws and limbed, bucked and left on site or piled. Piles would be burned and need to be placed in open areas where flames would not damage living regenerated stands;
- Require a maximum stump height of six (6) inches in all units where practical.

2. Large-scale mechanical salvage, fuels reduction (mastication and/or logging/piling).

The BLM is also proposing using machinery to reduce fuels and salvage dead and hazard trees from BLM lands that have 35 percent slope or less, with some exceptions, and are easily accessible.

Most areas within the project consist of mature lodgepole pine and a combination of (but not limited to) spruce, fir, and aspen trees. Treatment areas that contain live non-diseased tree species would only have the live trees removed if found in areas where all the trees around have been removed reducing canopy support and likely to be uprooted by the wind, known as windthrow. The Wolford substation is the exception where most of the trees are pinyon pine and juniper. In this area, the pinyon pine and juniper would be treated to reduce fuel loading around the substation.

The proposed project would salvage dead and dying lodgepole pine from approximately 9,150 acres. In mature and overmature lodgepole pine stands where mountain pine beetle, high mortality, dwarf mistletoe, and risk of windthrow are high, there is little choice but to clearcut and start a new stand. Units may resemble clearcuts with some advanced natural regeneration after harvest. It is anticipated that all treated areas would regenerate naturally therefore, seeding or planting treated sites is not expected to be necessary. However if natural seeding results in inadequate stocking, then the sites would be artificially regenerated (i.e; seeded or planted) to bring them to minimum stocking standards.

In areas where removal is not feasible (e.g., 50-100 feet near drainages), trees would be cut by hand and left on site. Slash can be lopped and scattered and/or piled. Slash left onsite would help with soil moisture, micro sites for seedlings, soil nutrients, and erosion control. In areas of dense slash (greater than one foot compacted), slash would be piled and burned at a later date. These acres would be treated through timber or vegetation sale contracts, service contracts, or by other means (e.g. stewardship contracts, BLM crews).

The mechanical treatments would be implemented with conventional, ground-based logging equipment, including but not limited to Bullhogs, Hydro-axes, Timbco, Fella-bunchers, skid steers, chippers, Fecons, skidders, (see Appendix B definitions) or by hand crews with chainsaws. Treatments would be conducted by the BLM or contractors. Implementation would occur during any dry or frozen soil condition seasons typically late spring, summer, fall, and winter. Post-harvest treatment of units would include noxious weed control and the felling of residual undesirable live trees. The cutting of undesirable live trees after treatment is referred to as release & weeding, whereby live trees that were not harvested are cut down because they would not contribute or may be a detriment to the future stand (i.e. diseased, competing with more desirable trees, physical defects, etc.).

Treatment to mature lodgepole pine stands would be:

- Remove all dead or dying lodgepole and identified hazard trees;
- Cut identified living tree species, to reduce the threat of windblown trees;
- Mechanical areas would have the product removed for salvage and non-merchantable material would be piled and or lopped and scattered ;
- Majority of the piles would be burned. Mulching of piles would be done on small unburnable piles and where only a small number of piles need to be mulched. Some piles would be left for habitat;
- Machine piles would be a minimum of 15'x 15'x10' and no larger than 30'x 30'x 20';
- Heavy equipment would not be allowed in previously harvested stands (regeneration). Short temporary roads or skid trails may be allowed if necessary to access adjacent stands if it is the only way to access an adjacent stand that needs to be treated;
- Require a maximum stump height of six (6) inches in all units where practical.

3. Use of fire to treat the burn piles left from mechanical treatment.

The BLM is also proposing to use fire to treat piles left from mechanical treatments. The burning would take place on BLM-administered lands in Grand County (see Appendix A-1) , and would help provide for fire fighter and public safety by removing trees that could impede ingress and egress along roads and trails through BLM administered lands, along with reducing fire behavior and creating safety zones and escape routes in the event of a future wildfire. The main areas of focus are: (See Appendix A) Dice Hill area, Kinney Creek area, Strawberry area, Grouse Mountain area, Smith Mesa area, Wolford Substation, the Shadow Mountain Area, and the Big Horn Area unit.

Design Features of the Proposed Action:

- Burn plans would be in place prior to any prescribed fire.

- Smoke Permits from Colorado Air Pollution Control Division would be in place prior to any prescribed fire.
- Fire would be used to treat piles.
- Pile burning would require at least three inches of snow on the ground.
- Drip torch, terra-torch, and/or hand-held or vehicle mounted ignition devices are expected to be used in fire treatments.
- When burning piles near roads, signs would be placed at least 1 mile before the area to be burned, or at the closest major intersection.
- Pile size would be determined by the Colorado Prescribed Fire Smoke Permits form “Pile Standard Permit Condition Worksheet”, and piles would be no larger than a 3c according to the “Pile Standard Permit Condition Worksheet”.
- The roadside corridors would be piled, except in areas where machinery is inoperable or slash is need for resource benefit. Upon implementation each resource would define slash requirement, which would be done to help in the aid of wildfire suppression, reduce off road travel and improve wildlife habitat.
- Lop and scatter slash to a height of less than 24 inches above ground level.
- Revegetation on any area may be required where ground cover is disturbed (e.g. landings, burned slash pile sites, skid trails, etc.). Monitor regeneration and determine the stocking levels of the reproduction and the necessity of follow-up action. Stocking surveys would be in compliance with a 5-year regeneration standard as per BLM direction.
- Existing roads, secondary routes or jeep trails on BLM administered public lands would be maintained or improved as needed. Maintenance would occur on existing roads during sale operation as needed.

Resource-specific Design Features:

1. All mechanical treatment units would be outside of drainages- ephemeral to perennial— with a minimum of 100 hundred foot buffers for streams and wetlands, a 50 foot buffer for non-flowing drainages. All treatment maps would be updated as wetland and riparian zones are located to insure that adequate buffers are applied in the layout and treatment stages.
2. If drainages need to be crossed, non-flowing drainages should be selected and the crossing would adhere to Forestry Best Management Practices to Protect Water Quality in Colorado 2010, issued by the Colorado State Forest Service.
3. Vegetative treatments may occur within the 50 foot buffer for non-flowing drainages if felling is done by hand and ground disturbances are limited.
4. No mechanical equipment would be allowed to travel in a wetland or riparian area. If areas must be crossed, best management practices would be required to reduce alteration of the hydrology or vegetation.

5. Mechanical treatment could be implemented on slopes less than 35 percent barring other restraints. Mechanical treatments may occur on slopes greater than 35 percent but less than 50 percent if the width of the slope is less than 250 feet.
6. A 500 foot buffer from Spruce Creek on Dice Hill would be in effect on the last .8 of a mile stretch up to the WRNF boundary to avoid impacts to fish.
7. Within the project boundary, maintain an average of six snags per acre from the largest diameter class available. Trees to retain include large live trees with broken or dead tops (snag replacement trees) and other trees showing wildlife signs (dens, nests, cavities, squirrel middens, woodpecker activity). Retain snags in groups when possible to avoid wind throw and provide better wildlife cover. Protect standing wildlife trees from damage during site preparation and post-sale activities.
8. Maintain 5-15 tons per acre of coarse woody debris within harvest units. Where possible, create piles of logs, stumps, or other woody debris in harvest units to minimize the effects of larger openings. Maintain large diameter downed logs in various stages of decomposition within harvest units (an average of 33 linear feet/acre of the largest available tree diameter at the large end of lodgepole pine and aspen logs).
9. Maintain screening in lynx habitat cover of live small lodgepole pine, spruce, fir, and aspen trees, snags, and coarse woody debris (including jack-strawed piles) for lynx and other wildlife on strategically located portions of the landscape (where feasible) between cutting units, roads, and meadows. This screening cover should be comprised of tree retention strips a minimum of 200 feet wide unless topographic breaks occur between cutting units, roads or meadow openings. A goal is to avoid appearance of regular spacing. If possible, in the foreground leave small clusters of 5-30 trees/shrubs approximately 5' to 10' outside diameter in irregular patterns for visual age class diversity, screening and wildlife cover.
10. Northern goshawk - no activities will be allowed within 0.5 miles of active nests from March 1 to July 31 or until fledging has occurred. The timing restriction buffer could be reduced to ¼ mile if topographic features and/or adequate screening cover are present that would protect the nest site from disturbance. No harvest activities would be allowed within a 30-acre buffer of nest sites. Outside of a 30-acre area around goshawk nest sites, timing restrictions are not needed for project layout, marking, and any other activities that are non-disturbing (i.e., activities not involving the use of heavy equipment or chainsaws). Timing restrictions would only apply to active nests, as confirmed by the KFO wildlife biologist.
11. If an active golden eagle nest has been located by the BLM biologist prior to any project activities or by any personnel in the area during the project activities, there would immediately be a 0.25 mile no surface disturbance stipulation put into effect

and a 0.5 mile seasonal restriction where no activities would be permitted December 15 through July 15.

12. On-going surveys for raptors would be conducted to determine locations of individuals or populations of these species and allow for the implementation of protection measures as appropriate.
13. Effects to understory vegetation and dense horizontal cover would be minimized to benefit snowshoe hare and lynx by identifying designated skid trail locations that are at least 100 feet apart in designated lynx habitat. Patches of trees with dense understory would be retained as described in design criteria 9. Temporary roads would be used for administrative use only and rehabilitated after project completion.
14. Place landings in areas without advanced tree regeneration if available, to protect understory. The project has been surveyed for TES species. This would continue to occur for TES during project implementation. If a species is discovered, they would be protected as indicated in mitigation section of the EA for all species present and consultation with the U.S. Fish and Wildlife Service and Colorado Parks and Wildlife, as necessary.
15. Wolford Substation tree clearing would be done by hand crews walking in and on designated routes and cut in conditions of ≤ 5 mph wind speeds. KFO biologist would survey prior to proposed action.
16. All machinery used within the project boundary would be inspected and clean prior to working within the project, to help reduce the spread of noxious weeds.
17. Prior to mechanical treatments, the weeds coordinator would be notified of proposed project implementation so that vegetation and noxious weed conditions can be evaluated.
18. If present, pre and post treatments for noxious weeds would be done by the BLM to help control the spread of noxious weeds.
19. Facilities, signage, fencing or gates damaged during implementation activities would be repaired or replaced to at least previous conditions if it's in a functioning condition by the contractor or benefitting resource. BLM and or the contractor would need to document the condition of the fence or gates prior to the start of operations.
20. During the periods that allotment permittees allowed grazing, the operator must open and close all gates and repair damage to fences immediately. See Range Management section for grazing allotments and grazing periods

21. Special Recreation Permit holders would be coordinated with and informed of any timber removal or use of fire within the project area through emails and/or mailings.
22. In consultation with the Colorado State Historic Preservation Officer (SHPO) in accordance with the signed Programmatic Agreement (2014) all historic properties located during the phased Class III inventories would be evaluated for eligibility into the National Register of Historic Places (NRHP). All significant historic properties and including historic cabin structures and historic grave sites would be identified to the contractor or work crew prior to project implementation for avoidance. Cultural resource sites that would be avoided would have site boundaries marked with flagging for avoidance. Mitigation of hazardous fuels from within site boundaries would be conducted by hand and monitored by the Field Office Archaeologist.
23. Once a targeted area has been identified for treatment, a Class III cultural resource inventory would be conducted in accordance with the signed PA prior to project implementation. The BLM would consult with the SHPO on project affect and mitigation.
24. No hauling operations would take place during major holidays, weekends and opening day within the four major Colorado State rifle big game seasons, because of hunter related traffic.
25. No operations would take place During Memorial Day, Labor Day and the weekend associated with the holiday.
26. All operations would be signed and it would be the contractors' responsibility to post road guards when cutting operations are impacting the roads through BLM administered lands.
27. Prior to implementation activities, the public would be notified through news releases areas that implementation activities would occur and identify the length and type of activities that would occur.
28. In the event of roadside hazard tree removal, skidding, prescribed fire or pile burning operations and/or heavy truck traffic roads and trails may be temporarily closed to provide for Public Health and Safety. Closure notices would be identified through news releases and signing of project areas.
29. Implementation activities that occur within Recreation Management Areas (RMAs) would be coordinated to meet RMA objectives including setting prescriptions. The Strawberry SRMA will have all live vegetation not identified as a hazard tree left to meet setting prescriptions. Activities may be limited to certain times of year to meet RMA objectives.

30. Projects would be designed to blend with topographic forms and existing vegetation patterns and use both to screen the project as much as possible. Repeat the elements of form, line, color, and texture of the existing landscape.
31. Openings in the canopy should have a natural appearance with uneven edges rather than straight lines. The shape should be an irregular pattern like the existing natural openings and should avoid straight-line edges. The edges of the stands should be varied and random to soften and blend with the native vegetative mosaic. Favor existing healthy dominant trees such as aspen to shape the edges of areas where materials are to be removed. Blend with natural landscape features such as natural meadows or openings and rock outcrops when possible. This will create free form vegetative shapes that mimic natural patterns. Make clearing edges irregular and freeform, feathering and undulating edges where possible.
32. Unit boundaries along open system roads and regeneration should be minimally marked, with water based markings, as needed for the contractor .
33. Root wads uprooted by the contractor that are visible in the foreground of an open system road shall be buried, burned or otherwise removed from sight.
34. All equipment and construction debris (man-man debris and trash, including old culverts) caused by timber operations would be removed from the site at sale completion.
35. Exposed soils resulting from road and landing construction can create strong color, form, and line contrasts. These contrasts can be reduced by reestablishing vegetation on the exposed soil. Natural re-establishment of vegetation in the units and re-vegetation of temporary roads would restore the landscape plants.
36. Any skid trails would be rehabilitated to reduce the color contrast of the exposed soil by randomly scattering and spreading slash or replacing scraped material. Cover exposed bare soil with adjacent organic materials. Where feasible, avoid construction of skid trails that are perpendicular with open system roads and trails. Temporary roads and skid trails would be held to the minimum number and width (20 feet).
37. Where possible, clearing size and form of the landings should mimic that of the surrounding vegetative mosaic as seen from middleground and background views (distances greater than ½ mile). The shape of landings should be an irregular pattern like the existing natural openings and should avoid straight-line edges.
38. When constructing skid trails, excessive cut/fill slopes would be avoided. Vary cut/fills to blend with the adjacent terrain, and leave in a roughened condition to facilitate revegetation. Stabilize fills and re-establish natural drainage configuration to the degree possible.

39. If pile consumption is not adequate, piles may need to be re-piled and burned or scattered. This would be determined by the BLM ID Team.
40. Do not create straight lines of unit boundaries along the roadless area boundary, wilderness areas, and/or wilderness study areas or areas found to possess wilderness characteristics.
41. Survey monuments (brass cap monuments, bearing trees, mineral claim posts, etc.) would be located, flagged and protected.
42. All existing roads that are used during treatment operations would be maintained by the contractor to at least the condition prior to operations at a minimum. Road maintenance may include but not limited to: blading/repair of road surfaces, pulling ditches, cleaning out culverts, culvert replacement, clearing of roadside vegetation, and brushing of roadside vegetation. Improvements to the roads would be implemented by the contractor, and improvements may include but are not limited to: addition of gravel, culverts, and widening of road. All improvements must be approved by the BLM prior to implementation.
43. Temporary road and landing locations would be approved by the BLM prior to development and not occur during periods of wet or frozen soils. Temporary roads in general; would not exceed 15 percent grade and the running surface would not exceed 12 feet in width.
44. Temporary Roads and landings that are identified for reclamation will have measures applied dependent on location that may include but not limited to: waterbarring, re-contouring, out-sloping; scarification, seeding with approved mixtures, and covering of disturbed areas with natural materials to BLM specifications that meet land use plan objectives, setting prescriptions and VRM requirements.
45. Temporary roads and landings, or portions of, may be utilized for future post-harvest treatments or utilized as part of an authorized transportation system or camp location. Temporary roads utilized for administrative post-harvest activities would be signed and/or gated to prevent unauthorized use until post-harvest activities are completed. Once post-harvest activities are completed the temporary road or landing will be reclaimed as identified in the design features. Temporary Roads or landings identified for public use would be signed and identified for uses authorized through subsequent NEPA documentation.
46. If treatment areas have Mountain Parks Electric power lines within the treatment area, Mountain Parks Electric would be contacted prior to start of any treatment operation.

2.2.2 No Action Alternative

Under the No Action Alternative, no hazardous trees along BLM travel corridors, trails, and other infrastructure would be felled and/or removed. Hazardous trees in stands adjacent to travel corridors would also not be felled and/or removed. Nature would be allowed to take its course in the forest ecosystem. In conjunction no piles would be created or burned, and stand structure would remain at its current state. The Healthy Forest Restoration Act of 2003 (HFRA), and the Bark Beetle Strategic Plan Colorado 2012 would not be complied with.

2.3 ALTERNATIVES CONSIDERED BY NOT ANALYZED FURTHER

The alternative to use prescribed fire was considered but not carried forward, due to the economic value of the timber at this time. It was determined that it would be more economically feasible to sell the timber rather than burn it. There is a possibility this alternative would be looked and analyzed in the future.

2.4 PLAN CONFORMANCE REVIEW

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

Name of Plan: Kremmling Resource Management Plan (RMP), Record of Decision (ROD)

Date Approved: December 19, 1984; Updated February 1999

Decision Number/Page: Decision 6, Pages 9 and 10, sections b. and c.

Decision Language: “The planned actions will emphasize improving forest vigor and growth as well as minimizing losses caused by insects, disease, or fire.” “Intensive management activities could include timber harvesting techniques, artificial regeneration, stand conversion, stand improvement, pre-commercial thinning, and commercial thinning. Limited management activities will involve primarily custodial practices such as fire protection and salvage.”

Name of Plan: HEALTHY FORESTS RESTORATION ACT OF 2003 TO EMERGENCY HAZARDOUS FUELS REDUCTION PROJECTS.

Date Approved: 2003

Decision Number/Page:

Decision Language: SEC. 2. PURPOSES.

The purposes of this Act are—

- (1) to reduce wildfire risk to communities, municipal water supplies, and other at-risk Federal land through a collaborative process of planning, prioritizing, and implementing hazardous fuel reduction projects;

Other sections pertinent to the Proposed Action include:Section 104 and 401.

Name of Plan: Bark Beetle Strategic Plan

http://www.blm.gov/pgdata/etc/medialib/blm/co/information/congressional_briefings/june_2012.Par.35032.File.dat/

Date Approved: 2012

Decision Number/Page: 8 Goals, Objectives, and Actions

Guiding Language:

Goal 1 – Safety, Goal 2 – Operations and Goal 3 – Key Concerns

CHAPTER 3 – AFFECTED ENVIRONMENT AND EFFECTS

3.1 INTRODUCTION

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. Because a standard exists for these five categories, a finding must be made for each of them in an environmental analysis (EA). These findings are located in specific elements listed below.

3.2 PAST, PRESENT AND REASONABLY FORESEEABLE ACTIONS

NEPA requires federal agencies to consider the cumulative effects of proposals under their review. Cumulative effects are defined in the Council on Environmental Quality (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 future actions regardless of what agency . . . or person undertakes such other actions.” In its guidance, the CEQ has stated that the “cumulative effects analyses should be conducted on the scale of human

communities, landscapes, watersheds, or airsheds” using the concept of “project impact zone” (i.e., the area that might be influenced by the proposed action).

Cumulative Effects Analysis Assumptions: Cumulative effects are defined in the Council on Environmental Quality (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.” Table 3 lists the past, present, and reasonably foreseeable future actions within the area that might be affected by the Proposed Action; for this project the area considered was the Natural Resources Conservation Service (NRCS) 5th Level Watershed. However, the geographic scope used for analysis may vary for each cumulative effects issue and is described in the Affected Environment section for each resource.

Table 3. Past, Present, and Reasonably Foreseeable Actions

Action Description	STATUS		
	Past	Present	Future
Livestock Grazing	X	X	X
Recreation	X	X	X
Invasive Weed Inventory and Treatments	X	X	X
Spring or Water Developments	X	X	X
Wildfire and Emergency Stabilization and Rehabilitation	X	X	X
Oil and Gas Development: Well Pads Access Roads Pipelines Gas Plants Facilities			X
Power Lines	X	X	X
Seismic			X
Vegetation Treatments	X	X	X

3.3 ENVIRONMENTAL CONSEQUENCES

Affected Resources:

The CEQ Regulations state that NEPA documents “must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail” (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. Table 4 lists the resources considered and the determination as to whether they require additional analysis.

Table 4. Resources and Determination of Need for Further Analysis

Determination ¹	Resource	Rationale for Determination
Physical Resources		
PI	Air Quality	See the Air Quality discussion in the EA
NI	Geology and Minerals	There would be no impact to geologic or mineral resources from the Proposed Action or the No Action Alternative. A Mining Claim Geographic Report from the LR2000 database on 4/8/2014 shows there were over 2,500 claims, all of which are closed. The database also shows that there are no pending or active mining claims within the project boundaries.
PI	Soil Resources*	See the Soils discussion in the EA
PI	Surface and Ground Water Quality*	See the Water Quality discussion in the EA
Biological Resources		
PI	Wetlands and Riparian Zones*	See the Wetlands and Riparian Zones discussion in the EA
PI	Vegetation*	See Rangeland Management, Vegetation, and Forest Management analysis
PI	Invasive, Non-native Species	See analysis
PI	Special Status Animal Species*	This project required a biological assessment for Threatened and Endangered Species and is consistent with ESA sec. 7. Consultation. This will require concurrence from USFWS prior to implementation.
PI	Special Status Plant Species*	Design Criteria included in this document avoids threats to special status plant species. Biological Assessment submitted to FWS.
PI	Migratory Birds	See Migratory Birds discussion in EA
PI	Aquatic Wildlife*	See discussion in the EA
PI	Terrestrial Wildlife*	See Terrestrial Wildlife discussion in the EA
Heritage Resources and the Human Environment		
NI	Cultural Resources	The Bureau of Land Management Kremmling Field Office has entered into a signed PROGRAMMATIC AGREEMENT (PA) BETWEEN BUREAU OF LAND MANAGEMENT KREMMLING COLORADO FIELD OFFICE AND COLORADO STATE HISTORIC PRESERVATION OFFICER REGARDING PHASED SECTION 106 COMPLIANCE FOR THE GRAND COUNTY HAZARDOUS FUELS TREATMENT PROJECT in March 2014, on a phased five year project implementation. The PA establishes how the BLM KFO will meet the Colorado Protocol Agreement with the Colorado SHPO Regarding the National Programmatic Agreement to meet the National Historic Preservation Act. The PA has determined that this project is a no adverse effect . All phased actions would be inventoried at the Class III level to identify historic properties and evaluate them for the NRHP, and determine project effect to historic properties in consultation with the Colorado SHPO on concurrence of project affect and mitigation.

Determination ¹	Resource	Rationale for Determination
NI	Paleontological Resources	<p>The proposed action covers geologic formations that have a potential for fossil resources. In the Dice Hill, Smith Mesa, and Strawberry areas, landslide deposits, volcanic rocks of basalt flows, tuff, breccia, and conglomerate are found. In those geologic units, they are not likely to contain recognizable fossil remains. Management concerns for paleontological resources for Potential Fossil Yield Classification (PFYC) 1, is usually negligible or not applicable with a condition 3.</p> <p>At Strawberry, the Pinedale Formation gravels and alluviums are present with a PFYC 3 or moderate potential to contain exposures of geological units that have a high potential to contain vertebrate fossils though widely scattered. Common noteworthy occurrences of invertebrate or plant fossils may be found.</p> <p>Dice Hill is also comprised of the Morrison Formation that is a PFYC 4 to 5, and condition 1. This unit has a moderate potential to contain vertebrate fossils or scientifically significant non-vertebrate fossils, and these occurrences are widely scattered. Common invertebrate or plant fossils may be found in the area. The potential for a project to be sited on or impact a significant fossil locality is low, but is somewhat higher for common fossils.</p> <p>Kinney Creek and Smith Mesa are within the Middle Park Formation of the Windy Gap member that is a PFYC 3, condition 2. In these areas are fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictability. Vertebrate fossils and scientifically significant invertebrate or plant fossils are known to occur intermittently.</p> <p>Geologic formations sensitive for fossil resources are present, but would not be impacted by the proposed project. BLM standard “discovery” stipulation is part of the environmental assessment and is to be attached to any authorization allowing the project to proceed.</p>
NI	Native American Religious Concerns	<p>Tribal consultation was initiated on July 23, 2013, and again on March 21, 2014. Consultation will be conducted for each phase of the proposed action. To date none of the five affiliated tribes have identified any area of traditional cultural or spiritual concern.</p>
NI	Visual Resources	<p>The proposed project is in Visual Resource Inventory (VRI) Class II & III areas. Since the 1984 Resource Management Plan (RMP) did not designate Visual Resource Management (VRM) classes, BLM manages visual resources to protect the VRI by applying management class objectives to the inventory. Objectives for the VRM Class II are to retain the existing character of the landscape and level of change should be low. Objectives for VRM Class III are to partially retain the existing landscape. Changes to the landscape should be moderate and may attract attention, but should not dominate the landscape. The project is designed to reduce contrast in the landscape. Using the design features above, visual resources should retain the existing character and should minimize the attention of the observer.</p>
NI	Hazardous or Solid Wastes	<p>There are no quantities of wastes, hazardous or solid, located on BLM-administered lands in the proposed project area, and there</p>

Determination¹	Resource	Rationale for Determination
		would be no wastes generated as a result of the Proposed Action or No Action alternative.
PI	Fire Management	See analysis
NI	Social and Economic Conditions	There would not be any substantial changes to local social or economic conditions.
NI	Environmental Justice	According to the most recent Economic Census Bureau statistics (2009), there are minority and low income communities within the Kremmling Planning Area. There would be no direct impacts to these populations.
NI	Noise	There would be short-term increases in noise during timber management of hazard trees and from vehicle travel. Noise levels would fluctuate dependent on weather, topography and vegetative screening and would only be noticeable in the immediate area where activities are occurring.
Resource Uses		
PI	Forest Management	See Analysis
PI	Rangeland Management	See Rangeland Management analysis
PI	Floodplains, Hydrology, and Water Rights	The project areas are located in the upland areas and are outside of the floodplains, so there are no direct impacts to the floodplain. See the Water Quality section of the EA for analysis of hydrologic impacts. The proposed treatments would not impact water rights.
NI	Realty Authorizations	There are existing ROW's in the project area. The ROW holders have prior existing rights, and would be notified during the project work.
PI	Recreation	See Recreation Analysis.
PI	Access and Transportation	See Access and Transportation Analysis.
NP	Prime and Unique Farmlands	There are no Prime and Unique Farmlands within the project area.
Special Designations		
NI	Areas of Critical Environmental Concern	There are no ACEC within the proposed project area.
PI	Wilderness, Wilderness Study Areas and Lands with Wilderness Characteristics	There is no designated Wilderness or Wilderness Study Areas within the project area. The Proposed Action is adjacent to the Strawberry and Drowsy Water areas that were found to have wilderness characteristics. See analysis.
NP	Wild and Scenic Rivers	There are no suitable Wild and Scenic River segments in the project area.
NI	Scenic Byways	The Colorado River Headwaters Scenic Byway follows Highway 40 between Granby and Kremmling. Some of the project area would be seen from the byway. Changes to the landscape should be moderate and may attract attention, but should not dominate the landscape. The project is designed to reduce contrast in the landscape. Using the design features above, visual resources could attract attention from the byway but would not be the focus of the landscape and the existing landscape would be partially retained.

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

* Public Land Health Standard

AIR QUALITY

Affected Environment: The Proposed Action occurs within the Middle Park area, which is considered to be in attainment of the national and state ambient air quality standards. Pollutants are primarily associated with wood burning at private residences, dust from unpaved roads and off-road travel, and vehicle emissions on the roads. There are also emissions associated with a curtain burner near Windy Gap and sawmill operations in the Tabernash, Granby, Parshall and Kremmling areas. There are some logging operations on lands adjacent to the project to remove the dead lodgepole pine, which can also involve slash pile burning to dispose of the woody debris.

Middle Park has two Class 1 air quality areas- Rocky Mountain National Park in the eastern portion of the park, and Eagles Nest Wilderness Area in the west. Class 1 areas have air quality better than the National ambient standards and are managed to prevent significant deterioration, allowing only minor increases in sulfur dioxide or total suspended particulates. Although there are concerns regarding the portion of the Park on the east side of the Continental Divide due to airborne nitrate and sulfate particles, the west side of the Park is considered to be relatively natural and not eutrophic. The prevailing winds in the area are from the west-southwest, towards the national park. The Strawberry and Kinney project areas are approximately eight and fourteen miles from the Rocky Mountain National Park boundary, lessening the potential impacts to the Park. The Shadow Mountain project area is approximately 2 miles west of the Park. The Dice Hill project area is approximately six miles north of the Eagles Nest Wilderness Area, but prevailing winds are away from the area.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The Proposed Action would result in some increased emissions. Prescribed burns associated with slash pile disposal produce reactive organic compounds, nitrogen oxides, carbon monoxide, inhalable particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), and greenhouse gas pollutants. Vehicle and machine engine combustion also produces the same categories of emissions as prescribed fire. In addition, vehicle use on unpaved roads and cross-country travel generate fugitive dust that contains PM₁₀ and PM_{2.5}. The emissions from vehicles and equipment would be of small quantity and have a short duration. Emissions from a fire can cause irritation to the eyes, nose, and mouth and can reduce visibility. These impacts would be primarily a concern for the private residences near the project area such as the Bighorn subdivision (Monument Creek project). The larger communities in Middle Park would be less likely to be impacted due to their distances from the project areas.

When properly executed, managed fires are expected to cause fewer air quality impacts both in the short term and in the long term than under the No Action Alternative, if a wildfire was to occur. The small piles involve less combustion than a wildfire, and can only be lit when the fuel type and fuel loading meet management parameters for control and under weather conditions that enhance efficient fuel consumption and air pollutant dispersion. The smoke plan and the burn

permit authorize burning only when conditions allow for good smoke dispersal that help minimize the potential impacts to adjacent homeowners and air quality.

Cumulative Effects: The proposed project areas would likely be treated over a period of at least a few years, as would the planned projects on state, private, and other federal lands. Occasionally, there could be small localized areas where several slash piles are burning simultaneously, but burning is permitted when good dispersal and atmospheric mixing can occur and it unlikely to measurably impact air quality. These actions are considered to be prescriptive in reducing the emissions and air quality impacts that could occur if a large wildfire occurred. The State of Colorado, in issuing the burn permit, considers proposed prescribed burns in an area and places restrictions on the permit to help reduce the negative cumulative effect in a geographical area. Impacts from a prescribed fire are generally of short duration and do not usually result in any long term impacts.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, the proposed vegetation treatments would not occur. Emissions associated with mechanical treatments and harvesting operations would not occur and slash pile burning would not be needed. Air quality would not be impacted. There would continue to be a high risk of a large wildfire, however, which would emit much larger amounts of the same pollutants as the prescribed burning. Actual air quality impacts from a large wildfire would be dependent on the many variables of the fire and conditions at the time of the fire. There is a higher potential not only for increased emissions than from the proposed action, but also for a longer duration in any one project area. Emissions from a wildfire impact air quality for the duration of the fire, but do not result in long-term air quality degradation.

Cumulative Effects: The No Action Alternative would allow for the continued build up of dead and downed fuel on public lands in Grand County. Adjacent landowners would be expected to continue their planned actions to remove the hazardous trees and could dispose of slash material by burning. The actual amount of emissions from harvest activities in Grand County would be slightly less due to the BLM's public lands not being treated.

Mitigation: None identified.

SOIL RESOURCES

Affected Environment: The proposed project includes several different areas, whose soils are mapped by the Natural Resource Conservation Service. All of the areas, except Dice Hill, are covered by the Grand County Soil Survey. The Dice Hill project area also includes acres covered in the Eagle County Soil Survey. The portion of Dice Hill in Summit County is unmapped. The larger project areas' (Dice, Smith, Kinney, and Strawberry) soils were formed in glacial drift or in residuum and colluvium from metamorphic rock or granites. Soil textures tend to be gravelly sandy loams to stony loams. These areas are part of the resource area's timber management program, and the major access and spur roads are already in place. The Wolford

Substation is located at a lower elevation, outside of the lodgepole pine stands, and is on soils formed in alluvium and residuum from shale and mudstone. The textures are much finer and the soils produce large amounts of runoff. The primary soil mapping units for each project area are included in the Water Quality Report for this EA. In general, as slope increases, most of the soils become highly erosive. For some soils, slopes above 15% are limiting, while others are stable until 25% slopes. Within the project areas, are some mapped landslide hazard areas on the north bank of Smith Creek, the upper portion of Sheriff Creek, and on the USFS lands upstream of Smith, Sheriff, Kinney, and McQueary Creeks. During periods of high soil moisture, these landslide hazard areas are likely to slump. Due to the large amount of dead lodgepole pine, the areas could become more unstable as tree roots deteriorate. Generally literature estimates that it takes 5 years after the tree dies for roots to begin to break down and lose their effectiveness in stabilizing the soil.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The proposed vegetative treatments can result in areas of surface disturbance as equipment is used to access, cut, and skid the trees to be loaded on trucks. The actual amount of disturbance would vary depending on the machinery used, but skid trails and temporary roads would disturb or remove duff layers, exposing soils to displacement and erosion. Some disturbance is necessary to provide a seedbed for coniferous seed germination and survival. The amount of road construction would be expected to be limited due to the number of existing roads. The logging equipment and vehicles can also compact the soil, reducing the soil's water and nutrient cycling and increasing runoff. Due to the design features restricting operations during periods of higher soil moisture and the general coarseness of the soil textures, compaction tends to be isolated to small areas.

Each of the large project areas were modelled for soil loss and sediment transport using GeoWEPP. Data inputs include the 30 m DEM, soil maps, and vegetative cover. Despite the slopes and soils, however, the proposed vegetative treatments resulted in no measurable increases in soil loss. For the existing roads, FSWEPP interface was used to model the predicted road prism erosion and the amount of sediment leaving the vegetative buffer from selected road segments. Generally a road within a more erosive hillslope (as predicted in GeoWEPP) was used. The model assumes under high volume use, the road becomes rutted, while the low volume road surface can be input as rutted or not. Most of the road segments, under existing conditions, generated 30-50 lbs of road prism erosion, but there would not be sediment leaving a 100 foot buffer. If road conditions deteriorate, then sediments were found to leave the buffer. The actual amounts for low traffic were generally low, but depending on the receiving water and the road network, this could be a concern. The design features of buffers for all drainages and field inspections prior to locating any temporary road is an important action to protect soils and reduce erosion, especially mass wasting potential.

Cumulative Effects: Although much of the upstream watershed on USFS lands is also planned for future timber harvest, the cumulative soil impact of logging much of the watershed was not associated with the loss of the vegetative canopy. The remaining duff layers, scattered woody debris, and understory vegetation offers good soil protection to maintain soil health and

productivity. The initial (10 years or less) time period of increased vegetative diversity actually benefit soils.

There was no model, however, used to predict mass wasting or the potential soil loss due to an increase in road density. Soil moistures have increased due to the lack of soil water uptake and reduced evapotranspiration in the dead lodgepole pine stands. As tree roots continue to deteriorate, during periods of wet soils (generally in late spring), there is an increasing natural risk of mass wasting which could be exacerbated by additional roads. Careful road planning and design will help avoid these areas or reduce the risks.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, there would be no planned vegetative treatments to reduce the hazard trees on public lands in Grand County. Existing soil conditions would continue unless some other disturbance occurs. There would continue to be the risk of a large wildfire in any of the areas. Soil impacts due to wildfire are very dependent on the extent and intensity of the fire. The general rating for the soils' potential for damage by fire, looks at the nutrient, physical, and biotic soil characteristics. The fires are assumed intense enough to remove the duff layer and consume the organic matter in the surface layer. The soils within the project areas are rated to have "low" potential for damage. The soils have evolved with stand replacing wildfires, but an intense wildfire could definitely increase the potential for mass wasting and other soil erosion concerns.

Cumulative Effects: The No Action Alternative would reduce the total acreage of treated forest lands in any of the project areas. This could reduce the number of log truck loads hauled down the roads and the amount of soil erosion due to roads.

Mitigation: None identified.

Finding on the Public Land Health Standard #1 for Upland Soils: The project areas are all within areas that are meeting the Land Health Standard for upland soils. The Proposed Action is not expected to prevent the areas' ability to continue to meet the standard and the vegetative treatments will temporarily result in an increase in understory vegetative cover and diversity. This increase would provide more browse and forage, temporarily improving distribution and reducing areas of heavier use. Animal movement through the treated areas would also be improved, which would benefit the distribution and use within the areas. The No Action Alternative would maintain the existing conditions, which meet the standard, unless another disturbance occurs.

SURFACE & GROUND WATER QUALITY

Affected Environment: The project areas are all located within the Upper Colorado River basin. The proposed action is not expected to impact ground water quality and no analysis was done. The Water Quality Report, prepared for this EA, analyzes each project area in more detail. The table below summarizes the surface water resources in each project area and any water

quality concerns. The listing of water quality impairment due to temperature in Muddy Creek and the Fraser and Colorado Rivers is primarily due to water diversions. Sediment loading could contribute to higher stream temperatures, but would only be a small component of the problem.

Project Area	Streams within unit	5 th order watershed	Water Quality Concerns
Dice Hill	Spruce Creek Tributaries to Spring Crk, Sheephorn Crk, Hartman Gulch	Lower Blue River Sheephorn Creek	Spruce Creek- M&E List- Fe(Trec)
Wolford Substation	Unnamed drainage to Wolford Reservoir	Muddy Creek	Muddy Creek & tribs.- M&E List-temperature
Monument Creek	Monument Creek	Colorado River Above Kremmling	Colorado River- 303(d) List- Temperature, Mn (WS)- High Priority
Smith Creek	Smith Creek, First Creek, Second Creek, Ute Bill Creek, tributaries to Corral Creek	Colorado River- from Fraser to Williams Fk Colorado River Above Kremmling	Colorado River- 303(d) List- Temperature, Mn (WS)- High Priority
Kinney Creek	Sheriff, Kinney, McQueary Creeks	Colorado River- from Fraser to Williams Fk	Colorado River- 303(d) List- Temperature, Mn (WS)- High Priority
Shadow Mtn.	Tributary to Supply Creek (intercepted by Red Top Valley Ditch)	Colorado River Headwaters to Fraser River	Shadow Mtn. Reservoir- 303(d) List- D.O. –High Priority
Strawberry	Behler Creek Tributaries to Fraser River, Strawberry Creek, Meadow Creek	Fraser River	Fraser River- M&E List- Copper, Lead 303(d) List- Temperature- Low Priority

The BLM collects limited water quality data on Kinney and Corral Creek as part of the Grand County Water Information Network (GCWIN) during the field season, and the USFS has two temperature sensors on the BLM’s segment of Kinney Creek. The samples generally indicate low dissolved solids and electrical conductivity typical of forested streams. Several agencies and organizations monitor water quality and stream temperatures in the Colorado and Fraser River segments’ upstream and downstream from the project areas. The operation of reservoirs and transmountain diversions are the dominant factors in the resultant water quality, but land management actions can contribute to water quality concerns.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The Proposed Action would not be likely to directly impact surface water quality, due to the design feature limiting mechanical equipment from 100 feet from the riparian and wetland zones, and buffers for all drainages. If temporary road crossings are needed to cross streams, there could be potential direct water quality impacts. Proper siting and construction practices that employ recognized best management practices (BMPs) would reduce impacts and help prevent any longterm impacts to water quality.

Indirect impacts could occur from harvest operations removing the forest duff, litter, and woody debris that help detain runoff and increase the amount of precipitation that infiltrates the soil and does not run off. The actual acreage of exposed soil is generally low and rarely continuous. Adjacent undisturbed duff and litter can cause sediment to be deposited within the unit, reducing the amount of runoff and sediment leaving a unit, much less exceeding a buffer's length.

Areas of compacted soils or roads would also increase the amount of runoff and decrease the travel time to streams. The coarse soils and timing restriction to dry soil conditions reduce compaction except for roads. Roads basically act like extensions of the stream network and can increase the efficiency of transporting runoff, sediment and nutrients to the stream. The existing road network appears to have adequate buffer widths of vegetation to reduce impacts to water quality, but road maintenance is essential to keep sediment loads from reaching the streams. In using the GeoWEPP model, traffic volume and road condition greatly affected the amount of sediment that would be transported past the vegetative buffer. The USFS Watershed Condition assessed the 6th order watershed containing Spruce Creek as having a "functioning at risk" road condition, with a "poor" proximity to water rating, due to more than 25% of the road length located within 300 feet of streams and water bodies, or hydrologically connected to them. Spruce Creek supports a cutthroat trout population. All of the larger project areas' road networks except the Drowsy Water watershed (Kinney, Sheriff, McQueary) were rated "functioning at risk", with Kinney Creek's being rated "poor", with a "poor" road density and "poor" rating for road maintenance. The streams within the Kinney Creek project area all support brook trout, with upper Kinney Creek being designated an ACEC area, in part due to its cutthroat trout population.

The cleared road corridors could also reduce vegetative barriers to cross country vehicle travel, resulting in user created roads and trails. These roads and trails could further increase the road density and potential impacts to water quality. By scattering woody debris and slash within the clearing, not only would runoff be detained and soils protected, but user created trails would be discouraged.

The proposed minimum 100 foot buffer for perennial streams is essential to helping protect water quality. The 100 foot buffer starts at the edge of the riparian vegetation, which in confined portions of the stream is fairly narrow. In the unstable portion of Kinney Creek, the middle meadow would provide a much wider buffer to the stream channel.

Cumulative Effects: Due to the extent of the beetle killed lodgepole pine stands, vegetation treatments are planned for entire sub-watersheds' and watersheds' timbered areas.

The amount of surface disturbance, including skid trails and roads, within a drainage could increase sediment and nutrient loading in the streams. Increases in runoff generally occur when more than 25% of a watershed is cut, but this does not pertain to watersheds with a high amount of dead trees. Research has shown that as soon as the needles turn red, soil water uptake is no longer occurring. The proposed project areas have such a large amount of dead trees that the watersheds are already experiencing the hydrologic changes of increased and earlier snowmelt peaks. The hydrology would not be altered whether the trees are cut or left alone.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, the proposed project areas would not be treated. The dead lodgepole pine would continue to be susceptible to windthrow and would fall down. The amount of surface disturbance might actually be decreased over the existing conditions, as it would be increasingly more difficult to recreate or graze on these public lands.

Cumulative Effects: It is assumed that vegetative treatments would continue on non-BLM administered lands adjacent to the project areas. The USFS's contractors and timber sale purchasers would use many of the main roads that cross BLM administered lands to access and haul out their timber. The road use volume may increase compared to current levels, but would be less than the Proposed Action, reducing possible water quality impacts

Mitigation: Although many of the spur roads were designed with adequate drainage and grade, they were constructed 30-40 years ago and maintenance has generally been limited to grading and pulling ditches. Public use has also increased over time and tends to be season long and not just during the hunting seasons. Depending on the amount of road traffic from BLM and USFS fuel reduction contracts, the roads may need additional work to reduce their impacts to water quality. Monitoring of the macro-invertebrate populations and roadside buffers for evidence of increases in sediment would help determine if additional BMPs are needed.

Finding on the Public Land Health Standard #5 for Water Quality: Spruce Creek has been identified as possibly being impaired due to ferrous iron concentrations. At this time, additional data is needed to determine if the stream is impaired, if the impairment occurs in the entire stream or just a segment, and the possible source of impairment. It would be assumed that the iron source is the underlying geology, and is in the soils and any groundwater. The Proposed Action could increase sediment loads to the stream, which could add to the impairment, during periods of heavy road use or poor road condition(s). The design features appear to be sufficient to maintain the water quality, but monitoring of field conditions and water quality will be initiated to determine if additional BMPs are needed.

Several of the project areas are tributary to streams that are on the 303(d) List or the Monitoring and Evaluation List. The project areas are a very small percentage of the total acreage of these watersheds, which are also impacted by reservoir operations and large depletions. It is unlikely that the Proposed Action would measurably impact these rivers. Tributary streams within the project area would be monitored, however, and if data indicates a decline in water quality, then additional BMPs would be implemented.

Under the No Action Alternative, the existing conditions would be expected to continue

WETLANDS AND RIPARIAN ZONES

Affected Environment: The project areas' perennial streams and larger tributary drainages have been inventoried for riparian resources. Most of the areas have not been inventoried for wetland areas. Wetland inventories in timbered areas are more difficult as aerial photography can fail to pick up potential areas for seeps and springs. The BLM contracted with the Colorado Natural Heritage Program to inventory some of the known wetland resources within Grand County, including a few within the project areas. Three Potential Conservation Areas (PCAs) were recommended- two which occur in the Strawberry Project Area and one in the Smith Creek project area. The CNHP recommended two areas within the Strawberry treatment area as potential conservation areas (PCAs)- Behler Creek with 125 acres and Road End Seep with 45 acres. The Behler Creek beaver pond complex has several species of willows, and is recommended as a PCA due to the good occurrence of globally vulnerable (G3/S3) mountain willow/bluejoint reedgrass plant community and high biodiversity. The Road End Seep has moderate biodiversity and is a thinleaf alder/mesic forb riparian shrubland. In the Smith Creek project area, Upper First Creek and an area of seeps to the east (214 acres total) are mapped having high biodiversity. The thinleaf alder-Drummond's willow montane riparian shrubland is in good condition and rated as globally vulnerable (G3/S3). Riparian and wetland communities are considered to be in proper functioning condition except for two segments on Kinney Creek. The middle meadow section of Kinney Creek is in non-functioning condition, with the downstream reach in functioning at risk condition. Kinney Creek experienced very high runoff that re-channelized a portion of the creek and destroyed several beaver dams. The USFS lands upstream of the BLM have an unstable large talus slope that washed down a large amount of gravels and rubble, scouring the creek and depositing material in the middle meadow of Kinney Creek. More discussion of each riparian area is in the Water Quality Report prepared for this EA.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: There would be few direct impacts to the wetlands and riparian zones due to avoidance of the areas. All treatment maps would be updated as wetland and riparian zones are located to insure that adequate buffers are applied in the layout and treatment stages. Indirect impacts could occur from upslope vegetative buffers failing to capture runoff and sediment from surface disturbances associated with the proposed vegetation treatments and roads. The effectiveness of a buffer strip is dependent on the buffer's slope and vegetative cover. Due to the duff layer and woody debris, the buffers are expected to protect the wetlands and riparian zones from increased sediment deposition. It is unlikely that many road crossings would be needed due to the existing developed road network. Proposed temporary roads would be designed and located to minimize impacts to the wetland and riparian areas and would be closed and rehabilitated as soon as feasible. In some areas, the proposed treatments could encourage user created trails that might cross or come to close to wetland or riparian areas.

Scattering slash and woody debris would help reduce the likelihood of new roads or trails being created.

Cumulative Effects: Although a large acreage is proposed for treatment across several watersheds, the various land owners are expected to implement the actions over a period of years. This would reduce the expected road volume increase on any one road and would allow for more of a mosaic in the vegetation, reducing the expected increases in sediment loads and any potential impacts to the wetland and riparian zones.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The No Action Alternative would result in the wetland and riparian zones to continue in their present conditions. In some areas, excess woody debris may accumulate in the wetland areas due to downed trees. Livestock and big game use of the narrower confined streams and drainages would be impeded by the downed trees, which could further increase utilization levels in meadow areas. Wetland vegetation could be improved in inaccessible areas.

Cumulative Effects: The BLM lands would not be treated for hazard trees, but it is assumed that planned treatments on adjacent lands would continue. BLM roads could be used to access some of these lands, and some increase in soil erosion and transport could occur due to road use. It is unlikely that wetland and riparian zones would be impacted by the activities.

Mitigation: None identified.

Finding on the Public Land Health Standard #2 for Riparian Systems: The riparian and known wetland areas are considered to be meeting Standard #2 except for two reaches on Kinney Creek. The Proposed Action would not affect the areas' ability to continue to meet (or to move towards meeting) the Standard. Under the No Action Alternative, the existing conditions are expected to continue. In the Kinney Creek areas, the stream segments would continue to move towards meeting the standard.

VEGETATION (Range)

Affected Environment: The meadows in the project area contain a mix of Mountain Big Sagebrush (*Artemisia tridentata*), a variety of perennial bunchgrasses, including but not limited to Thurber and Idaho Fescue, (*Festuca thurberiana and idahoensis*), Bluebunch Wheatgrass (*Pseudoregnaria spicata*), and Nodding Brome (*Bromus anomalus*). Other shrubs include Bitterbrush (*Purshia tridentata*), Snowberry (*Symphoricarpos oreophilus*), Serviceberry (*Amelanchier alnifolia*) and Buckwheat (*Eriogonum umbelliferum*). Some common forbs include Balsamorhiza (*Balsamorhiza sagittata*), and Yarrow (*Achillea millifolium*). This plant community transitions into the woodlands containing Aspen (*Populus tremuloides*) and Lodgepole pine (*Pinus contorta*). For a description of forest and woodland vegetation see analysis below in regards to forest management.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The proposed action would open the over story canopy, reduce competition for water and nutrients and result in an increase in cover of grasses and forbs, thus an increase in surface litter.

Cumulative Effects: The proposed action and subsequent treatments would remove the decadent and down trees and result in increased vigor and structural diversity of the units. This would improve habitat for wildlife and forage for livestock.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, the existing conditions would remain the same. Areas would remain inaccessible due to the downed trees. If not removed, the dead lodgepole will remain on the ground before decomposing, resulting in less forage availability.

Cumulative Effects: Under the No Action Alternative, the existing conditions would remain the same, and less forage would be available due to the down trees until decomposition occurs.

Mitigation: None

Finding on the Public Land Health Standard #3 for Plant and Animal Communities:

Allotment Name & Number	Land Health Standard 1&3*	Meeting	Functioning at Risk	Not Meeting	Date of Assessment
McPhee 07551	Standard 1	x			07/11/2006
	Standard 3	x	x		
Dice Hill 07504	Standard 1		x		07/11/2006
	Standard 3				
Weimer 07509	Standard 1	x (uplands)	x (meadows)		07/12/2006
	Standard 3	x (uplands)	x (meadows)		
Sheriff B 07527	Standard 1	x			07/20/2011
	Standard 3	x			
Curry R & M 07760	Standard 1	x			6/25/2008
	Standard 3	x			

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

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

Standards for Public Land Health describe the conditions needed to sustain Public Land Health and relate to all uses of the Public Land. “Plants and animals at both the community and population level are productive, resilient, diverse, vigorous, and able to reproduce and sustain natural fluctuations and ecological processes”.

INVASIVE, NON-NATIVE SPECIES

Affected Environment: Invasive, noxious species occur within most focal project areas, the size of the populations vary from one project area to another. For the purpose of this analysis specific project areas are described.

Dice Hill Project area. Several species of noxious plants occur within the Dice Hill project area. According to a 2006 inventory Canada thistle (*Cirsium arvense*), Musk thistle (*Carduus nutans*), Scentless chamonile (*Anthemis cotula*), Houndstongue (*Cynoglossum officinale*), and Dalmation toadflax (*Linaria dalmatica*) were found. These species occur primarily in past clear cuts, trails, and roadsides of the proposed project area. Chemical Treatment of the above species has occurred since 2006, and some progress has been made in the containment of the noxious species. Large populations (greater than 2 to 3 acres) have been reduced to more sporadic populations (less than an acre). Dalmatian toadflax in the area has been eradicated.

Kinney Creek Project area: Several species of noxious weeds occur within the Kinney Creek Project area, these include Houndstongue (*Cynoglossum officinale*), Bull thistle (*Cirsium vulgare*), Musk thistle (*Carduus nutans*), and Canada thistle (*Cirsium arvense*). Houndstongue and Canada thistle are the primary species that occur in larger populations (Greater than an acre) within the projects area. These species occur mostly along roadsides, campground areas, trails and within timber stands. Recreational use and livestock practices have helped spread species throughout project area. Due to the high recreational/livestock use, dead and down timber, and general steep topography, treatment has been difficult in this area. However since the 2006 inventory, progress has been made in containing larger populations along roadside, campground, and open timber cut areas.

Smith Mesa/Grouse Mountain Project areas: A 2006 noxious species inventory revealed sporadic populations of Houndstongue (*Cynoglossum officinale*) and Canada thistle (*Cirsium arvense*). These species occur mostly along roadsides, campground areas, trails and within old timber treatment cuts. In 2013, some treatment monitoring/inventory occurred in which very little Houndstongue and or Canada thistle was found. Only a few plants were found which revealed good progress with ongoing treatments and the reduction of populations.

Strawberry Project area: A 2007 noxious species inventory revealed Yellow toadflax (*Linaria vulgaris*), Canada thistle (*Cirsium arvense*), Musk Thistle (*Carduus nutans*), and Houndstongue (*Cynoglossum officinale*). These species occur mostly along roadsides, campground areas, trails, and within past timber harvests. Larger Musk thistle populations were

found in 2012 within past timber harvest areas. Continued chemical treatment occurs on these larger populations and some progress has been made.

Big Horn: Project area has not been inventoried for the presence of Noxious and or invasive species.

Shadow Mountain Estates: Project area has not been inventoried for the presence of Noxious and or invasive species.

Wolford Substation: A 2007 inventory revealed that several noxious species exist within the Wolford Substation. These species include Musk thistle (*Carduus nutans*), Canada thistle (*Cirsium arvense*), Houndstongue (*Cynoglossum officinale*), and Hoary cress (*Cardaria draba*). In general, species occur sporadically and in relatively small populations. Larger Hoary cress populations were found within the project area, (approximately one to two acres in size). Treatment occurred following the discovery of the larger populations. A 2013 assessment of the treatment area showed a significant reduction in Hoary Cress populations with treatment areas resulting in only a few plants.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Any type of human activity that promotes soil or vegetation disturbance can provide avenues for the introduction or spread of invasive species. The proposed mechanical treatments are to be implemented with conventional, ground-based logging equipment, such as but not limited to; Bullhogs, Hydro-axes, Timbco, Fella-bunchers, skid steers, chippers, Fecons, skidders, and/or by hand crews with chainsaws. Typically all the above methods can create temporary disturbance to both soil and vegetation when implementing mechanical treatments. Little to no effect is expected from the consequential pile burning after mechanical treatment is complete. Initially an increase in noxious plants species described above would be expected especially in areas that species are already established. Indirectly, tree canopy being opened up from mechanical operations would increase vegetation growth within this area. If invasive weeds are established from adjacent weed-invested areas or by vehicles used in the logging operations, they are likely to out-compete native preferred vegetation which would decrease available native vegetation. In addition, the removal of the dead and down timber would indirectly allow for better access into these areas to perform treatments and reseeded. With proper chemical treatments and reseeded efforts, the noxious weeds should be reduced which would promote a better herbaceous community within the forested areas and roadsides. The removal of dead timber may decrease the potential for a catastrophic fire in which immense disturbance could occur. This could contribute exponentially to the introduction or spread of the noxious invasive species within the parcels. Within the existing open meadows, the impact would be minimal except for the anticipated disturbance from machinery being moved throughout the proposed project area.

Cumulative Effects: Past actions have been focused on the Dice Hill, Kinney Creek, Smith Mesa/Grouse Mountain, Strawberry, Wolford Substation project areas, which have focused on treatments in the open meadows, roadsides and occasional forested within the project areas. There have also been some successful treatments for invasive species within the forested

areas within the past 6 to 8 years. Presently, the BLM in cooperating with its partners, and has chemical treated the above treatment areas for noxious weeds and would continue to do so in the future. The initial disturbance may increase the spread of invasive noxious weeds throughout project areas. The removal of downed trees would increase access for treatment which would, in the future, potentially promote a better herbaceous vegetation community.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: No mechanical treatment would take place within parcels where existing recreation and grazing disturbance activities only take place. Existing conditions would remain the same where access to timber areas would remain limited and treatment of invasive populations would remain difficult. The increased threat of a larger more destructive fire would remain where more significant disturbances may occur.

Cumulative Effects: Past and current actions would remain the same where access into timber areas would be limited, therefore treatment success would be affected. Future noxious weed populations may increase by either a more destructive natural fire or from the lack of the ability to treat expanding populations. The BLM would continue treatments and monitoring of noxious weeds into the future.

Mitigation: None

THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES

Affected Environment: The KFO verified the U.S. Fish and Wildlife Service (USFWS) list of threatened, endangered, candidate and proposed species that might occur on or within the vicinity of influence of the proposed action. The list was received on March 10th 2014 and is shown in the table below. Upon closer inspection of potentially affected species, it was determined by the KFO biologist that Canada Lynx, Green Lineage cutthroat trout, and Osterhout (Kremmling) milkvetch are threatened or endangered species that could potentially receive impacts as a result of the proposed action. Of the BLM sensitive species identified by the state director, Northern goshawk and Colorado River cutthroat trout were identified as potentially being impacted by the proposed action. Other species were eliminated from analysis because their habitat was not in or near the project boundary or they were not reasonably expected to be impacted by the proposed action.

Federally Listed Terrestrial, Aquatic and Botanical Species for the KFO, Grand, Eagle, and Summit Counties Colorado.

Category	Name	Suitable Habitat in or near the Action Area:	Species documented within or near the Action Area:	Basic Habitat Description
Terrestrial	Canada lynx (T) <i>Lynx canadensis</i>	Yes	No	Resident in early successional mixed conifer forests and also aspen/willow/shrub-steppe. Late-successional forests are used for denning and winter foraging forested types. Most likely to occur within established Lynx Analysis Units (LAUs).
Terrestrial	Mexican Spotted Owl (T) <i>Strix occidentalis lucida</i>	Yes	No	Found in canyon habitat dominated by vertical-walled rocky cliffs within complex watersheds including tributary side canyons. Rock walls include caves, ledges and other areas that provide protected nest and roost sites. Canyon habitat may include small isolated patches or stringers of forested vegetation including stands of mixed-conifer, ponderosa pine, pineoak, pinyon-juniper, and/or riparian vegetation in which owls regularly roost and forage.
Botanical	Osterhout milkvetch (E) <i>Astragalus osterhoutii</i>	Yes	No	Osterhout milkvetch is endemic to Grand County and restricted to highly seleniferous clay soils.
Botanical	Penland alpine fen mustard (T) <i>Eutrema penlandii</i>	No	No	Found at margins of moss-dominated fens fed by perennial snowbeds. Known from Lake, Park and Summit Counties in Colorado at elevations between 11,900 and 13,280 ft.
Botanical	Penland beardtongue (E) <i>Penstemon penlandii</i>	No	No	Penland beardtongue is endemic to Grand County and is only known from two locations along Troublesome Creek. The species is an obligate selenophile, restricted in this area to the Troublesome Formation of seleniferous shales
Botanical	Ute Ladies'-tresses (T) <i>Spiranthes diluvialis</i>	No	No	Potential habitat for this threatened species is found below 7,200 feet along streams, lakes or in wetland areas with seasonally saturated or subirrigated soils.
Aquatic	Bonytail (E) <i>Gila elegans</i>	No	No	Yampa, Green, and Colorado River systems
Aquatic	Colorado Pikeminnow (E) <i>Ptychocheilus lucius</i>	No	No	Yampa, Green, and Colorado River systems
Aquatic	Humpback Chub (E) <i>Gila cypha</i>	No	No	Yampa, Green, and Colorado River systems
Aquatic	Razorback Sucker (E) <i>Xyrauchen texanus</i>	No	No	Yampa, Green, and Colorado River systems

(E)Endangered, (T)Threatened, (P) Proposed for listing (C) Candidate for listing status under the ESA

Category	Name	Suitable Habitat in or near the Action Area:	Species documented within or near the Action Area:	Basic Habitat Description
Aquatic	Greenback Cutthroat Trout (T) <i>Oncorhynchus clarki ssp. stomias</i>	Yes	Yes	Colorado River system, in the headwaters of the South Platte and Arkansas rivers.
Terrestrial	North American Wolverine (P) <i>Gulo Gulo luscus</i>	Yes	No	Alpine and arctic tundra, boreal and mountain forests (primarily coniferous). Usually in areas with snow on the ground in winter. Riparian areas may be important winter habitat. May disperse through atypical habitat. When inactive, occupies den in cave, rock crevice, under fallen tree, in thicket, or similar site.
Terrestrial	Yellow-billed cuckoo (P) <i>Coccyzus americanus</i>	No	No	Nests in tall cottonwood and willow riparian woodlands.
Terrestrial	Greater Sage-grouse (C) <i>Centrocercus urophasianus</i>	Yes	Yes	Inhabits sagebrush shrublands.

Canada lynx – The Action Area is in the Fraser, Mahan, Upper Colorado, and Sheephorn Lynx Analysis Units (LAU). An LAU is a project analysis unit upon which direct, indirect, and cumulative effects analyses are evaluated for Canada lynx. An LAU provides a constant area for comparison of effects to lynx over time. While an LAU is not intended to depict an actual lynx home range, LAU’s were established to approximate the size of area needed by an individual lynx. Lynx movement has been recorded within and adjacent to the proposed project boundary.

Green Lineage cutthroat trout (formerly Lineage GB cutthroat trout) – Within the action area, one population of green lineage cutthroat trout exists. Specifically, the Dice Hill treatment unit, includes Spruce Creek which contains a conservation population (>90% genetically pure) of green lineage cutthroat trout. These fish are currently considered as Threatened. The stream has been sampled 3 times since 2006. In July of 2006, 17 total fish were collected within a 390 foot reach located approximately 300 meters below BLM road #2767. In June of 2007, six adult fish were collected in approximately 1500 feet of stream, and in 2011 only one fish was collected or seen in approximately 500 feet of sampling below BLM road # 2767. In the spring of 2007 a large beaver dam/pond adjacent to BLM road #2767 breached which resulted in a large flushing flow. It is possible/likely that this event resulted in the displacement of fish downstream. Based on these sampling events, this population appears to be in decline. However, of note, the lower 0.25 miles of stream on BLM land continuing downstream onto private lands consists of a lower gradient wet meadow beaver dam complex that is impossible to sample with backpack shockers. It is possible that this portion of stream continuing onto private may contain greater numbers of cutthroat. Additional sampling in these areas is planned for 2014 to look for additional fish.

Osterhout Milkvetch – This endangered plant inhabits seleniferous, clay soils derived primarily from the Niobrara Shale, the Pierre Shale, and Troublesome formations. These species predominately grow on relatively flat areas and barren knolls. No suitable habitat occurs in the proposed project area. However some Osterhout milkvetch plants do exist as close as 0.25 miles from the proposed Wolford substation project boundary.

Northern Goshawk - This BLM sensitive accipter is a wide-ranging forest raptor of western North America. Typical nesting sites in Colorado are in mature aspen on relatively flat benches surrounded by steeper slopes of conifer stands. Several sightings and nest sites have been previously identified within and adjacent to the project boundary.

Colorado River Cutthroat Trout - Within the Kinney Creek treatment unit, Kinney Creek contains a conservation population (>90% genetically pure) of Blue Lineage cutthroat trout, a BLM sensitive species. The stream was last sampled in August of 2009 and 22 total fish were collected within a 503 foot reach. The cutthroat population is protected by a natural waterfall feature and brook trout reside in the lower portions of the creek. The population appears small but stable. Periodically poor livestock grazing management over prolonged periods has reduced habitat quality in some stream reaches and exceptionally high 2011 spring flows resulted in some areas of channel scour, lateral stream movement, and aggradation of excessive stream substrates from areas of natural geologic bed-load point sources located upstream on USFS lands.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects:

Canada Lynx (*Lynx canadensis*): Direct effects are those directly impacting lynx or their primary prey as the result of clearing or salvage harvesting activities. Direct impacts may range from temporary disturbance due to salvage harvest and possible direct mortality resulting from salvage activities. However, direct mortality is considered unlikely because of the Project Design Criteria and Conservation measures in place and the general mobility of the species.

The noise disturbances associated with the proposed action may reduce lynx use of the immediate harvest areas while harvest and post-harvest activity is occurring. Disturbances are expected to subside thereafter, with increased use of the post-harvest areas most likely occurring immediately following the activity as long as adequate habitat remains on site.

Lynx kittens are vulnerable when very young and could be present nearby or in den sites while salvage operations are taking place and could potentially be injured or killed by logging equipment and activities. However, it is unlikely that logging would occur during this time period (approximately April to late June), and suitable denning habitat is likely far enough away from the project area to avoid impacts to lynx kittens.

The project area could be used by lynx for foraging and movement during late summer and fall. Any effects to lynx would be the result of changes in vegetative structure within the treatment units. Although beetle infested trees would be removed as a result of the proposed project, the

number of trees which would remain after the project would be sufficient to provide cover for lynx moving through or foraging in the project area.

The indirect effects of the proposed action will have temporary influences on lynx and their primary prey species. Reduced foraging opportunities within the treatment areas may occur in proportion to the amount of prey species displacement and/or reductions in prey habitat. Reduced foraging opportunities will occur due to the reductions in large coarse woody debris and further changes in canopy closure. However, it is important to keep in mind that the main factor affecting lynx habitat is the influence upon habitat by the MPB itself which has rendered the target habitat largely unsuitable for lynx. While road clearing and salvage activities are additive to the MPB effects, the impacts are expected to be short lived (0-5 years) before these areas regenerate. An expected outcome of the proposed action is that the treated areas would expedite lodgepole regeneration; providing high quality forage and prey production habitat in more recent future (next 40 years) as opposed to no treatment scenario.

The timber targeted as part of the proposed action is primarily dead lodgepole pine trees that are considered within the stand initiation structural stage (SISS) as defined by the 2013 Lynx Conservation Assessment and Strategy (LCAS) and is currently considered unsuitable habitat for lynx. Following a stand-replacing disturbance such as a MPB outbreak, a new single story layer of shrubs, tree seedlings, and saplings establish to develop and reoccupy the site. The proposed action is expected to expedite this process.

In salvage units, the degree of beetle activity per stand varies from 70% to 95% with the majority of units being in the SISS habitat category (84% on BLM lands). Each unit will result in reduced canopy closures regardless and will result in more open stand conditions that will release existing understory vegetation (shrubs and seedlings). This release will be most prevalent in salvage units in which small to medium sized openings are created.

Green Lineage Cutthroat Trout (*Oncorhynchus clarki ssp.*): The proposed action calls for three primary activities. The first is to clear identified hazard trees along select travel routes to limit downfall and provide for public safety. Spruce Creek is not located along any roads proposed for hazard tree clearing. The second involves the salvage harvest of dead and dying standing lodgepole pine trees and desirable live trees including lodgepole pine, subalpine fir, Engelmann Spruce, or aspen that would be prone to windthrow upon harvest of the lodgepole component. The third is to burn residual slash piles associated with implementation of the first two activities during snow periods. As proposed, the actions would have *No Effect* to Green Lineage cutthroat trout or their habitat in Spruce Creek. This determination is based on the following factors. The lower third of the stream is located in a large wet meadow and is comprised of small stream segments and beaver ponds that are all well buffered on both sides with dense riparian vegetation comprised primarily of willows and sedges. Riparian vegetation in this stream reach is >200 feet in width. The stream in this reach is well buffered from areas where salvage trees could be harvested. Design criteria calls for a 100 foot buffer along perennial streams. However, because of the cutthroat population in Spruce Creek, we increased the buffer to 500 feet along the upper 0.8 miles of the stream. This large stream buffer would buffer the stream from any potentially negative indirect effects associated with tree salvage occurring outside of the buffer zone. The proposed treatment areas should benefit from the

removal of dead and dying standing lodgepole pine and other select tree species as the canopy would open up and allow for increased solar radiation and water absorption. This should improve early seral plant growth and increase vegetated ground cover. Current understory conditions are very poor as vegetative ground cover is sparse in and amongst the dead and dying lodgepole pine stands. In addition, reductions in fuel loading within the Spruce Creek watershed would substantially reduce the risk of ash, sediment, and debris flow impacts associated with large catastrophic wildfire which could have deleterious effects to the resident cutthroat population.

Osterhout Milkvetch (*Astragalus osterhoutii*): Impacts to this species would be avoided. Design criteria for the proposed action describes at Wolford Substation, tree clearing would be done by hand crews walking in and on designated routes and cutting in conditions of ≤ 5 mph wind speeds. The KFO biologist would survey prior to proposed action to further ensure avoidance of off-site impacts.

Northern Goshawk (*Accipiter gentilis*): Impacts to this species would be minimized through this projects design criteria (#10) which is consistent with the buffers and seasonal closure criteria developed by Colorado Parks and Wildlife (CPW). Prior to implementation the KFO biologist would survey for goshawk following the “Northern Goshawk Inventory and Monitoring Protocol” (Woodbridge 2006) to establish locations for buffers and timing limitations. Salvage actions could reduce overall habitat and foraging opportunities. These impacts are expected to be short lived as treatment units are expected to increase prey availability.

Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*): The proposed action would take place on upland sites and be buffered a minimum of 100 feet from wetlands and live water to adequately avoid direct impacts to cutthroat trout. Indirect sediment loading from roads and harvest units is still possible as a result, but is not likely to have measurable impacts to populations due to applied buffers. Increased understory is expected to increase as a result of canopy removal and increase invertebrate production benefiting cutthroat trout.

Cumulative Effects:

Canada Lynx (*Lynx canadensis*): Although private and USFS lands adjoin the proposed project area, none of the timber harvest activities which have been completed or are planned for the near future would result in increased unsuitable habitat for lynx. Numerous acres of suitable habitat remain available to lynx within the proposed LAUs or adjoining LAUs. No future projects which would downgrade any lynx habitat types are likely to occur in the future. As a result of these factors, the proposed project would not cause cumulative effects which would be adverse to Canada lynx within the Fraser, Mahan, Sheephorn, Troublesome, Upper Colorado LAUs, adjoining LAU's or on adjoining private and USFS land.

Roadside clearing would effectively increase over snow travel opportunity (potential increase of 250 ft²) for snow machines and non-mechanized travel methods alike. This could cause increased snow compaction and disturbance to areas that were previously restricted to the existing road prism. Snow compaction activities may provide a competitive advantage for

coyotes and other similar predators found in the project boundaries to compete for prey species that support lynx. However, this local snow compaction is short term and not likely to change the competitive interactions between lynx and other predators.

Non-federal actions are not anticipated to affect the condition of lynx habitat in the LAU nor are they likely to influence Canada lynx.

Green Lineage Cutthroat Trout (*Oncorhynchus clarki ssp.*):

Due to the relatively low threat of cumulative impacts to spruce creek as a result of this project and the 500 foot buffer applied to the forested section of this drainage; it is the KFO biologist's professional opinion that this species of cutthroat is adequately protected from temporal impacts related to the proposed action.

Osterhout Milkvetch (*Astragalus osterhoutii*):

There are no impacts expected from past, currently planned, or reasonably foreseeable actions to this species or its habitat as a result of the proposed action. No increase of use, noxious weeds, dust or other atmospheric emissions are predicted. The removal of pinyon and juniper trees at the substation would provide for healthy understory development.

Northern Goshawk (*Accipiter gentilis*):

The proposed actions combined with other land uses in the area are expected to decrease the overall available habitat for this species. However, all of the land in the immediate vicinity is federally owned and would have current and continuously updated nesting locations with applied buffers and timing restrictions to minimize these cumulative habitat loss impacts. Discretionary items outside the realm of BLM decisions are not expected to contribute to the federal listing of this species.

Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*):

Current and historic grazing pressure in Kinney creek combined with the proposed action may cause unnatural levels of erosion and sediment loading, potentially altering habitat for this species through indirect effects to habitat. Grazing will need to be closely monitored over the next several years to ensure strict compliance with the grazing permits "terms and conditions" ensuring that adequate root masses and vegetation growth are establishing to retain upland soils and avoid accelerated erosion into cutthroat trout habitat.

Recreational impacts could also increase as a result of opening up forest canopy thus resulting in increased use of the habitat and fishing pressure on this population of cutthroat trout. There are currently multiple dispersed campsites next to the Kinney creek drainage with an expected increase as a result of the proposed action. Anticipating increased use would warrant public outreach and education for catch and release as well "Leave No Trace" principles that would minimize the human footprint on this species.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: There are no direct effects expected to occur from the no action alternative. Indirect affects attribute to large scale forest succession being allowed to take

place. As a result, prolonged vegetative response would occur and regenerate to functional habitat for these species over a much longer time interval. Additionally, forests may be susceptible to catastrophic fire or wind events that would leave these species more susceptible to “take” or habitat modifications. Lynx habitat would likely improve over the long term but would suffer in the short term as a result of minimal prey production.

Cumulative Effects: There are no cumulative effects anticipated as a result of past, present and foreseeable actions outside of large scale forest succession. Negative impacts associated with grazing pressure and recreational uses would be minimized as the forest floor continues to accumulate downed woody debris which would generally discourage these activities.

Mitigation: See specific design criteria for lynx (8-9 and 13-14), plants (6), and fish (15)

Finding on the Public Land Health Standard # 4 for Special Status Species: The most current land health assessments were all meeting standard 4 for threatened and endangered species. Sheriff B allotment will be coming up for renewal in 2014 and a more up to date assessment would be completed at that time. The proposed action is expected to help continue to meet land health standards within the effective project areas due to general forest health improvements.

MIGRATORY BIRDS

Affected Environment: The **Migratory Bird Treaty Act** of 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986, and 1989 implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Union of Soviet Republics for the protection of Migratory Birds. The Act prohibits hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting of any migratory bird, part, nest or egg.

To this end the US Fish and Wildlife Service’s *Birds of Conservation Concern*, 2008, was reviewed for this project. As it is highly unlikely that this project would result in harm to adult birds, we focus our discussion on species that may find nesting habitat within the project area. Bird species of concern listed by the Fish and Wildlife Service for the Southern Rockies/Colorado Plateau that may find nesting opportunities within the project area include the Golden Eagle, Peregrine Falcon, Prairie Falcon, Flammulated Owl, Northern Harrier, Lewis’s Woodpecker, Williamson’s Sapsucker, Grace’s Warbler, Veery, and the Cassin’s Finch. Information noted below on these species was derived from **The Birds of North America** website, (<http://bna.birds.cornell.edu/bna>). This site was originally developed by the [American Ornithologists' Union](#), the [Cornell Lab of Ornithology](#), and the [Academy of Natural Sciences](#). Now this site represents a living resource and is entirely managed and updated by the Cornell Lab of Ornithology.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: This project would comply and be consistent with local US Forest Plan Standards and Guidelines to retain snags for nesting structures. This project would also incorporate conservation measures and principles, as appropriate, from local bird conservation plans (North American Bird Conservation Initiative) and/or other references into project design so that adverse effects are minimized (USDI Bureau of Land Management 2008 – MOU Between the BLM and the USFWS to Promote the Conservation of Migratory Birds).

A decrease in snag habitat and potential for direct mortality mainly upon nestlings is likely for these species from salvage harvest, hazard tree removal, and creation of temporary roads. Project Design Criteria are in place to: retain sufficient snags consistent with the Forest Plan direction; minimize potential mortality since project activities are unlikely to be implemented during the spring nesting period for many of the migratory birds (May – June) since this time period coincides with wet soil conditions resulting from spring snowmelt (BLM special provisions indicate for protecting roads that purchaser shall immediately discontinue use of said roads upon receipt of the written notice that the Authorized Officer (AO) has determined that continued use will cause excessive damage to said roads); and to protect known active bird nests and cavities.

Cumulative Effects: This action in conjunction with past, present, and reasonably foreseeable actions in the area has the potential to reduce overall habitat, especially for cavity nesting species. However, combined actions are expected to take a maximum of 15% of available forest habitat to these species and would retain adequate habitat to the extent that populations would not experience measurable losses or move them toward federal listing.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: No direct effects would occur as a result of the No Action alternative. Indirect effects could be detrimental to certain bird species as lodgepole pine stands are often susceptible to wide spread disturbances. In the event of a large wildfire, no thinning or effective fuel breaks would have been established and these stands would ultimately render less available habitat for migratory birds.

Cumulative Effects: Cumulative effects would result in natural succession of forests and leave lodgepole stands susceptible to decomposition or catastrophic disturbances. This would likely result in the conversion of these forests to spruce-fir forest types as more shade tolerant trees would slowly work in from the dead and downed lodgepole canopy and microsite moisture. This could potentially be beneficial to some species of migratory birds many years from now as this would ultimately provide for more forest diversity over the next century.

Mitigation: **See design criteria (7)**

AQUATIC WILDLIFE

Affected Environment: The following table depicts what fish species are known or suspected to inhabit streams within the influence zone of proposed treatment areas. In addition to fish, all perennial streams within the influence zone of proposed treatment areas likely contain

an assemblage of aquatic invertebrates including caddisflies, mayflies, and stoneflies among others. In addition to fish, beavers, muskrats, mink and several species of dabbling ducks also use the streams mentioned in the analysis are when sufficient water is available to provide food and cover for them.

Project Area	Streams within unit	5th order watershed	Streams With Fish
Dice Hill	Spruce Creek Tributaries to Spring Crk, Sheephorn Crk, Hartman Gulch	Lower Blue River Sheephorn Creek	Spruce Creek – Green lineage cutthroat trout
Wolford Substation	Unnamed drainage to Wolford Reservoir	Muddy Creek	Muddy Cr – Rainbow trout, brown trout, speckled dace, mottled sculpin
Monument Creek	Monument Creek	Colorado River Above Kremmling	Monument Creek – no fish
Smith Creek	Smith Creek, First Creek, Second Creek, Ute Bill Creek, tributaries to Corral Creek	Colorado River- from Fraser to Williams Fk Colorado River Above Kremmling	Ute Bill Cr – speckled dace, mottled sculpin Smith Cr – Brook trout, rainbow trout
Kinney Creek	Sheriff, Kinney, McQueary Creeks	Colorado River- from Fraser to Williams Fk	Kinney Creek – Blue lineage cutthroat trout, brook trout, mottled sculpin, speckled dace McQueary Cr – Brook trout Sheriff Cr – speckled dace, mottled sculpin
Shadow Mtn.	Tributary to Supply Creek (intercepted by Red Top Valley Ditch)	Colorado River Headwaters to Fraser River	Supply Cr – mottled sculpin
Strawberry	Behler Creek Tributaries to Fraser River, Strawberry Creek, Meadow Creek	Fraser River	Behler Creek – mottled sculpin Strawberry Cr – Brook trout, mottled sculpin Meadow Cr – speckled dace, mottled sculpin

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The proposed action would take place on upland sites and be buffered a minimum of 100 feet from wetlands and live water and 50 feet from dry drainages to adequately avoid direct impacts to aquatic wildlife. Indirect sediment loading from roads and harvest units is still possible as a result, but is not likely to have measurable impacts to populations. Increased understory is expected to increase as a result of canopy removal and increase invertebrate production benefiting aquatic species.

Cumulative Effects: Although a large acreage is proposed for treatment across several watersheds, the various land owners are expected to implement the actions over a period of years. This would reduce the expected road volume increase on any one road and would allow for more of a mosaic in the vegetation, reducing the expected increases in sediment loads and any potential impacts to the aquatic species and their habitat.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The no action alternative could result in detrimental indirect effects in the event of a wildfire or wind events that may potentially cause habitat alterations and population losses.

Cumulative Effects: Cumulative effects would result in natural succession of forests and leave lodgepole stands susceptible to decomposition or catastrophic disturbances. This would likely result in the conversion of these forests to spruce-fir forest types as more shade tolerant trees would slowly work in from the dead and downed lodgepole canopy and microsite moisture. Non-federal and other past and foreseeable actions are unlikely to impact wetland species and their habitat for the no action alternative.

Mitigation: **See Design criteria for wetland buffers**

Finding on the Public Land Health Standard #3 for Plant and Animal Communities:

Aquatic species are tied closely to Standard 2 for riparian zones and wetland habitats. The riparian and known wetland areas are considered to be meeting Standard #2 except for two reaches on Kinney Creek. The Proposed Action would not affect the areas' ability to continue to meet (or to move towards meeting) the Standard. Under the No Action Alternative, the existing conditions are expected to continue. In the Kinney Creek areas, the stream segments would continue to move towards meeting the standard.

TERRESTRIAL WILDLIFE

Affected Environment: The project area is important habitat for a variety of big game species such as mule deer, Rocky Mountain elk, moose, and pronghorn. The two main game species populations are mule deer and elk which are estimated to be at state objective levels. Big game populations are most affected by the quality and quantity of available winter range which represents approximately 82% of the affective project areas. Thermal cover in Grand County is not seen as a limiting factor for big game and the proposed action has the potential to improve

overall winter range of the area by opening up canopy and increasing understory forage. Other game species include mountain lions and black bears with general harvest objectives to maintain existing populations. Small mammals include coyote, red foxes, rabbits, pine marten, bobcat, lynx, pine squirrel, yellow-bellied marmot, and a variety of other small rodents. Raptor sites previously or currently observed near or within the project boundary include: Golden eagle, red-tailed hawk, prairie falcon, Northern goshawk, sharp-shinned hawk, and Cooper's hawk. Several species of conifer nesting owls are expected to be within the project boundary as well.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Habitat quality for different animal species is based on a combination of many different factors, which is characteristic of the inherent variability, complexity, and uncertainty associated with ecosystems. Most notably, wildlife habitat quality is based on vegetative composition and structure (Thomas et al. 1979). The structure and composition of the forest affects food availability and cover (Smith 2000); in turn the availability of food and cover is affected by changing landscape patterns. Species may respond to landscape patterns in different ways depending on their habitat needs (Gergel and Turner 2002). Natural processes, such as fire, forest insect (most notably the mountain pine beetle epidemic associated with this project) and disease outbreaks, and wind, in conjunction with management activities all contribute to changing landscape patterns and all create vegetation mosaics. These mosaics create habitat heterogeneity, or discontinuity, across a landscape which is important for maintaining faunal diversity (Smith 2000). Although some discontinuity is generally positive, at some level (which is different for each species), heterogeneity becomes habitat fragmentation (Smith 2000). Importantly, management actions that manipulate land cover, including timber harvest, may have contrasting effects on different wildlife species because habitat improvements for some species may lead to a decrease in habitat quality for others (Smith 2000, Gergel and Turner 2002).

Species that are habitat generalists may be the least impacted from the action alternatives, while those that are habitat specialists may be the most impacted. As noted above, the mountain pine beetle outbreak is a natural disturbance event currently influencing the landscape in the Grand County hazard tree analysis area. Project activities would be additive, and cumulatively would be expected to have direct and indirect impacts to these species, their habitat, and their prey species. Impacts include temporary disturbance potentially leading to displacement for some species, possible direct mortality of some individuals, reductions in habitat quality within salvage units for some species (particularly species using snags and requiring overstory forest canopy), and habitat improvements for others particularly species that utilize edge habitat and openings. Areas of Biodiversity Significance, as identified by the Colorado Natural Heritage Program (<http://www.cnhp.colostate.edu/download/scorecard.asp>), are avoided by the action alternatives.

Cumulative Effects: This action in conjunction with past, present, and reasonably foreseeable actions in the area has the potential to reduce overall habitat by reducing overall cover. However, combined actions are expected to take a maximum of 15% of available forest habitat to these species and would retain adequate habitat to the extent that populations would not experience measurable losses. These impacts are expected to be short lived as these species

adjust to successional setbacks that are similar to natural disturbances. Most terrestrial species have large home ranges and would be able to locate suitable habitat in adjacent areas.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: No direct impacts are expected to occur as a result of the No Action alternative. Indirect effects of no active timber management would further result in natural forest succession and decomposition, leaving heavier loadings of forest material on the ground. Continuous fuel loading leaves these areas susceptible to wildfire with the potential to burn at intense temperatures closer to the ground and having detrimental effects to soil fertility and structure which negatively affects habitat and wildlife suitability. Generally habitat would degrade for most species under this alternative.

Cumulative Effects: Cumulative effects would be similar to indirect effects discussed above or would not be fully realized based on the uncertainties of natural disturbances.

Mitigation: **See design criteria for raptor species (#10-12)**

Finding on the Public Land Health Standard #3 for Plant and Animal Communities:

Allotment Name & Number	Land Health Standard 3	Meeting	Functioning at Risk	Not Meeting	Date of Assessment
McPhee 07551	Standard 3	x	x	-	07/11/2006
Dice Hill 07504	Standard 3	-	-	-	07/11/2006
Weimer 07509	Standard 3	x (uplands)	x (meadows)	-	07/12/2006
Sheriff B 07527	Standard 3	x	-	-	07/20/2011
Curry R & M 07760	Standard 3	x	-	-	6/25/2008

Due to the close relationship between terrestrial wildlife and their habitat, it is expected that of the areas analyzed for land health, the proposed action would not lower the overall caliber of habitat for terrestrial populations. Many forest species would benefit from increased edge effect and understory vegetation components expected as short term result of these treatments. In general, land health standard three is expected to be met and improve on an age-class and diversity standpoint over the short term.

FIRE MANAGEMENT

Affected Environment: The proposed action is located in Grand County and portions of Summit County and Eagle County, Colorado. The Troublesome Creek-Colorado River, Little Muddy Creek-Colorado River, Little Muddy Creek-Colorado River, Sheephorn Creek-Colorado

River, Lower Blue River, Sheephorn Creek-Colorado River, Fraser River, and the Fraser River 6th order watersheds were looked at for the affected environment. These were chosen because the majority of the proposed project falls within these eight watersheds, and wildfire tends to follow drainages. There have been 60 wildfires for 1182 acres for an average of 2 fires for 20 acres since 1980 within these watersheds.

Indicators of wildland fire ecology and management are summarized through fire regime and fire regime condition class classifications. Fire regime is a concept used to characterize the personality of a fire in a given vegetation type, such as how often an area burns, the type of pattern created, and the ecological effects. The majority of the eight watersheds is Fire Regime III, which means historically the watersheds burned had a frequency of every 35-100+ years and mixed severity (less than 75% of the dominant overstory vegetation replaced).

Fire regime condition class (FRCC) indicates the degree of departure from the historic fire regime (HFR) (Hann and Bunnell 2001(Table 3-28). While the fire regime of a particular area is not likely to change except in the very long term, the FRCC can be changed through fire management and other vegetation management actions. Fire Regime Condition Class I is low vegetation departure (more likely low fire intensity and severity), Fire Regime Condition Class II is moderate vegetation departure (more likely moderate fire intensity and severity), and Fire Regime Condition Class III is high vegetation departure (more likely high fire intensity and severity). Areas that have a higher percent of FRCC 1 than FRCC 2 and FRCC 3 combined is what is desired. The Table 1 below shows the current Fire Regime Condition Class (FRCC) of the eight 6th order watersheds taken from Landfire data (<http://www.landfire.gov>).

Table 1

	Acres	Percent of Total
Vegetation Condition Class I	36,472	20
Vegetation Condition Class II	89,600	49
Vegetation Condition Class III	51,294	28
Other; Water, Rocks, Barren Etc.	4,634	3

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Table 2 below shows the best case scenario in FRCC if a certain percentage of the proposed action is completed within the purposed treatment areas within the Grand County Hazard Tree Removal EA boundary.

Table 2

All treatment areas within the Proposed action.	100% of treatment results in FRCC 1	80% of treatment results in FRCC 1	60% of treatment results in FRCC 1	40% of treatment results in FRCC 1	20% of treatment results in FRCC 1	0% of treatment results in FRCC 1
Vegetation Condition Class I	9128	7924	6720	5515	4311	3107

Vegetation Condition Class II	0	347	694	1041	1388	1735
Vegetation Condition Class III	0	857	1714	2572	3429	4286

Table 2 shows that within the proposed action if 40-100 percent of the project is treated, the goal of a FRCC 1 being a higher percentage than the combined FRCC 2 and FRCC 3 is attainable within in the proposed action boundary. It is more likely that 60 percent or more will need to be treated to reach the goal of a higher percentage in FRCC 1 then FRCC 2 and FRCC 3, due to the likelihood that not all of the treated FRCC 2 and FRCC 3 will become FRCC1.

Table 3 shows the best case scenario results in FRCC, if a certain percentage is treated by the proposed action within the forested BLM administered lands in Grand County.

Table 3

All treatment areas within the Proposed action effect on BLM Forested Lands	100% of treatment results in FRCC 1	80% of treatment results in FRCC 1	60% of treatment results in FRCC 1	40% of treatment results in FRCC 1	20% of treatment results in FRCC 1	0% of treatment results in FRCC 1
Vegetation Condition Class I	18,956	17,752	16,548	15,343	14,139	12,935
Vegetation Condition Class II	15,600	15,947	16,294	16,641	16,988	17,335
Vegetation Condition Class III	21,099	21,956	22,813	23,671	24,528	25,385

Table 3 shows that the proposed action will not be able to meet the goal of attaining a higher percentage of FRCC 1 then FRCC 2 and FRCC 3 combined within the forested BLM administered lands in Grand County, and that in order to reach that goal, future treatments would be needed to attain that goal.

Table 4 shows the best case scenario results in FRCC, if a certain percentage is treated by the proposed action within the eight 6th order watersheds.

Table 4

All treatment areas within the Proposed action effect on the eight 6th order watersheds	100% of treatment results in FRCC 1	80% of treatment results in FRCC 1	60% of treatment results in FRCC 1	40% of treatment results in FRCC 1	20% of treatment results in FRCC 1	0% of treatment results in FRCC 1
Vegetation Condition Class I	42,493	41,289	40,085	38,880	37,676	36,472
Vegetation Condition Class II	87,865	88,212	88,559	88,906	89,253	89,600
Vegetation Condition	47,008	47,865	48,722	49,580	50,437	51,294

Class III						
-----------	--	--	--	--	--	--

Table 4 shows that the proposed action will not be able to meet the goal of attaining a higher percentage of FRCC 1 then FRCC 2 and FRCC 3 combined within the eight 6th order watersheds. Although the proposed action doesn't meet the FRCC goal in the BLM forested areas and the eight 6th order watersheds, it would provide safer ingress and egress for wildland firefighter personnel, would provide more options for strategies and tactics by lowering fire intensity in treated areas, create escape routes, safety zones, add control lines that could aid in suppression in the event of a wildland fire, and help to get closer to the goal of a higher FRCC 1 then FRCC 2 and FRCC 3 combined.

Cumulative Effects: Table 5 shows the results if all lands are treated within the eight 6th order watersheds.

Table 5

Eight 6th order watersheds	100% of treatment of the eight 6th order watersheds	80% of treatment of the eight 6th order watersheds	60% of treatment of the eight 6th order watersheds	40% of treatment of the eight 6th order watersheds	20% of treatment of the eight 6th order watersheds	0% of treatment of the eight 6th order watersheds
Vegetation Condition Class I	177,366	149,187	121,008	92,830	64,651	36,472
Vegetation Condition Class II	0	17,920	35,840	53,760	71,680	89,600
Vegetation Condition Class III	0	10,259	20,518	30,776	41,035	51,294

Table 5 shows that 40-100 percent of the forest lands within the eight 6th order watersheds would need to be completed to reach the goal of having a higher percentage of FRCC 1 then FRCC 2 and FRCC 3 combined.

Table 6 shows the results if all known present and planned projects are completed by the USFS, Colorado State Forestry, Private landowners, and the BLM within the eight 6th order watersheds.

Table 6

All projects planned by all agencies	100% of all treatments are completed	80% of all treatments are completed	60% of all treatments are completed	40% of all treatments are completed	20% of all treatments are completed	0% of all treatments are completed
Vegetation	56,771	52,711	48,651	44,592	40,532	36,472

Condition Class I						
Vegetation Condition Class II	83,110	84,408	85,706	87,004	88,302	89,600
Vegetation Condition Class III	37,485	40,247	43,009	45,770	48,532	51,294

Table 6 shows that if all the projects are completed with the goal of a higher percent of FRCC 1 then FRCC 2 and FRCC 3 combined would not be attained and future treatments would be needed to reach this goal. Although the cumulative effects would not meet the FRCC goal in the eight 6th order watersheds, it would provide more options for strategies and tactics by lowering fire intensity in treated areas, create escape routes, safety zones, add control lines that could aid in suppression in the event of a wildland fire, and help to get closer to the goal of a higher FRCC1 then FRCC2 and FRCC 3 combined.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, the FRCC in BLM administered lands would stay the same and over time continue the transition into the next FRCC class. The FRCC on State, local and USFS lands would decrease due to treatments done by each agency, but would still not meet the goal to have a higher percent of FRCC 1 then FRCC 2 and FRCC 3 combined. Within the No Action Alternative, dead trees would fall across roads, creating a public safety hazard and could make travel impassable; which would limit access in the case of wildfires. Wildfires would likely increase in size and cost, due to longer times to access the fires and the strategies and tactics involved in fighting dead and down trees intermixed with standing trees, and having limited established containment lines. Established wildfires tend to be bigger and longer in duration than prescribed fires and for this reason could increase the danger to the public, by smoke impacts and possible direct flame contact.

Cumulative Effects: Table 7 shows the results if all present and planned projects are completed by the USFS, Colorado State Forestry, and Private landowners within the eight 6th order watersheds.

Table7

All planned projects by all agencies except BLM	100% of all treatments are completed	80% of all treatments are completed	60% of all treatments are completed	40% of all treatments are completed	20% of all treatments are completed	0% of all treatments are completed
Vegetation Condition Class I	50,750	47,894	45,039	42,183	39,328	36,472
Vegetation Condition Class II	84,845	85,796	86,747	87,698	88,649	89,600
Vegetation	41,771	43,676	45,580	47,485	49,389	51,294

Condition Class III						
---------------------	--	--	--	--	--	--

Table 7 shows that if all the projects are completed by all agencies other than the BLM, the goal of a higher percent of FRCC 1 then FRCC 2 and FRCC 3 combined would not be attained and future treatments would be needed to reach this goal. Although the non-BLM treatments would not meet the FRCC goal in the eight 6th order watersheds, it would provide more options for strategies and tactics by lowering fire intensity in treated areas, create escape routes, safety zones, add control lines that could aid in suppression in the event of a wildland fire, and help to get closer to the goal of a higher FRCC1 then FRCC2 and FRCC 3 combined on the USFS, Colorado State Forestry, and Private landowners lands.

Mitigation: None

FOREST MANAGEMENT

Affected Environment: Lodgepole Pine (*Pinus contorta* var. *latifolia* Engelm. Ex Wats.) is an aggressive pioneer species that is well adapted to regenerating sites disturbed by fire, harvesting, or other disturbances. It is a seral species that most commonly grows in pure or nearly pure, even- aged, single- storied, and overly dense stands. However, it also grows in association with a wide variety of both seral and climax species, e.g. subalpine fir, aspen Douglas fir, blue spruce, and Engelmann spruce. Because dead lodgepole pine is the primary target species for treatment in this analysis, the majority of the discussion will be focused on this species.

The mountain pine beetle (MPB) is the most aggressive bark beetle attacking lodgepole pine. Generally, it kills most of the large diameter lodgepole pines in a forest before the beetle population subsides. According to USDA research, the current mountain pine beetle epidemic and their impact on lodgepole pine forests have likely been influenced by a number of factors, including: 1) an abundance of older, dense, large diameter lodgepole pine stands; 2) prolonged drought; 3) earlier melting of the smaller, drought-influenced snowpacks, resulting in extended and more severe drought conditions; 4) higher temperatures, allowing for an expansion of the one-year mountain pine beetle lifecycle into areas of lodgepole pine forests at higher elevations (>9,500 feet elevation); and 5) greater survival of mountain pine beetle broods in the high elevation lodgepole pine forests. Given the rate and extent of the epidemic, entomologists estimate that within 3 years, almost 80 percent of all lodgepole pine over 5 inches in diameter will be dead in lodgepole pine forests. The majority of cruise data collected in the Kremmling field office in the past 8 years has shown between 80-90 percent mortality in the mature lodgepole pine stands. The area of lodgepole pine susceptible to MPB has increased due, in part to the combination of successful fire suppression over the last century and the recent commercial use of lodgepole pine. In the absence of fire, continued MPB infestations will change even-aged, seral stands into those characterized by an uneven-aged climax state (Safranyik, L., & Wilson, B., 2006).

There are ecological arguments to be made for large-scale treatments that mimic the size and type of natural disturbance with which lodgepole pine ecosystems have evolved. Assumptions for post-bark beetle outbreaks are as follows; the forests that were lodgepole pine are

demonstrating the capacity for large scale regeneration, sometimes as lodgepole pine, sometimes as fir, sometimes as mixes of conifer trees, including aspen, depending on a number of geographic, climatic and biological conditions. The analysis area contains uniform patterns of lodgepole pine stands but also contains several different structures of sub-alpine fir, aspen, Douglas-fir and spruce species stands as well. The objective is to remove dead and dying lodgepole pine from these uniform stands. Some stands within the analysis area may be treated where spruce, aspen and fir make up a small percentage of trees per acre.

Proposed treatments consist of sanitation/salvage harvest of dead and dying lodgepole pine and fuels reduction treatments. The recommended prescriptions are primarily tree removal and implementation would not exceed the total project analysis acres. Silvicultural control measures are the most efficient means of preventing outbreaks. The main proposed treatment, clearcutting or (regeneration harvest) in the lodgepole pine dominated stands, would immediately convert intermediate and mature lodgepole pine stands to the seedling stage. In stands where previous harvesting (selective cutting) has taken place, treatments may resemble a thinning of the forest, leaving live healthy advanced regeneration tree species on site.

Under the proposed action, identified hazard trees, predominately lodgepole pine would be cut within the sanitation/salvage mechanical harvest area. Other identified conifer trees, primarily sub-alpine fir and spruce with a larger DBH, may also be harvested if deemed necessary. These larger fir and spruce trees would only be removed if identified as hazard trees within the road corridors and/or in areas where windthrow susceptibility is of concern. Some areas, for example in the Dice Hill, Spruce Creek and Strawberry areas, with larger concentrations of spruce and fir species, would not be harvested because these tree species are more windfirm in groups and tend to establish in wetter riparian areas. Road side hazard trees, predominately dead lodgepole pine, would only be removed in these stand types. The larger acreage with predominately spruce and fir would not be harvested; therefore, no stand conversion is expected in this stand type. Some lodgepole pine group selection would occur throughout some spruce fir stands if deemed necessary for treatment and meets the proposed action criteria e.g. hazard tree removal.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The Proposed Action would allow for the utilization of woody biomass or commercially valuable forest products and energy production. Further, the removal of the dead trees would allow for preparation of a seed bed which is beneficial for regeneration of vegetation that is dependent on a bare mineral seed bed and abundant sun light. Salvage operations can retrieve wood that otherwise would be lost, and removal of live trees may cause a reduction in the beetle population. Once a large outbreak has developed, however, salvage logging of infested or dead material usually will not reduce future timber losses as observed in lodgepole pine stands in Colorado.

Studies show that both harvested and untreated stands experienced new seedling recruitment in the years directly following the beetle outbreak. New seedling density was four times greater in harvested compared to untreated stands. Lodgepole and aspen seedlings were less abundant in untreated areas. (Collins, B.J., Rhoades, C. C. 2011) Lodgepole pine will continue as the dominant overstory species in harvested stands for at least 100–150 years, while subalpine fir,

when present will become the dominant species in untreated stands. During the first decades following the outbreak, aspen is projected to become a considerable part of the overstory in both harvested and untreated stands. (Collins, B.J., Rhoades, C. C. 2011)

Cumulative Effects: Past timber harvesting activities in this analysis area had a beneficial effect on the current MPB situation. Surrounding timber management activities that includes clear-cutting (regeneration harvests) and other fuel reduction clearing type activities has reduced the susceptibility to MPB on tens of thousands of acres. Activities on private land, State land and United States Forest Service managed lands in the past decade were targeted at protecting existing lodgepole pine stands around developments and infrastructure such as road corridors as well as creating regenerated stands.

The treated areas would be immediately shifted to an early seral structure stage that would eliminate or reduce stand susceptibility to MPB attacks in the area for approximately 60-80 years. Logging as opposed to retaining beetle-killed trees would likely produce more and faster spring snowmelt for approximately 15 years unless: "the retained stand experiences extensive blowdown and lacks advanced regeneration, or the retained stand has an unusually small amount of structure and lacks advanced regeneration, or the retained stand burns." (Teti, P. 2008) Other studies have shown that harvesting reduced coarse fuel loads by >50% compared to untreated stands. Harvested stands would experience increases in fine surface fuels initially, with decomposition predicted to occur within two decades.

Harvesting is predicted to favor greater densities of lodgepole pine due to increased pine seedling germination in the exposed mineral soil and simultaneous decline of spruce and fir in the higher light environment. Conversely, untreated stands would have higher density and basal area of subalpine fir, which is predicted to cause a measurable increase in canopy bulk density (CBD) compared to harvested stands after six decades. (Collins, B.J., Rhoades 2012)

In the event of a post-infestation wildfire, the lower coarse fuel load would reduce the duration and magnitude of soil heating known to damage plant root systems and soil biota, to increase soil losses and to delay post-fire ecosystem recovery (Monsanto and Agee, 2008; Moody and Martin, 2001).

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The No Action alternative would allow heavy fuels to accumulate due to tree failure until wildfire removes the accumulated biomass from the sites. The impacts of the accumulated large amounts of woody biomass could mean delays in the re-establishment, or the exclusion of, regeneration from lack of an exposed bare mineral seed bed or from excessive fuel bed accumulation. The No Action alternative would not provide for the utilization of commercially valuable wood products such as lumber, house logs, post & poles, and biomass for energy production.

Studies show that in untreated stands, well-formed advance regeneration was found in 93% of plots and exceeded 1,000 stems per hectare on 76% of plots, suggesting most stands will be adequately stocked in the future without management intervention. The new forest at this site

will develop both from advance regeneration and new seedling recruitment (seedlings established in 93% of untreated plots), but recovery may depend more on advance regeneration than on new seedling establishment in untreated stands. (Collins, B.J., Rhoades, C. C. 2011) Results indicate that these lodgepole stands and those similar across northern Colorado will generally have ample regeneration to become well-stocked forests, but the most notable long-term consequences will result from the shift in species composition and related ecosystem responses in untreated forests. (Collins, B.J., Rhoades, C. C. 2011)

Cumulative Effects: Blowdown and tree failures would increase as the beetle-killed lodgepole pine stands deteriorate, which would result in a hazardous accumulation of surface fuels. Abnormally high surface fuel loadings, if ignited would exhibit high intensity/severity fire behavior characteristics. If a high concentration of downed woody material persists on these sites from windthrow, falling trees etc., regeneration may be inhibited in areas therefore resulting in fewer establishments of lodgepole pine seedlings. Regenerating seedlings and existing understory trees would begin to grow up through these jack straw fallen trees, a fire incident at this time would likely result in a total loss of any existing vegetation, and loss of the majority of any remaining seed source depending on intensity and severity of fire activity.

There would be a loss of commercial value as the lodgepole pine deteriorates and begins to rot on the ground. As the dead lodgepole pine trees start to fall down, the understory vegetation, such as regeneration and sapling size trees, could thrive as a result of increased sunlight and decreased competition. Aspen will increase in areas where mature forest cover is lost adjacent to existing clones. In mixed conifer stands the mature lodgepole pine component would be lost and spruce/fir trees would likely dominate the site. There would be no known irreversible effects to vegetation from the No Action Alternative.

Mitigation: None

Finding on the Public Land Health Standard #3 for Plant and Animal Communities (partial, see also Wildlife, Aquatic and Terrestrial): The recent mountain pine beetle epidemic has decimated mature and over-mature lodgepole pine stands in the area. Nonetheless, the implementation of either, the Proposed Action, or the No Action, Alternatives would not prevent the area from meeting this standard.

RANGELAND MANAGEMENT

Affected Environment: All or a portion of five grazing allotments occur within the project area.

Allotment Name & Number	Livestock Number	Livestock Kind	Season of Use	% Public Land	AUMs*	Timber Unit
McPhee 07551	55	Cattle	7/16-9/15	100	112	Dice Hill
Dice Hill 07504	85	Cattle	6/16-9/30	100	299	Dice Hill
Weimer 07509	128	Cattle	6/28-9/30	45	180	Smith Mesa, Grouse Mountain
	124	Cattle	10/1-11/10	65	109	
Sheriff B 07527	117	Cattle	6/1-9/30	100	469	Kinney Creek
Curry R & M 07760	150	Cattle	5/17-5/25	100	44	Wolford Substation
	150	Cattle	9/22-9/30	100	44	

*AUM = animal unit month = the amount of forage needed to sustain one cow and calf for one month.

BLM grazing permits authorize specific ranchers, or permittees, to utilize these allotments for domestic livestock grazing. These permits specify livestock numbers and the periods of authorized grazing use for each allotment. Grazing use on Public Land is managed to comply with the *Guidelines for Livestock Grazing* in Colorado and help achieve *Standards for Public Land Health*.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: In general, the proposed action would benefit range management and livestock grazing use by protecting and/or enhancing forage production on public land. In many cases, the increase in the density of lodgepole pine stands over time (brought on by the mountain pine beetle epidemic) has reduced the production of understory herbaceous forage. Overall, the proposed action would begin to reduce the density in woodland vegetation and result in increases in understory vegetation and forage.

Design features should negate the possibility of damage to fences, gates, and existing range improvements from heavy equipment.

Cumulative Effects: Short term effects on the allotments would mean that the livestock operation may be temporarily interrupted due to logging activity. The cumulative effect to grazing allotment status and condition on the project area is the short to moderate term increase in forage resources as a result of the mountain pine beetle epidemic in lodgepole pine habitats. Open forest canopies are resulting in a flush of grass and herbaceous growth on the forest floor, providing forage in areas where forage was previously scarce. Salvage logging in dead lodgepole pine habitats would create additional transitional livestock range until the regenerating forest canopy closes.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, there would be no interruption of livestock grazing on the allotments.

Cumulative Effects: Under the No Action Alternative, the existing conditions would remain the same, and less forage would be available due to the down trees until decomposition occurs.

Mitigation: None

RECREATION

Affected Environment: The proposed action is within Grand, Summit and Eagle counties and is within areas that are utilized year round by the public for numerous recreational activities. Recreational activities occurring within the proposed treatment areas include but are not limited to camping, hiking, biking, off-highway vehicle use, hunting, wildlife watching and sightseeing, driving for pleasure, and assorted motorized and non-motorized winter recreational activities. Several Special Recreation Permits (SRPs) are authorized within the proposed treatment areas for big game guided and semi-guided hunting and outfitting, mountain lion hunting, guided horseback riding and Jeep Tours. The proposed treatment areas are within the Proposed Headwaters Extensive Recreation Management Area (ERMA) and the Strawberry Special Recreation Management Area (SRMA). The Headwaters ERMA objective is to provide a variety of non-motorized and non-mechanized primitive recreation opportunities outside of designated access roads that are open to motorized and mechanical travel. The Strawberry SRMA identifies targeted recreational activities, experiences and benefits in two zones through Benefit Based Management (BBM) which are dependent on identified Recreation Setting Characteristics (RSCs). Zone 1 is primarily outside of the proposed treatment areas and targets non-motorized and non-mechanical primitive recreation opportunities outside of designated access roads that are open to motorized travel. Zone 2 is primarily within the proposed treatment areas and targets non-motorized semi-primitive recreation opportunities including mechanical travel outside of designated access roads that are open to motorized and mechanical travel.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Direct adverse effects of the proposed action would include the disruption of public recreational activities if areas or roads were temporarily closed to provide for public health and safety. If activities occurred during big game hunting seasons the increased traffic and noise created from activities may displace game from certain areas. There would also be a potential adverse impact to SRP holders and their clients if areas were temporarily restricted for use. Conversely, beneficial impacts from the proposed action include enhancing access and public health and safety for areas accessed by roads or trails and the potential to utilize temporary roads or landing sites when specifically identified for incorporation of an approved transportation system or utilized as a campsite. This would improve recreational access and opportunities over time. Indirectly, there would be adverse impacts to recreational resources with the exception of a change in setting along roads and trails. This would be offset overtime as the public and SRP holders became accustomed to the change in an areas setting. Conversely, there may be an indirect beneficial impact on recreational hunting as hazard trees are removed and understory vegetation increases. Effects can be offset by ensuring proper

signage of areas and notification of the public through news releases that hazard tree removal would be occurring over a given area over a given period of time.

Cumulative Effects: Cumulatively, the effects to recreational opportunities and SRP holders would be limited to the areas and timeframes where hazard tree removal work is occurring. Depending on the scale and timeframe of work in a certain area cumulative effects can increase as the timeframe of work increases. However, as work is completed over time the increased public safety and access and potential increase in recreational opportunities provides a greater beneficial impact to recreational resources.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, there would not be treatments to reduce hazard trees along roads and trails where recreational opportunities occur and are utilized by SRP holders . Recreation along roads and trails would continue to be impacted by falling trees and the impact to public health and safety would continue.

Cumulative Effects: Under the No Action Alternative, there would not be additional temporary closures outside of existing road and trail closures within the project area. However, the potential for disrupted recreation from trees falling and blocking roads and trails or potentially extending existing temporary closures due to roads or trails being unpassable would have a greater potential impact than not reducing hazard trees. Additionally, there would be no mitigation for public health and safety from hazard trees, and the public and SRP holders would continue to have adverse impacts in areas that they recreate.

Mitigation: None.

ACCESS AND TRANSPORTATION

Affected Environment: The proposed action is within Grand, Summit and Eagle counties encompassing approximately 9,150 acres that are accessible to the public. Within the proposed treatment areas there are multiple routes ranging from narrow single track trails to full size vehicle maintained roads. There are approximately 42 miles of roads that are identified within Roadside Unit Boundaries with corridor treatments specifically identified within 125 feet of a road, trail or campsite. Outside of these Roadside Unit Boundaries there are approximately 8,150 acres identified as Potential Treatment Areas which could be treated. The project area, roads and trails are utilized by the public to access public lands for recreational and authorized commercial operations (ie. Special Recreation Permits, Grazing Leases, Timber and Fuel wood etc.) and Rights-of-Ways. Some roads are utilized to access private lands or lands managed by other agencies. The project area is also accessed for administrative uses by the BLM and other resource management agencies. Of these roads, approximately 40 miles are maintained every other year or as budgets allow. Within the project area, seasonal road and/or trail restrictions for motorized use exist or are proposed to protect resources, however typically permit the use of

over-the-snow vehicles that are designed to run on a track or tracks and/or a ski or skis. Seasonal travel restrictions may be modified by the authorized officer depending upon ground conditions, resource concerns or public health and safety.

Season Travel Restrictions within Project Area		
Road	Existing Restriction	Proposed Restriction
Grouse Mountain Road	April 1 to June 1	December 15 to June 1
Dice Hill Road No. 2750	April 15 to June 1	December 15 to June 1
Kinney Creek Road No. 2755	April 15 to June 1	December 15 to June 1
Strawberry Road No. 2751	April 15 to June 1	December 15 to June 1
Strawberry and Hurd Peak Trail System	April 15 to June 1	December 15 to June 1 (includes mechanical travel)
Hurd Peak Road No. 2765	April 15 to June 1	December 15 to June 1
Black Mountain Road No. 2757 and Sulphur Gulch Access Route	April 15 to June 1	December 15 to June 1
Smith Mesa Road No. 2759	April 15 to June 1	December 15 to June 1
Behler Creek Road No. 2769	Labor Day to June 1	Labor Day to June 1
Smith Mesa Lower Mainline Road No. 2762;	Labor Day to June 1	Labor Day to June 1
McQueary Creek Road No. 2756	Labor Day to June 1	Labor Day to June 1
Kinney Creek Spur Roads (3)	Labor Day to June 1	Labor Day to June 1
Spruce Creek Road No. 2767	Labor Day to June 1	Labor Day to June 1
Spruce Creek Spur Roads No. 2770 and 2771	Labor Day to June 1	Labor Day to June 1
Fox Loop Road No. 2758	No existing restriction	December 15 to June 1

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Direct adverse impacts to Access and Transportation from the proposed action would include the temporary closure of roads or trails and restricting public, commercial and Right-of-Way access to areas as needed to provide for public health and safety. Temporary roads or skid routes that are not effectively reclaimed may become unauthorized established travel routes that become difficult to prevent travel on particularly if an evident impact remains from cut and fill construction. Conversely, beneficial impacts from the proposed action include enhancing public health and safety for areas accessed by roads or trails and the potential to utilize temporary roads or landing sites when specifically identified for incorporation of an approved transportation system or utilized as a campsite. The removal of hazard trees along roads and trails may also provide additional areas for over the snow travel. Indirect impacts could occur from wind thrown trees that are left that provide barriers to cross country travel and could impede access along a given road or trail. Additionally, as hazard trees are removed along roadsides and trails it provides additional access points and the potential for unauthorized cross

country travel and the establishment of unauthorized routes. Due to the degree of slope in some areas, unauthorized cross country travel and the establishment of new routes would be minimized. By maintaining 5-15 tons per acre of coarse woody debris within harvest units and strategically scattering and placing debris along open areas, the potential for unauthorized cross country travel would be minimized. Temporary roads, skid trails and landing sites would be minimized and be rehabilitated and re-contoured when cut and fill construction is used unless such temporary road or landing site is to be incorporated into an approved transportation system or utilized as a campsite. Effects can be offset by ensuring proper signage of areas and notification of the public through news releases that hazard tree removal would be occurring in a given area over a given period of time.

Cumulative Effects: While the combination of existing seasonal road and trail closures and potential temporary closures may have a cumulative adverse impact to access and transportation potential, harvest timeframes and seasonal closures overlap. While there may be an additional temporary impact, the future use of such roads and trails while providing for public health and safety would provide a greater beneficial impact. Additional impacts from the potential for unauthorized cross country travel and the establishment of new routes can be mitigated by ensuring the implementation of design features and monitoring.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, there would not be treatments to reduce hazard trees along roads and trails that provide access and transportation on BLM-administered lands. Access along roads and trails would continue to be impacted by falling trees and the impact to public health and safety would continue. Access for authorized commercial use, Rights-of-Ways and the access to private lands or lands managed by other agencies would continue to be impacted.

Cumulative Effects: Under the No Action Alternative, there would not be additional temporary closures outside of existing road and trail closures within the project area. However, the potential for disrupted access from trees falling and blocking roads or potentially extending existing temporary closures due to roads or trails being unpassable would have a greater potential impact than not reducing hazard trees. Additionally, there would be no mitigation for public health and safety from hazard trees, and the public and SRP holders would continue to have adverse impacts in areas that they recreate.

Mitigation: None.

LANDS WITH WILDERNESS CHARACTERISTICS

Affected Environment: Section 201 of FLPMA requires the BLM to maintain on a continuing basis an inventory of all public lands and their resources and other values, which includes wilderness characteristics. Under the existing 1984 Resource Management Plan (RMP) there are no protections for wilderness characteristics outside of Wilderness Study Areas (WSA). Since

initial wilderness inventories and the 1984 RMP changes have occurred to the landscape and there have been land acquisitions and disposals through land exchanges that have altered BLM-administered lands boundaries. As part of the Kremmling Field Office Draft Resource Management Plan Amendment (RMPA) and Environmental Impact Assessment (EIS), the BLM completed an initial review of its lands to determine which, if any, areas possess wilderness characteristics. This review included only BLM-administered lands and did not include existing WSAs. Lands exclusively within existing WSAs were not analyzed; however, lands with potential wilderness characteristics outside or adjacent to WSA's were inventoried following BLM Manual 6310 – Conducting Wilderness Characteristics Inventory on BLM Lands. Areas inventoried for wilderness characteristics consisted of roadless areas greater than 5,000 acres or roadless areas less than 5,000 acres adjacent to a WSA. Areas possessing wilderness characteristics are those that exhibit “naturalness” and provide outstanding opportunities for solitude or a primitive and unconfined type of recreation. From RMPA inventories three areas were found to possess wilderness characteristics. The Proposed action occurs adjacent to the Strawberry and Drowsy Water areas that were identified to possess wilderness characteristics. Areas found through the inventory to possess wilderness characteristics were then analyzed in the RMPA and EIS in a full range of alternatives that consider protecting none of the lands, some of the lands, or protecting all or nearly all of the lands following BLM Manual 6320 – Considering Lands with Wilderness Characteristics in Land Use Plans. Under the Proposed RMPA it is proposed to manage the Strawberry area as a Special Recreation Management Area (SRMA) for multiple uses while providing for some protection to its settings and primitive recreation opportunities. The Strawberry unit is primarily west and adjacent to the Proposed Action project area and inventories found that the area possessed 5,834 acres meeting wilderness characteristics. The historically maintained Strawberry Road and Behler Creek Road are east boundary routes of the area found to possess wilderness characteristics. Additionally there are several cherry-stemmed routes that were developed for timber management activities with cut and fill construction that were removed from the area. Several areas along the maintained roads and cherry-stemmed routes did not meet the naturalness criteria due to timber harvesting that had occurred with an evident change in age class of the existing forest stands and stumps left from past timber harvest activities. Under the Proposed RMPA it is proposed to manage the Drowsy Water area as the Headwaters Extensive Recreation Management Area (ERMA) for multiple uses while managing primarily for primitive recreation opportunities. The Drowsy Water area is east and adjacent to the Proposed Action project area and inventories found 7,508 acres meeting wilderness characteristics. The historically maintained McQueary Creek Road and full size vehicle routes developed in the past for timber management and range improvements are the western boundary of the Drowsy Water area. Due to past timber management activities along these roads and extended timber management units where harvesting activities had taken place, these areas did not meet the naturalness criteria and were not included in the unit boundary. The southern and eastern boundaries of the Drowsy Water area are bounded by routes that were constructed for range improvements and access to the landscape. These boundary routes include cut and fill construction when they were built. Timber adjacent to these routes has been cut to maintain access for the grazing permittees and range improvements with stumps visible from the road. Due to impacts from roadside maintenance the Drowsy Water area boundary does not include areas directly next to the routes due to their lack of naturalness.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The Proposed Action is primarily outside of the Strawberry and Drowsy Water areas that possess wilderness characteristics. Within Proposed Action for roadside corridor clearing of hazard trees there is approximately 56 acres within the Strawberry area and approximately .2 acres within the Drowsy Water area that were found to possess wilderness characteristics. The removal of hazard trees within these areas would result in long term reduction of naturalness of approximately 56 acres in the Strawberry area and approximately .2 acres in the Drowsy Water area. The Strawberry area extent of wilderness characteristics that would be impacted is less than 1% of its area while the Drowsy Water area would be impacted less than .003%. Due to the topography of both areas and existing forest resources outside of the roadside corridor clearing area reducing hazard trees along the maintained roads and routes would be substantially unnoticeable from within the area possessing wilderness characteristics. By utilizing design features such as leaving all live vegetation that is not considered a hazard and short stumping all removed trees will continue to provide some screening for areas with wilderness characteristics. There would be minimal impacts to opportunities for solitude and primitive recreation which is already limited directly adjacent to the maintained roads and routes that would have hazard tree removal. BLM Manual 6310 identifies that an area can have wilderness characteristics even though every acre within the area may not meet all the criteria. Therefore each area with existing wilderness characteristics would be reduced in size, but to an extent that would not have adverse effects to the areas as a whole.

Cumulative Effects: The Proposed Action when combined with other potential future actions such as timber sales, road improvements and trail development there could be cumulative impacts that would affect one or more of the wilderness characteristics in each area. Both the Strawberry and Drowsy Water areas are proposed within the RMPA for timber management and fuel reduction due to being part of the Wildland Urban Interface (WUI) and the need to reduce fuel loads for public health and safety while managing for forest health. Both areas are also identified as Recreation Management Areas that may see additional trails provided within the areas but would be primarily managed for primitive recreation opportunities. As fuel reduction, timber management or recreational projects are implemented there may be incremental effects that reduce the size of the areas with wilderness characteristics overtime.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, there would not be treatments to reduce hazard trees along roads and trails that provide motorized and mechanized access and transportation on BLM-administered lands including those adjacent to or cherry-stemmed within lands having wilderness characteristics. By not implementing the Proposed Action, there would be no adverse effects to wilderness characteristics within the Strawberry or Drowsy Water areas.

Cumulative Effects: Under the No Action Alternative, cumulative effects would include the areas becoming more natural and potentially providing additional opportunities for solitude as natural forces take effect and reduce access along the roads and routes adjacent to or cherry-stemmed within areas having wilderness characteristics. Conversely, under the Proposed RMPA

fuel reduction, timber management and recreational projects are implemented there may be activities incremental effects that reduce the size of the areas with wilderness characteristics overtime.

Mitigation: None.

REFERENCES CITED:

USDA Rocky Mtn Bark Beetle

<http://www.fs.usda.gov/main/barkbeetle/home>

Environmental Assessment Blue Ridge Salvage and Fuels Reduction Project.

http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nea/17790_FSPLT1_018978.pdf

Environmental Assessment Upper Fraser Valley Forest Health Project

http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nea/3977_FSPLT1_018761.pdf

USFS Definition of a Hazard Tree

http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nea/47900_FSPLT2_025227.pdf

Gergel, E.S., M.G. Turner. 2002. Landscape Ecology. Bibliographical reference and index. QL541.15.L35 L43.

Hann, W.J., Bunnell, D.L. 2001. Fire and land management planning and implementation across multiple scales. *Int. J. Wildland Fire*. 10:389-403.

Safranyik, L., & Wilson, B., editors. (2006). The mountain pine beetle: A synthesis of biology, management, and impacts on lodgepole pine. Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Victoria, British Columbia.

Collins, B. J., Rhoades, C. C., Hubbard, R. M., & Battaglia, M. A. (2011). Tree regeneration and future stand development after bark beetle infestation and harvesting in Colorado lodgepole pine stands. *Forest Ecology and Management*.

Teti, P. (2008). Effects of overstory mortality on snow accumulation and ablation. Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Victoria, British Columbia. Mountain Pine Beetle Working Paper 2008-13.

Collins, B. J., Rhoades, C. C., Battaglia, M. A., & Hubbard, R. M. (2012). The effects of bark beetle outbreaks on forest development, fuel loads and potential fire behavior in salvage logged and untreated lodgepole pine forests. *Forest Ecology and Management*.

Interagency Lynx Biology Team. 2013. Canada lynx conservation assessment and strategy. 3rd edition. USDA Forest Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication RI-13-19, Missoula, MT. 128 pp.

Monsanto, P.G.; Agee, J.K. 2008. Long-term post-wildfire dynamics of coarse woody debris after salvage logging and implications for soil heating in dry forests of the eastern Cascades, Washington. *Forest Ecology and Management*.

Moody, J.A.; Martin, D.A. 2001. Initial hydrologic and geomorphic response following a wildfire in the Colorado Front Range. *Earth Surface Processes and Landforms*.

Thomas, J.W., C. Maser, and J.E. Rodiek. 1979. Wildlife habitats in managed rangelands—the Great Basin of southeastern Oregon. *Riparian Zones*. USDA Forest Serv. Gen. Tech. Rep. PNW-80.

Smith, J.K., 2000. *Wildland Fire in Ecosystems: Effects of Fire on Fauna*. Gen. Tech. Rep. RMRS-GTR-42, vol. 1. USDA Forest Service, Rocky Mountain Research Station.

Woodbridge, B.; Hargis, C.D. 2006. Northern goshawk inventory and monitoring technical guide. Gen. Tech. Rep. WO-71. Washington, DC: U.S. Department of Agriculture, Forest Service. 80 p.

U.S. Fish and Wildlife Service (USFWS). 2008. *Birds of Conservation Concern 2008*. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. http://library.fws.gov/bird_publications/bcc2008.pdf. [Accessed on 4-22-2014].

U.S. Fish and Wildlife Service. 2010. [Online]. Website: <http://www.fws.gov/mountain-prairie/endspp/countylists/colorado.pdf>. [Accessed on 4-22-2014].

CHAPTER 4– COORDINATION AND CONSULTATION

TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED: Tribal consultation has been initiated for the Proposed Action on 3-11-2014, and to date no tribe has identified any area of traditional cultural or spiritual concern. See Attachment D.

INTERDISCIPLINARY REVIEW:

Name	Title	Area of Responsibility	Date Signed
Paula Belcher	Hydrologist	Air Quality; Surface and Ground Water Quality; Floodplains, Hydrology, and Water Rights; Soils; Wetland and Riparian Zones	04/02/2014

Name	Title	Area of Responsibility	Date Signed
Bill Wyatt	Archaeologist	Cultural Resources; Native American Religious Concerns; Paleontological Resources	3/7/2014
Neilie Goodwin	Rangeland Management Specialist	Vegetation; Rangeland Management	03/31/2014
Zach Hughes	Natural Resource Specialist	Invasive, Non Native species	03/31/2014
Darren Long	Wildlife Biologist	Migratory Birds; Special Status Animal Species; Terrestrial and Aquatic Wildlife; Areas of Critical Environmental Concern; Special Status Plant Species	4/28/2014
Kelly Hodgson-Elliott	Natural Resource Specialist	Hazardous or Solid Wastes; Geology and Minerals	04/08/2014
John Monkouski	Outdoor Recreation Planner	Wilderness; Access and Transportation; Recreation, Noise	05/04/2014
Hannah Schechter	Outdoor Recreation Planner	Visual Resources, Wild and Scenic Rivers, Scenic Byways	04/04/2014
Tom Adamson	Forester	Forest Management	04/11/2014
Annie Sperandio	Realty Specialist	Realty	04/02/2014
Kevin Thompson	Fire Management Specialist	Project Lead – Document Preparer	05/07/2014
Susan Cassel	Planning & Environmental Coordinator	NEPA Compliance	05/07/2014

ATTACHMENTS:

Appendix A: Map(s)

1. Grand County Hazard Tree Removal EA boundary
2. Grand County Hazard Tree Removal EA boundary with No Treatment Areas
3. Dice Hill
4. Kinney Creek
5. Big Horn
6. Shadow Mountain
7. Smith Mesa and Grouse Mountain
8. Strawberry
9. Wolford Substation

Appendix B: Definitions

Appendix C: Scoping List

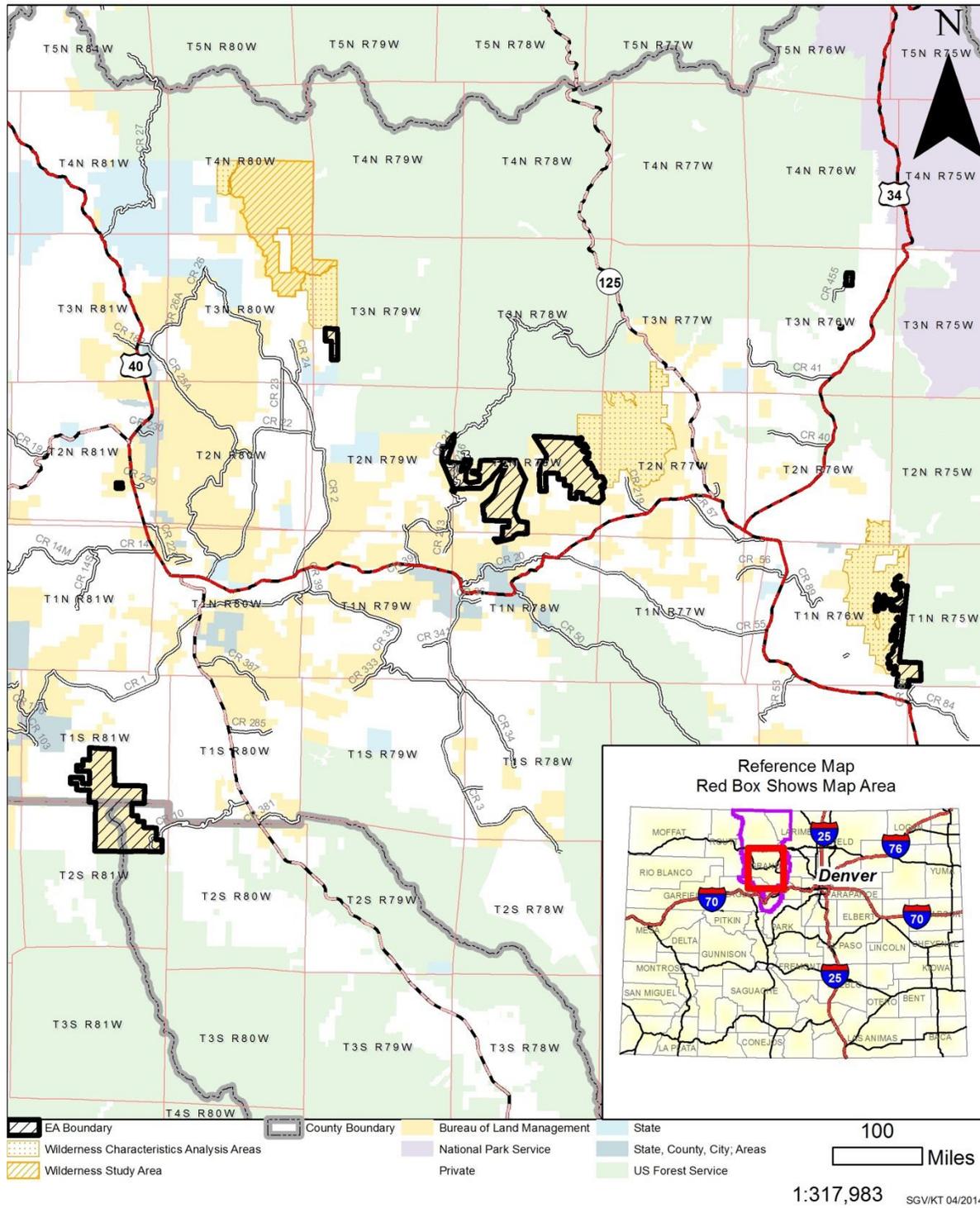
Appendix D: Tribal Consultation

Appendix E: Water Quality Report

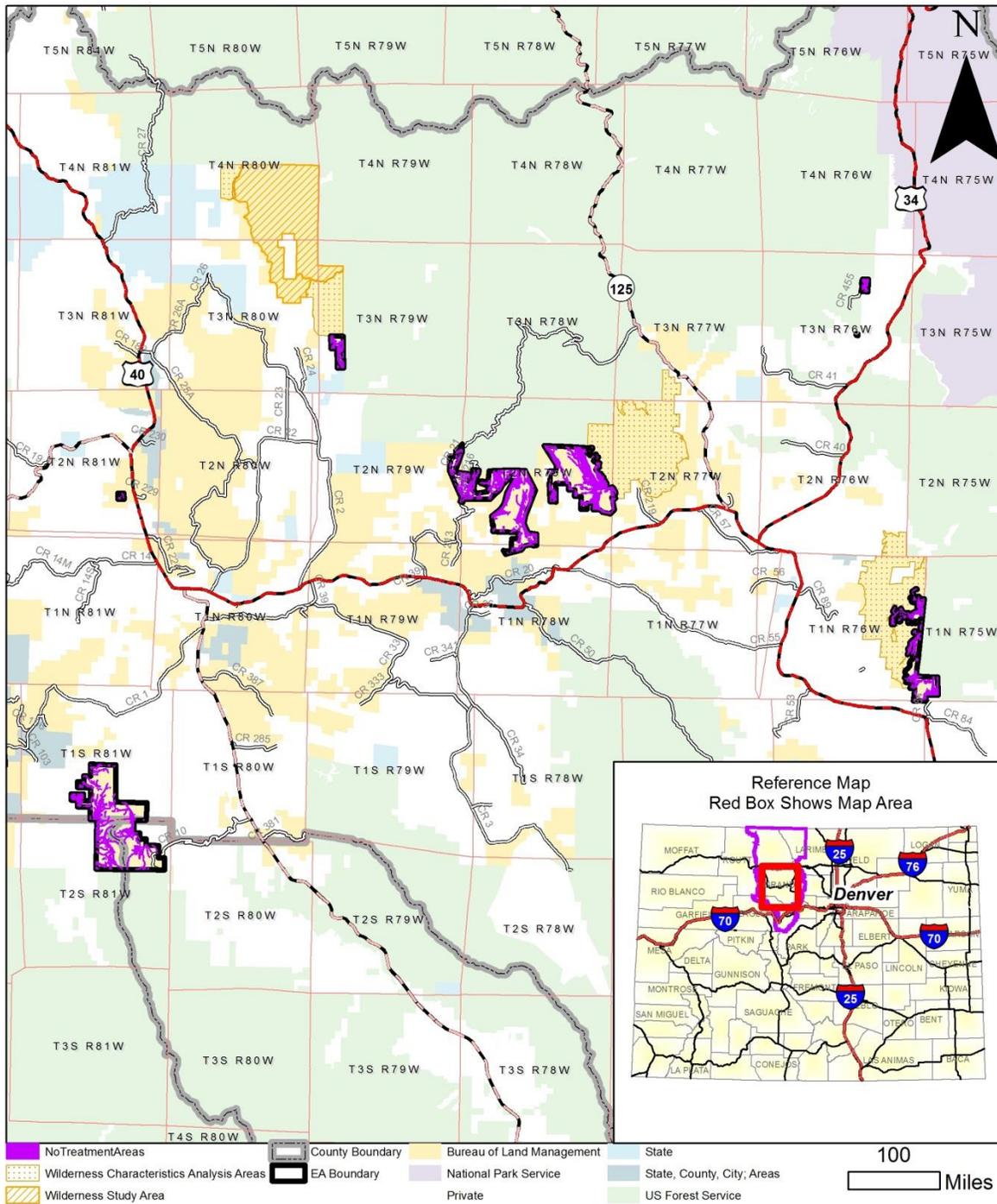
Appendix A: Maps

- 1. Grand County Hazard Tree Removal EA boundary**
- 2. Grand County Hazard Tree Removal EA boundary with No Treatment Areas**
- 3. Dice Hill**
- 4. Kinney Creek**
- 5. Big Horn**
- 6. Shadow Mountain**
- 7. Smith Mesa and Grouse Mountain**
- 8. Strawberry**
- 9. Wolford Substation**

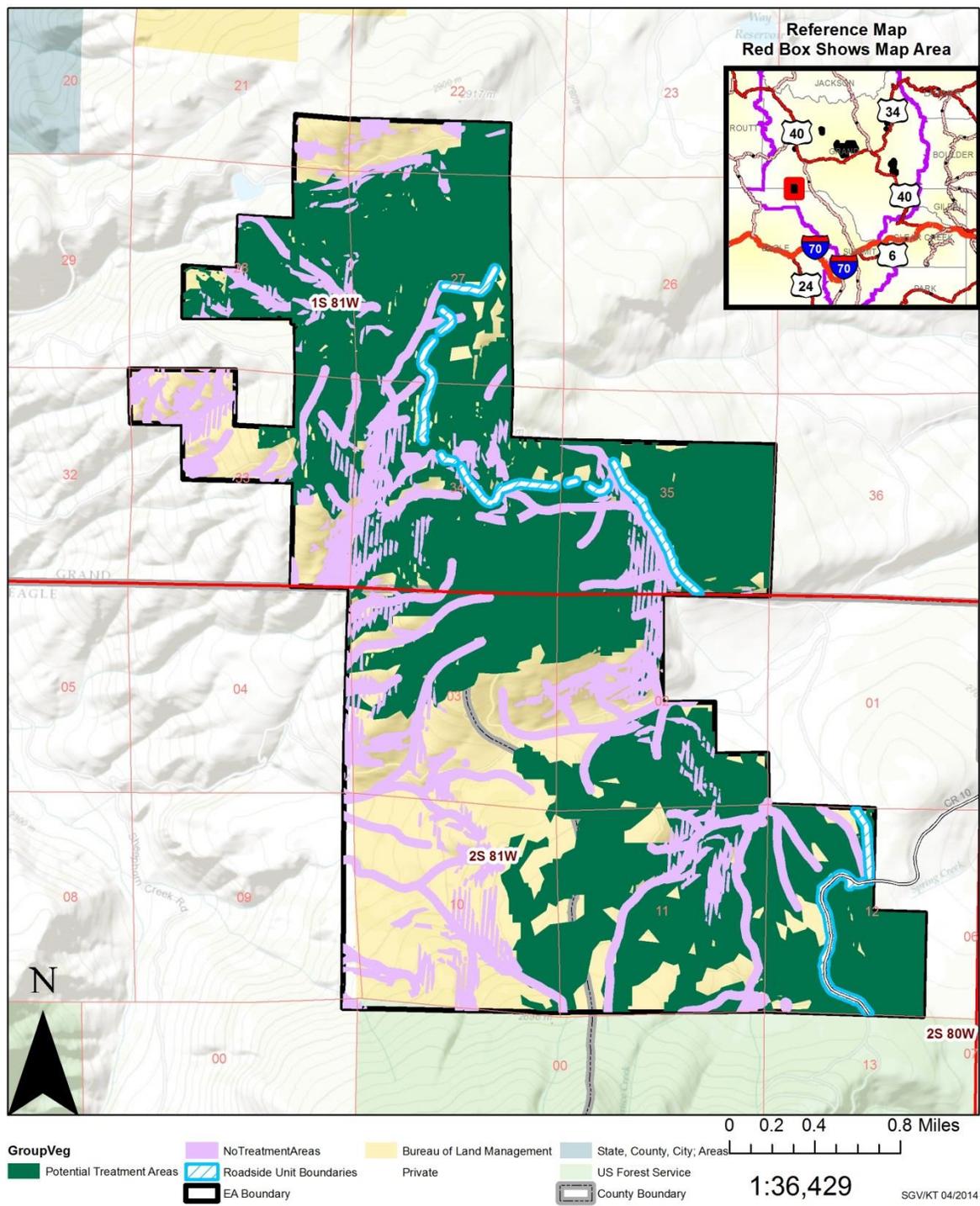
Grand County Hazardous Tree Removal EA Boundary Map



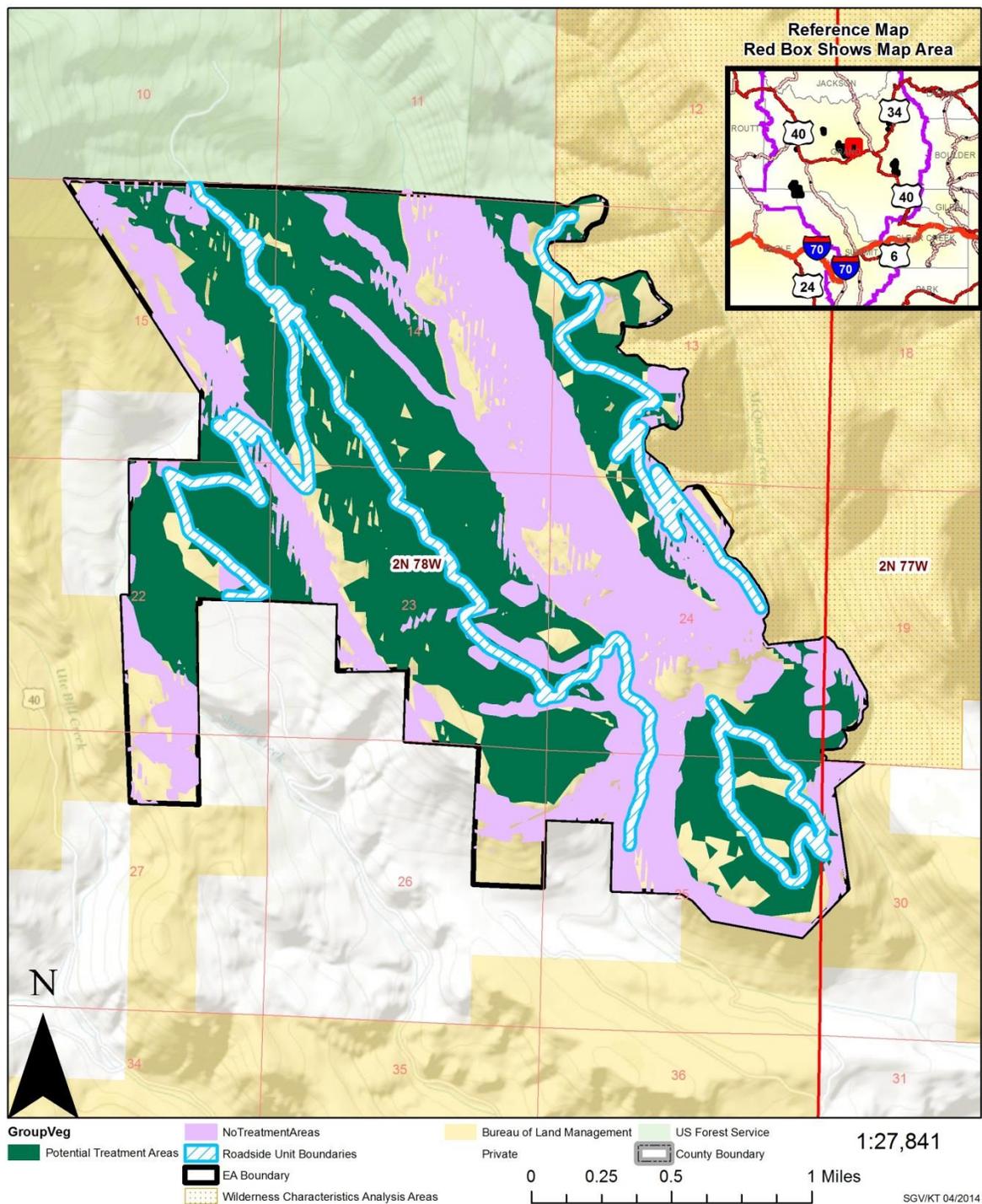
Grand County Hazardous Tree Removal EA Boundary Map with No Treatment Areas



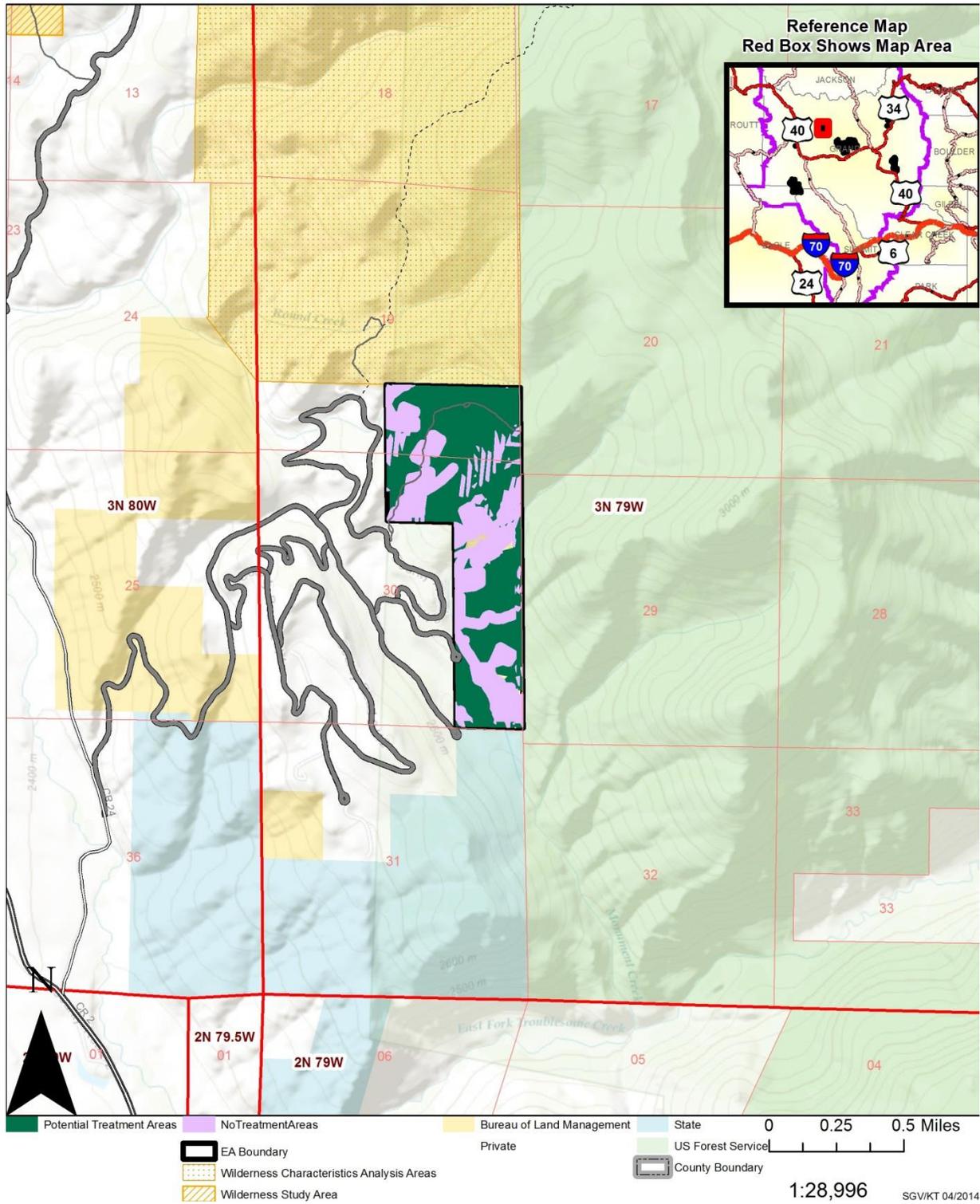
Grand County Hazardous Tree Removal Vegetation in the Dice Hill Area



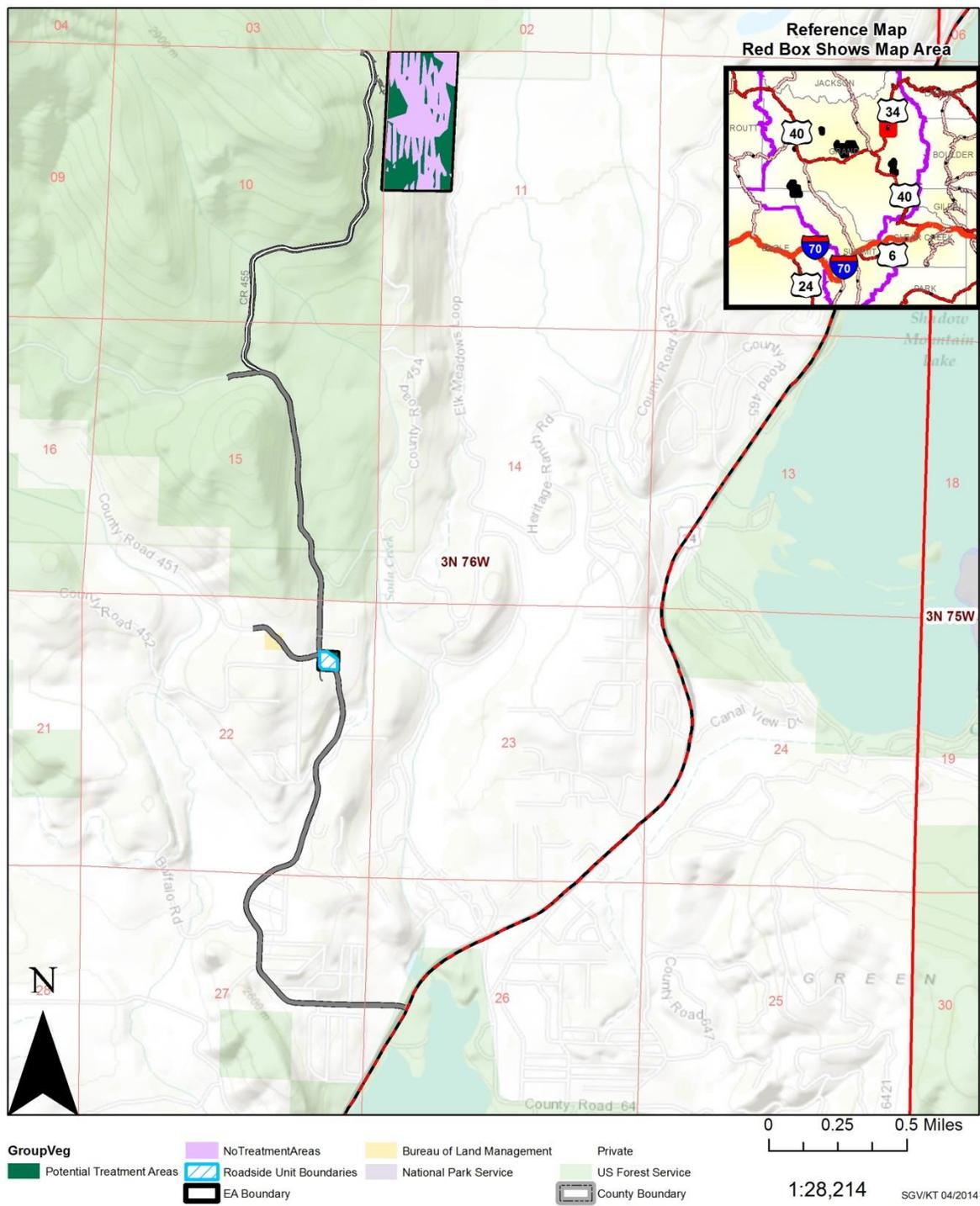
Grand County Hazardous Tree Removal Vegetation in the Kinney Creek Area



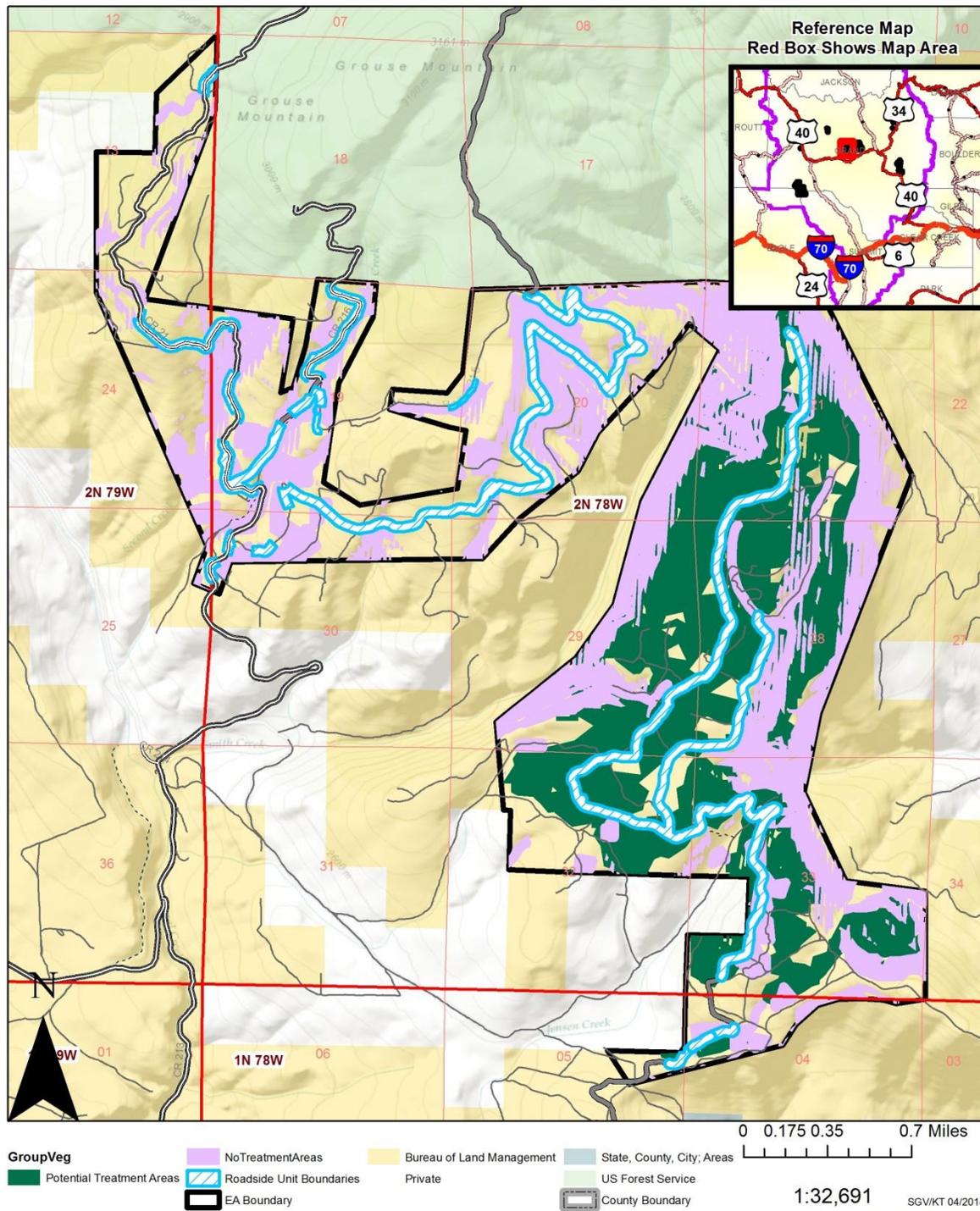
Grand County Hazardous Tree Removal Vegetation in the Big Horn Area



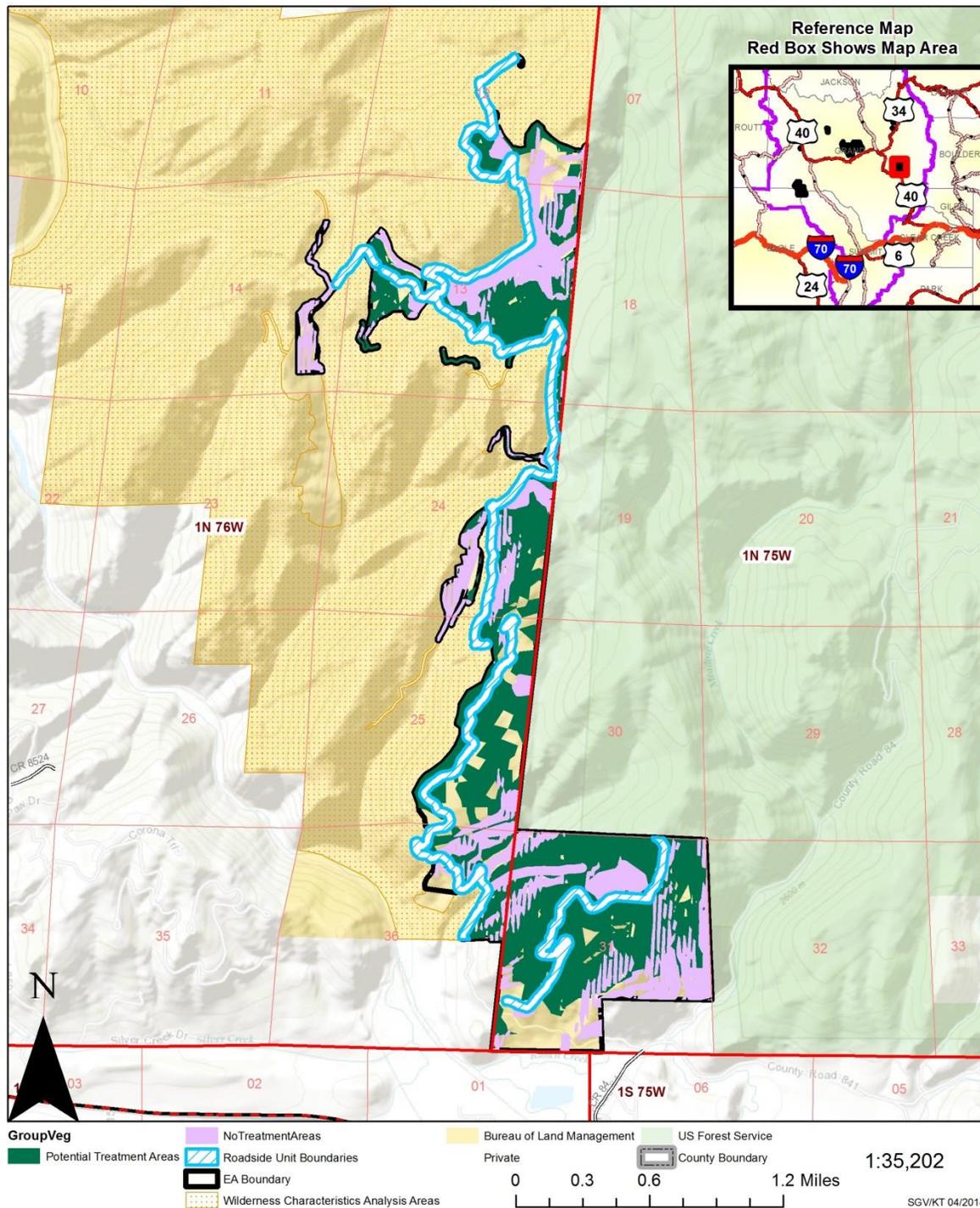
Grand County Hazardous Tree Removal Vegetation in the Shadow Mtn Reservoir Area



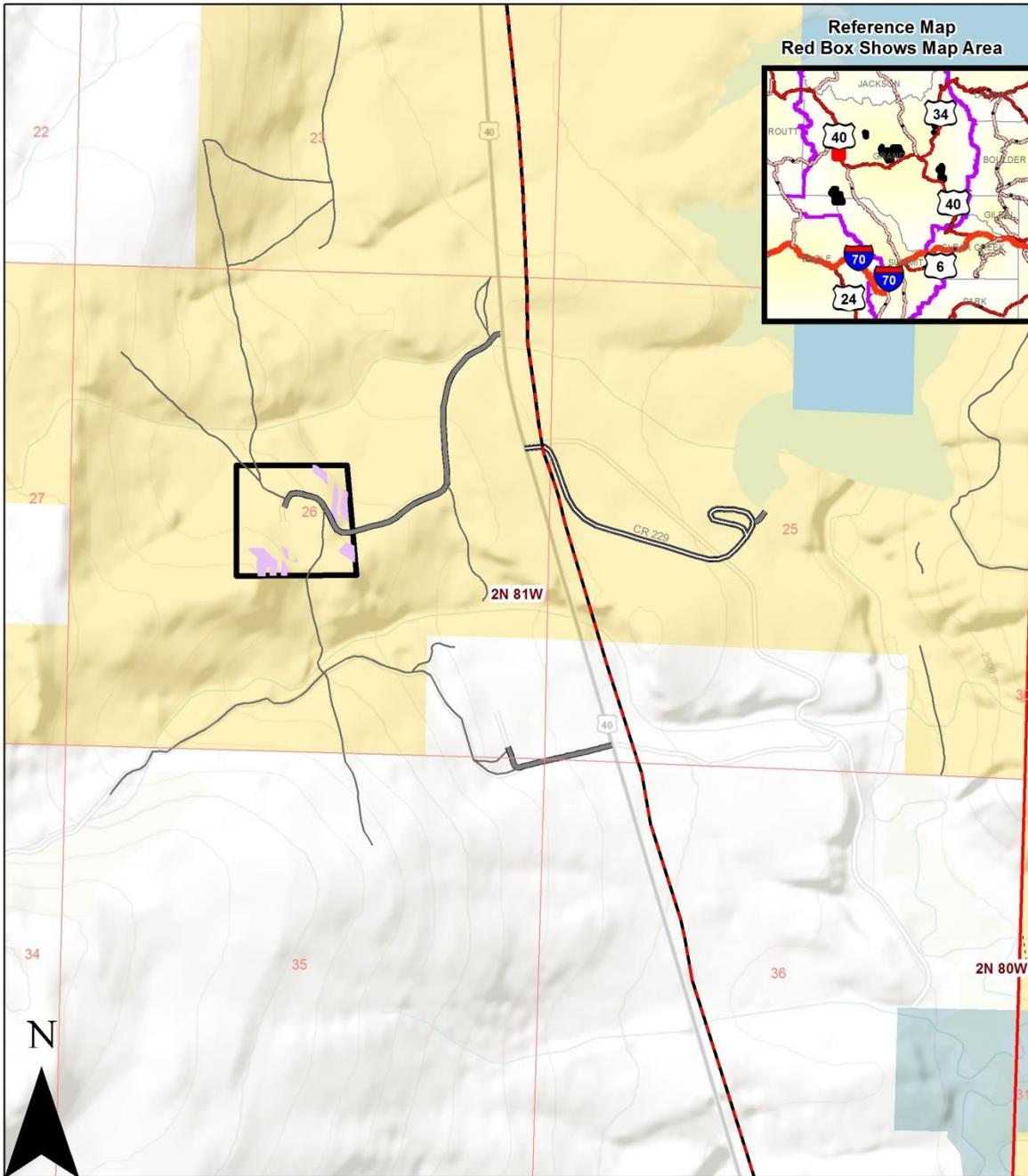
Grand County Hazardous Tree Removal Vegetation in the Smith Mesa Area



Grand County Hazardous Tree Removal Vegetation in the Strawberry Area



Grand County Hazardous Tree Removal Wolford Substation Area



EA Boundary
 Bureau of Land Management
 State, County, City, Areas
 Private
 County Boundary

1:17,144

SGW/KT 04/2014

Appendix B: Definitions

Bull Hog (Picture is typical but there can be variations (wheeled vs tracked, and size))



Hydro-axe (Picture is typical but there can be variations)



Timbco/Fella-buncher (Picture is typical but there can be variations)



Skid steer (Picture is typical but there can be variations(wheeled vs tracked, and size))



Chipper (Picture(s) are typical but there can be variations)



Fecon (Picture is typical but there can be variations)



Skidder (Picture is typical but there can be variations)



Appendix C: Scoping list,

Individual landowners and public close to the project were also scoped. These addresses are part of administrative record.

Government

Len H. Carpenter
Wildlife Management Institute
4015 Cheney Dr.
Ft. Collins, CO 80526

Colorado State Board of Land
Commissioners
1313 Sherman St., Rm 620
Denver, CO 80203-2240

Colorado Department of Health and
Environment
Water Quality Control Division, WQCD-
PE-B2
4300 Cherry Creek Dr. South
Denver, CO 80222-1530

Colorado Parks and Wildlife
346 Grand County Road 362
Hot Sulphur Springs, CO 80451

Colorado Outfitters Association
P.O. Box 1949
Rifle, CO 81650

Colorado State Forest Service
P.O. Box 69
Granby, CO 80446

CSU Extension Service
P.O. Box 9
Kremmling, CO 80459

Western Colorado Sub-Office, F & WS
764 Horizon Dr. Bldg.
Grand Junction, CO 81506

Grand County Commissioners
P.O. Box 264
Hot Sulphur Springs, CO 80451

Rocky Mountain Elk Foundation
Alan Christensen, Director of Lands
P.O. Box 8249
Missoula, MT 59807-8249

Middle Park Stockgrowers
C/O Bill Thompson, Jr.
P.O. Box 826
Kremmling, CO 80459

Natural Resource Conservation Service
C/O Mark Volt
Box 265
Kremmling, CO 80459

Northern Colorado Water Conservancy
District
P.O. Box 679
Loveland, CO 80539

USFS – Sulphur Ranger District
P.O. Box 10.
Granby, CO 80466

Vera Smith
Conservation Director
Colorado Mountain Club
710 10th St., #200
Golden, CO 80403

Pete Kolbensschlag, West Slope Field
Director
Colorado Environmental Coalition
1000 N. 9th St., #29
Grand Junction, CO 81501

Sierra Club
Rocky Mountain Chapter
1536 Wynkoop St., 4-C
Denver CO 80202

USFS - Medicine Bow & Routt N.F.
2468 Jackson St.
Laramie WY
82070-6535

Mountain Parks Electric
P O Box 170
Granby CO 80446

US Forest Service
Dillon Ranger District
P O Box 620
Silverthorne CO 80498

Appendix D: Tribal Consultation

Northern Ute Tribe (Uinta & Ouray Tribal Business Committee):

Irene Cuch, Chairman
Besy Chapoose, NAGPRA
Representative

Ute Mountain Ute Tribe:

Gary Hayes, Chairman
Terry Knight, Sr., NAGPRA
Representative/THPO
Lynn Hartman, Contract Administrator

Southern Ute Tribe:

Jimmy Newton, Jr., Chairman
Alden B. Naranjo, NAGPRA
Coordinator

Eastern Shoshone Tribe (Shoshone Business Council):

Mike LaJeunesse, Chairman
Wilford Ferris III, THPO

Northern Arapaho Tribe (Northern Arapaho Business Council):

Jim Shakespeare, Chairman
Darlene Conrad, NAGPRA
Representative

Colorado Commission of Indian Affairs:

Ernest House Jr., Executive
Secretary

Appendix E: Water Quality Report

Written by: Paula Belcher

Grand County Hazard Tree Programmatic EA

DOI-BLM-LLCON02000-2012-031_EA

NEPA Compliance Record Rationale

The proposed programmatic environmental assessment to treat 9,150 acres of public lands in Grand County requires an assessment of compliance with the Clean Water Act and the Colorado Land Health Standards #1, 2, and 5. The Project is comprised of several large treatment areas which are located in the Upper Colorado River Basin. A review of the potential impacts of the proposed action and no action alternative was done for each treatment area, using GeoWepp, the Upper Colorado Watershed Assessment, the NRCS Soil Surveys for Grand, Eagle, and Summit County and the associated National Forest Soil Surveys, and field data.

Summary: The Proposed Project includes mechanical and hand treatments to treat vegetation along BLM roads and on public lands. Almost all of the treatments occur in subwatersheds that have perennial trout waters, two of which support cutthroat trout. From GeoWEPP and WEPP models, none of the areas had erosion concerns arising from the vegetative treatment (going from a mature forest stand to a understory vegetative cover only), but roads- temporary spur roads, skid trails, and the predicted use on existing roads—could greatly increase the potential sediment yields available for deposition into drainages. Roads can act as additional stream networks or channels, concentrating and transporting runoff and sediments to the natural stream network. The actual location of the road, its design features, and its condition/use can alter the potential impacts to streams and water quality. The programmatic EA does not identify or estimate the miles of temporary roads needed or their locations, and skid trails are created during a harvesting operation.

Many of the perennial streams have fairly narrow riparian zones, confined by the adjacent steep slopes. This reduces the amount of deposition that may occur outside of the stream channel and increases the importance of having a good vegetative buffer that may need to be wider depending on the soils, slopes, and the road's (or trail's) drainage. In the last four years, the runoff from snowmelt has alternated between drought and flood. A few of the drainages have had road damage or channel alteration due to the large events.

Discussion:

Dice Hill Treatment Area:

The Dice Hill project area straddles two watersheds- the Sheephorn Creek watershed drains to the west into the Colorado River, and the Lower Blue River watershed drains to the east to the Blue River. The Sheephorn watershed's two subwatersheds are Hartman Gulch and Sheephorn Creek. It is not known if any of their drainage network includes perennial water within the project area. The area has not been inventoried for springs and seeps, and it is expected that some isolated wetlands occur within the area, especially within spruce/fir stands. The Eagle County Soil Survey maps four acres of wetland soils within the project area, where the water table is within two feet of the surface throughout the summer months, which also indicates that unmapped wetland areas could be within the project area.

The eastern portion of the project area includes Spruce Creek, a small perennial stream that supports a willow/carex riparian community. The project is also tributary to North Spruce Creek and Spring Creek, but is not believed to contain any perennial tributaries to them. Within the project boundaries, the Grand County Soil Survey has a little more than six acres of wetland soils mapped within the project. In the Summit County Soil Survey, the Spruce Creek lands have not been mapped to date. It is assumed that they have some similarities to the adjacent Eagle and Grand County soils.

The Dice Hill project area is within watersheds that are classified for coldwater, class 1 aquatic life, recreation, water supply, and agricultural uses. Spruce Creek is listed on the Monitoring and Evaluation portion of the Colorado 303(d) List for possible water quality impairment due to ferrous iron. The Monitoring and Evaluation list is for waters where there is reason to suspect impairment, but additional data is needed to determine if impairment exists, for what uses, and possible causes. Elevated iron levels are most likely due to the underlying geology. It is unknown, however, if the iron levels are natural or are due to accelerated erosion. The BLM does not routinely sample water quality in the area, as initial samples in the 1980s indicated good water quality.

Spruce Creek is the only riparian area that has been assessed for PFC. It was last done in 2001, although due to the cutthroat trout in the stream, general conditions have been field checked approximately every 3 years during fish population monitoring. The last field survey was done in 2011. The stream and its tributaries, which are generally ephemeral, are considered to be in proper functioning condition. The USFS assessed the entire 6th order watershed for watershed functionality in 2010, including riparian, aquatic, biologic and physical conditions. The riparian area, water quality, aquatic habitat, soil, and forest cover, forest health conditions were all rated “good”. Forest cover condition addresses the potential for altered hydrologic and sediment regimes because of the loss of forest cover on forest lands. Forest health addresses “forest mortality impactst to hydrologic and soil function due to major invasive and native forest pest, insect, and disease outbreaks and air pollution.” The attributes of ozone and insects/disease are rated to determine the forest health condition. For the watershed, ozone was rated as “functioning properly”, as ozone causes a decrease in biomass growth in fewer than 20% of the years evaluated. Insects and disease, however, were rated at “functioning at risk”, as between 20-40% of the forested land in the watershed is at imminent risk of abnormally high levels of tree mortality because of insect and disease. Road and trail condition was rated “fair”, taking into account the road density, maintenance, proximity to water, and mass wasting. Most of the road attributes rated “fair”, but the proximity to water was rated “poor- impaired function”. More than 25% of the road/trail length is located within 300 feet of streams and water bodies, or hydrologically connected to them.

The Spruce Creek watershed and subwatershed were modelled using GeoWEPP. Due to the need to include USFS lands in the watershed model, the 30 m DEM and statsgo soil survey were used in the model. Soil erosion and sediment transport for both pre and post treatment scenarios were low. Two road segments (each 500 ft. long) were modelled using FSWEPP. One road was in Section 36, where the existing road parallels an ephemeral drainage tributary to Spruce Creek, and is identified for road hazard treatment. The other was a road in Section 11, near the Eagle and Summit County boundaries, that also crosses a tributary drainage to Spruce Creek before travelling north. Both roads would be important access and haul roads for planned treatments. The roads were assumed to be 13 feet wide outsloped roads, with 4% grades, and 50% slopes on road cuts. A 100 foot buffer was placed on the treatments. The initial condition was assumed to be unrutted with low traffic. The road prism erosion for a 500 foot segment of the south road was 33 lbs. and 8.7 lbs. of sediment left the buffer. When the road traffic was increased (the model assumes high traffic volumes result in rutted road conditions), the amount of sediment leaving the buffer was increased by about 10 times. Another segment of the road was on gentler

terrain (slope decreased from 38% to 20%), and yet a 400 foot buffer did not totally contain the expected high volume sediment load generated by the road. The north road's soils are mapped as gravelly sandy loams, and the 8.4% grade resulted in a road prism erosion of 93 lb. under low traffic, and increased to 1623 lb under high traffic, with 358 lbs of sediment leaving the 100 ft. buffer. The predicted amounts from the model may or may not approximate the actual amounts, but the relative change between the pre and post conditions is useful to determine if additional erosion control measures may be necessary to protect water quality. These two roads indicate that due to the land surface topography, amount of runoff, and soils, a 100 ft. buffer may require additional BMPs to protect the cutthroat trout streams from sediment deposition due to roads, if traffic increases significantly or if road conditions are poor.

Soils:

The soil information came from the Eagle and Grand County Soil Surveys by the Natural Resource Conservation Service. Much of the Dice Hill area was not mapped in the Summit County Soil Survey. Most of the soil mapping units only have erosion and use limitations when slopes increase above 30%. Since the design features for the project avoid steep slopes, many of the soil concerns are avoided.

Mapped landslide areas are generally below the Dice Hill project area on the Eagle County side (west). Access roads are from the east and would not have to cross these areas. The table below summarizes the soil limitations for various management actions. Note: the soil mapping units often include moderate to steep soils in one mapping unit (example: Upson stony sandy loam, 15-65% slopes). The limitations would be slightly less on the lower end of the slope's range, but would still apply.

	Dice Hill		
	Spruce Creek- Summit Cty	Grand Cty	Eagle Cty
Major Soil Units:	UNMAPPED	Frisco-Peeler gravelly sandy loam, 25-65% slopes Scout cobbly sandy loam, 6-15% slopes Upson stony sandy loam, 15-65% slopes	Ansel-Anvik association, 25-45% slopes Ansel-Skylick-Sligting association, 10-25%, 25-50% slopes
Limitations for Haul Roads, Log Landings:		85% severe limitations 8% slight 5% moderate	78% severe limitations 17% moderate 1% slight
Off-road, off- trail erosion		71% severe hazard 17% moderate 11% slight	49% severe 1% slight 46% moderate
Road Erosion:		85% severe hazard 14% moderate 1% slight	95% severe 1% moderate
Harvest Equipment:		71% poorly suited 14% moderately suited 14% well suited	49% poorly suited 1% well suited 46% moderately suited
Potential damage by Fire:		Low	Low
Soil Rutting:		51% moderate limitations 28% slight limitations 20% severe limitations	76% slight limitations 11% moderate limitations 9% severe limitations

Suitability for Roads:		83% poorly suited 16% moderate limitations	95% poorly suited 1% moderately suited
Comments:		Upson & Scout- well suited at <15% slopes. Frisco at <25% slopes.	

Summary: The potential exists that 100 foot buffers may not protect water quality from road induced soil erosion. Field monitoring, watching for adequate road drainage and lack of sediment transport within the buffer is recommended. Macroinvertebrate sampling of Spruce Creek would help monitor if sediment deposition within the creek is occurring and additional actions are needed. A synoptic water sampling event could also help identify which segments have elevated iron levels, helping determine the source.

Smith Creek Treatment Area:

The proposed vegetation units, outside of the roadside clearings, are tributary to Corral Creek and Ute Bill Creek, both of which are tributary to the Colorado River. Actually included within the project area are tributaries to Corral Creek, including First, Second, and Smith Creeks, and Ute Bill Creek. Smith Creek and Ute Bill Creek support brook trout and nongame fisheries. The streams are confined, fairly steep gradient, with narrow riparian zones. In less steep portions, Smith Creek has beaver ponds. Upper First Creek and an area of seeps to the east (214 acres total) are mapped by the Colorado Natural Heritage Program (CNHP) as a potential conservation area (PCA) having high biodiversity. The thinleaf alder-Drummond’s willow montane riparian shrubland is in good condition and rated as globally vulnerable (G3/S3). The Ute Bill Reservoir disrupts the natural alder/forb communities of the intermittent drainages tributary to Ute Bill Creek.

The streams within the project area have been rated as being in proper functioning condition during various assessments by the BLM and the CNHP. The 2010 USFS Watershed Condition rated Ute Bill Creek as having good riparian, aquatic, water quality, and soils. The watershed was rated “functioning at risk” for road/trail condition, primarily due to poor road maintenance. Road density was fair (functioning at risk), while the proximity to water was good. Smith Creek was rated as a fair watershed, with good riparian, but fair aquatic habitat, road/trail and forest health. Water quality and forest cover were rated poor.

There are no identified water quality concerns for Corral Creek or Ute Bill Creek. The BLM routinely samples Corral Creek during the field season for major anions/cations and dissolved sediments.

Soils: Soil information is from the Grand County Soil Survey and the USFS Routt/Arapaho Roosevelt Forest Surveys. The USFS lands in the headwaters of Smith Creek, the north bank of lower Smith Creek, and portions of Corral Creek are mapped as landslide hazards.

	Corral Creek		
	West Corral Crk	First Creek	Smith Creek
Major Soil Units:	Frisco-Peeler gravelly sandy loam, 25-65% slopes	42% Frisco-Peeler 13% Quander stony loam 15-55% slopes 10% Cowdrey loam, 15-45% slopes	38% Frisco-Peeler 26% Lake Crk loam, 15-50% slopes 10% Quander stony loam, 15-50% slopes

Limitations for Haul Roads, Log Landings:	70% severe 6% moderate	59% severe limitations 21% moderate	83% severe limitations 7% slight 7% moderate
Off-road, off- trail erosion	66% severe 10% moderate	52% severe 23% moderate	42% moderate 40% severe 13% slight v. severe on USFS
Road Erosion:	74% severe 3% slight	75% severe 6% moderate	85% severe 10% moderate 2% slight
Harvest Equipment:	63% poorly suited	42% poorly suited 33% moderately	48% moderate 41% poorly suited 8% well suited
Potential damage by Fire:	Low	Low	Low
Soil Rutting:	65% moderately suited 8% severe 6% slight		50% moderate 37% severe 11% slight
Suitability for Roads:	76% poorly suited	76% poorly suited 5% moderate	84% poorly suited 10% moderately suited 2% well suited
Comments:			

Sheriff Creek Treatment Area:

The Sheriff Creek Treatment Area includes three perennial streams- Sheriff, Kinney, and McQueary- which are all tributary to the Colorado River. The three streams support brook trout fisheries with cutthroat trout in the upper portion of Kinney Creek. The streams have generally been rated as being in properly functioning condition, but have had concerns with livestock over utilizing the less confined portions of Sheriff Creek or the meadow areas adjacent to the riparian zones of Kinney and McQueary Creeks. Kinney Creek in particular has had stability issues, particularly in the last five years. The upper watershed on USFS lands has a large talus deposit that is very unstable. Large amounts of gravels are transported down the stream, scouring the streambanks and being deposited in the BLM’s middle meadow area. In 2011, several beaver dams failed in the meadow, and the high runoff created a new channel several feet west of the original channel. The riparian community in this deposition zone is just starting to colonize and the streambanks and gravel deposits are very vulnerable to high flows eroding them again. This segment of the stream is currently rated as “non-functioning” and the stream reach immediately downstream is rated “functioning at risk”. There are two riparian trend (MIM) transects established on these reaches. The riparian issues are also tied to poor livestock management. Since the late 1980s, BLM has been trying to improve livestock distribution in all three drainages (Kinney, Sheriff, and McQueary). Due to the forested lands, livestock tend to graze along the roads, riparian areas, and clearings- whether natural meadows or clear cuts. A grazed plan has been agreed to, but since 2011, has not been followed. The 2013 MIM transect showed 28% streambank alteration due to hooves, and an “early seral stage” rating for plant composition. The average stubble height (8/28/2013, cows still on Kinney Crk) was six inches. Utilization on the young willows and alders was also pretty heavy, with

much of the new year's growth removed. Beaver have not been observed in the mid or upper reaches since the 2011 high flows, but are very active in the lower BLM and private reaches. The BLM also monitors major cations/anions and sediments on the lower segment, below the private property. The USFS has two temperature sensors on BLM lands- one in the upper meadow reach, the other just upstream from the campgrounds. Overall, water quality in the stream is considered good. In the 1990s, the BLM monitored several stream segments to help determine if BLM lands were adding to the sediment loads. It was determined that more deposition on BLM was occurring than erosion.

The McQueary Creek main access road had a portion of the road fail in 2011 due to high soil moisture. Kinney Creek is undermining a portion of the main access road on private lands. It was identified in 2012 and is still in need of repair. During the 2011 peak flow, the 1st (lower) culvert crossing of Kinney Creek became plugged and the creek flowed over the road. The culvert has been assessed by the USFS as under sized and a barrier to fish passage.

The USFS Watershed Condition (2010) rating included Drowsy Water, Kinney, McQueary, and Sheriff Creeks in one watershed. The watershed's overall rating was PFC, with fair soil, forest cover, forest health, aquatics, and water quality. Riparian vegetation was good, and poor road/trail condition rating due to poor road density and maintenance. The proximity to water was good and the watershed was not rated for mass wasting.

Soils:

Forest Service lands upstream of the BLM lands have several landslide areas. The upper portion of the BLM's treatment area on Sheriff Creek is also within a landslide area, as is the small triangular area between the two main channels of Kinney Creek. There is also a small landslide area mapped on the USFS lands on the west side of McQueary Creek that extends down on BLM land.

The table below reflects the soils on BLM and private lands. Although the BLM lands may be impacted by the unstable areas on the Forest, it is less likely that land actions on BLM lands would affect the Forest. Roads and equipment operation are the largest concern for the proposed action, and BLM's would be located on the soils listed below:

	Headwaters- Kinney Creek		
	Sheriff Creek	West Kinney Creek	McQueary Creek
Major Soil Units:	Frisco-Peeler gravelly sandy loams, 6-25%, 25-65% slopes Clayburn loam, 25-50% slopes	Peeler sandy loam, 15-50% slopes	Peeler sandy loam, 15-50% slopes Frisco-Peeler gravelly sandy loams, 25-65% slopes
Limitations for Haul Roads, Log Landings:	67% severe limitations 30% moderate limitations	74% severe 25% slight 1% moderate	78% severe limitations 6% slight 4% moderate
Off-road, off- trail erosion	67% severe 18% moderate 12% slight 1% very severe	66% moderate 27% slight 8% v. severe	48% moderate Severe 29% Slight 6% 4% v. severe
Road Erosion:	77% severe 13% moderate 7% slight	73% severe 20% moderate 7% slight	78% severe 6% slight 4% moderate

Harvest Equipment:	58% poorly suited 20% well suited 19% moderately suited	79% moderately suited 14% well suited 8% poorly suited	44% moderately suited 34% poorly suited 10% well suited
Potential damage by Fire:	Low	Low	Low
Soil Rutting:	66% moderate hazard 31% severe 1% slight	77% moderate 14% severe 9% slight	75% moderate 8% severe 4% slight
Suitability for Roads:	86% poorly suited 7% well suited 5% moderately suited	75% poorly suited 18% moderately suited 7% well suited	81% poorly suited 6% well suited
Comments:			

Strawberry Creek Treatment Area:

The Strawberry Creek Treatment Area includes several intermittent tributaries to the Fraser River, and perennial stream Behler Creek. The treatments would also drain to Meadow Creek and Strawberry Creek, which are also tributary to the Fraser River. The Fraser River is on the 303(d) List for aquatic life impairment (provisional) and temperature. It is also listed on the Monitoring and Evaluation List for possible Copper and Lead impairment. The Fraser River is a highly diverted stream, with most water quality concerns arising from the limited flows for dilution. The sanitation districts in the area struggle to meet the state's water quality requirements due to this and with the increased private land logging due to beetle kill, have expressed concerns about increasing sediment loads. The depleted flows are not capable of moving sediment loads through the stream or diluting nutrient loads.

The BLM has assessed the treatment area, and has rated the riparian areas as being in proper functioning condition. The areas are not within grazing allotments and are primarily used by wildlife and for recreation. The CNHP recommended two areas within the treatment area as potential conservation areas (PCAs)- Behler Creek with 125 acres and Road End Seep (45 acres). The Behler Creek beaver pond complex has several species of willows, and is recommended as a PCA due to the good occurrence of globally vulnerable (G3/S3) mountain willow/bluejoint reedgrass plant community and high biodiversity. The Road End Seep has moderate biodiversity and is a thinleaf alder/mesic forb riparian shrubland. The USFS watershed condition (2010) rated the Meadow Creek/Ranch Creek watershed as being in FAR condition, with fair riparian, aquatic habitat, roads/trails, soil, and forest health conditions. The aquatic biota, water quantity, and forest cover conditions were in poor condition. The Strawberry/Behler Creek watershed was rated as PFC, with fair road/trail and forest health condition, poor aquatic biota and forest cover condition. The riparian, water quality, and soil condition are good.

Soils:

	Strawberry	
	South Unit	North of Behler Creek
Major Soil Units:	Upson stony sandy loam, 15-65% slopes	Upson stony sandy loam, 15-65% slopes Scout cobbly sandy loam, 15-65% slopes
Limitations	88% severe	86% severe

for Haul Roads, Log Landings:	5% slight	
Off-road, off- trail erosion	87% severe 5% slight 1% very severe	86% severe 13% slight
Road Erosion:	88% severe 3% slight 2% moderate	86% severe 13% slight
Harvest Equipment:	88% poorly suited 5% well suited 0.2 % moderate	86% poorly suited
Potential damage by Fire:	Low	Low
Soil Rutting:	87% slight 4% moderate 1% severe	66% slight 20% moderate 13% severe
Suitability for Roads:	88% poorly suited 3% well suited 2% moderately suited	86% poorly suited
Comments:		

Remaining Areas: Wolford Substation, Shadow Mtn., Monument Creek

The Wolford Substation is a scattered pinyon-juniper site. The vegetation removal would likely be done by hand and would not require temporary road construction or skid trails. There are no anticipated soil-water concerns. Cross country travel would not be recommended to help protect any existing vegetative cover and to prevent the creation of runoff pathways. The soils are fairly high in clay, erosive, and do not support a dense understory vegetation. Minimizing surface disturbances would help reduce soil loss.

Shadow Mountain is also a small, isolated site. If any erosion was increased due to the treatment, it would be intercepted by a private irrigation ditch that crosses the parcel. There is no direct runoff pathway from the parcel that would reach other surface waters.

Monument Creek is a small perennial stream that is adjacent to the Bighorn subdivision. Reviewing the Grand County Soil Survey, at least one of the subdivision's roads is mapped as straddling or being immediately adjacent to wetland soils. The BLM's stream segment is short, but is considered to be in proper functioning condition. The average riparian width is six to ten feet, with the stream just less than two feet wide. The aspen/willow community supports abundant forbs and has old remnant beaver dams. Monument Creek is tributary to the East Fork of Troublesome Creek.

	Wolford Substation	Shadow Mtn	Monument Creek
Major Soil	Cryorthents-Rock outcrop	Frisco-Peeler gravelly sandy	Lake creek loam, 15-50%

Units:	complex, extremely steep Binco clay loam, 6-15% slopes	loams, 25-65% slopes	slopes Quander stony loam, 15-55% slopes
Limitations for Haul Roads, Log Landings:	None needed.... Roughly 30 juniper trees and sagebrush	Severe	96% severe
Off-road, off- trail erosion	63% v. severe 37% slight	Severe	96% moderate 3% slight
Road Erosion:	Severe	Severe	96% severe 3% slight
Harvest Equipment Operability:	By hand	Poorly suited	96% moderately suited
Potential damage by Fire:	Low	Low	Low
Soil Rutting:	83% Moderate 37% severe	Moderate hazard	86% severe hazard 13% slight
Suitability for Roads:	63% Poorly suited 37% Moderately suited	Poorly suited	96% poorly suited
Comments:			

P. Belcher, 4/2/2014

**U.S. Department of the Interior
Bureau of Land Management
Kremmling Field Office,
P O Box 68
Kremmling, CO 80459**

**Finding of No Significant Impact (FONSI)
DOI-BLM-CON02000-2012-0031-EA**

BACKGROUND

The proposed action calls for three primary activities. The first is to clear identified hazard trees along select travel routes to limit downfall and provide for public safety. The second involves the salvage harvest of dead and dying standing lodgepole pine trees and desirable live trees including lodgepole pine, subalpine fir, Engelmann Spruce, or aspen that would be prone to windthrow upon harvest of the lodgepole component. The third is to burn residual slash piles associated with implementation of the first two activities during snow periods.

FINDING OF NO SIGNIFICANT IMPACT

Based upon a review of the EA and the supporting documents, I have determined that the Proposed Action is not a major federal action and will not have a significant effect on the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity, as defined at 40 CFR 1508.27 and do not exceed those effects as described in the Kremmling Field Office Record of Decision and Approved Resource Management Plan (1984). Therefore, an environmental impact statement is not required. This finding is based on the context and intensity of the project as described below.

Context

The project is a site-specific action directly involving BLM administered public lands that do not in and of itself have international, national, regional, or state-wide importance. The proposed action would have positive long term impacts with a few adverse short term impacts. The short term adverse impacts are mitigated and are outweighed by the long-term positive impacts.

Intensity

The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27. The following have been considered in evaluating intensity for this Proposed Action:

1. Impacts that may be both beneficial and adverse.

Beneficial impacts for the proposed project area include: reducing the acres of FRCC3 and FRCC2, reducing the risk of a catastrophic wildfire, removing dead MPB lodgepole while there is still value, improving forest health and vigor, and benefit range management and livestock grazing use by protecting and/or enhancing forage production on public land.

Short term adverse impacts of the proposed project include: some increased emissions, wildlife species using the project area would likely be temporarily displaced during project activities, the

short term closure of public roads during logging operations, temporary roads or skid routes that are not effectively reclaimed may become unauthorized established travel routes that become difficult to prevent travel on, and an increase in sedimentation could negatively impact habitat quality for aquatic wildlife by reducing water quality. Mechanical treatments can cause short-term adverse impacts such as soil compaction and removal of protective litter and vegetation. Both prescribed fire and mechanical treatments can cause disturbance therefore there is a potential for an increase in noxious invasive species initially. The project poses a strong, but declining risk of disrupting active nests and would have potential to adversely impact migratory bird habitat. The analysis of the proposed project showed that the proposed project would have no long term adverse impacts

2. The degree to which the Proposed Action affects public health or safety.

No adverse effects to public health and safety are anticipated to result from implementation of the proposed action. A burn plan would be written, with objectives to provide for firefighter and public safety. Burning permits would be obtained from the State and coordination with Grand County would occur to control air quality.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

There are no unique characteristics in the geographic area.

4. Degree to which the possible effects on the quality of the human environment are likely to be highly controversial.

The effects of the proposed action on the quality of the human environment are not considered highly controversial.

5. Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk.

The use of mechanical and prescribe burning techniques to treat vegetation have been previously implemented in many locations BLM-wide. Thus, the effects on the human environment from the proposed action are not uncertain and do not involve unique or unknown risks.

6. Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The Proposed Action neither establishes a precedent for future BLM actions with significant effects nor represents a decision in principle about a future consideration.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

The proposed action is not related to other past, present or reasonable foreseeable actions likely to result in any significant impacts. The cumulative impacts of mechanical and prescribed burning treatments and any other reasonable foreseeable activities in the same area are not likely to result in cumulatively significant impacts.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

The ground disturbing activities associated with the proposed action would not directly adversely affect any sites eligible for the National Register of Historic Places.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA) of 1973.

No federally endangered species would be adversely affected by the proposed project, but the Osterhout Milkvetch which is an endangered plant is found within the .25 miles of the project boundary and design features have been implemented to protect and reduce the impacts to the plant. The project does occur within lynx habitat, which is a threatened species, and if implemented would affect lynx habitat as described. This project would not decrease the acreage of lynx habitat but would target habitat currently considered unsuitable for this species and initiate stand recovery to suitable habitat conditions in the short term. This project has been designed in association with the Canada Lynx Conservation Assessment and Strategy (LCAS 2013) and is consistent with the CLCAS guidance and conservation measures. However, impacts to lynx habitat would occur as a result of implementation. The project also has Greenback cutthroat Trout which are a threatened species and design features have been implemented to protect and reduce the impacts to the fish. Two BLM sensitive species are found within the project area; Northern Goshawk and the Colorado River Cutthroat Trout and design features have been implemented to protect and reduce the impacts to these two species.

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

Neither the Proposed Action nor impacts associated with it violate any laws or requirements imposed for the protection of the environment.

SIGNATURE OF AUTHORIZED OFFICIAL: _____

Field Manager

DATE SIGNED: